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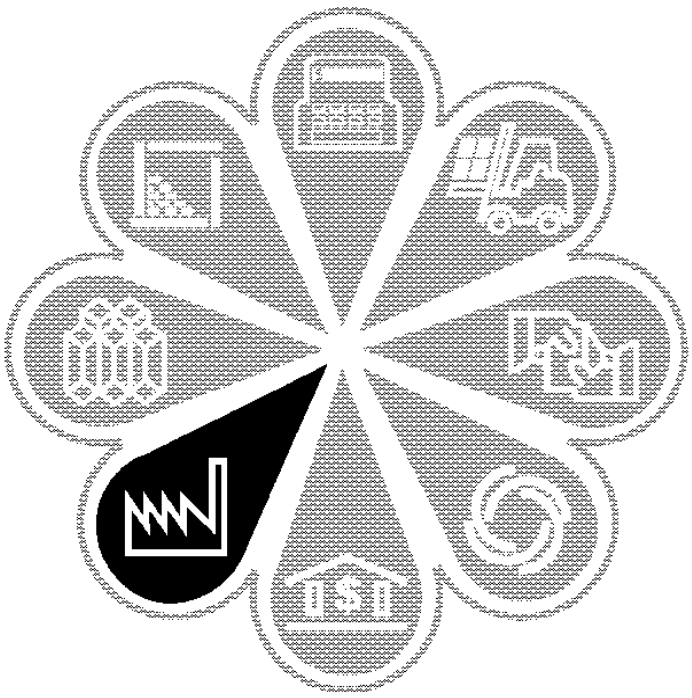
1992
Census of Manufactures

MC92-I-20A

INDUSTRY SERIES

Meat Products

Industries 2011, 2013, and 2015



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20A

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Meat Products

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Issued December 1994

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief, with primary staff assistance by **David Gromos.**

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2011	Meat Packing Plants
2013	Sausages and Other Prepared Meats
2015	Poultry Slaughtering and Processing

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2011, MEAT PACKING PLANTS

This industry is made up of establishments primarily engaged in the slaughtering, for their own account or on a contract basis for the trade, of cattle, hogs, sheep, lambs, and calves for meat to be sold or to be used on the same premises in canning, cooking, curing, and freezing, and in making sausage, lard, and other products. Also included in this industry are establishments primarily engaged in slaughtering horses for human consumption. Establishments primarily engaged in slaughtering, dressing, and packing poultry, rabbits, and other small game are classified in industry 2015; and those primarily engaged in slaughtering and processing animals not for human consumption are classified in industry 2048. Establishments primarily engaged in manufacturing sausages and meat specialties from purchased meats are classified in industry 2013; and establishments primarily engaged in canning meat for baby food are classified in industry 2032.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2011, Meat Packing Plants, had employment of 122.4 thousand. The employment figure was 7 percent above the 113.9 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Iowa, Nebraska, Kansas, and Texas, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $50.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2011 shipped $46.8 billion of meat products considered primary to the industry, $1.3 billion of secondary products, and had $2.4 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped

by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 100 percent.

The products primary to industry 2011, no matter in what industry they were produced, appear in table 6a and aggregate to $46.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the meat packing industry amounted to $43.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS

This industry is made up of establishments primarily engaged in manufacturing sausages, cured meats, smoked meats, canned meats, frozen meats, and other prepared meats and meat specialties, from purchased carcasses and other materials. Prepared meat plants operated by packing houses as separate establishments are also included in this industry. Establishments primarily engaged in canning or otherwise processing poultry, rabbits, and other small game are classified in industry 2015. Establishments primarily engaged in canning meat for baby food are classified in industry 2032. Establishments primarily engaged in cutting up and resale of purchased fresh carcasses, for the trade, (including boxed beef) are classified in wholesale trade, industry 5147.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2013, Sausages and Other Prepared Meats, had employment of 85.5 thousand. The employment figure was 9 percent above the 78.7 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Texas, Illinois, and California, accounting for approximately 29 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 30 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $20.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2013 shipped $17.3 billion of sausages and prepared meats considered primary to the industry, $880.8 million of secondary products, and had $1.8 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 2013, no matter in what industry they were produced, appear in table 6a and aggregate to $17.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sausage and prepared meats industry amounted to $14.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING

This industry is made up of establishments primarily engaged in slaughtering, dressing, packing, freezing, and canning poultry, rabbits, and other small game, or in manufacturing products from such meats, for their own account or on a contract basis for the trade. This industry also includes the drying, freezing, and breaking of eggs. Establishments primarily engaged in cleaning, oil treating, packing, and grading of eggs are classified in wholesale trade, industry 5144; and those engaged in the cutting up and resale of purchased fresh carcasses are classified in wholesale and retail trade.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2015, Poultry Slaughtering and Processing, had employment of 193.8 thousand. The employment figure was 31 percent above the 147.9 thousand reported in 1987.

The leading States in employment in 1992 were Arkansas, Georgia, Alabama, and North Carolina, accounting for approximately 46 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $23.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2015 shipped $22.7 billion of poultry products considered primary to the industry, $327.4 million of secondary products, and had $721.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2015, no matter in what industry they were produced, appear in table 6a and aggregate to $23.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the poultry slaughtering and processing industry amounted to $17.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2011, MEAT PACKING PLANTS															
1992 Census	1 297	1 387	431	122.4	2 452.8	105.5	228.5	1 956.6	6 928.0	43 586.4	50 434.4	343.2	1 054.3	97	99
1991 ASM	(NA)	(NA)	(NA)	120.8	2 374.6	103.3	220.4	1 833.6	5 957.6	43 311.9	49 326.2	423.0	949.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	118.4	2 256.4	100.1	210.9	1 742.9	6 666.5	44 462.7	51 069.2	393.7	995.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	117.5	2 225.7	98.4	209.0	1 706.2	5 457.0	41 122.4	46 542.0	365.8	929.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	117.8	2 226.5	97.8	205.4	1 703.8	5 700.1	41 700.6	47 333.1	272.0	931.1	(NA)	(NA)
1987 Census	1 328	1 434	503	113.9	2 162.4	93.9	197.6	1 634.7	5 266.9	40 302.9	45 536.6	246.1	832.2	98	100
1986 ASM	(NA)	(NA)	(NA)	119.0	2 211.0	96.0	200.4	1 661.5	5 692.8	36 680.2	42 384.5	258.9	830.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	122.2	2 252.9	98.7	201.4	1 708.1	5 859.4	36 637.2	42 553.5	249.9	856.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	124.9	2 327.8	102.0	211.2	1 765.5	5 527.9	38 738.3	44 277.7	273.4	932.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	126.4	2 401.2	102.4	213.8	1 838.0	5 327.1	37 507.7	42 774.6	278.0	940.8	(NA)	(NA)
1982 Census	1 658	1 780	668	134.4	2 549.3	108.5	220.2	1 995.9	5 824.6	39 048.6	44 853.6	290.0	891.6	98	99
1981 ASM	(NA)	(NA)	(NA)	135.3	2 585.7	108.4	225.1	2 014.5	5 292.3	39 235.8	44 570.0	330.3	908.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	142.9	2 553.0	114.9	238.8	1 984.4	5 260.4	37 762.5	42 962.0	299.7	996.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	146.5	2 419.6	117.5	241.3	1 887.4	5 156.1	38 073.1	43 191.3	234.8	964.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	147.3	2 244.1	119.5	243.3	1 747.6	4 411.1	33 963.5	38 198.7	230.9	892.5	(NA)	(NA)
1977 Census	2 403	2 590	737	146.2	2 110.6	116.5	237.2	1 625.9	4 010.1	27 239.1	31 208.2	236.7	700.1	98	99
INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS															
1992 Census	1 129	1 264	623	85.5	2 026.3	65.7	139.9	1 353.3	5 491.3	14 455.0	19 972.4	379.7	1 058.1	95	98
1991 ASM	(NA)	(NA)	(NA)	79.6	1 833.4	59.0	126.0	1 172.6	5 045.6	13 270.5	18 361.3	326.3	933.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	81.7	1 839.7	61.2	129.4	1 177.0	5 315.7	13 485.1	18 779.7	363.9	996.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	81.3	1 747.5	61.5	126.2	1 123.9	5 040.2	12 553.0	17 515.5	304.5	1 007.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	81.5	1 692.2	61.9	126.9	1 128.5	4 824.1	12 464.8	17 257.7	261.2	953.7	(NA)	(NA)
1987 Census	1 207	1 343	650	78.7	1 612.2	59.5	121.1	1 074.9	4 457.0	12 085.9	16 553.3	252.5	841.4	96	98
1986 ASM	(NA)	(NA)	(NA)	68.5	1 327.1	52.5	104.5	908.0	3 844.5	9 524.1	13 354.2	232.4	723.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	64.6	1 237.2	49.4	98.3	851.4	3 705.1	8 737.3	12 405.7	210.6	685.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	62.9	1 185.1	48.3	95.5	816.6	3 379.4	9 003.2	12 360.8	173.2	665.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	65.7	1 231.9	50.1	100.3	852.6	3 072.6	9 323.5	12 365.7	157.5	642.3	(NA)	(NA)
1982 Census	1 193	1 311	613	65.5	1 206.2	49.8	98.1	851.7	2 900.9	9 379.1	12 277.5	175.5	632.9	97	99
1981 ASM	(NA)	(NA)	(NA)	62.4	1 113.5	47.6	93.8	786.0	2 692.1	8 176.3	10 886.5	163.4	548.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	64.2	1 064.1	48.8	95.0	753.2	2 643.1	7 895.3	10 505.5	159.0	569.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	62.0	957.0	46.6	92.9	672.1	2 364.8	7 454.9	9 830.1	136.5	502.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	62.3	918.4	48.6	97.7	652.7	2 201.6	7 447.6	9 577.7	150.0	508.2	(NA)	(NA)
1977 Census	1 213	1 345	570	65.0	891.9	50.1	100.4	626.6	2 039.0	6 445.2	8 465.4	151.6	406.4	97	99
INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING															
1992 Census	372	591	432	193.8	3 091.5	172.8	341.5	2 518.4	6 656.5	17 066.7	23 757.1	466.4	832.3	99	97
1991 ASM	(NA)	(NA)	(NA)	189.6	2 817.1	168.0	323.9	2 255.7	6 472.5	15 237.4	21 703.4	586.6	805.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	176.8	2 596.8	157.6	313.9	2 082.0	6 452.3	14 507.7	20 927.6	497.6	761.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	163.8	2 313.5	147.1	286.5	1 870.6	5 886.2	14 409.1	20 282.9	499.8	686.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	155.7	2 131.3	139.0	271.3	1 730.1	4 636.6	12 013.2	16 597.7	347.8	631.3	(NA)	(NA)
1987 Census	284	463	381	147.9	1 926.1	131.7	252.8	1 565.1	4 118.4	10 835.4	14 912.4	387.4	536.5	98	98
1986 ASM	(NA)	(NA)	(NA)	129.7	1 595.3	115.4	216.4	1 299.5	3 994.4	9 555.6	13 528.9	364.2	473.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	116.5	1 391.9	105.0	199.7	1 145.1	3 394.8	8 803.4	12 179.0	256.0	423.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	112.2	1 298.5	100.5	190.6	1 067.5	2 918.6	9 024.5	11 939.4	168.2	425.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	116.2	1 274.4	104.4	197.5	1 042.9	2 679.3	8 571.1	11 251.6	172.7	453.9	(NA)	(NA)
1982 Census	(NA)	532	401	117.7	1 237.1	106.2	199.6	1 009.9	2 276.8	8 170.5	10 471.1	231.1	440.1	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	119.6	1 162.2	108.8	199.7	974.7	2 174.6	8 331.4	10 452.5	204.2	486.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	117.7	1 060.6	105.5	196.4	878.8	2 114.3	7 414.9	9 487.0	191.2	414.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	108.7	912.4	97.6	183.6	747.7	1 921.0	6 732.4	8 617.3	178.1	380.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	102.3	796.6	92.7	173.0	656.6	1 904.7	5 917.9	7 779.5	170.8	345.0	(NA)	(NA)
1977 Census	(NA)	599	408	97.9	699.1	87.5	162.2	564.4	1 428.9	5 189.7	6 602.7	144.4	273.1	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2011, MEAT PACKING PLANTS								
1992 Census	20 039	86	2 166	8.56	86	91	56 601	35	30.32
1991 ASM	19 657	86	2 134	8.32	88	93	49 318	40	27.03
1990 ASM	19 057	85	2 107	8.26	87	91	56 305	34	31.61
1989 ASM	18 942	84	2 124	8.16	88	93	46 443	41	26.11
1988 ASM	18 901	83	2 100	8.30	88	93	48 388	39	27.75
1987 Census	18 985	82	2 104	8.27	89	93	46 241	41	26.65
1986 ASM	18 580	81	2 087	8.29	87	92	47 839	39	28.41
1985 ASM	18 436	81	2 041	8.48	86	91	47 949	38	29.09
1984 ASM	18 637	82	2 071	8.36	87	93	44 259	42	26.17
1983 ASM	18 997	81	2 088	8.60	88	93	42 145	45	24.92
1982 Census	18 968	81	2 029	9.06	87	93	43 338	44	26.45
1981 ASM	19 111	80	2 077	8.95	88	94	39 115	49	23.51
1980 ASM	17 866	80	2 078	8.31	88	94	36 812	49	22.03
1979 ASM	16 516	80	2 054	7.82	88	94	35 195	47	21.37
1978 ASM	15 235	81	2 036	7.18	89	95	29 946	51	18.13
1977 Census	14 436	80	2 036	6.85	87	94	27 429	53	16.91
	INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS								
1992 Census	23 699	77	2 129	9.67	72	83	64 226	37	39.25
1991 ASM	23 033	74	2 136	9.31	72	82	63 387	36	40.04
1990 ASM	22 518	75	2 114	9.10	72	82	65 064	35	41.08
1989 ASM	21 494	76	2 052	8.91	72	82	61 995	35	39.94
1988 ASM	20 763	76	2 050	8.89	72	82	59 191	35	38.01
1987 Census	20 485	76	2 035	8.88	73	83	56 633	36	36.80
1986 ASM	19 374	77	1 990	8.69	71	81	56 124	35	36.79
1985 ASM	19 152	76	1 990	8.66	70	80	57 354	33	37.69
1984 ASM	18 841	77	1 977	8.55	73	82	53 727	35	35.39
1983 ASM	18 750	76	2 002	8.50	75	85	46 767	40	30.63
1982 Census	18 415	76	1 970	8.68	76	86	44 289	42	29.57
1981 ASM	17 845	76	1 971	8.38	75	85	43 143	41	28.70
1980 ASM	16 575	76	1 947	7.93	75	85	41 170	40	27.82
1979 ASM	15 435	75	1 994	7.23	76	86	38 142	40	25.46
1978 ASM	14 742	78	2 010	6.68	78	87	35 339	42	22.53
1977 Census	13 722	77	2 004	6.24	76	87	31 369	44	20.31
	INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING								
1992 Census	15 952	89	1 976	7.37	72	85	34 347	46	19.49
1991 ASM	14 858	89	1 928	6.96	70	83	34 138	44	19.98
1990 ASM	14 688	89	1 992	6.63	69	82	36 495	40	20.56
1989 ASM	14 124	90	1 948	6.53	71	82	35 935	39	20.55
1988 ASM	13 689	89	1 952	6.38	72	85	29 779	46	17.09
1987 Census	13 023	89	1 920	6.19	73	86	27 846	47	16.29
1986 ASM	12 300	89	1 875	6.01	71	82	30 797	40	18.46
1985 ASM	11 948	90	1 902	5.73	72	84	29 140	41	17.00
1984 ASM	11 573	90	1 897	5.60	76	86	26 012	44	15.31
1983 ASM	10 967	90	1 892	5.28	76	88	23 058	48	13.57
1982 Census	10 511	90	1 879	5.06	78	90	19 344	54	11.41
1981 ASM	9 717	91	1 835	4.88	80	91	18 182	53	10.89
1980 ASM	9 011	90	1 862	4.47	78	89	17 963	50	10.77
1979 ASM	8 394	90	1 881	4.07	78	89	17 672	47	10.46
1978 ASM	7 787	91	1 866	3.80	76	86	18 619	42	11.01
1977 Census	7 141	89	1 854	3.48	79	89	14 596	49	8.81

Note: For qualifications of data, see footnotes on table 1a.

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TSF:20A_92.DAT;61 6/ 7/ 95 10:35:16 UTF:20A_93.DAT;62 6/ 7/ 95 10:35:16 META:TIPS96-10350998.DAT;1 6/ 7/ 95 10:36:07

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2011, MEAT PACKING PLANTS														
United States	–	**1 387**	**431**	**122.4**	**2 452.8**	**105.5**	**228.5**	**1 956.6**	**6 928.0**	**43 586.4**	**50 434.4**	**343.2**	**113.9**	**5 266.9**
Alabama	E5	26	5	.7	12.0	.5	.8	6.6	47.0	71.6	118.0	(D)	1.0	30.5
Arizona	–	12	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	F	(D)
Arkansas	–	22	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E4	73	27	3.5	79.9	2.9	6.6	61.2	156.1	1 181.6	1 338.9	27.4	3.3	162.0
Colorado	E1	40	12	5.1	100.4	4.5	9.9	90.2	266.8	2 558.0	2 809.6	14.5	H	(D)
Florida	E4	24	10	.4	6.9	.3	.7	4.8	8.3	75.7	84.1	.5	.8	15.1
Georgia	E1	35	13	2.1	37.5	1.6	3.5	25.2	69.8	396.8	468.5	4.6	2.2	58.8
Hawaii	E6	6	2	.2	3.3	.1	.3	2.5	4.3	19.2	23.5	(D)	.2	6.6
Idaho	–	13	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	46.5
Illinois	–	82	28	7.0	137.9	6.2	13.1	113.0	317.6	2 313.1	2 623.9	8.4	5.7	266.4
Indiana	E1	42	15	3.4	68.0	2.9	5.6	52.7	103.7	726.3	829.6	6.3	H	(D)
Iowa	–	63	30	16.9	340.8	14.9	33.3	285.1	918.1	5 198.7	6 111.8	29.8	12.8	582.9
Kansas	–	44	14	12.3	221.2	11.3	24.1	192.9	446.3	5 819.0	6 254.2	14.8	10.8	518.0
Kentucky	E1	28	11	2.2	47.1	1.7	3.5	31.8	84.6	440.5	522.4	3.1	H	(D)
Louisiana	E3	17	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	C	(D)
Maryland	E1	11	4	.3	4.7	.2	.5	3.5	9.0	48.0	57.0	(D)	.3	9.4
Michigan	–	46	14	2.3	46.8	2.0	4.4	38.0	104.0	726.2	829.2	(D)	1.9	92.5
Minnesota	–	30	10	5.6	112.1	4.2	8.6	88.1	671.1	1 898.2	2 566.9	10.3	4.9	513.0
Mississippi	–	25	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	137.6
Missouri	–	49	6	1.7	30.4	1.4	3.2	25.1	32.6	434.2	463.4	2.0	1.8	82.6
Montana	E7	23	2	.1	1.5	.1	.2	1.1	1.9	14.5	16.4	(D)	(NA)	(NA)
Nebraska	–	48	22	13.7	276.6	12.3	27.3	236.2	1 192.2	7 172.0	8 345.8	16.3	9.8	512.2
New Jersey	E1	14	5	.3	8.2	.3	.5	5.8	17.3	58.6	76.2	.3	E	(D)
New Mexico	E6	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	F	(D)
New York	E3	41	5	.4	6.6	.3	.6	4.9	17.5	73.0	90.8	.6	.8	27.1
North Carolina	E1	32	15	2.9	56.4	2.3	4.8	42.2	120.1	520.6	639.5	(D)	2.6	75.3
North Dakota	–	10	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Ohio	–	57	19	2.8	70.0	1.9	4.3	46.4	166.8	601.8	770.3	10.2	H	(D)
Oklahoma	E5	42	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	19.9
Oregon	–	20	4	.3	7.1	.2	.5	5.1	14.0	65.3	79.7	(D)	.5	27.3
Pennsylvania	–	68	27	4.3	108.5	3.5	7.3	77.6	219.1	1 423.2	1 642.4	24.1	3.6	161.5
South Carolina	E1	27	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	31.6
South Dakota	–	16	6	3.8	77.4	3.5	7.3	69.1	286.4	981.9	1 266.3	4.1	H	(D)
Tennessee	E8	26	6	1.0	18.6	.7	1.6	12.4	79.4	171.0	250.2	2.7	2.5	101.4
Texas	–	109	32	11.9	221.4	10.7	24.0	188.1	551.5	5 158.8	5 700.5	33.9	12.7	253.4
Utah	–	17	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	22	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	4.5	210.5
Washington	–	23	7	1.9	35.8	1.7	3.7	29.9	75.6	1 051.7	1 131.0	(D)	2.0	79.5
West Virginia	E4	16	2	.1	1.4	.1	.2	1.1	1.2	8.8	10.0	.1	C	(D)
Wisconsin	E1	46	16	3.1	67.7	2.7	5.3	48.8	298.6	1 282.7	1 584.2	7.7	3.2	191.8
INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS														
United States	**E1**	**1 264**	**623**	**85.5**	**2 026.3**	**65.7**	**139.9**	**1 353.3**	**5 491.3**	**14 455.0**	**19 972.4**	**379.7**	**78.7**	**4 457.0**
Alabama	E6	12	4	.7	11.9	.5	1.1	7.9	22.1	60.5	82.2	(D)	.6	14.9
Arkansas	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	129	63	5.5	136.4	4.1	8.5	85.8	462.9	914.7	1 382.3	19.2	6.3	370.3
Colorado	–	25	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	E3	15	7	.3	8.6	.2	.5	4.4	19.6	37.6	57.2	(D)	.6	30.3
Delaware	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	33	14	2.4	52.0	1.8	3.9	36.5	111.0	379.8	491.1	9.5	2.3	137.3
Georgia	E2	36	14	2.7	54.4	2.1	4.9	39.4	143.5	392.9	536.1	9.0	2.6	101.7
Hawaii	E5	15	4	.2	3.5	.2	.3	2.0	7.8	17.4	25.3	.5	C	(D)
Idaho	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	E1	85	48	5.7	160.3	4.3	9.5	106.5	442.6	912.6	1 362.4	39.2	5.9	362.3
Indiana	E3	19	8	1.6	37.1	1.2	2.3	24.2	110.8	340.8	451.4	5.6	1.4	54.7
Iowa	–	29	17	4.3	119.2	3.6	7.9	93.6	281.3	1 028.7	1 305.7	29.6	3.5	275.4
Kansas	–	23	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	E1	21	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	25	6	.5	11.0	.4	.8	5.6	22.4	95.3	118.0	(D)	.7	29.7
Maine	E5	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	20	9	1.3	23.9	1.1	1.9	17.7	62.6	116.9	179.4	(D)	1.4	76.0
Massachusetts	E1	31	13	1.4	34.7	.8	1.8	18.1	72.6	211.3	285.6	3.6	G	(D)
Michigan	–	40	25	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.0	3.6	199.1
Minnesota	–	22	12	1.6	32.2	1.3	2.3	19.0	65.8	262.7	330.8	4.4	1.2	39.9
Mississippi	E5	11	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	14.5
Missouri	–	32	16	2.5	53.1	2.1	4.6	39.4	102.1	401.2	503.7	19.4	1.7	101.7
Montana	E1	9	2	.2	3.4	.1	.3	2.5	8.1	14.3	22.3	(D)	C	(D)
Nebraska	E1	30	19	2.3	44.1	1.9	4.1	30.5	84.5	358.3	442.8	4.7	1.9	70.8
New Hampshire	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E2	41	21	2.1	63.2	1.6	3.5	37.7	145.3	328.6	469.8	5.4	2.0	123.7
New Mexico	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E2	88	32	2.2	65.9	1.6	3.3	39.2	151.6	385.4	536.5	8.1	3.5	201.8
North Carolina	–	48	26	3.0	52.6	2.4	4.9	38.0	152.9	394.0	539.2	(D)	2.3	82.7
North Dakota	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Ohio	–	41	26	3.7	85.3	3.0	6.7	60.8	179.0	731.8	913.6	15.7	3.1	176.2
Oklahoma	E2	13	6	1.2	28.7	.9	2.1	18.2	73.2	265.7	338.4	8.8	G	(D)
Oregon	–	21	11	1.4	30.2	1.0	2.1	15.6	103.7	129.0	233.4	4.0	1.1	71.0
Pennsylvania	E1	75	49	4.8	120.7	3.5	7.4	73.8	340.3	938.4	1 287.1	14.2	5.0	290.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS—Con.														
Rhode Island	–	8	1	.1	2.9	.1	.2	2.5	8.0	15.3	23.2	.6	(NA)	(NA)
South Carolina	–	9	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	23.2
South Dakota	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	25	13	1.8	42.0	1.2	2.7	26.2	133.1	259.0	398.2	3.1	2.9	178.6
Texas	–	81	46	6.6	157.0	4.9	11.0	98.6	335.0	1 325.3	1 661.4	34.4	5.3	220.3
Utah	–	7	3	.2	4.6	.2	.4	2.9	15.2	76.4	91.4	.4	C	(D)
Virginia	E4	25	14	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.7	1.2	62.2
Washington	–	19	10	.9	21.1	.7	1.5	13.0	79.3	131.9	202.9	4.8	1.1	64.8
Wisconsin	–	43	24	6.7	189.6	5.2	11.2	133.7	798.1	1 353.2	2 153.1	30.5	6.4	568.9
INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING														
United States	**–**	**591**	**432**	**193.8**	**3 091.5**	**172.8**	**341.5**	**2 518.4**	**6 656.5**	**17 066.7**	**23 757.1**	**466.4**	**147.9**	**4 118.4**
Alabama	–	37	32	20.1	277.2	18.2	33.9	234.3	538.4	1 471.1	2 001.8	35.6	11.2	227.9
Arkansas	–	47	44	29.1	451.7	26.4	54.3	382.6	912.6	2 740.7	3 655.4	80.6	23.4	526.4
California	–	41	29	8.9	158.8	8.0	14.5	130.2	281.4	845.5	1 129.8	9.4	5.6	276.2
Colorado	E9	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	8	8	5.1	76.3	4.7	8.4	61.3	149.5	444.5	593.4	16.2	4.5	85.1
Florida	–	16	7	2.9	45.7	2.2	4.4	34.0	29.6	245.6	275.0	18.3	2.5	29.7
Georgia	–	49	44	21.2	331.2	19.0	36.7	273.8	686.8	1 616.6	2 298.0	50.4	16.0	375.9
Illinois	E3	11	6	1.3	30.1	1.1	1.9	18.8	88.1	114.6	201.9	2.8	1.6	35.5
Indiana	–	11	10	2.7	42.2	2.2	4.4	30.6	116.3	203.1	323.9	6.3	G	(D)
Iowa	–	19	14	3.1	55.7	2.8	5.6	47.2	150.9	388.2	542.6	5.1	3.0	86.7
Kentucky	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Louisiana	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	E2	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	10	7	3.3	54.8	2.9	6.3	40.1	104.3	300.4	404.0	8.0	3.6	110.9
Massachusetts	E2	4	3	.4	6.4	.4	.7	5.1	11.6	34.1	45.6	.8	C	(D)
Michigan	–	10	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	93.7
Minnesota	–	27	16	6.5	108.5	5.9	11.8	91.7	233.2	560.2	811.6	11.6	7.0	206.1
Mississippi	E1	26	24	11.1	148.7	9.9	19.1	118.6	309.4	843.3	1 152.6	22.5	6.2	196.2
Missouri	–	29	25	8.5	130.1	7.7	14.6	108.9	356.8	791.9	1 149.1	25.7	5.6	194.8
Nebraska	–	7	6	1.8	40.7	1.5	3.1	30.7	27.3	141.4	179.5	8.6	1.6	60.2
New Jersey	E3	16	11	2.2	39.7	1.8	3.8	27.6	85.3	267.2	351.5	6.8	G	(D)
New York	E2	21	6	.6	10.3	.5	1.0	9.4	23.1	38.4	61.0	.8	.8	22.4
North Carolina	E1	29	25	18.2	259.4	16.8	32.3	219.9	662.0	1 547.2	2 206.5	35.6	14.9	528.3
Ohio	E1	19	12	1.4	22.5	1.2	2.6	17.8	53.3	146.2	200.1	2.4	G	(D)
Oklahoma	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	6	5	1.0	18.6	.8	1.8	16.2	25.0	72.3	97.7	(D)	.6	20.0
Pennsylvania	E1	28	21	5.4	101.4	4.3	8.6	74.9	170.2	549.2	719.2	8.4	5.6	162.4
South Carolina	–	12	5	1.8	30.0	1.6	3.4	25.4	118.7	153.4	274.0	4.4	1.6	70.6
South Dakota	E2	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	11	9	4.1	68.9	3.7	7.8	57.6	161.3	456.9	621.5	5.9	2.0	50.9
Texas	–	20	15	9.3	153.3	8.4	17.9	131.3	238.6	899.1	1 146.3	20.2	5.6	152.5
Utah	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	17	12	9.2	156.0	8.1	17.1	125.0	382.4	934.5	1 315.9	15.2	8.4	235.7
Washington	E5	8	4	.9	20.1	.7	1.7	15.2	28.7	111.4	139.7	(D)	.6	13.7
West Virginia	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	E2	9	7	2.6	51.7	2.0	3.7	30.6	92.4	222.7	319.1	15.9	2.2	40.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Meat packing plants (SIC 2011)	Sausages and other prepared meats (SIC 2013)	Poultry slaughtering and processing (SIC 2015)
Companies ---- number	1 297	1 129	372
All establishments ---- number	1 387	1 264	591
With 1 to 19 employees ---- number	956	641	159
With 20 to 99 employees ---- number	267	385	108
With 100 employees or more ---- number	164	238	324
Employment and labor costs:			
Employees ---- 1,000	122.4	85.5	193.8
Compensation, total ---- mil dol	3 082.1	2 574.9	3 868.2
Annual payroll ---- mil dol	2 452.8	2 026.3	3 091.5
Fringe benefits ---- mil dol	629.3	548.6	776.8
Social Security and other legally required payments ---- mil dol	339.4	254.2	351.6
Employer voluntary payments ---- mil dol	289.9	294.4	425.2
Production workers:			
Average for year ---- 1,000	105.5	65.7	172.8
March ---- 1,000	103.5	64.9	169.8
May ---- 1,000	104.1	64.5	168.9
August ---- 1,000	106.0	66.7	171.7
November ---- 1,000	108.6	66.6	181.0
Hours ---- millions	228.5	139.9	341.5
Wages ---- mil dol	1 956.6	1 353.3	2 518.4
Cost of materials[1] ---- mil dol	43 586.4	14 455.0	17 066.7
Materials, parts, containers, etc., consumed[2] ---- mil dol	41 036.4	12 723.5	16 174.6
Resales ---- mil dol	2 261.3	1 469.3	518.0
Fuels ---- mil dol	92.9	71.2	85.5
Purchased electricity ---- mil dol	158.6	161.6	219.3
Contract work ---- mil dol	37.3	29.5	69.3
Quantity of electric energy used for heat and power:			
Purchased ---- mil kWh	3 230.3	2 869.4	4 175.8
Generated less sold ---- mil kWh	(D)	(D)	(D)
Total value of shipments ---- mil dol	50 434.4	19 972.4	23 757.1
Value added ---- mil dol	6 928.0	5 491.3	6 656.5
Inventories by stage of fabrication:			
Beginning of 1992 ---- mil dol	951.8	1 085.1	848.1
Finished goods ---- mil dol	700.4	571.9	465.1
Work in process ---- mil dol	89.5	149.3	145.1
Materials and supplies ---- mil dol	161.9	363.9	237.9
End of 1992 ---- mil dol	1 054.3	1 058.1	832.3
Finished goods ---- mil dol	769.0	552.2	445.6
Work in process ---- mil dol	100.9	143.0	130.7
Materials and supplies ---- mil dol	184.4	363.0	256.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Meat packing plants (SIC 2011)	Sausages and other prepared meats (SIC 2013)	Poultry slaughtering and processing (SIC 2015)
Gross book value of depreciable assets:			
Total:			
Beginning of year	3 901.6	3 726.3	4 674.7
New capital expenditures[1]	343.2	379.7	466.4
Used capital expenditures	24.7	23.2	22.5
Retirements	90.8	97.6	155.2
End of year	4 178.7	4 031.5	5 008.5
Buildings and other structures:			
Beginning of year	1 321.3	1 315.4	1 494.5
New capital expenditures	72.8	96.7	116.9
Used capital expenditures	3.7	5.7	5.8
Retirements	29.5	18.3	19.6
End of year	1 368.3	1 399.4	1 597.6
Machinery and equipment:			
Beginning of year	2 580.3	2 410.9	3 180.2
New capital expenditures[1]	270.4	283.0	349.5
Used capital expenditures	21.1	17.5	16.8
Retirements	61.3	79.3	135.6
End of year	2 810.4	2 632.1	3 410.9
Depreciation charges during 1992:			
Total	254.7	285.3	398.3
Buildings and other structures	57.9	66.6	88.9
Machinery and equipment	196.7	218.7	309.4
Rental payments:			
Total	73.2	88.2	124.2
Buildings and other structures	39.1	47.8	28.8
Machinery and equipment	34.1	40.3	95.3

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Meat packing plants (SIC 2011)		Sausages and other prepared meats (SIC 2013)		Poultry slaughtering and processing (SIC 2015)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	27.4	(X)	26.7	(X)	31.0	(X)
Response coverage ratio (percent)[2]	76.8	(X)	81.7	(X)	83.9	(X)
Machinery	180.5	(X)	147.3	(X)	204.0	(X)
Response coverage ratio (percent)[2]	82.9	(X)	82.1	(X)	85.1	(X)
Other purchased services:						
Communications	18.2	(X)	19.5	(X)	14.5	(X)
Response coverage ratio (percent)[2]	83.0	(X)	77.0	(X)	82.6	(X)
Legal	8.2	(X)	10.1	(X)	12.0	(X)
Response coverage ratio (percent)[2]	82.8	(X)	80.3	(X)	81.4	(X)
Accounting and bookkeeping	5.2	(X)	11.3	(X)	5.8	(X)
Response coverage ratio (percent)[2]	77.1	(X)	80.4	(X)	79.4	(X)
Advertising	121.6	(X)	179.7	(X)	80.1	(X)
Response coverage ratio (percent)[2]	80.8	(X)	80.8	(X)	81.3	(X)
Software and other data processing	5.4	(X)	7.7	(X)	3.1	(X)
Response coverage ratio (percent)[2]	75.7	(X)	80.0	(X)	79.9	(X)
Refuse removal, including hazardous waste	88.1	(X)	15.2	(X)	69.3	(X)
Response coverage ratio (percent)[2]	80.0	(X)	81.3	(X)	85.7	(X)
New machinery and equipment expenditures	270.4	(X)	283.0	(X)	349.5	(X)
Automobiles, trucks, etc., for highway use	4.9	25	5.5	14	14.6	4
Computers and peripheral data processing equipment	6.1	3	6.3	6	5.0	1
All other	207.9	1	174.8	1	329.9	1
Adjustment ratio[3]	1.2	(X)	1.3	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	41 036.4	(X)	12 723.5	(X)	16 174.6	(X)
Materials purchased or transferred from foreign sources[4]	116.7	16	640.6	13	8.0	2
Materials purchased or transferred from domestic sources	40 919.7	1	12 082.9	1	16 166.5	1
Adjustment ratio[3]	1.4	(X)	1.4	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2011, MEAT PACKING PLANTS												
Total	**–**	**1 387**	**122.4**	**2 452.8**	**105.5**	**228.5**	**1 956.6**	**6 928.0**	**43 586.4**	**50 434.4**	**343.2**	**1 054.3**
Establishments with an average of–												
1 to 4 employees	E6	519	.9	14.0	.8	1.5	10.6	26.6	198.0	224.7	1.4	4.1
5 to 9 employees	E5	256	1.7	23.6	1.4	2.7	18.2	42.5	261.2	303.4	2.3	8.1
10 to 19 employees	E3	181	2.5	40.6	2.1	4.2	31.4	70.4	427.3	497.7	3.5	10.6
20 to 49 employees	E3	183	5.6	95.4	4.4	9.0	69.2	182.5	1 031.8	1 215.6	8.0	23.8
50 to 99 employees	E1	84	6.2	125.8	4.9	10.3	89.7	276.3	1 758.7	2 034.2	12.9	47.7
100 to 249 employees	E2	69	10.8	220.1	9.0	19.0	166.6	477.5	4 881.7	5 363.6	35.0	118.7
250 to 499 employees	E1	35	12.1	245.2	9.9	20.8	176.0	669.3	4 802.9	5 473.6	122.9	94.9
500 to 999 employees	–	20	14.6	307.9	12.5	27.5	240.9	888.9	4 424.6	5 300.8	22.0	123.2
1,000 to 2,499 employees	–	36	68.0	1 380.1	60.4	133.4	1 153.9	4 294.1	25 800.3	30 020.8	135.2	623.2
2,500 employees or more	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	618	2.2	28.7	1.9	3.6	22.2	24.9	178.2	203.2	1.6	4.1
INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS												
Total	**E1**	**1 264**	**85.5**	**2 026.3**	**65.7**	**139.9**	**1 353.3**	**5 491.3**	**14 455.0**	**19 972.4**	**379.7**	**1 058.1**
Establishments with an average of–												
1 to 4 employees	E8	271	.5	8.5	.4	.7	5.6	21.9	62.9	84.7	1.2	4.9
5 to 9 employees	E7	189	1.3	20.0	1.0	1.9	12.6	51.1	136.8	188.0	2.4	10.0
10 to 19 employees	E4	181	2.5	46.9	1.8	3.7	28.9	120.2	293.3	411.9	8.1	26.4
20 to 49 employees	E1	235	7.5	172.9	5.4	10.7	99.1	409.0	1 117.8	1 532.5	20.3	86.1
50 to 99 employees	E1	150	10.7	236.4	7.9	16.2	148.0	713.2	1 536.5	2 253.5	45.2	129.0
100 to 249 employees	–	148	24.0	581.3	18.4	39.4	366.5	1 722.7	4 528.4	6 247.7	103.3	338.4
250 to 499 employees	E1	71	24.7	589.0	19.3	42.3	407.2	1 589.5	4 392.8	5 996.9	121.8	302.2
500 to 999 employees	–	15	14.3	371.3	11.6	25.0	285.4	863.7	2 386.5	3 257.3	77.3	161.1
1,000 to 2,499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	362	1.3	16.4	1.0	1.8	10.6	37.0	106.4	143.4	2.1	7.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING												
Total	**–**	**591**	**193.8**	**3 091.5**	**172.8**	**341.5**	**2 518.4**	**6 656.5**	**17 066.7**	**23 757.1**	**466.4**	**832.3**
Establishments with an average of—												
1 to 4 employees	E5	85	.1	2.5	.1	.3	2.0	5.2	15.8	21.1	.3	.5
5 to 9 employees	E7	36	.2	3.5	.2	.4	2.7	15.4	21.0	36.4	.8	1.0
10 to 19 employees	E3	38	.5	7.9	.5	.9	6.2	21.8	49.4	71.0	1.2	2.5
20 to 49 employees	E1	66	2.3	38.1	1.9	3.6	28.3	127.4	314.5	443.0	10.4	28.3
50 to 99 employees	–	42	3.0	50.3	2.6	4.8	39.7	160.3	346.3	505.7	14.0	25.2
100 to 249 employees	E1	82	13.6	224.4	11.7	23.8	170.3	537.5	1 399.2	1 955.8	52.2	97.3
250 to 499 employees	E1	87	31.7	522.7	27.8	56.3	412.6	1 133.0	3 081.8	4 216.6	77.2	153.0
500 to 999 employees	–	101	71.4	1 108.4	63.7	122.6	905.5	2 044.9	6 250.6	8 287.5	152.8	265.0
1,000 to 2,499 employees	–	54	71.0	1 133.7	64.2	128.8	951.1	2 611.0	5 588.1	8 220.0	157.5	259.5
Covered by administrative records[2]	E9	94	.3	3.7	.3	.5	3.0	8.4	20.3	28.7	.7	1.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2011	**Meat packing plants:**										
	All establishments in industry	1 387	122.4	2 452.8	105.5	228.5	1 956.6	6 928.0	43 586.4	50 434.4	343.2
	Establishments with this product class primary:										
20111	Beef, not canned or made into sausage	162	56.3	1 085.3	50.0	110.3	907.9	2 985.4	28 725.7	31 652.1	121.9
20112	Veal, not canned or made into sausage	11	.7	18.9	.6	1.3	12.4	32.5	248.0	284.3	1.3
20113	Lamb and mutton, not canned or made into sausage	10	.7	13.1	.6	1.3	10.6	46.5	277.7	323.3	.6
20114	Pork, not canned or made into sausage	74	37.8	812.5	32.8	71.3	656.4	1 908.9	9 453.0	11 345.2	159.2
20116	Pork, processed or cured (not canned or made into sausage)	12	7.8	175.3	6.6	14.1	117.8	696.7	1 350.6	2 039.6	14.6
20117	Sausages and similar products (not canned)	36	4.4	87.7	3.2	6.3	53.6	375.6	502.4	876.3	18.0
20118	Canned meats (except dog, cat, and baby food)	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20119	Hides, skins, and pelts	7	.3	7.9	.3	.5	4.2	10.3	96.5	107.0	(D)
2011B	Miscellaneous byproducts of meat packing plants	11	.5	8.8	.4	.8	6.8	19.6	86.2	106.5	.4
2013	**Sausages and other prepared meats:**										
	All establishments in industry	1 264	85.5	2 026.3	65.7	139.9	1 353.3	5 491.3	14 455.0	19 972.4	379.7
	Establishments with this product class primary:										
20136	Pork, processed or cured, including frozen, not canned or made into sausage	121	19.1	453.2	15.1	32.1	310.4	1 109.1	3 137.1	4 249.4	81.0
20137	Sausage and similar products, not canned	269	31.9	815.5	24.1	51.8	551.0	2 102.3	4 668.6	6 784.8	132.8
20138	Canned meats (except dog, cat, and baby food), containing 20 percent or more meat	20	2.8	67.6	2.3	4.5	49.8	380.0	547.8	919.9	15.3
2013B	Other processed, frozen, or cooked meats	177	21.7	492.2	16.8	36.7	316.8	1 424.7	4 724.3	6 165.4	101.5
2015	**Poultry slaughtering and processing:**										
	All establishments in industry	591	193.8	3 091.5	172.8	341.5	2 518.4	6 656.5	17 066.7	23 757.1	466.4
	Establishments with this product class primary:										
20151	Young chickens (usually under 20 weeks of age) whole or parts	179	115.0	1 726.7	103.8	205.1	1 448.3	3 238.1	9 439.8	12 671.3	249.4
20152	Hens and/or fowl (including frozen whole or parts)	10	1.5	20.5	1.4	2.8	15.1	37.0	58.6	95.8	2.2
20153	Turkeys (including frozen, whole or parts)	38	21.2	348.1	18.7	37.1	276.8	702.1	2 160.7	2 877.8	48.4
20154	Other poultry and small game (including frozen, whole or parts)	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20155	Processed poultry and small game (except soups) containing 20 percent or more poultry or meat	101	41.1	741.6	36.0	71.4	585.7	2 076.1	4 149.7	6 237.7	116.4
20159	Liquid, dried, and frozen eggs	35	3.8	81.3	3.1	6.3	56.5	198.7	518.0	725.6	24.1

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2011, MEAT PACKING PLANTS			
Total value of shipments	50 434.4	45 536.6	44 853.6
Primary products value of shipments	46 761.1	41 204.8	40 357.2
Secondary products value of shipments	1 280.4	737.2	726.3
Total miscellaneous receipts	2 392.8	3 594.6	3 770.0
Value of resales	2 354.7	3 453.7	3 281.2
Contract receipts	(D)	112.9	169.7
Other miscellaneous receipts	(D)	28.0	319.1
Primary products specialization ratio	97	98	98
Value of primary products shipments made in all industries	46 796.4	41 234.6	40 522.6
Value of primary products shipments made in this industry	46 761.1	41 204.8	40 357.2
Value of primary products shipments made in other industries	35.2	29.8	165.4
Coverage ratio	99	100	99
INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS			
Total value of shipments	19 972.4	16 553.3	12 277.5
Primary products value of shipments	17 318.7	14 049.7	10 357.9
Secondary products value of shipments	880.8	528.6	366.5
Total miscellaneous receipts	1 772.9	1 975.0	1 553.2
Value of resales	1 703.6	1 869.5	1 460.9
Contract receipts	34.0	44.3	31.8
Other miscellaneous receipts	35.4	61.2	60.5
Subprimal and fabricated cuts packaged in plastics (boxed beef)	24.4	(NA)	39.6
Other miscellaneous receipts	–	(NA)	20.9
Other miscellaneous receipts, n.s.k.	11.0	(NA)	–
Primary products specialization ratio	95	96	97
Value of primary products shipments made in all industries	17 718.9	14 352.8	10 508.2
Value of primary products shipments made in this industry	17 318.7	14 049.7	10 357.9
Value of primary products shipments made in other industries	400.1	303.1	150.3
Coverage ratio	98	98	99
INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING			
Total value of shipments	23 757.1	14 912.4	10 471.1
Primary products value of shipments	22 708.6	14 026.8	(NA)
Secondary products value of shipments	327.4	264.6	(NA)
Total miscellaneous receipts	721.1	621.0	(NA)
Value of resales	529.1	419.3	(NA)
Contract receipts	144.1	161.9	(NA)
Other miscellaneous receipts	48.0	39.8	(NA)
Primary products specialization ratio	99	98	(NA)
Value of primary products shipments made in all industries	23 450.2	14 370.9	(NA)
Value of primary products shipments made in this industry	22 708.6	14 026.8	(NA)
Value of primary products shipments made in other industries	741.6	344.1	(NA)
Coverage ratio	97	98	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2011– —	**FRESH AND FROZEN MEAT FROM ANIMALS SLAUGHTERED IN THIS PLANT**						
	Total	**(NA)**	**(X)**	**46 796.4**	**(NA)**	**(X)**	**41 234.6**
20111	Beef, not canned or made into sausage	(NA)	(X)	26 890.2	(NA)	(X)	21 684.0
20111 12	Whole carcass and half carcass beef mil lb	82	*5 662.5	5 669.2	141	* ᶠ8 658.2	ᶠ7 746.9
20111 14	Primal cuts mil lb	42	769.8	1 260.6	64	847.5	1 222.8
20111 16	Subprimal and fabricated cuts packaged in plastics (boxed beef) mil lb	53	*9 385.5	15 298.3	64	ᶠ6 150.3	ᶠ9 451.5
20111 18	Other subprimal and fabricated cuts mil lb	21	*150.0	168.9	32	** ᶠ311.2	ᶠ472.6
20111 31	Boneless beef, including hamburger mil lb	78	2 967.8	3 263.3	95	ᶠ1 815.9	ᶠ1 690.9
20111 51	Variety meats (edible organs) mil lb	48	1 413.5	755.9	65	ᶠ1 087.4	ᶠ543.8
20111 71	Other edible beef, including corned beef mil lb	12	**109.3	80.9	16	*38.8	29.6
20111 00	Beef, not canned or made into sausage, n.s.k.	(NA)	(X)	393.1	(NA)	(X)	525.9
20112	Veal, not canned or made into sausage	(NA)	(X)	283.0	(NA)	(X)	379.4
20112 12	Whole carcass and half carcass veal mil lb	13	**27.9	47.5	26	164.6	177.0
20112 17	Primal, subprimal, and fabricated cuts, and boneless veal mil lb	13	*118.8	222.6	20	85.8	178.3
20112 61	Other edible veal, including edible organs mil lb	4	4.6	7.9	10	*12.0	13.9
20112 00	Veal, not canned or made into sausage, n.s.k.	(NA)	(X)	5.1	(NA)	(X)	10.4
20113	Lamb and mutton, not canned or made into sausage	(NA)	(X)	335.0	(NA)	(X)	379.5
20113 12	Whole carcass and half carcass lamb and mutton mil lb	14	210.7	214.7	18	*196.3	265.9
20113 52	Primal cuts and all other edible lamb and mutton mil lb	8	72.8	117.0	12	** ᶠ88.8	ᶠ103.6
20113 00	Lamb and mutton, not canned or made into sausage, n.s.k.	(NA)	(X)	3.3	(NA)	(X)	10.0
20114	Pork, not canned or made into sausage	(NA)	(X)	9 635.0	(NA)	(X)	ᶠ8 406.3
20114 12	Whole carcass and half carcass pork mil lb	27	906.2	632.2	39	* ᶠ1 801.3	ᶠ1 335.9
20114 17	Primal and fabricated cuts (including trimmings) mil lb	73	10 742.5	8 791.8	97	7 947.0	6 817.1
20114 51	Variety meats (edible organs) mil lb	36	516.2	183.5	43	488.0	171.5
20114 00	Pork, not canned or made into sausage, n.s.k.	(NA)	(X)	27.6	(NA)	(X)	81.8
20115	Lard	(NA)	(X)	94.2	(NA)	(X)	128.0
20115 13	Consumer sizes (containers 3 lb or less) mil lb	3	*11.4	3.2	9	47.3	14.6
20115 17	Commercial sizes (containers more than 3 lb) mil lb	12	334.6	76.8	31	506.5	101.2
20115 00	Lard, n.s.k.	(NA)	(X)	[3]14.1	(NA)	(X)	[4]12.2
20116	Pork, processed or cured (not canned or made into sausage)[5]	(NA)	(X)	2 043.6	(NA)	(X)	2 941.7
20116 12	Sweet-pickled or dry-cured pork (not smoked or cooked) mil lb	5	11.6	19.7	11	47.4	73.8
20116 22	Dry salt pork mil lb	14	110.1	69.9	21	203.0	135.5
	Smoked pork (not otherwise cooked):						
20116 31	Hams and picnics, except canned mil lb	53	757.7	1 080.8	68	791.3	1 394.0
20116 35	Slab bacon mil lb	26	130.8	106.3	32	214.6	176.0
20116 41	Sliced bacon mil lb	37	587.9	533.6	46	764.1	840.4
20116 52	Other smoked pork mil lb	25	76.4	74.4	29	46.6	51.3
20116 61	Boiled ham, barbecue pork, and other cooked pork, except canned meats and sausage mil lb	16	99.6	147.0	19	93.7	152.1
20116 00	Pork, processed or cured (not canned or made into sausage), n.s.k.	(NA)	(X)	11.9	(NA)	(X)	118.5
20117	Sausages and similar products (not canned)[5]	(NA)	(X)	1 718.2	(NA)	(X)	2 079.7
20117 11	Fresh sausage (pork sausage, breakfast links, etc.) mil lb	60	(S)	752.9	73	589.6	779.1
20117 17	Dry or semidry (salami, cervelat, pepperoni, summer sausage, pork roll, etc.) mil lb	17	96.6	171.1	20	118.2	220.0
20117 21	Frankfurters, including wieners mil lb	36	359.6	359.4	54	432.1	414.0
20117 35	Other sausage, smoked or cooked (bologna, liverwurst, Polish sausage, packaged luncheon meats, minced roll, etc.) mil lb	47	*280.0	386.8	63	478.1	531.0
20117 91	Jellied goods and similar preparations, (headcheese, meat loaves, scrapple, puddings, chili con carne, etc.) mil lb	14	20.6	19.7	17	20.5	26.8
20117 00	Sausages and similar products (not canned), n.s.k.	(NA)	(X)	28.4	(NA)	(X)	108.8
20118	Canned meats (except dog, cat, and baby food)	(NA)	(X)	(D)	(NA)	(X)	402.0
20118 00	Canned meats (except dog, cat, and baby food) containing 20 percent meat or more[6] mil lb	5	(D)	(D)	8	271.9	402.0
20119	Hides, skins, and pelts	(NA)	(X)	1 992.2	(NA)	(X)	ᶠ1 638.4
20119 14	Cattle, including kip millions	100	*33.3	1 911.0	143	35.8	1 509.3
20119 22	Calf, except kip millions	14	.7	27.4	17	**1.0	17.9
20119 51	Sheep and lamb millions	7	(S)	23.6	13	3.7	37.6
20119 97	Other hides, skins, and pelts, except kip millions	18	(S)	23.1	16	(S)	15.5
20119 00	Hides, skins, and pelts, n.s.k.	(NA)	(X)	7.1	(NA)	(X)	ᶠ58.0
2011B	Miscellaneous byproducts of meat packing plants	(NA)	(X)	(D)	(NA)	(X)	ᶠ460.0
2011B 15	Other fresh and frozen meats including horsemeat for human consumption mil lb	9	*63.5	104.6	13	112.8	93.5
2011B 17	Pork rind pellets, including pork cracklings	2	(X)	1.1	(NA)	(X)	[7]
2011B 41	Edible tallow and stearin mil lb	13	*1 407.4	185.7	18	1 481.8	199.2
2011B 45	Natural sausage casings (beef, hog, etc.) mil lb	10	(S)	9.0	15	*17.8	8.3
2011B 55	Killing floor offal, scrap, bones	72	(X)	207.5	66	(X)	117.2
2011B 59	Other miscellaneous byproducts of meat packing plants, including pulled wool and glue stock (except sausage casings)	17	(X)	(D)	(NA)	(X)	[7]23.7
2011B 00	Miscellaneous byproducts of meat packing plants, n.s.k.	(NA)	(X)	4.7	(NA)	(X)	ᶠ18.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2011– —	**FRESH AND FROZEN MEAT FROM ANIMALS SLAUGHTERED IN THIS PLANT**—Con.						
20110	Fresh and frozen meat from animals slaughtered in this plant, n.s.k.	(NA)	(X)	2 804.6	(NA)	(X)	r2 735.7
20110 00	Fresh and frozen meat from animals slaughtered in this plant, n.s.k.[8]	(NA)	(X)	2 601.4	(NA)	(X)	r1 922.7
20110 02	Fresh and frozen meat from animals slaughtered in this plant, n.s.k.[9]	(NA)	(X)	203.2	(NA)	(X)	813.0
2013– —	**SAUSAGE AND OTHER PREPARED MEATS**						
	Total	**(NA)**	**(X)**	**17 718.9**	**(NA)**	**(X)**	**r14 352.8**
20136	Pork, processed or cured, including frozen, not canned or made into sausage[5]	(NA)	(X)	3 491.9	(NA)	(X)	3 127.3
20136 12	Sweet-pickled or dry-cured pork (not smoked or cooked) mil lb	17	89.1	140.1	15	*28.9	56.3
20136 22	Dry salt pork mil lb	18	(S)	17.8	15	35.4	23.2
	Smoked pork (not otherwise cooked):						
20136 31	Hams and picnics, except canned mil lb	104	1 050.5	1 422.4	109	959.2	1 296.0
20136 35	Slab bacon mil lb	26	24.5	20.7	30	41.9	42.7
20136 41	Sliced bacon mil lb	51	916.1	947.5	66	795.1	1 018.2
20136 52	Other smoked pork mil lb	48	*144.7	138.2	49	120.8	189.1
20136 61	Boiled ham, barbecue pork, and other cooked pork, except canned meats and sausages mil lb	48	434.2	652.7	55	198.6	340.2
20136 00	Pork, processed or cured, including frozen, not canned or made into sausage, n.s.k.	(NA)	(X)	152.5	(NA)	(X)	161.8
20137	Sausage and similar products, not canned[5]	(NA)	(X)	5 745.7	(NA)	(X)	4 974.4
20137 11	Fresh sausage (pork sausage, breakfast links, etc.) mil lb	128	556.8	838.7	132	420.7	488.4
20137 17	Dry or semidry (salami, cervelat, pepperoni, summer sausage, pork roll, etc.) mil lb	92	485.4	944.3	98	*478.0	989.4
20137 21	Frankfurters, including wieners mil lb	123	1 099.5	1 267.8	139	1 080.6	1 259.4
20137 35	Other sausage, smoked or cooked (bologna, liverwurst, Polish sausage, packed luncheon meats, minced roll, etc.) mil lb	194	1 845.3	2 379.3	200	1 433.4	1 929.5
20137 41	Lard mil lb	(NA)	(3)	(3)	(NA)	(NA)	(4)
20137 91	Jellied goods and similar preparations, not canned (headcheese, meat loaves, scrapple, puddings, chili con carne, etc.) mil lb	39	50.2	60.7	40	*40.4	40.6
20137 00	Sausage and similar products, not canned, n.s.k.	(NA)	(X)	254.8	(NA)	(X)	267.0
20138	Canned meats (except dog, cat, and baby food), containing 20 percent or more meat[5]	(NA)	(X)	873.0	(NA)	(X)	910.1
20138 00	Canned meats, except dog and cat food and baby food, containing 20 percent or more meat mil lb	32	(S)	873.0	46	*849.0	910.1
2013B	Other processed, frozen, or cooked meats	(NA)	(X)	5 759.7	(NA)	(X)	3 834.1
2013B 11	Frozen ground meat patties mil lb	59	1 357.2	1 603.2	83	*1 272.5	1 405.6
2013B 13	Frozen portion control mil lb	43	*643.8	1 032.6	51	*511.7	780.1
2013B 17	Pork rind pellets, including pork cracklings mil lb	5	(D)	(D)			
2013B 18	Other processed, frozen, or cooked meats, corned beef, frozen primal and fabricated cuts, frozen variety meats, etc. mil lb	152	1 960.8	2 838.9	141	*1 022.3	1 429.9
2013B 21	Collagen sausage casings mil lb	6	(D)	(D)	5	(S)	63.2
2013B 00	Other processed, frozen, or cooked meats, n.s.k.	(NA)	(X)	177.7	(NA)	(X)	155.4
20130	Sausage and other prepared meats, n.s.k.	(NA)	(X)	1 848.6	(NA)	(X)	r1 506.8
20130 00	Sausage and other prepared meats, n.s.k.[10]	(NA)	(X)	1 705.1	(NA)	(X)	r1 081.8
20130 02	Sausage and other prepared meats, n.s.k.[11]	(NA)	(X)	143.4	(NA)	(X)	425.0
2015– —	**POULTRY AND EGG PROCESSING**						
	Total	**(NA)**	**(X)**	**23 450.2**	**(NA)**	**(X)**	**r14 370.9**
20151	Young chickens (usually under 20 weeks of age) whole or parts	(NA)	(X)	12 260.0	(NA)	(X)	7 451.7
	Broilers and fryers (usually under 20 weeks of age):						
20151 33	Wet ice pack, bulk mil lb	60	*10 518.4	5 120.0	56	6 947.5	3 059.1
20151 34	Dry ice pack, bulk mil lb	28	1 606.0	956.5	29	912.1	484.2
20151 36	Tray pack (consumer packaged), chilled mil lb	29	4 383.6	3 038.0	31	3 356.8	2 089.7
20151 39	Other (including frozen) mil lb	42	3 901.3	2 554.2	35	1 939.0	1 122.7
20151 41	Roasters and capons (including frozen) mil lb	11	309.6	202.1	8	405.6	261.8
20151 00	Young chickens (usually under 20 weeks of age) whole or parts, n.s.k.	(NA)	(X)	389.2	(NA)	(X)	434.1
20152	Hens and/or fowl (including frozen whole or parts)	(NA)	(X)	106.6	(NA)	(X)	210.7
20152 21	Egg producing type mil lb	12	151.9	64.5	17	350.1	137.8
20152 23	Breeder type mil lb	13	109.8	41.8	11	(S)	64.3
20152 00	Hens and/or fowl (including frozen whole or parts), n.s.k.	(NA)	(X)	.4	(NA)	(X)	8.6
20153	Turkeys (including frozen, whole or parts)	(NA)	(X)	2 881.1	(NA)	(X)	r1 645.1
20153 22	Fryer-roaster turkeys (usually under 16 weeks of age), whole mil lb	7	303.6	180.9	7	(D)	(12)
20153 24	Young turkeys (mature) (usually 4 - 7 months of age), whole mil lb	26	1 699.6	1 119.1	30	1 311.3	751.3
20153 26	Old turkeys (breeders) (usually over 12 months of age), whole mil lb	10	66.8	34.1	11	138.4	75.0
20153 27	Turkey parts, including ground turkey, turkey cutlets, etc. mil lb	30	1 855.4	1 354.8	22	717.3	517.7
20153 00	Turkeys (including frozen, whole or parts), n.s.k.	(NA)	(X)	192.2	(NA)	(X)	12 r301.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2015– —	**POULTRY AND EGG PROCESSING**—Con.						
20154	Other poultry and small game (including frozen, whole or parts)	(NA)	(X)	73.9	(NA)	(X)	86.7
20154 14	Ducks, mil lb	3	(D)	(D)	4	80.2	48.2
20154 16	Other poultry and small game (geese, rabbits, etc.)	5	(X)	(D)	6	(X)	37.6
20154 00	Other poultry and small game (including frozen, whole or parts), n.s.k.	(NA)	(X)	–	(NA)	(X)	.9
20155	Processed poultry and small game (except soups) containing 20 percent or more poultry or meat	(NA)	(X)	6 380.7	(NA)	(X)	3 725.3
	Canned poultry:						
20155 11	10 oz or less, 1,000 cases of 48	2	(D)	(D)	2	(D)	(D)
20155 13	40.1 oz to 60 oz, 1,000 cases of 12	3	(D)	(D)	2	(D)	(D)
20155 15	Other sizes	5	(X)	24.4	4	(X)	14.9
	Cooked or smoked poultry, including frozen:						
20155 31	Turkey (except frankfurters, hams, and luncheon meats), mil lb	63	870.7	1 363.0	21	*599.3	865.6
20155 32	Chicken (except frankfurters, hams, and luncheon meats), mil lb	58	1 844.4	2 787.4	39	1 009.0	1 391.9
20155 33	Frankfurters (including wieners), mil lb	34	277.0	200.5	50	(S)	215.2
20155 34	Hams and luncheon meats, mil lb	47	638.5	921.3	57	531.1	657.9
20155 39	Other	7	(X)	111.5	8	(X)	57.7
20155 48	Other processed poultry and small game (dehydrated, raw-boned, etc.), including frozen	32	(X)	775.6	23	(X)	365.7
20155 00	Processed poultry and small game (except soups) containing 20 percent or more poultry or meat, n.s.k.	(NA)	(X)	109.7	(NA)	(X)	105.7
20159	Liquid, dried, and frozen eggs	(NA)	(X)	746.2	(NA)	(X)	495.4
	Eggs, dried:						
20159 11	Whites, mil lb	14	*35.6	81.0	11	**21.8	44.5
20159 13	Yolks, mil lb	10	(S)	38.9	8	16.9	24.5
20159 15	Whole, mil lb	11	43.3	63.6	10	19.6	28.1
20159 17	Mixed, mil lb	8	23.6	35.0	9	(S)	28.9
	Eggs, frozen or liquid:						
20159 51	Whites, mil lb	17	276.3	263.4	21	129.1	135.0
20159 53	Yolks, mil lb	13	86.5	37.1	20	88.1	47.0
20159 55	Whole, mil lb	18	*215.7	108.3	25	195.8	94.4
20159 57	Mixed, mil lb	14	128.8	68.8	15	128.7	62.3
20159 00	Liquid, dried, and frozen eggs, n.s.k.	(NA)	(X)	50.1	(NA)	(X)	30.6
20150	Poultry and egg processing, n.s.k.	(NA)	(X)	1 001.7	(NA)	(X)	756.1
20150 00	Poultry and egg processing, n.s.k.[9]	(NA)	(X)	973.0	(NA)	(X)	695.1
20150 02	Poultry and egg processing, n.s.k.[13]	(NA)	(X)	28.7	(NA)	(X)	61.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, data for product code 20137 41 are included with product code 20115 00.
[4]For 1987, product code 20137 41 was included with product code 20115 00.
[5]This product class is primary to more than one industry.
[6]This product code is primary to more than one industry.
[7]For 1987, product code 2011B 17 was included with product code 2011B 59.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]Typically for establishments with 15 employees or more.
[11]typically for establishments with less than 15 employees.
[12]For 1987, product code 20153 22 was included with product code 20153 00 to avoid disclosing data for individual companies.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Pork, processed or cured (not canned or made into sausage)	(NA)	(X)	5 535.5	(NA)	(X)	6 069.0
20116	Made in slaughtering plants	(NA)	(X)	2 043.6	(NA)	(X)	2 941.7
20136	Made elsewhere	(NA)	(X)	3 491.9	(NA)	(X)	3 127.3
	Sweet-pickled or dry-cured pork (not smoked or cooked) mil lb	(NA)	100.8	159.8	(NA)	76.3	130.1
20116 12	Made in slaughtering plants mil lb	5	11.6	19.7	11	47.4	73.8
20136 12	Made elsewhere mil lb	17	89.1	140.1	15	*28.9	56.3
	Dry salt pork mil lb	(NA)	132.6	87.7	(NA)	238.4	158.7
20116 22	Made in slaughtering plants mil lb	14	110.1	69.9	21	203.0	135.5
20136 22	Made elsewhere mil lb	18	(S)	17.8	15	35.4	23.2
	Hams and picnics, except canned mil lb	(NA)	1 808.2	2 503.2	(NA)	1 750.5	2 690.0
20116 31	Made in slaughtering plants mil lb	53	757.7	1 080.8	68	791.3	1 394.0
20136 31	Made elsewhere mil lb	104	1 050.5	1 422.4	109	959.2	1 296.0
	Slab bacon mil lb	(NA)	155.2	127.0	(NA)	256.5	218.7
20116 35	Made in slaughtering plants mil lb	26	130.8	106.3	32	214.6	176.0
20136 35	Made elsewhere mil lb	26	24.5	20.7	30	41.9	42.7
	Sliced bacon mil lb	(NA)	1 504.0	1 481.1	(NA)	1 559.2	1 858.6
20116 41	Made in slaughtering plants mil lb	37	587.9	533.6	46	764.1	840.4
20136 41	Made elsewhere mil lb	51	916.1	947.5	66	795.1	1 018.2
	Other smoked pork mil lb	(NA)	221.1	212.6	(NA)	167.4	240.4
20116 52	Made in slaughtering plants mil lb	25	76.4	74.4	29	46.6	51.3
20136 52	Made elsewhere mil lb	48	*144.7	138.2	49	120.8	189.1
	Boiled ham, barbecue pork, and other cooked pork, except canned meats and sausages mil lb	(NA)	533.8	799.7	(NA)	292.3	492.3
20116 61	Made in slaughtering plants mil lb	16	99.6	147.0	19	93.7	152.1
20136 61	Made elsewhere mil lb	48	434.2	652.7	55	198.6	340.2
	Pork, processed or cured (not canned or made into sausage), n.s.k.	(NA)	(X)	164.3	(NA)	(X)	280.3
20116 00	Made in slaughtering plants	(NA)	(X)	11.9	(NA)	(X)	118.5
20136 00	Made elsewhere	(NA)	(X)	152.5	(NA)	(X)	161.8
	Sausages and similar products (not canned)	(NA)	(X)	7 463.9	(NA)	(X)	7 054.1
20117	Made in slaughtering plants	(NA)	(X)	1 718.2	(NA)	(X)	2 079.7
20137	Made elsewhere	(NA)	(X)	5 745.7	(NA)	(X)	4 974.4
	Fresh sausage mil lb	(NA)	**1 141.6	1 591.6	(NA)	1 010.3	1 267.5
20117 11	Made in slaughtering plants mil lb	60	(S)	752.9	73	589.6	779.1
20137 11	Made elsewhere mil lb	128	556.8	838.7	132	420.7	488.4
	Dry or semidry sausage and similar products mil lb	(NA)	582.0	1 115.4	(NA)	596.2	1 209.4
20117 17	Made in slaughtering plants mil lb	17	96.6	171.1	20	118.2	220.0
20137 17	Made elsewhere mil lb	92	485.4	944.3	98	*478.0	989.4
	Frankfurters, including weiners mil lb	(NA)	1 459.1	1 627.1	(NA)	1 512.7	1 673.4
20117 21	Made in slaughtering plants mil lb	36	359.6	359.4	54	432.1	414.0
20137 21	Made elsewhere mil lb	123	1 099.5	1 267.8	139	1 080.6	1 259.4
	Other sausage, smoked or cooked mil lb	(NA)	2 125.2	2 766.1	(NA)	1 911.5	2 460.5
20117 35	Made in slaughtering plants mil lb	47	*280.0	386.8	63	478.1	531.0
20137 35	Made elsewhere mil lb	194	1 845.3	2 379.3	200	1 433.4	1 929.5
	Jellied goods and similar preparations, not canned mil lb	(NA)	70.8	80.4	(NA)	60.9	67.4
20117 91	Made in slaughtering plants mil lb	14	20.6	19.7	17	20.5	26.8
20137 91	Made elsewhere mil lb	39	50.2	60.7	40	*40.4	40.6
	Sausages and similar products (not canned), n.s.k.	(NA)	(X)	283.2	(NA)	(X)	375.8
20117 00	Made in slaughtering plants	(NA)	(X)	28.4	(NA)	(X)	108.8
20137 00	Made elsewhere	(NA)	(X)	254.8	(NA)	(X)	267.0
	Canned meats (except dog, cat, and baby food) mil lb	(NA)	(D)	(D)	(NA)	1 120.9	1 312.1
20118 00	Made in slaughtering plants mil lb	5	(D)	(D)	8	271.9	402.0
20138 00	Made elsewhere mil lb	32	(S)	873.0	46	849.0	910.1

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20111, BEEF, NOT CANNED OR MADE INTO SAUSAGE		
United States	**26 890.2**	**21 684.0**
Arizona	294.1	(NA)
California	711.9	587.8
Colorado	2 167.7	1 591.6
Florida	28.0	95.5
Georgia	126.6	(NA)
Hawaii	15.7	(NA)
Idaho	484.4	(NA)
Illinois	793.2	1 096.2
Indiana	42.7	(NA)
Iowa	1 357.0	1 411.1
Kansas	5 118.8	4 082.5
Louisiana	3.3	6.5
Maryland	24.9	26.4
Michigan	309.3	189.8
Minnesota	740.9	638.9
Mississippi	30.2	(NA)
Missouri	65.2	61.0
Nebraska	5 829.4	3 341.9
New Jersey	35.6	(NA)
New Mexico	69.3	(NA)
New York	2.9	78.3
North Carolina	64.9	(NA)
North Dakota	107.7	(NA)
Ohio	122.3	251.9
Oklahoma	11.0	136.9
Oregon	41.1	33.8
Pennsylvania	998.2	538.4
South Carolina	59.9	(NA)
South Dakota	306.8	331.4
Tennessee	39.7	69.4
Texas	4 578.3	3 543.2
Utah	466.5	(NA)
Vermont	3.3	(NA)
Virginia	2.5	(NA)
Washington	702.8	638.3
Wisconsin	1 078.3	859.4
20112, VEAL, NOT CANNED OR MADE INTO SAUSAGE		
United States	**283.0**	**379.4**
New York	11.1	(NA)
20113, LAMB AND MUTTON, NOT CANNED OR MADE INTO SAUSAGE		
United States	**335.0**	**379.5**
20114, PORK, NOT CANNED OR MADE INTO SAUSAGE		
United States	**9 635.0**	**8 406.3**
Georgia	117.1	140.8
Illinois	955.0	643.9
Indiana	505.7	281.6
Iowa	3 607.3	2 886.9
Minnesota	930.5	750.3
Nebraska	623.9	(NA)
North Carolina	338.5	(NA)
Ohio	212.6	344.7
20115, LARD		
United States	**94.2**	**128.0**
Illinois	12.5	(NA)
Ohio	5.2	5.6
20116, PORK, PROCESSED OR CURED (NOT CANNED OR MADE INTO SAUSAGE)		
United States	**2 043.6**	**2 941.7**
Georgia	29.8	(NA)
Iowa	237.4	415.5
Ohio	87.5	141.7
20117, SAUSAGES AND SIMILAR PRODUCTS (NOT CANNED)		
United States	**1 718.2**	**2 079.7**
Alabama	80.4	(NA)
Georgia	34.9	65.3
Illinois	32.7	(NA)
Indiana	37.7	(NA)
Kentucky	105.5	145.5
North Carolina	43.7	58.2
Oklahoma	22.1	17.9
Pennsylvania	64.1	67.0
Tennessee	128.7	130.0
Texas	49.6	82.4
20118, CANNED MEATS (EXCEPT DOG, CAT, AND BABY FOOD)		
United States	**(D)**	**402.0**
20119, HIDES, SKINS, AND PELTS		
United States	**1 992.2**	**1 638.4**
California	36.4	48.7
Indiana	7.6	3.3
Iowa	92.5	116.7
Kansas	378.3	280.4
Kentucky	3.0	2.5
Maryland	2.1	(NA)
Minnesota	53.2	54.0
Nebraska	497.7	254.4
Ohio	5.9	14.8
South Dakota	21.7	23.5
Texas	304.4	272.1
Wisconsin	91.8	69.7
2011B, MISCELLANEOUS BYPRODUCTS OF MEAT PACKING PLANTS		
United States	**(D)**	**460.0**
California	12.1	10.2
Colorado	27.5	(NA)
Illinois	36.9	11.4
Indiana	4.3	(NA)
Iowa	40.8	42.6
Kansas	37.4	29.0
Kentucky	2.9	(NA)
Michigan	13.1	15.5
Minnesota	24.5	26.9
Nebraska	93.4	(NA)
Ohio	6.5	14.2
Pennsylvania	22.4	7.7
South Dakota	8.0	(NA)
Texas	114.1	81.0
Washington	5.2	2.2
20136, PORK, PROCESSED OR CURED, INCLUDING FROZEN, NOT CANNED OR MADE INTO SAUSAGE		
United States	**3 491.9**	**3 127.3**
California	62.8	135.4
Florida	73.6	(NA)
Georgia	5.0	9.3
Illinois	136.6	177.8
Iowa	323.6	144.3
Kentucky	63.0	(NA)
Michigan	228.3	285.8
Missouri	160.6	78.6
New Jersey	98.7	108.5
New York	150.8	175.0
North Carolina	260.7	217.5
Ohio	409.1	210.4
Pennsylvania	129.4	156.4
Tennessee	99.1	81.9
Texas	183.8	177.6
Virginia	138.5	94.9
Washington	20.0	(NA)
Wisconsin	164.0	103.3

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20137, SAUSAGE AND SIMILAR PRODUCTS, NOT CANNED		
United States	**5 745.7**	**4 974.4**
California	353.6	434.3
Colorado	77.7	76.6
Connecticut	33.5	39.2
Hawaii	7.4	8.2
Illinois	548.2	554.9
Iowa	294.5	196.5
Kansas	199.7	183.9
Louisiana	19.5	25.6
Massachusetts	119.2	116.2
Michigan	369.8	378.0
Minnesota	26.9	25.0
Missouri	106.2	117.9
Nebraska	65.2	61.7
New Jersey	149.6	110.2
New York	158.5	292.9
North Carolina	125.7	34.3
Ohio	73.5	147.8
Oklahoma	114.7	55.5
Oregon	120.9	96.6
Pennsylvania	309.8	330.0
Tennessee	71.5	(NA)
Texas	363.5	212.7
Virginia	151.7	(NA)
Washington	66.9	(NA)
Wisconsin	969.1	746.3
20138, CANNED MEATS (EXCEPT DOG, CAT, AND BABY FOOD), CONTAINING 20 PERCENT OR MORE MEAT		
United States	**873.0**	**910.1**
Wisconsin	56.6	(NA)
2013B, OTHER PROCESSED, FROZEN, OR COOKED MEATS		
United States	**5 759.7**	**3 834.1**
Arkansas	128.3	(NA)
California	448.3	315.5
Colorado	94.6	53.1
Florida	31.7	71.3
Georgia	353.0	220.7
Illinois	430.5	163.9
Indiana	99.7	(NA)
Iowa	234.6	(NA)
Kansas	53.5	(NA)
Massachusetts	54.7	44.2
Michigan	68.2	46.3
Minnesota	150.3	77.3
Missouri	75.7	48.4
Nebraska	167.4	167.0
New Jersey	113.9	(NA)
New York	99.0	182.3
Ohio	344.2	125.7
Pennsylvania	610.2	485.4
Tennessee	157.9	136.1
Texas	632.3	287.5
Wisconsin	627.1	503.7
20151, YOUNG CHICKENS (USUALLY UNDER 20 WEEKS OF AGE) WHOLE OR PARTS		
United States	**12 260.0**	**7 451.7**
Alabama	1 588.6	869.2
Arkansas	1 625.5	1 244.6
Delaware	570.6	394.5
Florida	263.5	171.5
Georgia	1 754.4	895.0
Maryland	364.9	243.9
Mississippi	890.7	448.1
Missouri	378.7	248.4
North Carolina	1 224.3	947.7
Ohio	48.7	20.0
Pennsylvania	246.3	130.6
Tennessee	204.2	(NA)
Virginia	754.6	526.4
Washington	109.6	46.0
20152, HENS AND/ OR FOWL (INCLUDING FROZEN WHOLE OR PARTS)		
United States	**106.6**	**210.7**
20153, TURKEYS (INCLUDING FROZEN, WHOLE OR PARTS)		
United States	**2 881.1**	**1 645.1**
California	237.0	147.6
Iowa	172.2	96.4
Minnesota	267.4	294.0
Missouri	221.2	88.6
North Carolina	477.0	210.5
Ohio	27.5	(NA)
Pennsylvania	111.4	(NA)
20154, OTHER POULTRY AND SMALL GAME (INCLUDING FROZEN, WHOLE OR PARTS)		
United States	**73.9**	**86.7**
20155, PROCESSED POULTRY AND SMALL GAME (EXCEPT SOUPS) CONTAINING 20 PERCENT OR MORE POULTRY OR MEAT		
United States	**6 380.7**	**3 725.3**
Alabama	349.5	80.1
Arkansas	1 417.3	651.0
California	218.4	256.1
Florida	27.4	(NA)
Georgia	314.1	137.4
Minnesota	370.0	274.5
Missouri	326.1	129.3
Nebraska	42.8	(NA)
New Jersey	125.5	(NA)
New York	7.0	14.5
North Carolina	495.0	212.2
Pennsylvania	262.2	321.2
Tennessee	293.7	147.1
Texas	168.3	(NA)
Wisconsin	135.4	64.4
20159, LIQUID, DRIED, AND FROZEN EGGS		
United States	**746.2**	**495.4**
California	39.3	17.1
Georgia	50.7	(NA)
Iowa	92.6	38.7
Missouri	111.7	84.5

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2011-	**Fresh and frozen meat from animals slaughtered in this plant**	**46 796.4**	**46 253.9**	**47 365.1**	**42 798.7**	**42 936.7**	**41 234.6**	**40 522.6**	**27 875.7**
20111	Beef, not canned or made into sausage	26 890.2	26 710.6	27 106.1	24 302.1	23 327.7	21 684.0	20 606.7	14 095.8
20112	Veal, not canned or made into sausage	283.0	418.1	451.3	444.5	418.7	379.4	361.1	319.3
20113	Lamb and mutton, not canned or made into sausage	335.0	284.0	283.2	269.1	360.6	379.5	270.8	329.5
20114	Pork, not canned or made into sausage	9 635.0	9 526.9	9 589.8	7 961.3	8 630.4	8 406.3	8 071.8	5 647.5
20115	Lard	94.2	86.3	100.6	121.0	130.9	128.0	239.6	214.1
20116	Pork, processed or cured (not canned or made into sausage)	2 043.6	2 777.0	2 479.0	2 391.5	2 456.8	2 941.7	3 042.0	2 095.3
20117	Sausages and similar products (not canned)	1 718.2	2 181.8	2 204.3	2 068.6	1 945.0	2 079.7	2 867.8	1 859.3
20118	Canned meats (except dog, cat, and baby food)	(D)	514.5	487.5	470.4	470.4	402.0	658.2	561.7
20119	Hides, skins, and pelts	1 992.2	1 893.2	2 205.9	2 060.5	2 020.3	1 638.4	867.1	807.7
2011B	Miscellaneous byproducts of meat packing plants	(D)	581.7	647.8	603.1	511.5	460.0	270.2	
20110	Fresh and frozen meat from animals slaughtered in this plant, n.s.k.	2 804.6	1 279.9	1 809.7	2 106.7	2 664.5	2 735.7	3 267.3	1 945.5
2013-	**Sausage and other prepared meats**	**17 718.9**	**16 422.4**	**16 714.0**	**15 544.1**	**15 269.0**	**14 352.8**	**10 508.2**	**7 146.8**
20136	Pork, processed or cured, including frozen, not canned or made into sausage	3 491.9	3 676.4	3 597.1	3 028.9	3 299.1	3 127.3	2 278.5	1 683.3
20137	Sausage and similar products, not canned	5 745.7	6 284.6	6 510.0	5 862.7	5 084.5	4 974.4	3 640.2	2 820.7
20138	Canned meats (except dog, cat, and baby food), containing 20 percent or more meat	873.0	1 089.4	1 288.1	1 192.4	1 094.1	910.1	890.4	694.6
2013B	Other processed, frozen, or cooked meats	5 759.7	4 992.4	4 886.0	4 711.0	4 248.4	3 834.1	1 824.7	
20130	Sausage and other prepared meats, n.s.k.	1 848.6	379.5	432.9	749.2	1 542.9	1 506.8	1 874.4	1 948.1
2015-	**Poultry and egg processing**	**23 450.2**	**21 246.4**	**20 352.6**	**19 718.3**	**15 962.7**	**14 370.9**	**10 110.0**	**6 358.4**
20151	Young chickens (usually under 20 weeks of age) whole or parts	12 260.0	11 623.3	10 899.4	10 392.6	8 072.6	7 451.7	6 017.4	3 961.1
20152	Hens and/or fowl (including frozen whole or parts)	106.6	139.5	187.2	210.1	231.3	210.7	175.6	229.5
20153	Turkeys (including frozen, whole or parts)	2 881.1	2 574.9	2 519.5	2 210.5	1 962.5	1 645.1	1 272.4	927.3
20154	Other poultry and small game (including frozen, whole or parts)	73.9	33.1	28.2	58.5	80.0	86.7	58.9	57.9
20155	Processed poultry and small game (except soups) containing 20 percent or more poultry or meat	6 380.7	5 467.5	5 329.3	5 306.6	4 257.4	3 725.3	1 692.3	657.7
20159	Liquid, dried, and frozen eggs	746.2	939.2	847.9	760.9	522.9	495.4	329.7	312.7
20150	Poultry and egg processing, n.s.k.	1 001.7	469.0	541.1	779.1	836.1	756.1	563.7	212.2

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2011, MEAT PACKING PLANTS				
	Materials, ingredients, containers, and supplies	**(X)**	**41 036.4**	**(X)**	**r36 652.9**
	Cattle slaughtered:				
021013	Number of head, 1,000	31 068.3	25 650.8	30 466.4	20 302.9
021011	Live weight, mil lb	35 747.9	(X)	32 363.7	(X)
	Calves slaughtered:				
021023	Number of head, 1,000	578.1	243.8	1 498.5	325.6
021021	Live weight, mil lb	174.5	(X)	395.6	(X)
	Hogs slaughtered:				
021313	Number of head, 1,000	86 308.4	9 677.0	74 133.7	9 219.2
021311	Live weight, mil lb	21 511.9	(X)	18 188.7	(X)
	Sheep and lambs slaughtered:				
021413	Number of head, 1,000	3 568.5	288.8	3 743.2	350.1
021411	Live weight, mil lb	**549.2	(X)	437.3	(X)
	Fresh and frozen red meats, including variety meats:				
201111	Beef, mil lb	585.3	481.5	**463.1	416.7
201121	Veal, mil lb	**17.2	15.6	42.1	54.1
201141	Pork, mil lb	*701.7	433.4	892.3	679.2
201132	Other fresh and frozen red meats, mil lb	31.8	27.1	4.6	4.6
201101	Meat materials for sausage and canning not separable by species, mil lb	42.7	17.4	*261.3	185.8
201161	Processed pork (cured, smoked, etc.), mil lb	34.0	28.9	631.0	405.4
201102	Other purchased meat materials (cured beef, cured lamb, etc.), mil lb	20.9	24.8	46.8	44.0
190032	Poultry; live, fresh, frozen, or prepared	(X)	57.1	(X)	25.5
201191	Hides, skins, and pelts	(X)	23.0	(X)	49.3
209993	Spices and curing materials	(X)	69.7	(X)	66.6
	Casings:				
201391	Animal and collagen	(X)	23.2	(X)	19.9
267101	Packaging paper and plastics film, coated and laminated	(X)	239.8	(X)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	317.9	(X)	(2)
308012	Synthetic, including cellulosic and fibrous reinforced	(X)	49.0	(X)	34.4
970099	All other materials and components, parts, containers, and supplies	(X)	566.8	(X)	2971.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	2 800.6	(X)	r3 497.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2013, SAUSAGES AND OTHER PREPARED MEATS				
	Materials, ingredients, containers, and supplies	**(X)**	**12 723.5**	**(X)**	**r10 308.2**
	Fresh and frozen red meats purchased from other packers:				
201111	Beef, mil lb	4 061.7	4 236.3	*3 549.4	3 302.6
201121	Veal, mil lb	159.0	150.7	(S)	106.0
201141	Pork, mil lb	4 385.8	2 950.5	3 835.3	3 121.4
201132	Other fresh and frozen red meats, mil lb	**69.8	31.9	**101.2	67.2
201101	Meat materials for sausage and canning not separable by species, mil lb	*921.6	612.0	(S)	648.3
201161	Processed pork (cured, smoked, etc.), mil lb	506.5	422.6	(S)	146.4
201102	Other purchased meat materials (cured beef, cured lamb, etc.), mil lb	65.7	47.8	**128.9	83.4
190032	Poultry; live, fresh, frozen, or prepared	(X)	402.3	(X)	160.0
209993	Spices and curing materials	(X)	246.8	(X)	169.1
201191	Hides, skins, and pelts	(X)	46.9	(X)	(4)
	Casings:				
201391	Animal and collagen	(X)	101.8	(X)	64.2
308012	Synthetic, including cellulosic and fibrous reinforced	(X)	169.6	(X)	138.4
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	290.4	(X)	(4)
267101	Packaging paper and plastics film, coated and laminated	(X)	301.5	(X)	(4)
970099	All other materials and components, parts, containers, and supplies	(X)	914.7	(X)	4912.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 797.6	(X)	r1 388.3
	INDUSTRY 2015, POULTRY SLAUGHTERING AND PROCESSING				
	Materials, ingredients, containers, and supplies	**(X)**	**16 174.6**	**(X)**	**10 173.7**
	Poultry and small game slaughtered:				
025111	Young chickens (including commercial broilers), mil lb	26 037.5	7 450.7	16 530.5	4 409.7
025121	Hens (or fowl) and other chickens, mil lb	**903.9	181.1	747.8	114.8
025311	Turkeys, mil lb	5 468.4	2 046.0	3 648.6	1 310.6
025911	Other poultry and small game (including ducks, geese, rabbits, etc.)	(X)	32.3	(X)	42.2
201501	Dressed poultry purchased for processing (cooking, smoking, canning, raw-boning, freezing, dehydrating), mil lb	*4 515.4	2 980.0	**2 208.2	1 542.3
025211	Shell eggs, 1,000 cases (30 doz)	34 162.4	368.3	(S)	215.8
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	388.7	(X)	(5)
267101	Packaging paper and plastics film, coated and laminated	(X)	185.3	(X)	(5)
267301	Bags; plastics, foil, and coated paper	(X)	134.1	(X)	(5)
341104	Metal cans, can lids, and ends	(X)	9.5	(X)	(5)
970099	All other materials and components, parts, containers, and supplies	(X)	1 206.3	(X)	51 432.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 192.2	(X)	1 105.4

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, material codes 267101 and 265001 were included with material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a report form.

[4]For 1987, material codes 201191, 265001, and 267101 were included with material code 970099.

[5]For 1987, material codes 265001, 267101, 267301, and 341104 were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
20489 41	20489 00
2048A 12	2048A 13
2048A 19	2048A 13
20511 21	20511 11
20511 22	20511 11
20511 27	20511 13
20511 29	20511 13
20511 31	20511 15
20511 33	20511 15
20511 35	20511 17
20511 37	20511 17
20511 41	20511 28
20511 42	20511 28
20512 30	20512 33
20512 31	20512 33
20512 43	20512 35
20512 44	20512 35
20512 50	20512 36
20512 51	20512 36
20512 60	20512 37
20512 61	20512 37
20512 70	20512 39
20512 71	20512 39
20512 80	20512 40
20512 81	20512 40
20512 90	20512 42
20512 91	20512 42
20522 16	20522 19
20522 17	20522 19
20522 18	20522 19
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20630 12	20630 07
20630 35	20630 89
20630 76	20630 75
20630 76	20630 81
20630 91	20630 89
20752 97	20752 32
20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
20853 65	20853 63
20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
20922 19	20922 22
20923 21	20923 24
20923 21	20923 31
20923 21	20923 33
20923 23	20923 25
20923 23	20923 35
20923 26	20923 31
20923 27	20923 33
20923 29	20923 35
20925 27	20925 31
20925 28	20925 31
20925 29	20925 35
20925 30	20925 32
20952 00	20952 11
20952 00	20952 14
20952 00	20952 17
20952 00	20952 19
20980 01	20980 21
20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
2099B 07	20997 41
2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
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20238 11	20238 19
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20321 21	20321 00
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20980 21	20980 01
20980 21	20980 02
20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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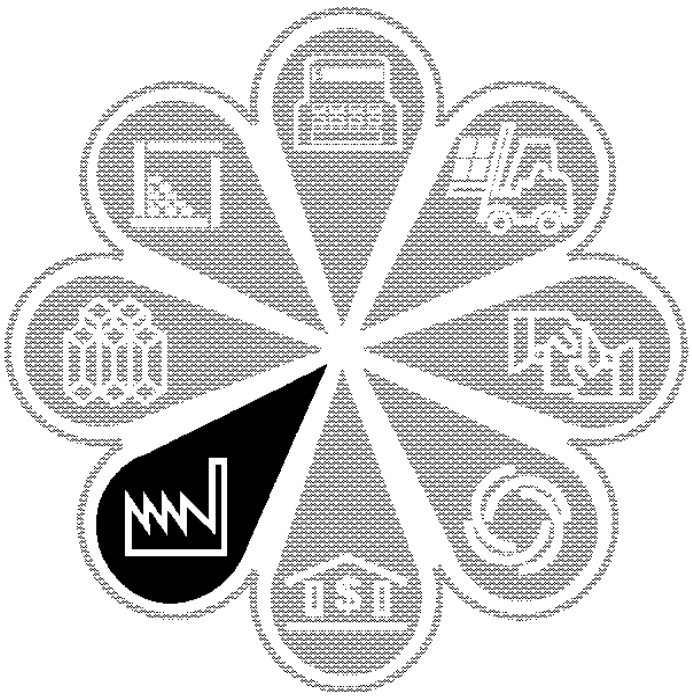
1992
Census of Manufactures

MC92-I-20B

INDUSTRY SERIES

Dairy Products

Industries 2021, 2022, 2023, 2024, and 2026



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20B

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2021	Creamery Butter
2022	Cheese, Natural and Processed
2023	Dry, Condensed, and Evaporated Dairy Products
2024	Ice Cream and Frozen Desserts
2026	Fluid Milk

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2021, CREAMERY BUTTER

This industry is made up of establishments primarily engaged in manufacturing creamery butter.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2021, Creamery Butter, had employment of 1.5 thousand. The employment figure was 12 percent below the 1.7 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Minnesota and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2021 shipped $733.9 million of creamery butter considered primary to the industry, $244.3 million of secondary products, and had $55.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 75 percent (specialization ratio). In 1987, the specialization ratio was 76 percent.

Establishments in this industry also accounted for 61 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 64 percent.

The products primary to industry 2021, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the creamery butter industry amounted to $883.7 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED

This industry is made up of establishments primarily engaged in manufacturing natural cheese (except cottage cheese), processed cheese, cheese foods, cheese spreads, and cheese analogs (imitations and substitutes). These establishments also produce byproducts, such as raw liquid whey. Establishments primarily engaged in manufacturing cottage cheese are classified in industry 2026. Establishments primarily engaged in manufacturing cheese-based salad dressings are classified in industry 2035.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2022, Cheese, Natural and Processed, had employment of 36.3 thousand. The employment figure was 10 percent above the 33.0 thousand reported in 1987. Compared with 1991, employment increased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Minnesota, and Wisconsin accounting for approximately 58 percent of the industry's employment. This represents a shift from 1987 when Illinois, Minnesota, New York, and Wisconsin accounted for approximately 60 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $18.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2022 shipped $15.4 billion of cheese, natural and processed, considered primary to the industry, $2.3 billion of secondary products, and had $661.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2022, no matter in what industry they were produced, appear in table 6a and aggregate to $15.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cheese, natural and processed, industry amounted to $13.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing dry, condensed, and evaporated dairy products. Also included in this industry are establishments primarily engaged in manufacturing mixes for the preparation of frozen ice cream and ice milk and dairy and nondairy base cream substitutes and dietary supplements.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2023, Dry, Condensed, and Evaporated Dairy Products, had employment of 15.2 thousand. The employment figure was 8 percent above the 14.1 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, Michigan, Minnesota, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $7.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2023 shipped $6.0 billion of dry, condensed, and evaporated dairy products considered primary to the industry, $1.2 billion of secondary products, and had $402.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both

secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 75 percent.

The products primary to industry 2023, no matter in what industry they were produced, appear in table 6a and aggregate to $7.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the dry, condensed, and evaporated dairy products industry amounted to $4.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS

This industry is made up of establishments primarily engaged in manufacturing ice cream and other frozen desserts. Establishments primarily engaged in manufacturing frozen bakery products, such as cakes and pies are classified in industry 2053.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2024, Ice Cream and Frozen Desserts, had employment of 20.9 thousand. The employment figure was 3 percent above the 20.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Massachusetts, Pennsylvania, and Texas. This represents a shift from 1987 when California, Illinois, New York, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2024 shipped $4.5 billion of ice cream and frozen desserts considered primary to the industry, $346.0 million of secondary products, and had $494.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 2024, no matter in what industry they were produced, appear in table 6a and aggregate to $5.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ice cream and frozen desserts industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2026, FLUID MILK

This industry is made up of establishments primarily engaged in processing (pasturizing, homogenizing, vitaminizing, bottling) fluid milk and cream, and related products, including cottage cheese, yogurt (except frozen), and other fermented milk. Establishments primarily engaged in manufacturing dry mix whipped toppings are classified in industry 2023. Establishments primarily engaged in producing frozen whipped toppings are classified in industry 2038; and those producing frozen yogurt are classified in industry 2024.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2026, Fluid Milk, had employment of 63.4 thousand. The employment figure was 12 percent below the 72.4 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, Pennsylvania, and Texas, accounting for approximately 30 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Pennsylvania, and Texas accounted for approximately 27 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $21.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2026 shipped $17.1 billion of fluid milk products considered primary to the industry, $2.5 billion of secondary products, and had $2.3 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2026, no matter in what industry they were produced, appear in table 6a and aggregate to $18.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fluid milk industry amounted to $16.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2021, CREAMERY BUTTER															
1992 Census	31	32	17	1.5	42.4	1.1	2.4	28.9	148.4	883.7	1 034.0	9.1	32.7	75	61
1991 ASM	(NA)	(NA)	(NA)	1.7	44.9	1.2	2.6	30.2	135.4	1 095.8	1 231.1	17.4	42.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	1.6	41.5	1.2	2.6	27.7	207.5	1 105.4	1 307.5	16.5	43.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	1.8	42.4	1.3	2.8	29.6	239.7	1 331.5	1 570.4	13.6	43.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	1.9	43.5	1.5	2.9	30.9	280.7	1 487.6	1 764.6	9.7	50.4	(NA)	(NA)
1987 Census	44	49	26	1.7	38.9	1.3	2.8	27.4	133.6	1 291.3	1 420.4	9.7	41.3	76	64
1986 ASM	(NA)	(NA)	(NA)	1.7	40.1	1.4	2.9	28.6	89.4	1 430.1	1 531.2	8.0	34.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.0	40.9	1.7	3.3	31.1	97.6	1 478.0	1 571.0	10.5	46.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.0	41.5	1.6	3.4	30.1	83.3	1 478.7	1 563.8	7.9	45.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	2.2	43.2	1.7	3.5	29.7	131.2	1 610.8	1 736.7	4.0	55.8	(NA)	(NA)
1982 Census	61	74	35	2.2	40.2	1.7	3.5	28.5	135.6	1 556.1	1 686.8	8.4	54.6	77	64
1981 ASM	(NA)	(NA)	(NA)	1.7	29.6	1.3	2.8	21.2	52.4	1 208.8	1 258.0	6.9	37.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	1.8	29.2	1.4	2.9	20.7	58.7	1 100.9	1 151.6	6.0	33.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	2.0	29.7	1.5	3.3	20.3	81.9	967.5	1 046.4	8.2	27.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	2.5	31.4	1.8	3.8	21.3	97.2	941.0	1 031.7	8.0	31.8	(NA)	(NA)
1977 Census	124	138	39	2.3	26.3	1.7	3.6	18.1	74.6	822.9	900.5	8.3	24.2	80	61
INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED															
1992 Census	418	576	314	36.3	883.2	29.2	61.4	657.4	4 472.4	13 880.9	18 351.7	261.8	1 204.6	87	97
1991 ASM	(NA)	(NA)	(NA)	35.0	788.8	27.9	56.8	591.5	3 612.6	12 758.7	16 379.7	187.6	1 120.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	34.9	766.5	28.2	57.8	586.1	2 850.6	13 369.3	16 155.8	272.1	1 154.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.5	692.8	26.7	53.9	534.4	2 761.8	11 630.0	14 317.4	169.1	1 041.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	33.8	689.1	28.1	56.0	543.1	2 575.7	10 555.6	13 134.6	135.0	922.2	(NA)	(NA)
1987 Census	508	644	310	33.0	657.8	27.0	52.7	510.3	2 624.8	10 336.6	12 971.0	146.3	874.6	86	95
1986 ASM	(NA)	(NA)	(NA)	32.3	603.0	25.9	51.8	456.2	2 306.6	9 537.2	11 892.1	140.1	756.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.5	562.2	25.7	49.8	425.2	1 910.3	9 144.3	11 060.2	133.3	746.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	30.0	519.5	24.4	47.8	397.9	1 947.9	8 879.3	10 837.0	121.8	784.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	29.8	491.1	24.2	47.0	374.4	1 957.3	8 930.7	10 907.4	147.4	765.6	(NA)	(NA)
1982 Census	575	704	319	29.6	472.1	24.1	47.4	363.3	1 777.3	9 012.7	10 762.8	161.2	798.7	89	92
1981 ASM	(NA)	(NA)	(NA)	30.6	456.9	24.5	49.0	356.7	1 642.2	8 825.5	10 429.0	138.7	808.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.5	401.6	23.4	46.9	311.0	1 438.7	7 631.2	9 047.4	123.3	749.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.3	354.0	22.6	45.2	278.4	1 221.6	6 492.8	7 654.0	99.8	664.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	27.4	319.3	22.8	43.6	244.3	1 055.0	5 713.1	6 734.0	75.0	605.9	(NA)	(NA)
1977 Census	660	791	293	26.7	287.0	22.2	44.0	223.4	948.7	5 200.5	6 126.0	57.2	550.4	91	93
INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS															
1992 Census	153	214	134	15.2	451.6	9.9	21.6	272.3	3 379.5	4 172.4	7 541.0	188.5	429.5	83	81
1991 ASM	(NA)	(NA)	(NA)	13.6	405.9	9.2	19.1	237.9	2 879.6	3 434.4	6 343.5	162.5	375.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.1	348.5	8.5	18.1	215.9	2 670.2	3 509.7	6 135.3	117.2	395.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.3	375.4	8.8	18.5	216.8	2 593.5	3 467.0	6 052.1	153.8	379.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.0	377.9	9.3	18.8	219.9	2 577.9	3 682.9	6 245.4	107.7	395.5	(NA)	(NA)
1987 Census	124	186	115	14.1	399.3	8.7	18.0	206.4	2 391.6	3 463.0	5 856.7	109.6	361.4	84	75
1986 ASM	(NA)	(NA)	(NA)	13.5	357.0	8.9	18.5	196.0	2 254.5	3 577.9	5 807.2	120.7	348.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.0	315.5	7.9	18.1	185.0	1 628.0	3 689.8	5 287.9	(D)	318.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.7	294.6	8.6	19.1	190.0	1 814.1	3 386.4	5 212.7	87.4	296.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.1	304.5	8.9	19.7	191.4	1 736.2	4 059.7	5 745.9	114.9	339.4	(NA)	(NA)
1982 Census	132	204	125	12.2	258.7	8.6	18.4	167.4	1 447.6	3 296.7	4 730.7	98.8	277.8	78	68
1981 ASM	(NA)	(NA)	(NA)	13.4	245.0	9.8	20.1	162.8	1 192.2	3 633.4	4 807.5	121.4	272.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.0	215.3	9.5	19.1	144.5	1 059.6	3 060.3	4 112.4	86.8	259.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.2	205.9	9.6	22.9	139.5	1 018.5	2 616.6	3 591.4	57.6	244.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.1	187.6	9.6	18.8	124.9	891.4	2 532.6	3 412.0	62.8	179.6	(NA)	(NA)
1977 Census	166	266	148	12.3	163.2	9.0	18.9	110.7	805.2	2 382.3	3 188.5	56.2	175.0	79	76
INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS															
1992 Census	411	456	177	20.9	558.2	13.7	28.8	324.9	2 096.5	3 210.5	5 290.6	188.1	406.0	93	84
1991 ASM	(NA)	(NA)	(NA)	20.2	514.9	12.9	27.9	296.4	1 571.1	3 196.2	4 761.2	161.3	354.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.7	493.5	13.0	26.7	277.1	1 725.5	2 969.3	4 660.2	140.9	345.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.3	453.9	13.5	27.2	272.1	1 518.2	2 947.8	4 474.4	148.0	311.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.2	463.8	14.1	28.5	281.8	1 463.5	2 841.3	4 297.2	158.5	293.9	(NA)	(NA)
1987 Census	469	541	211	20.3	440.1	13.8	26.9	269.0	1 270.4	2 662.1	3 916.5	137.1	282.5	93	78
1986 ASM	(NA)	(NA)	(NA)	18.2	383.2	11.7	22.3	219.0	1 074.8	2 386.5	3 459.0	105.4	232.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.9	384.7	11.7	21.5	199.8	1 040.8	2 443.4	3 476.9	(D)	218.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.0	367.2	12.2	23.1	200.4	1 007.2	2 437.7	3 435.7	84.0	206.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.7	349.7	9.5	19.7	174.0	876.6	2 104.3	2 963.4	75.5	184.4	(NA)	(NA)
1982 Census	482	552	219	17.8	313.5	11.1	20.9	177.3	910.4	1 949.0	2 855.1	79.9	177.7	94	73
1981 ASM	(NA)	(NA)	(NA)	20.1	325.6	12.0	23.0	167.1	903.3	2 036.3	2 935.3	41.8	178.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	19.6	288.6	12.3	23.7	163.0	733.9	1 906.7	2 637.4	46.8	196.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.9	277.4	12.3	24.3	151.9	712.6	1 678.8	2 393.7	46.3	164.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	18.5	252.5	11.3	21.9	136.6	621.9	1 489.4	2 096.8	56.4	142.7	(NA)	(NA)
1977 Census	507	612	229	19.1	247.0	11.4	22.7	130.1	643.7	1 368.5	2 008.6	56.8	126.6	94	75
INDUSTRY 2026, FLUID MILK															
1992 Census	525	746	506	63.4	1 841.1	32.5	70.8	894.0	5 965.6	15 973.8	21 926.9	362.5	500.9	87	92
1991 ASM	(NA)	(NA)	(NA)	65.5	1 840.1	32.3	69.5	866.6	5 656.1	15 476.5	21 137.1	325.8	499.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	69.6	1 831.8	34.0	71.6	864.9	5 779.9	16 921.5	22 703.6	340.4	526.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	72.2	1 820.3	36.1	74.5	856.0	5 454.0	16 215.4	21 630.2	418.8	525.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	73.0	1 777.7	37.1	76.5	841.1	5 758.9	15 745.7	21 502.1	380.3	482.5	(NA)	(NA)
1987 Census	652	946	626	72.4	1 681.3	36.2	74.2	788.9	5 426.2	15 189.6	20 590.5	341.7	472.1	85	93
1986 ASM	(NA)	(NA)	(NA)	71.4	1 590.2	34.8	71.9	748.9	5 192.6	14 279.2	19 473.7	297.8	429.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	73.2	1 572.3	36.1	74.3	754.0	4 952.5	14 731.3	19 679.2	322.3	442.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	75.8	1 525.5	37.1	74.6	717.3	4 550.2	14 800.1	19 351.8	265.3	452.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	76.3	1 468.9	36.3	74.1	702.1	4 398.0	14 472.5	18 865.4	258.3	409.3	(NA)	(NA)
1982 Census	853	1 190	751	78.2	1 468.7	37.4	76.8	683.6	4 088.9	14 659.1	18 736.0	363.0	411.9	85	92
1981 ASM	(NA)	(NA)	(NA)	81.3	1 405.6	37.1	79.7	638.8	4 118.3	13 421.4	17 511.9	223.8	412.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	85.4	1 357.4	39.7	82.5	608.1	4 185.9	12 825.4	16 981.3	274.0	387.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	89.2	1 294.2	39.6	85.1	544.8	3 874.2	11 658.0	15 523.5	211.5	346.5	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2026, FLUID MILK—Con.														
1978 ASM	(NA)	(NA)	(NA)	93.0	1 312.2	40.2	88.4	545.3	3 320.1	11 313.6	14 616.5	247.7	326.4	(NA)	(NA)
1977 Census	1 516	1 924	908	93.5	1 215.4	40.8	86.3	505.4	3 175.9	10 631.9	13 786.2	210.5	304.0	88	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2021, CREAMERY BUTTER								
1992 Census	28 267	73	2 182	12.04	85	90	98 933	29	61.83
1991 ASM	26 412	71	2 167	11.62	89	93	79 647	33	52.08
1990 ASM	25 938	75	2 167	10.65	85	88	129 688	20	79.81
1989 ASM	23 556	72	2 154	10.57	85	87	133 167	18	85.61
1988 ASM	22 895	79	1 933	10.66	84	87	147 737	15	96.79
1987 Census	22 882	76	2 154	9.79	91	94	78 588	29	47.71
1986 ASM	23 588	82	2 071	9.86	93	96	52 588	45	30.83
1985 ASM	20 450	85	1 941	9.42	94	97	48 800	42	29.58
1984 ASM	20 750	80	2 125	8.85	95	97	41 650	50	24.50
1983 ASM	19 636	77	2 059	8.49	93	95	59 636	33	37.49
1982 Census	18 273	77	2 059	8.14	92	95	61 636	30	38.74
1981 ASM	17 412	76	2 154	7.57	96	98	30 824	56	18.71
1980 ASM	16 222	78	2 071	7.14	96	98	32 611	50	20.24
1979 ASM	14 850	75	2 200	6.15	92	95	40 950	36	24.82
1978 ASM	12 560	72	2 111	5.61	91	94	38 880	32	25.58
1977 Census	11 435	74	2 118	5.03	91	94	32 435	35	20.72
	INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED								
1992 Census	24 331	80	2 103	10.71	76	80	123 207	20	72.84
1991 ASM	22 537	80	2 036	10.41	78	83	103 217	22	63.60
1990 ASM	21 963	81	2 050	10.14	83	87	81 679	27	49.32
1989 ASM	21 317	82	2 019	9.91	81	86	84 978	25	51.24
1988 ASM	20 388	83	1 993	9.70	80	86	76 204	27	45.99
1987 Census	19 933	82	1 952	9.68	80	85	79 539	25	49.81
1986 ASM	18 669	80	2 000	8.81	80	85	71 412	26	44.53
1985 ASM	17 848	82	1 938	8.54	83	88	60 644	29	38.36
1984 ASM	17 317	81	1 959	8.32	82	87	64 930	27	40.75
1983 ASM	16 480	81	1 942	7.97	82	86	65 681	25	41.64
1982 Census	15 949	81	1 967	7.66	84	88	60 044	27	37.50
1981 ASM	14 931	80	2 000	7.28	85	89	53 667	28	33.51
1980 ASM	13 614	79	2 004	6.63	84	89	48 769	28	30.68
1979 ASM	12 509	80	2 000	6.16	85	89	43 166	29	27.03
1978 ASM	11 653	83	1 912	5.60	85	90	38 504	30	24.20
1977 Census	10 749	83	1 982	5.08	85	90	35 532	30	21.56
	INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS								
1992 Census	29 711	65	2 182	12.61	55	61	222 336	13	156.46
1991 ASM	29 846	68	2 076	12.46	54	61	211 735	14	150.76
1990 ASM	28 802	70	2 129	11.93	57	63	220 678	13	147.52
1989 ASM	30 520	72	2 102	11.72	57	63	210 854	14	140.19
1988 ASM	29 069	72	2 022	11.70	59	65	198 300	15	137.12
1987 Census	28 319	62	2 069	11.47	59	66	169 617	17	132.87
1986 ASM	26 444	66	2 079	10.59	62	68	167 000	16	121.86
1985 ASM	26 292	66	2 291	10.22	70	76	135 667	19	89.94
1984 ASM	23 197	68	2 221	9.95	65	71	142 843	16	94.98
1983 ASM	23 244	68	2 213	9.72	71	76	132 534	18	88.13
1982 Census	21 205	70	2 140	9.10	70	75	118 656	18	78.67
1981 ASM	18 284	73	2 051	8.10	76	81	88 970	21	59.31
1980 ASM	16 562	73	2 011	7.57	74	80	81 508	20	55.48
1979 ASM	15 598	73	2 385	6.09	73	79	77 159	20	44.48
1978 ASM	14 321	73	1 958	6.64	74	80	68 046	21	47.41
1977 Census	13 268	73	2 100	5.86	75	80	65 463	20	42.60

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS								
1992 Census	26 708	66	2 102	11.28	61	71	100 311	27	72.80
1991 ASM	25 490	64	2 163	10.62	67	78	77 777	33	56.31
1990 ASM	23 841	63	2 054	10.38	64	74	83 357	29	64.63
1989 ASM	22 360	67	2 015	10.00	66	76	74 788	30	55.82
1988 ASM	21 877	67	2 021	9.89	66	77	69 033	32	51.35
1987 Census	21 680	68	1 949	10.00	68	79	62 581	35	47.23
1986 ASM	21 055	64	1 906	9.82	69	80	59 055	36	48.20
1985 ASM	20 354	62	1 838	9.29	70	81	55 069	37	48.41
1984 ASM	18 360	61	1 893	8.68	71	82	50 360	36	43.60
1983 ASM	19 757	54	2 074	8.83	71	83	49 525	40	44.50
1982 Census	17 612	62	1 883	8.48	68	79	51 146	34	43.56
1981 ASM	16 199	60	1 917	7.27	69	80	44 940	36	39.27
1980 ASM	14 724	63	1 927	6.88	72	83	37 444	39	30.97
1979 ASM	13 940	62	1 976	6.25	70	82	35 809	39	29.33
1978 ASM	13 649	61	1 938	6.24	71	83	33 616	41	28.40
1977 Census	12 932	60	1 991	5.73	68	80	33 702	38	28.36
	INDUSTRY 2026, FLUID MILK								
1992 Census	29 039	51	2 178	12.63	73	81	94 095	31	84.26
1991 ASM	28 093	49	2 152	12.47	73	82	86 353	33	81.38
1990 ASM	26 319	49	2 106	12.08	75	83	83 045	32	80.72
1989 ASM	25 212	50	2 064	11.49	75	83	75 540	33	73.21
1988 ASM	24 352	51	2 062	10.99	73	81	78 889	31	75.28
1987 Census	23 222	50	2 050	10.63	74	82	74 948	31	73.13
1986 ASM	22 272	49	2 066	10.42	73	81	72 725	31	72.22
1985 ASM	21 480	49	2 058	10.15	75	83	67 657	32	66.66
1984 ASM	20 125	49	2 011	9.62	76	84	60 029	34	60.99
1983 ASM	19 252	48	2 041	9.48	77	85	57 641	33	59.35
1982 Census	18 781	48	2 053	8.90	78	86	52 288	36	53.24
1981 ASM	17 289	46	2 148	8.02	77	85	50 656	34	51.67
1980 ASM	15 895	46	2 078	7.37	76	84	49 015	32	50.74
1979 ASM	14 509	44	2 149	6.40	75	83	43 433	33	45.53
1978 ASM	14 110	43	2 199	6.17	77	86	35 700	40	37.56
1977 Census	12 999	44	2 115	5.86	77	86	33 967	38	36.80

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2021, CREAMERY BUTTER														
United States	–	**32**	**17**	**1.5**	**42.4**	**1.1**	**2.4**	**28.9**	**148.4**	**883.7**	**1 034.0**	**9.1**	**1.7**	**133.6**
Minnesota	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	10	8	.7	21.5	.5	1.0	12.7	66.3	425.6	491.9	2.9	.5	39.7
INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED														
United States	–	**576**	**314**	**36.3**	**883.2**	**29.2**	**61.4**	**657.4**	**4 472.4**	**13 880.9**	**18 351.7**	**261.8**	**33.0**	**2 624.8**
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	44	27	3.2	87.5	2.5	5.4	61.0	348.6	1 050.8	1 398.7	35.8	1.7	123.9
Connecticut	E8	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Idaho	–	14	8	.7	14.5	.6	1.3	12.0	57.1	330.0	386.6	8.8	.9	80.8
Illinois	–	25	16	2.6	72.8	2.2	4.1	61.0	865.4	871.6	1 733.9	24.7	2.9	351.5
Indiana	E3	5	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Iowa	–	13	10	1.1	22.1	.9	2.3	18.2	84.0	417.5	498.8	(D)	.8	59.7
Kansas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	C	(D)
Kentucky	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	22.0
Michigan	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	27	20	3.3	78.7	2.9	5.7	64.4	553.0	1 488.9	2 048.5	25.3	2.8	292.4
Missouri	–	13	10	2.5	68.6	2.2	4.4	57.3	522.9	1 095.5	1 624.8	12.9	2.5	256.9
Nebraska	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	43.3
New Jersey	E3	18	8	.5	10.4	.4	.8	8.0	40.2	155.8	196.1	2.6	.5	24.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED—Con.														
New York	–	35	19	2.4	59.8	1.8	3.6	39.9	152.1	861.5	1 023.2	30.4	2.6	162.0
North Dakota	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.3
Ohio	E2	20	9	.8	18.1	.6	1.2	13.2	44.7	235.6	282.0	3.1	.9	66.4
Oregon	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	31	10	1.2	29.7	.9	2.3	22.0	127.4	380.6	502.9	9.5	1.0	52.7
South Dakota	–	11	6	.5	11.9	.4	1.0	8.6	41.3	183.6	221.8	3.3	.5	32.1
Tennessee	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	19.6
Texas	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Utah	–	11	6	1.2	23.5	1.0	1.9	19.9	165.6	345.3	504.7	8.4	.9	90.5
Vermont	E6	12	8	.7	17.2	.5	1.1	10.2	36.7	224.4	261.0	3.1	.4	31.9
Washington	–	8	4	.3	8.1	.2	.5	4.6	34.6	89.5	123.4	(D)	(NA)	(NA)
Wisconsin	E1	204	114	12.1	290.3	9.7	20.7	208.4	1 146.8	4 893.1	6 037.2	75.0	11.6	766.9
INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS														
United States	**E1**	**214**	**134**	**15.2**	**451.6**	**9.9**	**21.6**	**272.3**	**3 379.5**	**4 172.4**	**7 541.0**	**188.5**	**14.1**	**2 391.6**
Arizona	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	18	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Idaho	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E7	17	10	1.0	30.1	.8	1.8	19.9	212.3	215.3	428.9	(D)	G	(D)
Indiana	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Iowa	E7	7	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	10	8	1.5	53.7	1.1	2.4	39.8	843.8	358.3	1 203.6	27.7	1.3	468.9
Minnesota	E1	23	15	1.5	52.2	.7	1.5	18.3	181.7	242.8	421.7	8.2	1.3	139.5
Missouri	E2	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.7	F	(D)
New Jersey	E1	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	15	4	.4	12.4	.3	.6	7.0	74.1	157.1	226.8	5.3	E	(D)
Ohio	–	10	8	1.0	33.8	.7	1.9	22.8	227.7	210.4	436.0	(D)	.9	213.0
Pennsylvania	–	10	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	E2	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	4	3	.3	6.9	.3	.5	5.5	39.9	53.7	90.1	(D)	(NA)	(NA)
Texas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	E3	36	26	2.1	60.4	1.6	3.3	40.5	294.1	559.6	850.3	12.3	2.0	297.5
INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS														
United States	**E1**	**456**	**177**	**20.9**	**558.2**	**13.7**	**28.8**	**324.9**	**2 096.5**	**3 210.5**	**5 290.6**	**188.1**	**20.3**	**1 270.4**
Alabama	E4	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E2	70	27	2.8	81.6	2.1	4.4	59.6	420.7	545.2	955.5	22.5	H	(D)
Colorado	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	15.0
Connecticut	–	13	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E6	13	3	.3	8.6	.2	.4	4.2	2.9	40.0	43.7	2.3	F	(D)
Georgia	E6	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.7	C	(D)
Hawaii	E2	8	4	.2	3.6	.1	.1	1.3	5.4	7.4	12.6	(D)	.2	5.6
Illinois	–	14	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.0	F	(D)
Indiana	E1	13	5	.4	11.1	.3	.7	7.6	74.6	96.5	170.0	5.0	E	(D)
Iowa	–	9	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kentucky	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E3	9	5	.6	15.9	.5	.8	10.1	56.9	90.9	148.4	2.5	F	(D)
Massachusetts	E1	29	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	E3	13	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E4	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nevada	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	19	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E3	32	9	1.4	30.3	.9	1.9	18.7	88.9	142.7	229.9	6.2	G	(D)
North Carolina	–	11	6	.5	12.7	.3	.7	6.7	43.1	106.0	146.2	(D)	E	(D)
Ohio	–	23	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.9	G	(D)
Oklahoma	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	37	11	1.6	42.6	1.0	2.0	23.4	131.1	254.3	382.8	22.5	1.8	123.4
Tennessee	–	5	3	.3	7.1	.1	.3	2.6	6.7	34.2	40.9	.7	.4	6.7
Texas	–	14	8	1.6	37.5	1.1	2.2	19.9	123.7	156.8	280.9	10.6	G	(D)
Utah	E3	7	3	.2	4.5	.1	.2	1.9	8.0	18.3	26.3	.6	.3	9.0
Vermont	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	15	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	C	(D)
Wisconsin	E2	14	6	.4	8.0	.2	.3	3.2	28.3	43.4	71.6	1.5	.7	21.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2026, FLUID MILK														
United States	**E1**	**746**	**506**	**63.4**	**1 841.1**	**32.5**	**70.8**	**894.0**	**5 965.6**	**15 973.8**	**21 926.9**	**362.5**	**72.4**	**5 426.2**
Alabama	E2	11	11	1.6	35.7	.5	1.1	9.6	85.4	233.7	319.0	5.5	1.5	80.8
Arizona	–	9	6	.8	28.7	.4	1.0	12.8	92.6	236.5	328.5	2.4	F	(D)
Arkansas	–	7	4	.7	16.1	.3	.5	5.1	36.9	103.1	139.6	1.7	.6	19.8
California	E1	59	40	6.7	255.7	3.9	8.3	135.8	877.8	2 435.9	3 312.1	54.2	5.7	579.8
Colorado	–	12	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.5	1.4	81.3
Connecticut	E3	8	6	.6	20.4	.2	.5	5.5	39.7	102.9	142.6	3.7	F	(D)
Delaware	E2	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	20	15	2.4	61.9	1.3	2.7	29.3	268.1	600.7	867.7	13.3	3.1	242.6
Georgia	–	11	7	.9	21.8	.5	1.0	12.3	47.5	168.8	213.8	2.4	2.0	102.3
Hawaii	E1	7	5	.4	13.6	.2	.4	5.0	43.2	66.9	110.2	(D)	.4	30.1
Idaho	E3	8	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E3	28	17	1.8	53.1	1.2	2.5	34.5	214.4	540.6	754.7	9.9	1.8	185.2
Indiana	–	14	11	1.5	40.2	.9	1.9	20.5	107.6	325.7	432.7	(D)	1.6	110.1
Iowa	–	14	9	1.1	27.6	.5	1.1	13.9	137.9	296.3	430.8	4.8	1.0	83.3
Kansas	E7	4	2	.2	5.8	.2	.4	3.8	13.3	54.4	67.8	(D)	G	(D)
Kentucky	–	12	11	1.6	41.0	.9	1.8	19.4	141.2	410.4	551.1	10.4	G	(D)
Louisiana	–	13	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	G	(D)
Maine	–	7	3	.4	12.6	.2	.3	5.2	37.5	90.9	128.4	2.0	E	(D)
Maryland	E2	12	8	1.1	37.9	.7	1.5	21.4	107.5	292.5	400.3	4.1	1.6	88.0
Massachusetts	E2	19	11	2.5	87.9	1.2	2.6	38.3	199.9	496.3	695.8	18.0	2.7	277.4
Michigan	–	24	19	2.4	69.6	1.4	3.0	39.3	254.4	602.4	855.4	20.8	2.1	141.6
Minnesota	E1	40	12	1.2	34.4	.6	1.3	17.6	120.3	308.4	428.2	5.9	1.8	145.4
Mississippi	E1	7	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	9	6	1.1	29.0	.4	1.1	13.2	54.5	259.2	312.9	(D)	1.3	92.6
Montana	–	8	6	.4	9.6	.1	.2	3.0	27.5	71.3	98.9	(D)	.4	20.1
Nebraska	E2	8	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	F	(D)
Nevada	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	E3	7	4	.3	7.6	.1	.3	2.7	17.9	68.1	86.1	1.0	E	(D)
New Jersey	E5	14	9	2.1	85.4	1.2	2.9	45.9	233.0	727.8	961.5	10.7	2.2	246.0
New Mexico	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	61	38	3.7	110.7	2.2	5.3	66.6	236.2	1 105.6	1 343.6	26.1	4.3	302.6
North Carolina	E2	14	12	1.5	36.6	.9	2.1	18.3	134.2	359.5	493.9	7.4	G	(D)
North Dakota	–	7	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E1	31	25	3.0	83.3	1.8	3.9	49.3	416.2	825.7	1 243.4	25.8	4.1	280.5
Oklahoma	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	50.4
Oregon	–	22	16	1.1	32.1	.5	1.1	16.1	98.0	301.0	398.9	6.7	1.1	81.7
Pennsylvania	E1	59	35	4.1	119.6	2.0	4.3	52.4	329.9	901.2	1 231.0	22.7	4.7	355.5
South Carolina	–	7	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	26.6
Tennessee	–	8	7	1.6	49.8	.8	1.8	17.4	225.3	314.3	539.3	10.1	1.5	136.0
Texas	–	36	32	4.2	103.5	1.6	3.6	37.1	337.5	952.3	1 290.3	29.1	5.2	344.5
Utah	–	7	5	.5	11.6	.3	.6	6.0	44.3	117.4	161.7	(D)	.7	33.5
Vermont	E7	13	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	13	12	1.4	37.2	.9	1.7	22.0	118.6	278.6	396.4	(D)	1.6	129.6
Washington	–	18	10	.9	26.7	.4	.8	12.3	98.9	269.7	368.8	2.4	1.0	88.0
West Virginia	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	22	13	1.2	34.5	.8	1.8	23.6	170.9	580.8	751.8	7.4	1.5	260.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Creamery butter (SIC 2021)	Cheese, natural and processed (SIC 2022)	Dry, condensed, and evaporated dairy products (SIC 2023)	Ice cream and frozen desserts (SIC 2024)	Fluid milk (SIC 2026)
Companies	number	31	418	153	411	525
All establishments	number	32	576	214	456	746
With 1 to 19 employees	number	15	262	80	279	240
With 20 to 99 employees	number	12	217	102	115	260
With 100 employees or more	number	5	97	32	62	246
Employment and labor costs:						
Employees	1,000	1.5	36.3	15.2	20.9	63.4
Compensation, total	mil dol	52.8	1 122.6	588.8	697.4	2 364.8
Annual payroll	mil dol	42.4	883.2	451.6	558.2	1 841.1
Fringe benefits	mil dol	10.4	239.3	137.2	139.2	523.7
Social Security and other legally required payments	mil dol	3.7	93.3	48.3	62.6	218.6
Employer voluntary payments	mil dol	6.7	146.0	88.9	76.5	305.1

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Creamery butter (SIC 2021)	Cheese, natural and processed (SIC 2022)	Dry, condensed, and evaporated dairy products (SIC 2023)	Ice cream and frozen desserts (SIC 2024)	Fluid milk (SIC 2026)
Production workers:					
Average for year ---- 1,000	1.1	29.2	9.9	13.7	32.5
March ---- 1,000	1.1	28.7	9.6	13.6	32.5
May ---- 1,000	1.1	29.1	9.8	14.7	32.7
August ---- 1,000	1.1	29.6	10.0	14.3	32.7
November ---- 1,000	1.1	29.5	10.1	12.2	32.2
Hours ---- millions	2.4	61.4	21.6	28.8	70.8
Wages ---- mil dol	28.9	657.4	272.3	324.9	894.0
Cost of materials[1] ---- mil dol	883.7	13 880.9	4 172.4	3 210.5	15 973.8
Materials, parts, containers, etc., consumed[2] ---- mil dol	846.9	13 105.5	3 759.2	2 661.3	13 843.7
Resales ---- mil dol	28.5	595.1	273.9	457.3	1 864.4
Fuels ---- mil dol	3.1	72.6	44.8	12.1	72.0
Purchased electricity ---- mil dol	4.5	90.7	46.4	78.5	175.7
Contract work ---- mil dol	.7	17.0	48.0	1.3	18.0
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	91.4	1 771.8	848.8	1 272.1	2 836.6
Generated less sold ---- mil kWh	–	–	(D)	(D)	13.4
Total value of shipments ---- mil dol	1 034.0	18 351.7	7 541.0	5 290.6	21 926.9
Value added ---- mil dol	148.4	4 472.4	3 379.5	2 096.5	5 965.6
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	33.9	1 183.4	425.6	378.3	478.9
Finished goods ---- mil dol	21.4	714.4	270.6	227.7	237.4
Work in process ---- mil dol	2.8	57.8	35.5	4.5	18.1
Materials and supplies ---- mil dol	9.7	411.2	119.6	146.1	223.4
End of 1992 ---- mil dol	32.7	1 204.6	429.5	406.0	500.9
Finished goods ---- mil dol	20.5	709.3	279.1	244.0	249.6
Work in process ---- mil dol	1.9	64.6	37.8	4.6	18.3
Materials and supplies ---- mil dol	10.3	430.7	112.6	157.4	233.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Creamery butter (SIC 2021)	Cheese, natural and processed (SIC 2022)	Dry, condensed, and evaporated dairy products (SIC 2023)	Ice cream and frozen desserts (SIC 2024)	Fluid milk (SIC 2026)
Gross book value of depreciable assets:					
Total:					
Beginning of year	132.1	2 277.8	1 903.1	1 536.6	4 181.4
New capital expenditures[1]	9.1	261.8	188.5	188.1	362.5
Used capital expenditures	1.0	(D)	7.6	13.3	24.7
Retirements	2.8	(D)	32.4	27.6	98.5
End of year	139.5	2 550.9	2 066.8	1 710.3	4 470.1
Buildings and other structures:					
Beginning of year	42.2	681.7	640.5	386.2	1 032.4
New capital expenditures	1.3	57.8	37.6	46.3	81.1
Used capital expenditures	(D)	(D)	2.1	1.7	7.3
Retirements	(D)	(D)	4.3	1.9	8.3
End of year	43.3	782.5	675.9	432.2	1 112.4
Machinery and equipment:					
Beginning of year	89.9	1 596.1	1 262.6	1 150.4	3 149.0
New capital expenditures[1]	7.8	204.0	150.9	141.7	281.5
Used capital expenditures	(D)	5.4	5.5	11.7	17.4
Retirements	(D)	37.1	28.1	25.7	90.2
End of year	96.2	1 768.4	1 391.0	1 278.2	3 357.7
Depreciation charges during 1992:					
Total	10.2	161.7	123.7	101.3	383.1
Buildings and other structures	2.3	32.9	31.3	18.3	85.9
Machinery and equipment	8.0	128.8	92.4	83.0	297.2
Rental payments:					
Total	3.0	42.3	24.2	38.9	125.6
Buildings and other structures	1.2	21.6	9.0	15.8	52.8
Machinery and equipment	1.8	20.7	15.1	23.1	72.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Creamery butter (SIC 2021)		Cheese, natural and processed (SIC 2022)		Dry, condensed, and evaporated dairy products (SIC 2023)		Ice cream and frozen desserts (SIC 2024)		Fluid milk (SIC 2026)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	.4	(X)	14.0	(X)	8.3	(X)	8.0	(X)	20.1	(X)
Response coverage ratio (percent)[2]	82.2	(X)	82.6	(X)	87.4	(X)	78.7	(X)	76.5	(X)
Machinery	5.0	(X)	88.5	(X)	28.5	(X)	40.8	(X)	132.3	(X)
Response coverage ratio (percent)[2]	94.6	(X)	85.0	(X)	88.3	(X)	79.7	(X)	78.1	(X)
Other purchased services:										
Communications	.4	(X)	6.6	(X)	5.4	(X)	5.5	(X)	21.9	(X)
Response coverage ratio (percent)[2]	94.6	(X)	82.1	(X)	87.1	(X)	71.1	(X)	75.0	(X)
Legal	.3	(X)	3.1	(X)	9.0	(X)	3.5	(X)	10.9	(X)
Response coverage ratio (percent)[2]	83.7	(X)	81.3	(X)	86.6	(X)	73.3	(X)	75.3	(X)
Accounting and bookkeeping	.2	(X)	3.3	(X)	1.5	(X)	1.6	(X)	9.0	(X)
Response coverage ratio (percent)[2]	83.7	(X)	82.0	(X)	85.8	(X)	72.4	(X)	72.6	(X)
Advertising	.2	(X)	55.7	(X)	13.4	(X)	40.7	(X)	73.2	(X)
Response coverage ratio (percent)[2]	83.7	(X)	83.4	(X)	85.8	(X)	72.6	(X)	75.8	(X)
Software and other data processing	(Z)	(X)	2.4	(X)	3.0	(X)	3.7	(X)	7.8	(X)
Response coverage ratio (percent)[2]	73.6	(X)	82.5	(X)	86.4	(X)	72.4	(X)	74.1	(X)
Refuse removal, including hazardous waste	.2	(X)	7.6	(X)	3.1	(X)	5.3	(X)	10.9	(X)
Response coverage ratio (percent)[2]	94.6	(X)	82.6	(X)	89.4	(X)	77.6	(X)	75.4	(X)
New machinery and equipment expenditures	7.8	(X)	204.0	(X)	150.9	(X)	141.7	(X)	281.5	(X)
Automobiles, trucks, etc., for highway use	.5	26	14.8	6	3.9	14	7.4	7	37.6	4
Computers and peripheral data processing equipment	.1	29	8.1	5	6.7	4	3.3	7	9.1	4
All other	7.1	3	181.1	1	140.3	1	131.0	1	234.7	1
Adjustment ratio[3]	1.0	(X)	1.2	(X)	1.2	(X)	1.3	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	846.9	(X)	13 105.5	(X)	3 759.2	(X)	2 661.3	(X)	13 843.7	(X)
Materials purchased or transferred from foreign sources[4]	–	(X)	136.9	12	66.1	43	13.0	6	10.7	3
Materials purchased or transferred from domestic sources	846.9	1	12 968.7	1	3 693.2	1	2 648.3	1	13 833.0	1
Adjustment ratio[3]	1.3	(X)	1.6	(X)	1.3	(X)	1.5	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2021, CREAMERY BUTTER												
Total	**–**	**32**	**1.5**	**42.4**	**1.1**	**2.4**	**28.9**	**148.4**	**883.7**	**1 034.0**	**9.1**	**32.7**
Establishments with an average of–												
1 to 4 employees	E9	6	(Z)	.2	(Z)	(Z)	.1	.5	1.7	2.2	3.3	.1
5 to 9 employees	–	4	(Z)	.5	(Z)	(Z)	.3	1.8	8.5	10.3	(D)	.3
10 to 19 employees	E1	5	.1	1.9	(Z)	.1	.8	4.7	26.2	30.6	(D)	1.9
20 to 49 employees	–	4	.1	3.3	.1	.2	1.6	8.9	52.8	62.5	(D)	2.4
50 to 99 employees	–	8	.5	16.2	.4	.8	11.0	36.3	414.5	451.6	3.2	14.1
100 to 249 employees	–	5	.7	20.4	.5	1.2	15.1	96.3	380.0	476.7	2.5	14.0
INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED												
Total	**–**	**576**	**36.3**	**883.2**	**29.2**	**61.4**	**657.4**	**4 472.4**	**13 880.9**	**18 351.7**	**261.8**	**1 204.6**
Establishments with an average of–												
1 to 4 employees	E8	119	.2	4.7	.2	.3	3.7	17.4	80.9	98.3	1.4	5.5
5 to 9 employees	E4	66	.5	8.1	.4	.7	6.2	25.5	130.8	156.9	2.4	8.1
10 to 19 employees	E2	77	1.0	20.6	.8	1.6	13.2	64.6	248.4	314.9	3.5	15.4
20 to 49 employees	E2	121	4.1	84.9	3.2	6.5	59.4	272.5	1 355.2	1 627.7	22.2	119.9
50 to 99 employees	E1	96	6.7	160.7	5.4	11.6	119.9	559.9	2 912.2	3 470.7	56.9	207.8
100 to 249 employees	–	69	10.7	263.3	8.4	18.1	190.1	932.0	4 579.5	5 499.0	70.2	347.8
250 to 499 employees	–	21	7.1	172.8	5.8	12.4	131.3	830.4	2 305.6	3 144.4	105.2	222.5
500 to 999 employees	–	5	6.0	168.0	5.1	10.3	133.6	1 770.3	2 268.2	4 039.7	(D)	277.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	74	.1	1.7	.1	.1	1.3	5.7	26.3	32.0	.5	1.8

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS												
Total	**E1**	**214**	**15.2**	**451.6**	**9.9**	**21.6**	**272.3**	**3 379.5**	**4 172.4**	**7 541.0**	**188.5**	**429.5**
Establishments with an average of—												
1 to 4 employees	E7	31	.1	1.7	(Z)	.1	1.1	11.6	17.5	28.9	.4	1.8
5 to 9 employees	E2	13	.1	2.0	.1	.1	1.4	11.2	15.2	26.5	.2	1.2
10 to 19 employees	E2	36	.5	13.9	.3	.7	7.9	48.0	104.0	152.5	2.2	7.8
20 to 49 employees	E1	55	1.7	45.1	1.2	2.6	27.6	205.0	582.6	786.7	15.6	62.9
50 to 99 employees	E1	47	3.2	89.4	2.4	5.1	60.6	451.4	1 407.2	1 862.2	27.8	106.3
100 to 249 employees	E1	20	2.9	85.3	2.0	4.4	54.6	588.3	1 122.7	1 709.0	37.9	88.6
250 to 499 employees	E1	7	2.3	74.2	1.9	4.2	54.0	900.6	384.3	1 280.2	20.9	65.1
500 to 999 employees	–	4	4.4	140.1	1.9	4.3	65.1	1 163.4	539.0	1 695.1	83.4	95.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	18	(Z)	.6	(Z)	(Z)	.4	2.3	2.8	5.2	.1	.3
INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS												
Total	**E1**	**456**	**20.9**	**558.2**	**13.7**	**28.8**	**324.9**	**2 096.5**	**3 210.5**	**5 290.6**	**188.1**	**406.0**
Establishments with an average of—												
1 to 4 employees	E9	164	.3	5.4	.2	.3	3.1	14.4	23.8	38.3	1.4	3.2
5 to 9 employees	E8	66	.4	7.6	.3	.5	4.3	19.3	33.3	52.5	2.1	4.1
10 to 19 employees	E4	49	.7	12.1	.4	.8	6.3	29.5	48.2	77.7	2.7	6.4
20 to 49 employees	E1	68	2.1	50.8	1.2	2.5	26.2	152.7	273.7	426.7	10.3	35.6
50 to 99 employees	E1	47	3.4	93.7	2.3	4.6	59.6	371.4	517.7	885.8	47.3	65.9
100 to 249 employees	E1	45	6.9	190.7	4.6	9.8	118.2	723.4	1 318.8	2 040.3	56.4	136.0
250 to 499 employees	E1	12	3.8	94.5	2.7	5.7	62.2	490.1	608.1	1 096.9	42.7	84.4
500 to 999 employees	–	5	3.4	103.3	2.1	4.5	45.1	295.8	387.0	672.4	25.2	70.5
Covered by administrative records[2]	E9	211	.8	11.4	.5	.9	6.5	24.5	40.1	64.6	2.4	4.9
INDUSTRY 2026, FLUID MILK												
Total	**E1**	**746**	**63.4**	**1 841.1**	**32.5**	**70.8**	**894.0**	**5 965.6**	**15 973.8**	**21 926.9**	**362.5**	**500.9**
Establishments with an average of—												
1 to 4 employees	E9	101	.2	3.4	.1	.2	1.7	9.5	29.3	38.8	.6	.9
5 to 9 employees	E6	64	.4	7.6	.2	.4	3.7	22.3	72.9	95.3	1.2	2.4
10 to 19 employees	E4	75	1.1	21.0	.6	1.2	10.3	66.4	178.9	245.9	4.4	5.9
20 to 49 employees	E1	131	4.5	107.9	2.3	5.0	55.2	443.1	1 140.7	1 583.3	21.1	36.4
50 to 99 employees	E1	129	9.7	262.8	5.5	11.8	144.1	1 000.8	2 857.3	3 856.0	60.4	80.1
100 to 249 employees	E1	203	31.6	910.5	16.8	36.8	463.5	3 137.8	8 162.8	11 295.0	183.5	253.0
250 to 499 employees	–	36	11.6	349.0	4.8	10.4	137.6	854.9	2 363.5	3 215.1	53.5	77.3
500 to 999 employees	E6	7	4.4	178.9	2.3	5.1	77.9	430.7	1 168.5	1 597.5	37.9	44.8
Covered by administrative records[2]	E9	115	.3	4.5	.1	.3	2.1	11.8	36.4	48.2	.7	1.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2021	**Creamery butter:**										
	All establishments in industry	32	1.5	42.4	1.1	2.4	28.9	148.4	883.7	1 034.0	9.1
2022	**Cheese, natural and processed:**										
	All establishments in industry	576	36.3	883.2	29.2	61.4	657.4	4 472.4	13 880.9	18 351.7	261.8
	Establishments with this product class primary:										
20223	Natural cheese, except cottage cheese (cheddar, brick, grated, cream, swiss, italian, etc.)	316	23.2	551.1	18.3	39.4	393.4	2 090.6	8 834.4	10 917.1	168.7
20224	Process cheese and related products	61	11.7	302.1	9.7	19.6	241.5	2 284.8	4 614.2	6 906.7	84.1
20225	Cheese substitutes	7	.4	8.6	.3	.6	6.2	22.9	105.7	127.3	2.4

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2023	**Dry, condensed, and evaporated dairy products:**										
	All establishments in industry	214	15.2	451.6	9.9	21.6	272.3	3 379.5	4 172.4	7 541.0	188.5
	Establishments with this product class primary:										
20235	Dry milk products and mixtures	89	6.0	181.8	4.2	9.0	109.7	824.6	2 101.1	2 913.9	51.4
20236	Canned milk products (consumer type cans), except substitutes	18	4.2	111.3	2.1	4.5	61.4	1 001.9	769.2	1 763.3	67.7
20237	Concentrated milk products shipped in bulk (barrels, drums, and tanks), except substitutes	15	.8	25.2	.6	1.3	17.1	48.7	380.5	437.2	4.8
20238	Ice cream mixes and related products	27	1.2	34.9	.6	1.2	15.8	144.3	260.4	406.3	10.1
20239	Dairy product substitutes	18	2.7	90.5	2.1	5.0	63.4	1 324.1	617.9	1 941.5	52.8
2024	**Ice cream and frozen desserts:**										
	All establishments in industry	456	20.9	558.2	13.7	28.8	324.9	2 096.5	3 210.5	5 290.6	188.1
2026	**Fluid milk:**										
	All establishments in industry	746	63.4	1 841.1	32.5	70.8	894.0	5 965.6	15 973.8	21 926.9	362.5
	Establishments with this product class primary:										
20261	Bulk fluid milk and cream	35	3.4	121.6	2.1	4.9	63.2	425.9	1 851.9	2 271.6	17.7
20262	Packaged fluid milk and related products, including cartons, bottles, cans, and dispenser cans	421	52.4	1 514.1	25.6	55.5	701.5	4 677.1	12 373.9	17 049.4	287.5
20263	Cottage cheese (including bakers' cheese, pot cheese, and farmers' cheese)	21	1.6	48.5	1.3	2.9	35.4	122.8	495.4	618.5	13.0
20265	Yogurt, except frozen	19	1.8	56.5	1.3	2.8	39.1	428.7	457.8	886.7	24.6
20267	Perishable dairy product substitutes	9	.6	22.7	.4	.9	14.3	91.2	120.3	207.2	6.7
20268	Other packaged milk products, n.e.c.	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2021, CREAMERY BUTTER			
Total value of shipments	1 034.0	1 420.4	1 686.8
Primary products value of shipments	733.9	1 035.4	1 255.6
Secondary products value of shipments	244.3	332.2	367.6
Total miscellaneous receipts	55.8	52.9	63.6
Value of resales	30.0	49.7	51.8
Contract receipts	(D)	3.1	(D)
Other miscellaneous receipts	(D)	.1	(D)
Primary products specialization ratio	75	76	77
Value of primary products shipments made in all industries	1 206.3	1 613.5	1 975.7
Value of primary products shipments made in this industry	733.9	1 035.4	1 255.6
Value of primary products shipments made in other industries	472.4	578.1	720.1
Coverage ratio	61	64	64
INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED			
Total value of shipments	18 351.7	12 971.0	10 762.8
Primary products value of shipments	15 369.7	10 198.7	8 770.7
Secondary products value of shipments	2 320.6	1 666.7	1 114.1
Total miscellaneous receipts	661.4	1 105.6	878.1
Value of resales	651.8	1 039.9	823.7
Contract receipts	5.0	30.4	29.7
Other miscellaneous receipts	4.6	35.2	24.7
Primary products specialization ratio	87	86	89
Value of primary products shipments made in all industries	15 872.5	10 775.6	9 486.9
Value of primary products shipments made in this industry	15 369.7	10 198.7	8 770.7
Value of primary products shipments made in other industries	502.8	576.9	716.1
Coverage ratio	97	95	92

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS			
Total value of shipments	7 541.0	5 856.7	4 730.7
Primary products value of shipments	5 958.8	4 373.5	3 447.2
Secondary products value of shipments	1 179.7	849.2	953.8
Total miscellaneous receipts	402.5	634.0	329.7
Value of resales	370.3	600.1	311.6
Contract receipts	31.1	32.0	15.6
Other miscellaneous receipts	1.2	1.9	2.5
Primary products specialization ratio	83	84	78
Value of primary products shipments made in all industries	7 379.9	5 839.3	5 047.6
Value of primary products shipments made in this industry	5 958.8	4 373.5	3 447.2
Value of primary products shipments made in other industries	1 421.1	1 465.8	1 600.4
Coverage ratio	81	75	68
INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS			
Total value of shipments	5 290.6	3 916.5	2 855.1
Primary products value of shipments	4 450.2	3 254.7	2 391.9
Secondary products value of shipments	346.0	231.7	143.0
Total miscellaneous receipts	494.5	430.0	320.1
Value of resales	491.6	420.7	313.1
Contract receipts	(D)	4.3	.3
Other miscellaneous receipts	(D)	5.0	6.7
Primary products specialization ratio	93	93	94
Value of primary products shipments made in all industries	5 278.7	4 195.0	3 281.1
Value of primary products shipments made in this industry	4 450.2	3 254.7	2 391.9
Value of primary products shipments made in other industries	828.6	940.3	889.2
Coverage ratio	84	78	73
INDUSTRY 2026, FLUID MILK			
Total value of shipments	21 926.9	20 590.5	18 736.0
Primary products value of shipments	17 105.4	15 643.0	14 208.1
Secondary products value of shipments	2 540.6	2 820.4	2 520.7
Total miscellaneous receipts	2 280.9	2 127.2	2 007.2
Value of resales	2 253.3	2 099.7	1 964.8
Contract receipts	21.8	3.8	17.6
Other miscellaneous receipts	5.8	23.6	24.8
Primary products specialization ratio	87	85	85
Value of primary products shipments made in all industries	18 572.2	16 884.6	15 517.4
Value of primary products shipments made in this industry	17 105.4	15 643.0	14 208.1
Value of primary products shipments made in other industries	1 466.8	1 241.6	1 309.4
Coverage ratio	92	93	92

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2021– —	**CREAMERY BUTTER**						
	Total	**(NA)**	**(X)**	**1 206.3**	**(NA)**	**(X)**	**1 613.5**
20210	Creamery butter	(NA)	(X)	1 206.3	(NA)	(X)	1 613.5
20210 13	Shipped in bulk (containers more than 3 lb) mil lb	59	695.1	662.6	57	*625.8	862.3
20210 15	Shipped in consumer packages (containers 3 lb or less) mil lb	37	515.5	499.5	44	*454.8	682.0
20210 21	Anhydrous butterfat mil lb	5	(D)	(D)	4	(D)	(D)
20210 00	Creamery butter, n.s.k.[3]	(NA)	(X)	(D)	(NA)	(X)	(D)
20210 02	Creamery butter, n.s.k.[4]	(NA)	(X)	–	(NA)	(X)	29.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2022– —	**CHEESE, NATURAL AND PROCESSED**						
	Total	**(NA)**	**(X)**	**15 872.5**	**(NA)**	**(X)**	**10 775.6**
20223	Natural cheese, except cottage cheese (cheddar, brick, grated, cream, swiss, italian, etc.)	(NA)	(X)	10 085.4	(NA)	(X)	6 414.5
20223 01	Shipped in consumer packages or containers (3 lb or less)—mil lb	110	1 889.3	3 145.6			
20223 02	Shipped in packages or containers more than 3 lb or in bulk—mil lb	187	4 915.7	6 901.7	(NA)	(X)	6 414.5
20223 00	Natural cheese, except cottage cheese (cheddar, brick, grated, cream, swiss, italian, etc.), n.s.k.	(NA)	(X)	38.2			
20224	Process cheese and related products	(NA)	(X)	5 068.4	(NA)	(X)	r3 502.0
	Process cheese:						
20224 11	Shipped in consumer packages or containers (3 lb or less)—mil lb	30	1 079.5	2 178.4	52	*1 356.9	1 860.8
20224 13	Shipped in packages or containers more than 3 lb or in bulk—mil lb	36	1 463.3	1 729.5			
20224 23	Cheese food—mil lb	16	334.4	444.1	21	**830.8	1 039.3
20224 25	Cheese spread—mil lb	13	329.0	521.1	20	*269.9	456.8
20224 29	Other related cheese products, including flavored cheese dips—mil lb	21	144.0	177.7	23	**106.1	123.2
20224 00	Process cheese and related products, n.s.k.	(NA)	(X)	17.6	(NA)	(X)	r21.9
20225	Cheese substitutes	(NA)	(X)	313.9	(NA)	(X)	294.9
20225 11	Products substituting for natural cheese—mil lb	15	(S)	185.0			
20225 21	Products substituting for processed cheese or related products—mil lb	14	**148.2	128.9	(NA)	*549.4	294.9
20225 00	Cheese substitutes, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20220	Cheese, natural and processed, n.s.k.	(NA)	(X)	404.8	(NA)	(X)	564.3
20220 00	Cheese, natural and processed, n.s.k.[6]	(NA)	(X)	370.5	(NA)	(X)	[5]232.1
20220 02	Cheese, natural and processed, n.s.k.[7]	(NA)	(X)	34.3	(NA)	(X)	332.2
2023– —	**DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS**						
	Total	**(NA)**	**(X)**	**7 379.9**	**(NA)**	**(X)**	**5 839.3**
20235	Dry milk products and mixtures	(NA)	(X)	2 876.8	(NA)	(X)	2 423.9
	Shipped in consumer type packages (containers 3 lb or less):						
20235 11	Nonfat dry milk—mil lb	7	97.9	94.1	9	100.5	86.9
20235 22	Infants' formula—mil lb	6	*209.6	408.9	7	122.2	261.7
20235 29	Other dry milk products (instant chocolate milk, weight control products, whole milk powder, malted milk, etc.)—mil lb	14	370.9	585.5	16	353.2	484.9
	Shipped in bulk (containers more than 3 lb):						
	Food grade (bakeries, confectioners, meat packers, etc.):						
20235 42	Dry whole milk—mil lb	13	*172.3	175.2	17	*181.0	202.2
20235 43	Nonfat dry milk—mil lb	36	781.3	774.9	35	*926.4	732.1
20235 45	Dry whey—mil lb	39	1 536.0	315.3	33	962.4	221.4
20235 47	Modified dry whey products (lactose, milk albumin, etc.)—mil lb	21	475.1	167.7	17	295.6	94.6
20235 49	Other food grade dry milk products—mil lb	30	205.2	223.1	22	211.5	202.1
20235 51	Feed grade (dry milk, dry buttermilk, dry whey, etc.)—mil lb	30	**254.0	103.5	21	364.1	118.9
20235 00	Dry milk products and mixtures, n.s.k.	(NA)	(X)	28.6	(NA)	(X)	19.2
20236	Canned milk products (consumer type cans), except substitutes	(NA)	(X)	1 202.3	(NA)	(X)	1 004.8
20236 12	Evaporated milk—mil lb	7	536.6	329.8	6	535.8	290.9
20236 16	Condensed milk—mil lb	7	162.7	155.6	5	(8)	(8)
20236 21	Canned dietary supplements, weight control products—mil lb	2	(D)	(D)	2	(8)	(8)
20236 26	Infants' formula, liquid—mil lb	5	**737.6	618.5	4	638.0	545.8
20236 28	Other canned milk products, including canned whole milk—mil lb	5	(D)	(D)	8	[8]124.8	[8]168.1
20236 00	Canned milk products (consumer type cans), except substitutes, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20237	Concentrated milk products shipped in bulk (barrels, drums, and tanks), except substitutes	(NA)	(X)	903.3	(NA)	(X)	716.0
20237 12	Feed grade, including concentrated whey and buttermilk—mil lb	15	156.9	60.7	8	(S)	18.3
	Food grade, except ice cream and ice milk mixes:						
20237 17	Concentrated whey in terms of solids—mil lb	24	790.3	128.4	24	*621.9	82.1
20237 19	All other—mil lb	30	1 440.4	711.4	34	1 194.7	614.3
20237 00	Concentrated milk products shipped in bulk (barrels, drums, and tanks), except substitutes, n.s.k.	(NA)	(X)	2.8	(NA)	(X)	1.2
20238	Ice cream mixes and related products	(NA)	(X)	743.5	(NA)	(X)	624.8
20238 01	Ice cream—mil gal	85	108.9	268.0	(NA)	(9)	(9)
20238 03	Ice milk—mil gal	61	58.2	118.4	(NA)	(9)	(9)
20238 05	Sherbet—mil gal	11	*3.1	7.6	(NA)	(9)	(9)
20238 07	Frozen yogurt—mil gal	44	48.5	161.8	(NA)	(9)	(9)
20238 13	Milkshake—mil gal	50	*48.6	119.5	54	55.9	120.4
20238 19	Other mixes—mil gal	26	(S)	51.6	114	[9]220.6	[9]491.3
20238 00	Ice cream mixes and related products, n.s.k.	(NA)	(X)	16.7	(NA)	(X)	13.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2023– —	**DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS**—Con.						
20239	Dairy product substitutes	(NA)	(X)	1 566.0	(NA)	(X)	952.8
	Dry dairy substitutes:						
20239 21	Coffee whiteners—mil lb	17	*365.4	325.5	17	(S)	286.6
20239 23	Infants' formula—mil lb	5	*47.9	144.3	4	24.2	108.9
20239 25	Sour cream substitutes—mil lb	3	(S)	7.9	2	(D)	(D)
20239 28	Other dry dairy substitutes including whipped topping, etc.—mil lb	15	*104.1	95.0	12	56.0	43.7
	Canned dairy substitutes:						
20239 32	Liquid infants' formula—mil lb	4	(D)	(D)	3	(D)	(D)
20239 38	Other canned dairy product substitutes, including dietary supplements and weight control products—mil lb	8	(D)	(D)	6	(D)	(D)
20239 00	Dairy product substitutes, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	1.6
20230	Dry, condensed, and evaporated milk products, n.s.k.	(NA)	(X)	88.0	(NA)	(X)	117.1
20230 00	Dry, condensed, and evaporated milk products, n.s.k.[6]	(NA)	(X)	82.9	(NA)	(X)	84.5
20230 02	Dry, condensed, and evaporated milk products, n.s.k.[7]	(NA)	(X)	5.2	(NA)	(X)	32.6
2024– —	**ICE CREAM AND FROZEN DESSERTS**						
	Total	**(NA)**	**(X)**	**5 278.7**	**(NA)**	**(X)**	**4 195.0**
20240	Ice cream and ices	(NA)	(X)	5 278.7	(NA)	(X)	4 195.0
	Ice cream, including custards:						
20240 14	Shipped in bulk (containers 3 gal or more)—mil gal	148	136.7	504.4	161	*185.8	639.8
20240 15	Shipped in consumer sizes (containers less than 3 gal)—mil gal	171	722.6	2 253.4	198	646.6	1 922.6
20240 16	Novelty forms—mil gal	102	305.3	1 138.6	109	196.1	707.1
	Ice milk:						
20240 21	Shipped in bulk (containers 3 gal or more)—mil gal	15	**3.9	10.9	14	*2.7	6.9
20240 22	Shipped in consumer sizes (containers less than 3 gal)—mil gal	80	89.7	212.2	74	56.9	115.3
20240 23	Novelty forms—mil gal	42	31.4	106.3	35	20.5	65.8
20240 31	Frozen yogurt—mil gal	82	85.1	294.9	19	30.0	104.5
	Ices:						
20240 52	Water ices containing no real fruit or fruit juice—mil gal	34	*54.0	167.0	36	34.2	94.6
20240 54	Ices containing some real fruit or fruit juice—mil gal	41	**18.9	81.8	32	34.0	91.1
20240 71	Mellorine and similar frozen desserts containing fats other than butterfat (including tofu-type)—mil gal	12	14.6	27.9	10	*5.5	11.7
	Sherbet:						
20240 94	Shipped in bulk (containers 3 gal or more)—mil gal	34	**5.9	17.9	29	9.0	22.1
20240 96	All other sizes, including novelty forms—mil gal	74	29.8	91.3	76	33.4	80.0
20240 99	Other frozen desserts (frozen pudding, etc.)—mil gal	25	85.8	136.2	22	52.1	84.2
20240 00	Ice cream and frozen desserts, n.s.k.[10]	(NA)	(X)	171.4	(NA)	(X)	157.8
20240 02	Ice cream and frozen desserts, n.s.k.[11]	(NA)	(X)	64.6	(NA)	(X)	91.5
2026– —	**FLUID MILK**						
	Total	**(NA)**	**(X)**	**18 572.2**	**(NA)**	**(X)**	**16 884.6**
20261	Bulk fluid milk and cream	(NA)	(X)	3 031.4	(NA)	(X)	3 160.7
20261 12	Fluid whole milk, bulk sales—mil lb	119	12 120.9	1 597.9	136	*9 858.9	1 360.6
20261 15	Fluid skim milk, bulk sales—mil lb	36	985.5	137.4	35	*1 166.9	155.2
20261 16	Fluid cream and buttermilk, bulk sales—mil lb	178	2 678.9	1 038.2	198	2 883.1	1 395.0
20261 19	Other bulk fluid milk and cream (eggnog, lowfat, etc.)—mil lb	41	(S)	139.4	31	230.1	117.9
20261 00	Bulk fluid milk and cream, n.s.k.	(NA)	(X)	118.5	(NA)	(X)	132.0
20262	Packaged fluid milk and related products, including cartons, bottles, cans, and dispenser cans	(NA)	(X)	11 731.7	(NA)	(X)	9 893.3
20262 12	Fluid whole milk, packaged (including U.H.T.)—mil qt	232	9 314.0	4 440.0	233	9 862.0	4 600.8
20262 23	Low fat milk, packaged (including U.H.T.)—mil qt	226	10 254.9	4 540.5	216	8 023.3	3 207.7
20262 25	Skim milk, packaged (including U.H.T.)—mil qt	207	3 024.8	1 188.5	182	*1 502.3	566.0
20262 32	Cream, heavy (whipping cream containing 36 percent butterfat or more)—mil qt	92	201.3	202.9	79	131.4	136.9
20262 43	Cream, light (coffee cream containing less than 36 percent butterfat)—mil qt	46	86.0	82.2	42	71.5	64.8
20262 45	Cream, sour, unflavored—mil qt	96	490.4	371.3	89	*376.0	312.9
20262 52	Half and half—mil qt	120	*365.1	300.0	103	*305.9	242.7
20262 63	Whipped topping, butterfat base—mil lb	18	48.4	72.6	17	*28.0	51.1
20262 00	Packaged fluid milk and related products, including cartons, bottles, cans, and dispenser cans, n.s.k.	(NA)	(X)	533.7	(NA)	(X)	710.5
20263	Cottage cheese (including bakers' cheese, pot cheese, and farmers' cheese)	(NA)	(X)	769.7	(NA)	(X)	688.7
20263 13	Manufactured and creamed at the plant—mil lb	79	790.6	666.7	80	913.1	595.6
20263 16	Manufactured at the plant, sold as curd (not creamed)—mil lb	13	*47.8	38.8	16	28.7	26.3
20263 18	Creamed at the plant from purchased curd—mil lb	8	35.2	30.6	8	51.3	35.3
20263 00	Cottage cheese (including bakers' cheese, pot cheese, and farmers' cheese), n.s.k.	(NA)	(X)	33.6	(NA)	(X)	31.6
20265	Yogurt, except frozen	(NA)	(X)	998.2	(NA)	(X)	685.3
20265 00	Yogurt, except frozen—mil lb	62	*1 373.9	998.2	46	*1 088.7	685.3

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2026– —	**FLUID MILK**—Con.						
20267	Perishable dairy product substitutes	(NA)	(X)	238.4	(NA)	(X)	132.5
20267 11	Flavored dips—mil qt	11	29.3	28.9	9	19.0	21.5
20267 13	Whipped topping, nonbutterfat base (including pressure-can type)—mil lb	11	(S)	47.4	14	56.0	31.9
20267 14	Coffee whiteners—mil qt	20	(S)	61.3	17	90.1	44.9
20267 16	Sour cream substitutes	8	(X)	13.0	12	(X)	12.0
20267 17	Substitute dairy flavored drinks (chocolate drink, etc.)—mil qt	16	*95.0	38.2	14	37.6	15.8
20267 18	Other perishable dairy product substitutes	12	(X)	46.1	(NA)	(X)	6.3
20267 00	Perishable dairy product substitutes, n.s.k.	(NA)	(X)	3.4			
20268	Other packaged milk products, n.e.c.	(NA)	(X)	886.6	(NA)	(X)	840.6
20268 13	Flavored sour cream dips—mil qt	39	128.4	69.0	48	(NA)	83.3
20268 15	Flavored milks (chocolate milk, etc.)—mil qt	152	929.1	497.3	149	924.0	491.4
20268 19	Other milk products (eggnog, buttermilk, acidophilus milk, reconstituted milk, etc.)—mil qt	117	518.5	305.9	127	490.7	263.6
20268 00	Other packaged milk products, n.e.c., n.s.k.	(NA)	(X)	14.4	(NA)	(X)	2.3
20260	Fluid milk, n.s.k.	(NA)	(X)	916.3	(NA)	(X)	1 483.5
20260 00	Fluid milk, n.s.k.[6]	(NA)	(X)	868.1	(NA)	(X)	1 236.8
20260 02	Fluid milk, n.s.k.[7]	(NA)	(X)	48.2	(NA)	(X)	246.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, there are no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 5 employees or more.
[4]For 1992, there are no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 5 employees.
[5]For 1987, $1.1 million of raw liquid whey is combined with Product Code 20220 00, Cheese, Natural and Processed, N.S.K.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]For 1987, data for product codes 20236 16, 20236 21. and 20236 28 were combined to avoid disclosing data for individual companies.
[9]For 1987, data for product codes 20238 01, 20238 03, 20238 05, 20238 07, and 20238 19 were published as product code 20238 11.
[10]Typically for establishments with 15 employees or more.
[11]Typically for establishments with less than 15 employees.

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20223, NATURAL CHEESE, EXCEPT COTTAGE CHEESE (CHEDDAR, BRICK, GRATED, CREAM, SWISS, ITALIAN, ETC.)		
United States	**10 085.4**	**6 414.5**
California	1 240.5	411.2
Idaho	301.4	272.6
Illinois	343.7	169.3
Indiana	37.5	40.3
Iowa	398.3	290.1
Kentucky	49.4	66.9
Minnesota	918.4	520.0
Missouri	459.0	214.2
New Jersey	82.0	37.5
New York	575.8	675.7
North Dakota	54.7	29.8
Ohio	87.1	130.8
Oklahoma	7.1	(NA)
Pennsylvania	386.1	214.6
South Dakota	187.5	91.9
Utah	290.2	(NA)
Vermont	193.8	144.7
Washington	139.6	(NA)
Wisconsin	3 465.6	2 409.8
20224, PROCESS CHEESE AND RELATED PRODUCTS		
United States	**5 068.4**	**3 502.0**
California	142.2	30.6
20224, PROCESS CHEESE AND RELATED PRODUCTS—Con.		
Minnesota	925.7	557.6
Ohio	85.8	23.0
Wisconsin	1 692.1	1 124.9
20225, CHEESE SUBSTITUTES		
United States	**313.9**	**294.9**
New York	2.6	(NA)
Wisconsin	87.2	72.5
20235, DRY MILK PRODUCTS AND MIXTURES		
United States	**2 876.8**	**2 423.9**
California	368.4	210.8
Illinois	64.4	40.0
Iowa	343.6	311.5
Michigan	372.5	284.7
Minnesota	258.9	347.5
New York	68.9	76.2
Ohio	15.9	18.1
Pennsylvania	131.4	107.2
South Dakota	52.9	(NA)
Tennessee	25.1	(NA)
Utah	6.3	(NA)
Wisconsin	618.9	544.2

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20236, CANNED MILK PRODUCTS (CONSUMER TYPE CANS), EXCEPT SUBSTITUTES		
United States	**1 202.3**	**1 004.8**
Ohio	90.2	103.9
20237, CONCENTRATED MILK PRODUCTS SHIPPED IN BULK (BARRELS, DRUMS, AND TANKS), EXCEPT SUBSTITUTES		
United States	**903.3**	**716.0**
California	82.3	16.9
Michigan	85.3	(NA)
Minnesota	62.2	(NA)
New York	20.6	27.5
Pennsylvania	15.6	24.1
South Dakota	10.3	8.5
Wisconsin	213.0	176.3
20238, ICE CREAM MIXES AND RELATED PRODUCTS		
United States	**743.5**	**624.8**
Alabama	12.6	13.3
California	41.9	44.4
Colorado	9.1	(NA)
Florida	16.3	21.9
Illinois	75.8	54.0
Indiana	52.2	36.1
Iowa	8.5	3.7
Kentucky	8.3	6.5
Maryland	51.4	(NA)
Massachusetts	14.9	(NA)
Michigan	39.1	24.3
Missouri	17.5	3.4
Montana	4.2	(NA)
Nebraska	7.0	12.0
New York	21.0	26.2
North Carolina	17.1	16.7
Ohio	28.2	37.5
Pennsylvania	29.6	27.2
Texas	77.1	18.7
Washington	12.7	12.8
Wisconsin	14.7	23.9
20239, DAIRY PRODUCT SUBSTITUTES		
United States	**1 566.0**	**952.8**
California	6.2	6.9
Illinois	256.9	201.9
Michigan	453.8	235.2
Ohio	177.6	109.8
20261, BULK FLUID MILK AND CREAM		
United States	**3 031.4**	**3 160.7**
Alabama	10.1	32.9
Arkansas	7.6	(NA)
California	617.9	300.2
Colorado	4.9	14.9
Connecticut	5.7	(NA)
Florida	15.7	28.7
Georgia	4.4	13.7
Idaho	33.0	47.9
Illinois	57.5	84.2
Indiana	30.3	50.6
Iowa	141.6	174.3
Kentucky	41.6	80.1
Louisiana	13.2	84.2
Maryland	24.3	27.0
Michigan	70.0	104.2
Minnesota	162.4	296.7
Mississippi	5.1	6.8
Missouri	120.2	57.9
Nebraska	13.2	29.2
New Jersey	195.2	(NA)
New York	183.1	198.9
North Carolina	15.6	15.9
Ohio	118.9	118.8
Oregon	73.8	49.1
Pennsylvania	216.8	168.3
South Carolina	9.6	11.7
South Dakota	28.3	34.1
Tennessee	22.3	42.2
Texas	147.6	80.1
Utah	10.6	8.6
Virginia	20.4	79.9
Wisconsin	392.7	546.4
20262, PACKAGED FLUID MILK AND RELATED PRODUCTS, INCLUDING CARTONS, BOTTLES, CANS, AND DISPENSER CANS		
United States	**11 731.7**	**9 893.3**
Alabama	200.5	150.2
Arizona	214.7	161.9
Arkansas	89.5	57.7
California	1 347.0	1 076.3
Colorado	157.9	141.4
Connecticut	100.1	(NA)
Florida	542.3	463.8
Georgia	149.3	213.2
Hawaii	52.3	51.7
Illinois	493.6	416.5
Indiana	247.8	193.3
Iowa	171.8	120.6
Kansas	68.9	108.1
Kentucky	294.4	240.6
Louisiana	170.6	126.9
Maine	89.0	63.0
Maryland	252.5	200.3
Massachusetts	480.6	456.9
Michigan	456.8	364.4
Minnesota	270.9	194.2
Mississippi	88.4	92.0
Missouri	164.8	175.9
Nebraska	120.7	81.9
New Jersey	490.6	444.8
New York	597.7	538.3
North Carolina	290.1	230.2
Ohio	480.9	462.4
Oklahoma	162.5	123.5
Oregon	176.3	129.4
Pennsylvania	717.1	481.2
South Carolina	151.6	141.3
Tennessee	331.4	214.9
Texas	710.1	756.2
Vermont	60.8	66.4
Virginia	252.8	220.6
Washington	236.0	194.8
Wisconsin	382.3	316.6
20263, COTTAGE CHEESE (INCLUDING BAKERS' CHEESE, POT CHEESE, AND FARMERS' CHEESE)		
United States	**769.7**	**688.7**
California	103.4	101.8
Colorado	22.8	13.0
Illinois	29.5	38.8
Indiana	19.1	17.5
Kentucky	29.6	15.6
Nebraska	6.5	4.7
New York	162.1	95.8
Ohio	40.8	47.1
Oklahoma	16.4	10.6
Oregon	7.7	9.4
Pennsylvania	40.1	29.6
Texas	22.2	22.3
Virginia	12.7	16.7
Wisconsin	65.8	39.2
20265, YOGURT, EXCEPT FROZEN		
United States	**998.2**	**685.3**
California	176.7	83.8
New York	82.6	66.5
20267, PERISHABLE DAIRY PRODUCT SUBSTITUTES		
United States	**238.4**	**132.5**
Florida	3.5	2.9
Illinois	29.3	17.3
Michigan	3.1	(NA)
Ohio	11.3	5.9
Texas	6.6	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20268, OTHER PACKAGED MILK PRODUCTS, N.E.C.			**20268, OTHER PACKAGED MILK PRODUCTS, N.E.C.**—Con.		
United States	**886.6**	**840.6**	Maryland	15.4	31.5
Alabama	25.1	27.4	Michigan	34.7	43.3
Arizona	10.5	11.0	Minnesota	26.3	8.8
Arkansas	18.5	11.2	Mississippi	9.0	18.9
California	63.1	51.7	Missouri	13.1	31.6
Colorado	12.8	7.0	Nebraska	7.9	(NA)
Connecticut	5.9	7.4	New Jersey	11.2	(NA)
Florida	64.0	57.0	New York	36.1	29.2
Georgia	21.3	17.7	North Carolina	34.9	38.7
Hawaii	4.2	(NA)	Ohio	45.8	34.1
Illinois	28.8	19.9	Oklahoma	16.5	14.3
Indiana	13.7	8.8	Oregon	8.7	12.8
Iowa	22.3	9.5	Pennsylvania	41.2	39.5
Kentucky	45.6	24.2	Tennessee	50.0	26.2
Louisiana	11.9	(NA)	Texas	48.0	72.6
Maine	5.9	(NA)	Virginia	32.0	31.5
			Washington	21.2	27.6
			Wisconsin	22.0	22.3

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2021-	**Creamery butter**	**1 206.3**	**1 380.2**	**1 480.3**	**1 677.7**	**1 741.2**	**1 613.5**	**1 975.7**	**1 109.7**
20210	Creamery butter	1 206.3	1 380.2	1 480.3	1 677.7	1 741.2	1 613.5	1 975.7	1 109.7
2022-	**Cheese, natural and processed**	**15 872.5**	**13 665.2**	**13 605.6**	**11 861.9**	**10 848.7**	**10 775.6**	**9 486.9**	**5 528.1**
20223	Natural cheese, except cottage cheese (cheddar, brick, grated, cream, swiss, italian, etc.)	10 085.4	8 263.9	8 444.8	7 220.8	6 541.3	6 414.5	5 625.6	
20224	Process cheese and related products	5 068.4	4 733.7	4 488.9	3 887.7	3 527.7	3 502.0	3 194.3	5 245.7
20225	Cheese substitutes	313.9	212.0	192.8	183.0	225.5	294.9	239.7	
20220	Cheese, natural and processed, n.s.k.	404.8	455.7	479.1	570.4	554.2	564.3	427.2	282.3
2023-	**Dry, condensed, and evaporated dairy products**	**7 379.9**	**6 351.1**	**6 214.0**	**6 206.2**	**6 176.1**	**5 839.3**	**5 047.6**	**3 086.1**
20235	Dry milk products and mixtures	2 876.8	2 863.3	2 661.7	2 647.4	2 589.6	2 423.9	2 425.4	
20236	Canned milk products (consumer type cans), except substitutes	1 202.3	1 014.6	1 018.7	1 051.8	1 074.3	1 004.8	1 114.7	
20237	Concentrated milk products shipped in bulk (barrels, drums, and tanks), except substitutes	903.3	726.2	702.5	674.4	741.5	716.0	370.9	2 671.9
20238	Ice cream mixes and related products	743.5	582.7	651.1	724.4	697.0	624.8	531.0	293.2
20239	Dairy product substitutes	1 566.0	1 151.3	1 144.9	1 028.9	955.7	952.8	443.9	(NA)
20230	Dry, condensed, and evaporated milk products, n.s.k.	88.0	12.9	35.2	79.3	118.1	117.1	161.7	121.0
2024-	**Ice cream and frozen desserts**	**5 278.7**	**5 047.1**	**5 047.2**	**4 712.0**	**4 574.0**	**4 195.0**	**3 281.1**	**2 229.4**
20240	Ice cream and ices	5 278.7	5 047.1	5 047.2	4 712.0	4 574.0	4 195.0	3 281.1	2 229.4
2026-	**Fluid milk**	**18 572.2**	**17 801.2**	**19 091.9**	**18 109.7**	**17 949.1**	**16 884.6**	**15 517.4**	**11 602.8**
20261	Bulk fluid milk and cream	3 031.4	3 042.4	3 279.5	3 297.9	3 229.4	3 160.7	3 037.6	2 123.8
20262	Packaged fluid milk and related products, including cartons, bottles, cans, and dispenser cans	11 731.7	11 664.3	12 382.4	11 235.8	10 733.8	9 893.3	9 115.0	7 345.5
20263	Cottage cheese (including bakers' cheese, pot cheese, and farmers' cheese)	769.7	723.6	839.0	808.7	748.1	688.7	683.2	545.6
20265	Yogurt, except frozen	998.2	823.3	795.7	774.1	849.3	685.3	403.7	
20267	Perishable dairy product substitutes	238.4	194.5	211.8	174.1	143.8	132.5	134.8	851.6
20268	Other packaged milk products, n.e.c.	886.6	717.1	846.3	768.8	725.4	840.6	705.0	
20260	Fluid milk, n.s.k.	916.3	635.9	737.3	1 050.3	1 519.2	1 483.5	1 578.7	736.3

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2021, CREAMERY BUTTER				
	Materials, ingredients, containers, and supplies	**(X)**	**846.9**	**(X)**	**1 236.7**
024111	Whole milk — mil cwt	7.3	87.9	*19.9	246.2
202613	Cream — mil cwt	(S)	571.8	(S)	841.2
202101	Butter — mil lb	56.9	45.1	(NA)	(2)
202301	Condensed and evaporated milk — mil lb	(S)	1.4	(NA)	(2)
267101	Packaging paper and plastics film, coated and laminated	(X)	6.2	(X)	(2)
	Containers:				
308015	Plastics containers	(X)	5.0	(X)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	13.0	(X)	26.4
970099	All other materials and components, parts, containers, and supplies	(X)	107.5	(X)	295.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	8.9	(X)	27.6
	INDUSTRY 2022, CHEESE, NATURAL AND PROCESSED				
	Materials, ingredients, containers, and supplies	**(X)**	**13 105.5**	**(X)**	**r9 290.4**
024111	Whole milk — mil cwt	*506.8	6 517.0	*403.1	4 863.9
202612	Fluid skim milk — mil cwt	2.1	38.7	(S)	22.5
202613	Cream — mil cwt	(S)	89.5	3.3	285.9
202101	Butter — mil lb	7.3	8.1	(NA)	(2)
202301	Condensed and evaporated milk — mil lb	*141.6	75.2	126.7	34.3
202311	Dry milk — mil lb	121.8	112.2	79.7	64.3
202210	Natural cheese, other than cottage cheese — mil lb	2 557.5	3 391.8	**1 481.5	1 909.7
207006	Fats and oils, all types (purchased as such) — mil lb	349.1	96.3	(S)	71.4
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) — mil lb	(D)	(D)	(NA)	(2)
204611	Crystalline fructose (dry fructose) — mil lb	(D)	(D)	(NA)	(2)
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) — mil lb	(D)	(D)	(NA)	(2)
206011	Sugar, cane and beet (in terms of sugar solids) — 1,000 s tons	**10.5	3.8	(NA)	(2)
202302	Whey, liquid, concentrated, dried; and modified whey products — mil lb	*387.1	80.5	*377.2	48.3
190035	Casein and caseinates — mil lb	59.1	118.5	43.8	45.4
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.) — mil lb	1.6	1.2	(NA)	(2)
190036	Flavorings (natural, imitation, etc.), except chocolate	(X)	109.0	(X)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. — mil lb	1.3	.4	(NA)	(2)
267101	Packaging paper and plastics film, coated and laminated	(X)	130.6	(X)	(2)
267301	Bags; plastics, foil, and coated paper	(X)	96.7	(X)	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	17.8	(X)	24.2
	Containers:				
322101	Glass containers	(X)	(D)	(X)	(D)
308015	Plastics containers	(X)	27.0	(X)	38.0
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	163.2	(X)	164.6
341101	Metal cans, can lids and ends	(X)	47.9	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	1 084.6	(X)	2634.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	862.2	(X)	r1 047.0
	INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**3 759.2**	**(X)**	**2 843.5**
024111	Whole milk — mil cwt	129.2	1 559.0	*107.7	1 251.7
202612	Fluid skim milk — mil cwt	(S)	85.8	(S)	38.2
202613	Cream — mil cwt	2.6	116.0	*1.6	114.3
202101	Butter — mil lb	(D)	(D)	(NA)	(2)
202301	Condensed and evaporated milk — mil lb	*313.3	125.8	214.3	61.7
202311	Dry milk — mil lb	283.7	236.4	**161.6	124.0
202210	Natural cheese, other than cottage cheese — mil lb	*79.6	46.1	(NA)	(2)
207006	Fats and oils, all types (purchased as such) — mil lb	*235.4	78.5	169.2	42.7
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) — mil lb	**113.4	13.8	138.4	11.7
204611	Crystalline fructose (dry fructose) — mil lb	6.6	1.6	1.0	.6
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) — mil lb	208.6	31.3	137.4	18.1
206011	Sugar, cane and beet (in terms of sugar solids) — 1,000 s tons	153.4	71.4	122.2	54.0
202302	Whey, liquid, concentrated, dried; and modified whey products — mil lb	*1 095.5	133.7	*710.8	104.2
190035	Casein and caseinates — mil lb	95.9	150.4	84.5	85.7
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.) — mil lb	26.9	17.4	26.7	17.9
190036	Flavorings (natural, imitation, etc.), except chocolate	(X)	55.0	(X)	27.7
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. — mil lb	(D)	(D)	(NA)	(2)
267101	Packaging paper and plastics film, coated and laminated	(X)	30.1	(X)	(2)
267301	Bags; plastics, foil, and coated paper	(X)	24.6	(X)	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	11.6	(X)	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2023, DRY, CONDENSED, AND EVAPORATED DAIRY PRODUCTS—Con.				
	Containers:				
322101	Glass containers	(X)	23.3	(X)	32.9
308015	Plastics containers	(X)	30.0	(X)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	87.8	(X)	97.5
341101	Metal cans, can lids and ends	(X)	192.8	(X)	143.9
970099	All other materials and components, parts, containers, and supplies	(X)	461.5	(X)	[2]446.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	118.9	(X)	169.9
	INDUSTRY 2024, ICE CREAM AND FROZEN DESSERTS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 661.3**	**(X)**	**[r]2 198.0**
024111	Whole milk mil cwt	*22.1	295.0	*16.6	191.8
202612	Fluid skim milk mil cwt	(S)	59.8	1.0	36.1
202613	Cream mil cwt	5.3	321.1	*5.7	413.6
202101	Butter mil lb	1.9	1.7	**3.6	4.8
202301	Condensed and evaporated milk mil lb	261.8	123.9	*247.9	102.7
202311	Dry milk mil lb	85.4	57.7	*44.9	34.6
	Dairy product mixes:				
202403	Ice cream mixes mil gal	47.5	123.6		
202404	Sherbet mixes mil gal	3.9	8.1		
202405	Ice milk mixes mil gal	5.1	13.9	*80.4	197.8
202407	Frozen yogurt mixes mil gal	*4.1	9.2		
207006	Fats and oils, all types (purchased as such) mil lb	6.3	3.2	(NA)	(2)
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) mil lb	*284.4	46.2	150.9	20.3
204611	Crystalline fructose (dry fructose) mil lb	1.9	.3	36.8	4.5
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) mil lb	*269.1	32.8	218.9	18.6
206011	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons	236.5	92.0	219.9	88.8
202302	Whey, liquid, concentrated, dried; and modified whey products mil lb	**71.0	20.4	*82.8	20.2
190035	Casein and caseinates mil lb	.8	.8	(NA)	(2)
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.) mil lb	108.0	95.1	82.9	75.1
190036	Flavorings (natural, imitation, etc.), except chocolate	(X)	284.6	(X)	203.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	*62.6	16.1	(NA)	(2)
267101	Packaging paper and plastics film, coated and laminated	(X)	69.9	(X)	(2)
267301	Bags; plastics, foil, and coated paper	(X)	30.3	(X)	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	6.6	(X)	(2)
	Containers:				
308015	Plastics containers	(X)	32.3	(X)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	338.5	(X)	276.8
970099	All other materials and components, parts, containers, and supplies	(X)	355.4	(X)	[2]319.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	222.7	(X)	[r]189.0
	INDUSTRY 2026, FLUID MILK				
	Materials, ingredients, containers, and supplies	**(X)**	**13 843.7**	**(X)**	**13 070.7**
024111	Whole milk mil cwt	631.6	9 263.1	*763.2	8 565.3
202612	Fluid skim milk mil cwt	*14.4	220.2	28.1	302.9
202613	Cream mil cwt	4.7	265.8	*4.6	282.1
202101	Butter mil lb	(S)	24.5	(NA)	(2)
202301	Condensed and evaporated milk mil lb	215.4	80.9	176.3	48.6
202311	Dry milk mil lb	**143.2	115.8	*127.2	106.2
202210	Natural cheese, other than cottage cheese mil lb	*10.1	11.5	(NA)	(2)
	Dairy product mixes:				
202403	Ice cream mixes mil gal	*20.0	46.4		
202404	Sherbet mixes mil gal	3.5	5.5		
202405	Ice milk mixes mil gal	*5.5	10.8	**42.0	91.7
202407	Frozen yogurt mixes mil gal	*2.1	5.3		
207006	Fats and oils, all types (purchased as such) mil lb	*70.1	25.1	(S)	15.2
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) mil lb	*737.6	88.1	**515.6	54.3
204611	Crystalline fructose (dry fructose) mil lb	*18.7	3.2	(S)	4.2
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) mil lb	*153.7	21.3	**161.2	16.7
206011	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons	185.7	68.5	*247.5	66.6
202302	Whey, liquid, concentrated, dried; and modified whey products mil lb	**105.2	40.0	(S)	28.9
190035	Casein and caseinates mil lb	(S)	7.2	(NA)	(2)
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.) mil lb	*73.1	55.0	(S)	51.0
190036	Flavorings (natural, imitation, etc.), except chocolate	(X)	272.8	(X)	179.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	*514.3	176.8	*357.4	125.7
267101	Packaging paper and plastics film, coated and laminated	(X)	139.9	(X)	(2)
267301	Bags; plastics, foil, and coated paper	(X)	23.2	(X)	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	27.0	(X)	9.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2026, FLUID MILK—Con.				
	Containers:				
322101	Glass containers	(X)	4.1	(X)	8.1
308015	Plastics containers	(X)	337.3	(X)	328.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	504.3	(X)	528.2
341101	Metal cans, can lids and ends	(X)	22.2	(X)	26.0
970099	All other materials and components, parts, containers, and supplies	(X)	856.1	(X)	[2]800.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 121.9	(X)	1 431.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]Data are included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

Table 8. **Employees Engaged in Transportation: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting transportation employees			
				Total		Engaged in transportation	
		Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)
2026	Fluid milk	63.4	1 841.1	34.6	963.2	9.3	271.5

Note: Establishments in selected industries were instructed to report number of employees included in total employment that were engaged in delivery of products sold by that establishment and utilized as a separate work force.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
20489 41	20489 00
2048A 12	2048A 13
2048A 19	2048A 13
20511 21	20511 11
20511 22	20511 11
20511 27	20511 13
20511 29	20511 13
20511 31	20511 15
20511 33	20511 15
20511 35	20511 17
20511 37	20511 17
20511 41	20511 28
20511 42	20511 28
20512 30	20512 33
20512 31	20512 33
20512 43	20512 35
20512 44	20512 35
20512 50	20512 36
20512 51	20512 36
20512 60	20512 37
20512 61	20512 37
20512 70	20512 39
20512 71	20512 39
20512 80	20512 40
20512 81	20512 40
20512 90	20512 42
20512 91	20512 42
20522 16	20522 19
20522 17	20522 19
20522 18	20522 19
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20630 12	20630 07
20630 35	20630 89
20630 76	20630 75
20630 76	20630 81
20630 91	20630 89
20752 97	20752 32
20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
20853 65	20853 63
20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
20922 19	20922 22
20923 21	20923 24
20923 21	20923 31
20923 21	20923 33
20923 23	20923 25
20923 23	20923 35
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20952 00	20952 19
20980 01	20980 21
20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
2099B 07	20997 41
2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
2099B 19	20997 98

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
20223 00	20223 01
20223 00	20223 02
20224 21	20224 11
20224 21	20224 13
20238 11	20238 01
20238 11	20238 03
20238 11	20238 05
20238 11	20238 07
20238 11	20238 19
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20321 21	20321 00
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2048A 13	2048A 19
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20511 15	20511 31
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20511 17	20511 35
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20512 42	20512 91
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20522 19	20522 17
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20630 89	20630 35
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20752 32	20752 97
20752 98	20752 97
20791 81	20791 83
20791 81	20791 85
20824 00	20824 11
20840 00	20840 10
20851 13	20851 15
20851 19	20851 15
20853 63	20853 65
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20980 21	20980 02
20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:07 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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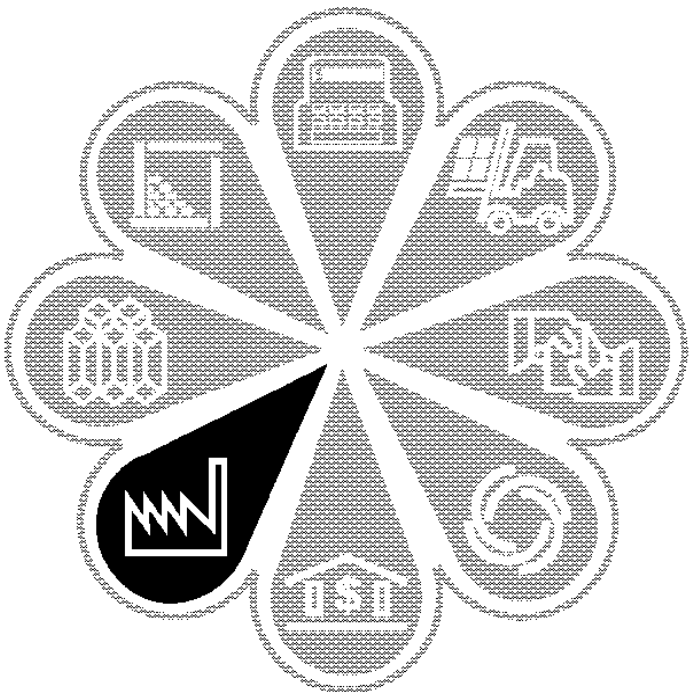
1992 Census of Manufactures

MC92-I-20C

INDUSTRY SERIES

Preserved Fruits and Vegetables

Industries 2032, 2033, 2034, 2035, 2037, and 2038



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20C

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2032	Canned Specialties
2033	Canned Fruits and Vegetables
2034	Dehydrated Fruits, Vegetables, and Soups
2035	Pickles, Sauces, and Salad Dressings
2037	Frozen Fruits and Vegetables
2038	Frozen Specialties, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2032, CANNED SPECIALTIES

This industry is made up of establishments primarily engaged in canning specialty products, such as baby foods and soups, except seafood. Establishments primarily engaged in canning seafoods are classified in industry 2091.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2032, Canned Specialties, had employment of 21.0 thousand. The employment figure was 14 percent below the 24.5 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Pennsylvania, Ohio, and Texas, accounting for approximately 53 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $6.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2032 shipped $5.0 billion of canned specialties products considered primary to the industry, $1.5 billion of secondary products, and had $145.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 76 percent (specialization ratio). In 1987, the specialization ratio was 78 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2032, no matter in what industry they were produced, appear in table 6a and aggregate to $5.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the canned specialties industry amounted to $3.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2033, CANNED FRUITS AND VEGETABLES

This industry is made up of establishments primarily engaged in canning fruits, vegetables, and fruit and vegetable juices. Also included in this industry are establishments primarily engaged in manufacturing catsup and similar tomato sauces, or natural and imitation preserves, jams, and jellies. Establishments primarily engaged in canning seafoods are classified in industry 2091 and those manufacturing canned specialties, such as baby foods and soups, except seafood, are classified in industry 2032.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2033, Canned Fruits and Vegetables, had employment of 63.7 thousand. The employment figure was 2 percent below the 65.1 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Washington, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $15.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2033 shipped $12.7 billion of canned fruits and vegetables considered primary to the industry, $1.8 billion of secondary products, and had $602.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 84 percent.

The products primary to industry 2033, no matter in what industry they were produced, appear in table 6a and aggregate to $15.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the canned fruits and vegetables industry amounted to $8.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS

This industry is made up of establishments primarily engaged in sun-drying or artificially-dehydrating fruits and vegetables. Also included in this industry are establishments primarily engaged in manufacturing packaged soup mixes from dehydrated ingredients. Establishments primarily engaged in the grading and marketing of farm-dried fruits, such as prunes and raisins are classified in wholesale trade, industry 5149.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2034, Dehydrated Fruits, Vegetables, and Soups, had employment of 13.5 thousand. The employment figure was 34 percent above the 10.1 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Idaho, New Jersey, and Washington. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 2034 shipped $2.5 billion of dehydrated fruits, vegetables, and soup products considered primary to the industry.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 79 percent.

The products primary to industry 2034, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the dehydrated fruits, vegetables, and soups industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS

This industry is made up of establishments primarily engaged in pickling and brining fruits and vegetables, and in manufacturing salad dressings, vegetable relishes, sauces, and seasonings. Establishments primarily engaged in manufacturing catsup and similar tomato sauces are classified in industry 2033. Establishments primarily engaged in packing purchased pickles and olives are classified in wholesale or retail trade.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2035, Pickles, Sauces, and Salad Dressings, had employment of 21.4 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were California, Michigan, Illinois, and Georgia, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when California, Georgia, Michigan, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $6.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2035 shipped $5.2 billion of pickles, sauces, and salad dressing products considered primary to the industry, $1.1 billion of secondary products, and had $111.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 82 percent (specialization ratio). In 1987, the specialization ratio was 78 percent.

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 2035, no matter in what industry they were produced, appear in table 6a and aggregate to $6.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pickles, sauces, and salad dressings industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES

This industry is made up of establishments primarily engaged in freezing and cold packing fruits, fruit juices, and vegetables. Establishments primarily engaged in freezing food specialties, such as frozen dinners and frozen nationality foods are classified in industry 2038.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2037, Frozen Fruits and Vegetables, had employment of 48.0 thousand. The employment figure was 4 percent below the 49.8 thousand reported in 1987.

The leading States in employment in 1992 were California, Oregon, Idaho, and Washington, accounting for approximately 60 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 62 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 2037 shipped $6.9 billion of frozen fruits and vegetables considered primary to the industry, $526.4 million of secondary products, and had $144.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 2037, no matter in what industry they were produced, appear in table 6a and aggregate to $7.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the frozen fruits and vegetables industry amounted to $4.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing frozen specialties, such as frozen dinners, frozen nationality foods, frozen pizzas, and other frozen specialties, except seafood and bakery products. Establishments primarily engaged in manufacturing frozen fruits and vegetables are classified in industry 2037. Establishments primarily engaged in manufacturing frozen dairy specialties are classified in industry group 202.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2038, Frozen Specialties, N.E.C., had employment of 46.7 thousand. The employment figure was 25 percent above the 37.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Ohio, Arkansas, and Texas, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when California, New York, Ohio, and South Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $7.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2038 shipped $7.0 billion of frozen specialties, not elsewhere classified, considered primary to the industry, $514.6 million of secondary products, and had $392.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2038, no matter in what industry they were produced, appear in table 6a and aggregate to $7.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the frozen specialties, not elsewhere classified, industry amounted to $3.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2032, CANNED SPECIALTIES															
1992 Census	201	220	76	21.0	561.0	17.2	35.5	427.4	3 617.5	3 057.2	6 662.7	274.7	859.7	76	87
1991 ASM	(NA)	(NA)	(NA)	23.9	577.2	19.9	38.9	443.7	3 408.1	3 068.1	6 474.5	278.6	880.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.9	577.0	19.6	39.5	439.8	3 272.3	3 054.7	6 322.3	251.0	823.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.7	560.6	19.0	38.2	429.7	3 043.1	3 015.1	6 047.5	175.5	790.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.5	552.6	18.7	37.7	417.2	2 687.9	2 863.6	5 551.3	125.0	736.3	(NA)	(NA)
1987 Census	183	211	86	24.5	524.8	19.5	38.1	395.2	2 652.4	2 700.4	5 350.1	144.8	730.2	78	92
1986 ASM	(NA)	(NA)	(NA)	24.7	513.2	19.6	38.6	383.2	2 326.3	2 629.9	4 957.6	178.8	670.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.2	476.9	19.7	37.0	366.9	2 161.2	2 638.4	4 801.7	113.6	764.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	24.1	451.6	19.6	37.9	348.1	2 158.9	2 631.0	4 784.0	101.4	835.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.8	443.8	20.3	40.0	337.8	1 958.4	2 410.0	4 370.1	79.1	706.1	(NA)	(NA)
1982 Census	171	198	88	23.4	392.4	19.0	37.0	297.6	1 769.3	2 372.0	4 140.8	154.3	638.4	78	90
1981 ASM	(NA)	(NA)	(NA)	24.1	373.2	19.7	38.4	286.2	1 538.4	2 316.9	3 851.4	68.4	615.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.0	362.3	20.3	40.8	280.3	1 414.1	2 160.4	3 573.6	69.5	612.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	26.3	345.1	21.5	42.8	265.5	1 308.9	2 051.5	3 361.0	73.1	579.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	26.6	325.7	21.6	44.4	253.7	1 243.0	1 920.2	3 162.9	59.2	567.7	(NA)	(NA)
1977 Census	172	203	88	26.4	296.5	21.5	42.4	224.3	1 142.6	1 687.7	2 829.2	46.7	527.8	80	89
INDUSTRY 2033, CANNED FRUITS AND VEGETABLES															
1992 Census	502	683	397	63.7	1 466.7	53.2	109.3	1 101.4	6 959.4	8 032.5	15 065.5	445.1	3 749.0	88	84
1991 ASM	(NA)	(NA)	(NA)	67.3	1 484.4	57.2	114.3	1 112.8	6 858.8	8 759.9	15 579.1	490.2	3 763.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	68.0	1 407.9	58.2	113.4	1 063.6	6 405.2	8 362.7	14 697.9	433.6	3 623.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	66.4	1 289.8	57.1	110.9	997.1	5 899.4	7 757.2	13 605.2	351.5	3 071.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	64.4	1 219.6	55.2	105.1	932.6	5 789.1	7 080.5	12 872.6	320.7	2 793.2	(NA)	(NA)
1987 Census	462	647	417	65.1	1 161.1	55.5	104.1	878.4	5 440.1	6 465.9	11 889.5	257.9	2 745.3	90	84
1986 ASM	(NA)	(NA)	(NA)	67.4	1 105.2	57.4	102.0	824.0	5 184.8	6 022.7	11 170.7	240.0	2 694.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	67.6	1 132.5	57.3	105.4	847.5	4 448.3	6 440.2	10 998.7	264.1	2 869.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	69.0	1 134.1	58.5	109.3	854.5	4 129.8	6 353.0	10 389.6	242.4	2 922.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	65.2	1 007.9	55.6	103.9	776.9	3 660.8	5 641.4	9 358.1	267.7	2 429.9	(NA)	(NA)
1982 Census	514	715	451	70.5	1 040.1	60.7	113.6	822.4	3 552.7	5 768.1	9 283.4	264.1	2 781.0	89	87
1981 ASM	(NA)	(NA)	(NA)	78.2	1 052.5	68.2	126.7	837.3	3 253.2	5 791.0	9 033.4	269.8	2 872.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	79.8	993.9	68.3	129.0	799.9	2 745.0	5 682.4	8 413.4	243.6	2 802.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	82.4	939.6	71.4	135.9	761.8	2 813.6	5 338.1	8 128.3	200.4	2 536.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	82.7	852.1	73.1	132.7	682.5	2 816.9	4 425.1	7 236.9	206.9	2 202.7	(NA)	(NA)
1977 Census	648	900	519	82.6	789.8	72.6	135.0	636.6	2 546.1	4 135.3	6 666.5	147.1	2 233.5	90	89
INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS															
1992 Census	124	155	84	13.5	320.8	11.3	21.9	224.4	1 515.0	1 317.9	2 853.1	91.7	709.4	(D)	91
1991 ASM	(NA)	(NA)	(NA)	13.4	316.7	11.0	21.4	219.8	1 353.2	1 394.8	2 708.3	117.9	701.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.1	298.1	11.7	22.8	204.9	1 124.9	1 372.3	2 453.7	98.6	707.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.3	263.4	11.1	20.4	182.8	1 131.7	1 178.2	2 235.2	125.0	654.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.8	207.9	9.1	16.6	149.5	890.6	1 032.2	1 971.3	60.7	484.2	(NA)	(NA)
1987 Census	107	132	68	10.1	190.8	8.4	15.4	137.8	933.6	924.7	1 821.9	48.3	517.0	93	79
1986 ASM	(NA)	(NA)	(NA)	12.2	221.9	9.9	17.4	153.5	859.7	922.4	1 816.9	47.1	498.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.2	242.8	11.0	20.2	175.0	839.9	973.5	1 788.0	61.4	529.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.9	216.4	9.7	17.8	153.1	685.6	932.6	1 686.4	54.9	463.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.0	210.0	8.8	17.3	151.5	697.0	945.4	1 646.9	44.0	545.2	(NA)	(NA)
1982 Census	119	151	85	13.6	216.9	11.2	19.1	156.2	792.3	985.0	1 745.1	51.7	554.8	94	93
1981 ASM	(NA)	(NA)	(NA)	12.3	186.0	9.8	17.9	132.5	687.4	964.3	1 591.7	54.7	423.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.5	181.2	10.8	20.5	128.9	701.4	906.1	1 518.3	46.6	416.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.0	177.6	11.6	21.1	124.4	598.2	758.0	1 311.5	44.8	315.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.4	171.6	11.8	22.0	122.7	519.4	764.9	1 278.9	54.2	293.5	(NA)	(NA)
1977 Census	143	184	87	14.4	153.9	11.7	22.1	111.5	485.9	685.3	1 142.4	52.5	281.9	94	88
INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS															
1992 Census	332	376	152	21.4	531.3	16.3	32.7	347.4	3 749.2	2 651.3	6 398.0	158.8	700.4	82	79
1991 ASM	(NA)	(NA)	(NA)	20.5	481.6	15.9	31.4	327.4	3 365.9	2 850.8	6 220.7	210.5	659.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.2	488.7	15.7	31.3	320.3	2 984.5	2 770.7	5 749.8	145.3	701.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.6	462.8	15.6	30.9	311.5	2 720.7	2 694.3	5 412.5	139.2	653.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.4	463.8	16.6	32.6	321.1	2 657.4	2 637.2	5 292.8	165.6	640.7	(NA)	(NA)
1987 Census	344	382	162	21.4	451.8	16.6	32.6	310.0	2 544.8	2 506.8	5 050.3	221.0	566.9	78	86
1986 ASM	(NA)	(NA)	(NA)	23.1	471.3	18.1	34.5	326.0	2 473.2	2 884.1	5 353.2	147.0	710.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.9	439.3	18.1	34.2	306.4	2 115.6	2 998.0	5 123.2	129.5	606.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.6	416.9	17.9	34.3	289.5	1 894.2	2 995.5	4 896.3	96.4	626.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.2	383.6	17.3	33.3	269.7	2 039.6	2 672.5	4 698.4	61.8	588.4	(NA)	(NA)
1982 Census	325	376	155	22.0	371.5	17.4	33.3	260.8	1 736.9	2 532.7	4 268.8	67.5	582.5	68	83
1981 ASM	(NA)	(NA)	(NA)	23.5	350.0	19.4	37.2	247.3	1 437.9	2 452.4	3 889.9	63.2	540.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	24.8	344.6	20.7	38.8	249.6	1 384.9	2 511.3	3 906.2	68.7	576.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	25.1	318.5	20.8	39.3	231.9	1 302.9	2 326.5	3 630.9	73.6	541.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.6	291.8	20.6	39.1	216.8	1 243.1	2 104.1	3 342.2	67.5	526.3	(NA)	(NA)
1977 Census	380	438	168	23.5	250.2	18.9	35.7	184.9	986.5	2 003.8	2 996.5	52.3	447.8	69	86
INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES															
1992 Census	182	255	201	48.0	917.6	41.5	79.1	678.2	2 910.4	4 613.4	7 535.0	254.8	1 775.9	93	93
1991 ASM	(NA)	(NA)	(NA)	46.0	836.3	39.8	76.7	628.1	2 827.0	4 573.6	7 395.7	298.2	1 881.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	46.2	817.0	39.2	74.7	602.4	2 921.6	4 618.9	7 473.6	349.9	1 751.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	46.9	810.5	39.9	74.4	593.7	3 089.7	4 299.0	7 422.6	283.9	1 567.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	48.5	773.5	41.2	76.1	569.3	3 072.5	3 777.9	6 814.9	235.7	1 516.9	(NA)	(NA)
1987 Census	194	258	193	49.8	786.8	42.8	78.4	591.4	2 986.8	3 669.5	6 606.2	175.2	1 414.5	91	93
1986 ASM	(NA)	(NA)	(NA)	46.4	701.0	40.1	70.7	526.7	2 648.6	3 218.6	5 885.7	196.4	1 331.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	46.1	698.6	40.2	73.3	538.6	2 355.1	3 435.3	5 802.5	213.5	1 338.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.9	693.4	41.2	76.4	540.1	2 555.7	3 470.8	5 968.9	189.8	1 313.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	47.3	681.2	40.9	74.4	519.4	2 393.4	3 185.7	5 560.8	176.3	1 236.9	(NA)	(NA)
1982 Census	195	264	199	47.7	643.5	41.5	77.1	506.7	2 408.6	2 970.1	5 374.6	235.7	1 144.4	93	93
1981 ASM	(NA)	(NA)	(NA)	48.8	569.3	42.7	84.6	449.4	1 989.9	2 817.9	4 780.2	132.3	1 003.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	48.0	534.7	41.2	82.0	419.6	1 689.2	2 464.5	4 180.9	145.8	949.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.9	525.2	45.7	83.5	423.6	1 531.6	2 441.3	3 959.1	119.2	938.4	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES—Con.														
1978 ASM	(NA)	(NA)	(NA)	46.4	477.0	41.2	81.4	384.1	1 519.0	2 472.6	3 961.4	130.5	844.3	(NA)	(NA)
1977 Census	187	260	193	46.8	425.9	41.5	78.5	344.7	1 322.5	1 972.0	3 297.5	87.7	724.4	89	89
	INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.														
1992 Census	308	363	203	46.7	971.5	38.3	73.4	673.6	4 075.9	3 808.9	7 885.7	249.7	582.8	93	97
1991 ASM	(NA)	(NA)	(NA)	44.9	876.1	36.7	72.2	626.7	4 229.6	4 198.0	8 427.8	224.9	541.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	44.7	852.5	36.3	67.5	593.6	3 710.4	4 085.2	7 797.0	230.3	540.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	41.8	789.8	33.7	63.8	545.6	3 374.2	3 532.0	6 904.6	145.6	555.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.0	680.6	30.6	60.7	470.2	2 808.3	2 985.8	5 798.1	188.1	516.1	(NA)	(NA)
1987 Census	244	288	182	37.5	669.1	30.1	58.7	461.7	2 806.6	2 849.9	5 624.8	178.2	520.0	93	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2032, CANNED SPECIALTIES								
1992 Census	26 714	82	2 064	12.04	46	54	172 262	16	101.90
1991 ASM	24 151	83	1 955	11.41	47	56	142 598	17	87.61
1990 ASM	24 142	82	2 015	11.13	48	57	136 916	18	82.84
1989 ASM	23 654	80	2 011	11.25	50	59	128 401	18	79.66
1988 ASM	23 515	80	2 016	11.07	52	62	114 379	21	71.30
1987 Census	21 420	80	1 954	10.37	50	60	108 261	20	69.62
1986 ASM	20 777	79	1 969	9.93	53	63	94 182	22	60.27
1985 ASM	19 707	81	1 878	9.92	55	65	89 306	22	58.41
1984 ASM	18 739	81	1 934	9.18	55	64	89 581	21	56.96
1983 ASM	17 895	82	1 970	8.45	55	65	78 968	23	48.96
1982 Census	16 769	81	1 947	8.04	57	67	75 611	22	47.82
1981 ASM	15 485	82	1 949	7.45	60	70	63 834	24	40.06
1980 ASM	14 492	81	2 010	6.87	60	71	56 564	26	34.66
1979 ASM	13 122	82	1 991	6.20	61	71	49 768	26	30.58
1978 ASM	12 244	81	2 056	5.71	61	71	46 729	26	28.00
1977 Census	11 231	81	1 972	5.29	60	70	43 280	26	26.95
	INDUSTRY 2033, CANNED FRUITS AND VEGETABLES								
1992 Census	23 025	84	2 055	10.08	53	63	109 253	21	63.67
1991 ASM	22 056	85	1 998	9.74	56	66	101 914	22	60.01
1990 ASM	20 704	86	1 948	9.38	57	66	94 194	22	56.48
1989 ASM	19 425	86	1 942	8.99	57	66	88 846	22	53.20
1988 ASM	18 938	86	1 904	8.87	55	64	89 893	21	55.08
1987 Census	17 836	85	1 876	8.44	54	64	83 565	21	52.26
1986 ASM	16 398	85	1 777	8.08	54	64	76 926	21	50.83
1985 ASM	16 753	85	1 839	8.04	59	69	65 803	25	42.20
1984 ASM	16 436	85	1 868	7.82	61	72	59 852	27	37.78
1983 ASM	15 459	85	1 869	7.48	60	71	56 147	28	35.23
1982 Census	14 753	86	1 871	7.24	62	73	50 393	29	31.27
1981 ASM	13 459	87	1 858	6.61	64	76	41 601	32	25.68
1980 ASM	12 455	86	1 889	6.20	68	79	34 398	36	21.28
1979 ASM	11 403	87	1 903	5.61	66	77	34 146	33	20.70
1978 ASM	10 304	88	1 815	5.14	61	73	34 062	30	21.23
1977 Census	9 562	88	1 860	4.72	62	74	30 824	31	18.86

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS								
1992 Census	23 763	84	1 938	10.25	46	57	112 222	21	69.18
1991 ASM	23 634	82	1 945	10.27	52	63	100 985	23	63.23
1990 ASM	21 142	83	1 949	8.99	56	68	79 780	27	49.34
1989 ASM	19 805	83	1 838	8.96	53	64	85 090	23	55.48
1988 ASM	19 250	84	1 824	9.01	52	63	82 463	23	53.65
1987 Census	18 891	83	1 833	8.95	51	61	92 436	20	60.62
1986 ASM	18 189	81	1 758	8.82	51	63	70 467	26	49.41
1985 ASM	18 394	83	1 836	8.66	54	68	63 629	29	41.58
1984 ASM	18 185	82	1 835	8.60	55	68	57 613	32	38.52
1983 ASM	19 091	80	1 966	8.76	57	70	63 364	30	40.29
1982 Census	15 949	82	1 705	8.18	56	69	58 257	27	41.48
1981 ASM	15 122	80	1 827	7.40	61	72	55 886	27	38.40
1980 ASM	13 422	80	1 898	6.29	60	72	51 956	26	34.21
1979 ASM	12 686	83	1 819	5.90	58	71	42 729	30	28.35
1978 ASM	11 917	82	1 864	5.58	60	73	36 069	33	23.61
1977 Census	10 688	81	1 889	5.05	60	73	33 743	32	21.99
	INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS								
1992 Census	24 827	76	2 006	10.62	41	50	175 196	14	114.65
1991 ASM	23 493	78	1 975	10.43	46	54	164 190	14	107.19
1990 ASM	23 052	74	1 994	10.23	48	57	140 778	16	95.35
1989 ASM	22 466	76	1 981	10.08	50	58	132 073	17	88.05
1988 ASM	21 673	78	1 964	9.85	50	59	124 178	17	81.52
1987 Census	21 112	78	1 964	9.51	50	59	118 916	18	78.06
1986 ASM	20 403	78	1 906	9.45	54	63	107 065	19	71.69
1985 ASM	19 183	79	1 890	8.96	59	67	92 384	21	61.86
1984 ASM	18 447	79	1 916	8.44	61	70	83 814	22	55.22
1983 ASM	17 279	78	1 925	8.10	57	65	91 874	19	61.25
1982 Census	16 886	79	1 914	7.83	59	68	78 950	21	52.16
1981 ASM	14 894	83	1 918	6.65	63	72	61 187	24	38.65
1980 ASM	13 895	83	1 874	6.43	64	73	55 843	25	35.69
1979 ASM	12 689	83	1 889	5.90	64	73	51 908	24	33.15
1978 ASM	11 398	80	1 898	5.54	63	72	48 559	23	31.79
1977 Census	10 647	80	1 889	5.18	67	75	41 979	25	27.63
	INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES								
1992 Census	19 117	86	1 904	8.58	61	73	60 633	32	36.84
1991 ASM	18 180	87	1 927	8.19	62	73	61 457	30	36.86
1990 ASM	17 684	85	1 906	8.06	62	73	63 238	28	39.11
1989 ASM	17 281	85	1 865	7.98	58	69	65 878	26	41.53
1988 ASM	15 948	85	1 847	7.48	55	67	63 351	25	40.37
1987 Census	15 799	86	1 832	7.54	56	67	59 976	26	38.10
1986 ASM	15 108	86	1 763	7.45	55	67	57 082	26	37.46
1985 ASM	15 154	87	1 823	7.35	59	71	51 087	30	32.13
1984 ASM	14 785	88	1 854	7.07	58	70	54 493	27	33.45
1983 ASM	14 402	86	1 819	6.98	57	70	50 600	28	32.17
1982 Census	13 491	87	1 858	6.57	55	67	50 495	27	31.24
1981 ASM	11 666	88	1 981	5.31	59	71	40 777	29	23.52
1980 ASM	11 140	86	1 990	5.12	59	72	35 192	32	20.60
1979 ASM	10 119	88	1 827	5.07	62	75	29 511	34	18.34
1978 ASM	10 280	89	1 976	4.72	62	74	32 737	31	18.66
1977 Census	9 100	89	1 892	4.39	60	73	28 259	32	16.85
	INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.								
1992 Census	20 803	82	1 916	9.18	48	61	87 278	24	55.53
1991 ASM	19 512	82	1 967	8.68	50	60	94 200	21	58.58
1990 ASM	19 072	81	1 860	8.79	52	63	83 007	23	54.97
1989 ASM	18 895	81	1 893	8.55	51	63	80 722	23	52.89
1988 ASM	17 911	81	1 984	7.75	51	63	73 903	24	46.27
1987 Census	17 843	80	1 950	7.87	51	63	74 843	24	47.81

Note: For qualifications of data, see footnotes on table 1a.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2032, CANNED SPECIALTIES														
United States	–	**220**	**76**	**21.0**	**561.0**	**17.2**	**35.5**	**427.4**	**3 617.5**	**3 057.2**	**6 662.7**	**274.7**	**24.5**	**2 652.4**
Arizona	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	103.3
California	–	31	11	3.4	87.2	3.0	5.6	67.8	431.1	332.5	763.0	17.5	H	(D)
Idaho	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	14	5	.7	14.1	.6	1.2	10.8	96.3	71.1	167.4	5.4	G	(D)
Indiana	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E3	4	2	.2	2.4	.2	.2	1.8	13.4	14.7	28.0	(D)	C	(D)
Maine	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Michigan	–	11	4	1.1	31.5	.9	2.0	24.4	211.9	160.2	366.5	(D)	F	(D)
Missouri	E3	8	3	.2	2.4	.1	.3	1.8	15.1	12.8	27.9	(D)	F	(D)
New Jersey	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	8	3	.8	19.1	.6	.9	10.9	63.1	55.9	119.1	(D)	G	(D)
North Carolina	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	7	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oklahoma	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	7	4	3.5	110.1	2.9	6.5	91.7	613.7	401.2	1 016.4	80.9	3.6	419.4
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	5	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	18	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	270.7
Washington	–	9	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2033, CANNED FRUITS AND VEGETABLES														
United States	–	**683**	**397**	**63.7**	**1 466.7**	**53.2**	**109.3**	**1 101.4**	**6 959.4**	**8 032.5**	**15 065.5**	**445.1**	**65.1**	**5 440.1**
Alabama	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Arkansas	–	9	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	120	89	18.7	460.5	16.5	33.5	380.9	1 828.0	2 403.9	4 233.5	125.8	19.1	1 823.3
Colorado	E2	16	2	.2	4.0	.2	.4	2.9	12.7	10.3	23.0	.3	(NA)	(NA)
Connecticut	E2	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	(NA)	(NA)
Delaware	E1	5	4	.9	12.0	.8	1.4	9.4	32.6	49.4	82.0	(D)	F	(D)
Florida	–	33	13	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	32.7	H	(D)
Georgia	E1	6	3	.3	5.2	.3	.6	4.1	13.9	24.0	37.9	.8	F	(D)
Hawaii	E1	10	4	1.3	37.8	.9	1.9	17.4	98.8	95.8	194.6	2.1	H	(D)
Idaho	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	E1	24	16	1.7	43.4	1.3	3.0	29.9	142.4	188.1	342.8	9.9	1.9	128.7
Indiana	–	14	7	1.0	24.2	.7	1.6	16.9	136.8	164.0	301.4	20.5	.7	40.1
Iowa	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.3	(NA)	(NA)
Louisiana	–	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	26.8
Maryland	E2	14	3	.2	3.1	.1	.2	1.9	11.7	17.7	29.3	.9	E	(D)
Massachusetts	–	7	4	.9	26.7	.6	1.2	12.3	139.4	172.3	311.7	(D)	F	(D)
Michigan	E1	32	26	2.7	54.8	2.2	4.7	40.3	240.4	325.5	564.9	10.9	2.6	171.0
Minnesota	–	20	15	2.3	47.8	2.1	4.3	38.1	182.9	192.3	374.0	18.2	2.7	198.3
Mississippi	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E1	13	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	E1	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	14	10	1.3	39.2	.9	2.1	23.9	112.7	245.3	359.6	6.9	1.3	158.8
New Mexico	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	50	31	3.2	82.7	2.5	5.7	57.3	772.4	608.0	1 393.4	28.1	3.6	452.2
North Carolina	E1	12	5	.7	10.1	.5	1.0	8.0	28.6	53.6	83.1	2.2	F	(D)
Ohio	–	30	19	2.9	74.8	2.3	4.6	57.5	490.4	364.4	858.3	14.9	2.7	462.9
Oregon	E2	28	10	1.5	30.2	1.3	2.4	21.7	62.3	120.7	182.6	8.0	2.2	89.3
Pennsylvania	–	23	14	3.3	70.3	2.7	5.9	55.1	337.7	426.3	763.0	56.0	2.7	277.1
Tennessee	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	25	11	2.0	41.3	1.7	3.6	31.2	208.0	203.9	405.0	10.6	2.2	148.8
Virginia	–	10	9	1.0	20.7	.8	1.6	13.7	58.9	69.9	128.6	2.2	G	(D)
Washington	–	33	18	3.4	67.7	3.0	5.7	51.7	277.7	279.6	557.5	18.5	2.4	211.3
West Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	56	47	5.1	99.7	4.6	9.8	83.9	354.7	470.7	826.4	20.9	6.0	330.7
INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS														
United States	–	**155**	**84**	**13.5**	**320.8**	**11.3**	**21.9**	**224.4**	**1 515.0**	**1 317.9**	**2 853.1**	**91.7**	**10.1**	**933.6**
California	–	74	47	7.2	170.0	6.0	11.5	115.4	680.6	817.9	1 518.7	44.0	6.0	515.9
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	E1	6	2	.1	3.5	.1	.2	2.1	9.7	8.6	18.0	(D)	(NA)	(NA)
Idaho	–	11	10	2.9	61.7	2.5	5.0	42.1	254.5	168.5	422.3	17.9	1.8	91.0
Illinois	E9	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Dakota	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	7	2	.2	2.6	.1	.3	2.2	11.7	6.8	18.5	(D)	C	(D)
Pennsylvania	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Washington	E1	12	8	.6	11.5	.5	.9	8.3	40.0	46.0	83.2	2.6	E	(D)
Wisconsin	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS														
United States	**E1**	**376**	**152**	**21.4**	**531.3**	**16.3**	**32.7**	**347.4**	**3 749.2**	**2 651.3**	**6 398.0**	**158.8**	**21.4**	**2 544.8**
Alabama	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	E9	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	58	26	3.1	82.3	2.4	4.7	56.7	721.3	392.1	1 115.6	20.2	3.4	565.2
Colorado	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	9	5	1.4	35.1	1.0	2.0	23.2	257.8	180.7	438.5	5.3	1.7	185.9
Hawaii	E8	16	2	.1	2.2	.1	.2	1.4	9.8	9.4	19.2	.4	(NA)	(NA)
Idaho	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	20	11	1.7	44.4	1.2	2.5	29.3	287.7	253.3	540.8	8.4	1.3	250.3
Indiana	E2	7	4	.8	15.5	.6	1.3	11.1	61.0	66.7	127.7	3.8	E	(D)
Kentucky	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	E2	12	8	.7	15.7	.5	.9	7.7	100.2	70.8	168.0	3.1	.4	49.3
Maryland	E3	4	4	.5	12.3	.3	.6	5.5	34.1	64.4	98.9	1.7	.5	17.7
Massachusetts	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	19	8	1.8	32.3	1.6	2.8	24.7	176.2	144.1	320.6	9.0	1.9	155.2
Minnesota	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Missouri	–	11	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	10	6	.4	15.0	.3	.7	9.2	160.6	79.1	240.0	1.4	.6	158.1
New York	E3	30	11	.7	14.9	.6	1.2	9.6	106.8	71.9	178.4	2.2	G	(D)
North Carolina	–	8	4	.9	18.9	.7	1.5	10.9	77.0	56.3	133.3	1.9	F	(D)
Ohio	–	11	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	10	4	.4	8.4	.3	.5	5.2	28.0	27.0	55.0	.9	.3	15.0
Pennsylvania	–	19	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E8	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	28	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.5	G	(D)
Washington	E1	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	12.9
Wisconsin	–	12	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.5	G	(D)
INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES														
United States	**–**	**255**	**201**	**48.0**	**917.6**	**41.5**	**79.1**	**678.2**	**2 910.4**	**4 613.4**	**7 535.0**	**254.8**	**49.8**	**2 986.8**
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	44	37	8.6	152.2	7.5	14.1	114.3	480.7	644.5	1 114.4	30.6	9.7	435.0
Delaware	E4	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	–	29	24	5.3	120.6	4.1	8.7	77.0	304.1	1 427.6	1 759.0	44.5	5.7	683.6
Georgia	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Idaho	–	12	12	6.5	117.9	6.0	11.4	98.1	379.7	437.6	818.8	35.5	6.7	351.2
Illinois	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	90.1
Maine	–	11	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	59.9
Maryland	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	14	11	.8	16.0	.6	1.1	9.6	37.4	65.9	103.2	6.5	G	(D)
Minnesota	–	4	3	.9	16.3	.8	1.5	11.0	47.7	49.0	96.6	(D)	F	(D)
Missouri	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	F	(D)
New Jersey	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	F	(D)
New York	E1	11	9	1.0	21.5	.8	1.6	15.5	133.3	150.6	278.0	4.3	F	(D)
North Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Oklahoma	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	27	22	7.2	129.5	6.4	12.2	99.6	412.4	480.9	890.6	33.9	7.3	391.8
Pennsylvania	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	23.5
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	6	6	1.3	14.2	1.2	1.8	10.4	33.9	35.7	69.6	(D)	G	(D)
Utah	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E2	32	27	6.3	137.6	5.6	10.8	107.2	510.8	573.3	1 086.5	34.8	7.1	369.3
Wisconsin	–	10	9	2.5	48.9	2.2	4.2	37.1	275.2	117.4	390.7	22.9	1.3	170.1
INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.														
United States	**–**	**363**	**203**	**46.7**	**971.5**	**38.3**	**73.4**	**673.6**	**4 075.9**	**3 808.9**	**7 885.7**	**249.7**	**37.5**	**2 806.6**
Arizona	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	4	4	3.5	57.8	3.2	6.2	49.9	310.1	315.1	625.2	(D)	G	(D)
California	E1	62	35	7.7	147.4	6.2	12.9	98.6	590.9	467.9	1 058.7	26.1	H	(D)
Connecticut	–	8	5	.6	14.7	.5	.8	7.4	58.6	56.9	115.9	(D)	F	(D)
Florida	E4	8	4	.2	5.2	.2	.3	2.8	14.0	17.0	31.1	.8	C	(D)
Georgia	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	98.3
Idaho	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	29	14	2.5	58.2	1.8	3.7	28.5	161.9	186.4	348.5	7.0	G	(D)
Indiana	–	6	5	.4	9.7	.3	.6	5.7	40.6	38.9	79.6	(D)	.7	58.6
Iowa	–	5	5	.7	11.3	.6	.8	8.3	50.1	73.0	123.1	1.8	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.—Con.														
Kansas	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E1	10	3	.3	7.6	.2	.3	4.5	17.3	19.3	36.6	1.3	C	(D)
Michigan	E1	11	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(NA)	(NA)
Minnesota	–	17	12	2.3	43.7	1.7	3.5	25.5	255.8	170.8	426.6	14.5	G	(D)
Missouri	–	11	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nebraska	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	17	10	1.1	25.7	.8	1.5	15.3	143.5	87.3	229.3	3.6	G	(D)
New Mexico	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	27	17	2.2	51.5	1.7	3.4	32.9	226.2	163.1	389.3	8.7	2.8	254.7
North Carolina	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Ohio	–	12	9	4.8	120.8	4.0	7.4	83.0	359.2	481.1	840.3	32.6	3.7	333.4
Oklahoma	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	E7	8	6	.8	19.3	.7	1.3	12.7	92.7	70.6	163.3	4.0	E	(D)
Pennsylvania	E3	21	11	2.1	37.9	1.8	3.3	28.2	152.9	110.0	264.7	8.7	2.5	152.6
South Carolina	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Tennessee	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E3	20	9	2.6	46.6	2.2	4.4	35.2	127.4	115.3	242.7	(D)	G	(D)
Utah	E1	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	16	7	1.6	39.7	1.0	2.4	22.6	212.8	149.7	362.7	(D)	1.2	127.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Canned specialties (SIC 2032)	Canned fruits and vegetables (SIC 2033)	Dehydrated fruits, vegetables, and soups (SIC 2034)	Pickles, sauces, and salad dressings (SIC 2035)	Frozen fruits and vegetables (SIC 2037)	Frozen specialties, n.e.c. (SIC 2038)
Companies	number	201	502	124	332	182	308
All establishments	number	220	683	155	376	255	363
With 1 to 19 employees	number	144	286	71	224	54	160
With 20 to 99 employees	number	37	217	45	87	81	96
With 100 employees or more	number	39	180	39	65	120	107
Employment and labor costs:							
Employees	1,000	21.0	63.7	13.5	21.4	48.0	46.7
Compensation, total	mil dol	724.8	1 900.7	420.7	680.4	1 207.4	1 240.2
Annual payroll	mil dol	561.0	1 466.7	320.8	531.3	917.6	971.5
Fringe benefits	mil dol	163.8	434.0	99.9	149.1	289.8	268.8
Social Security and other legally required payments	mil dol	64.0	207.5	41.5	60.3	129.2	115.5
Employer voluntary payments	mil dol	99.7	226.5	58.4	88.9	160.6	153.3
Production workers:							
Average for year	1,000	17.2	53.2	11.3	16.3	41.5	38.3
March	1,000	16.6	38.8	10.2	13.8	38.1	38.2
May	1,000	16.8	42.5	10.8	15.4	40.4	37.8
August	1,000	17.7	86.9	12.6	21.3	46.8	38.6
November	1,000	17.8	45.0	11.5	14.8	40.9	38.6
Hours	millions	35.5	109.3	21.9	32.7	79.1	73.4
Wages	mil dol	427.4	1 101.4	224.4	347.4	678.2	673.6
Cost of materials[1]	mil dol	3 057.2	8 032.5	1 317.9	2 651.3	4 613.4	3 808.9
Materials, parts, containers, etc., consumed[2]	mil dol	2 900.4	7 293.9	1 212.4	2 517.1	4 246.7	3 427.4
Resales	mil dol	76.6	440.5	28.0	70.0	98.4	247.3
Fuels	mil dol	34.3	130.4	36.2	17.6	79.9	31.3
Purchased electricity	mil dol	33.0	108.5	32.1	36.4	128.2	91.9
Contract work	mil dol	13.0	59.3	9.3	10.2	60.2	11.0
Quantity of electric energy used for heat and power:							
Purchased	mil kWh	575.2	1 586.9	480.3	556.5	2 823.7	1 588.8
Generated less sold	mil kWh	(D)	(D)	3.4	–	(D)	(D)
Total value of shipments	mil dol	6 662.7	15 065.5	2 853.1	6 398.0	7 535.0	7 885.7
Value added	mil dol	3 617.5	6 959.4	1 515.0	3 749.2	2 910.4	4 075.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned specialties (SIC 2032)	Canned fruits and vegetables (SIC 2033)	Dehydrated fruits, vegetables, and soups (SIC 2034)	Pickles, sauces, and salad dressings (SIC 2035)	Frozen fruits and vegetables (SIC 2037)	Frozen specialties, n.e.c. (SIC 2038)
Inventories by stage of fabrication:						
Beginning of 1992 ---mil dol---	802.4	3 715.0	699.6	699.4	1 723.2	562.8
Finished goods ---mil dol---	495.9	2 730.7	406.4	446.1	1 153.8	287.3
Work in process ---mil dol---	17.3	431.7	147.3	52.4	231.6	9.1
Materials and supplies ---mil dol---	289.2	552.5	145.8	200.9	337.8	266.4
End of 1992 ---mil dol---	859.7	3 749.0	709.4	700.4	1 775.9	582.8
Finished goods ---mil dol---	521.8	2 857.8	399.7	448.0	1 234.9	302.8
Work in process ---mil dol---	29.3	358.1	133.9	54.8	220.4	8.2
Materials and supplies ---mil dol---	308.6	533.1	175.8	197.6	320.6	271.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned specialties (SIC 2032)	Canned fruits and vegetables (SIC 2033)	Dehydrated fruits, vegetables, and soups (SIC 2034)	Pickles, sauces, and salad dressings (SIC 2035)	Frozen fruits and vegetables (SIC 2037)	Frozen specialties, n.e.c. (SIC 2038)
Gross book value of depreciable assets:						
Total:						
Beginning of year	1 574.4	4 048.8	857.8	1 630.9	3 042.0	2 342.8
New capital expenditures[1]	274.7	445.1	91.7	158.8	254.8	249.7
Used capital expenditures	(D)	29.2	11.9	10.5	11.7	(D)
Retirements	(D)	160.1	35.0	40.9	75.9	(D)
End of year	1 712.3	4 363.0	926.4	1 759.3	3 232.5	2 497.9
Buildings and other structures:						
Beginning of year	398.4	1 138.6	238.1	487.0	760.9	698.6
New capital expenditures	85.8	104.0	17.3	22.3	35.5	50.2
Used capital expenditures	(D)	2.8	3.0	4.3	1.9	(D)
Retirements	(D)	21.9	.8	3.9	10.8	(D)
End of year	438.0	1 223.4	257.6	509.8	787.5	737.2
Machinery and equipment:						
Beginning of year	1 176.0	2 910.2	619.7	1 143.9	2 281.1	1 644.2
New capital expenditures[1]	188.9	341.1	74.4	136.5	219.3	199.5
Used capital expenditures	(D)	26.4	8.9	6.2	9.7	(D)
Retirements	(D)	138.2	34.2	37.0	65.1	(D)
End of year	1 274.4	3 139.6	668.8	1 249.6	2 445.0	1 760.7
Depreciation charges during 1992:						
Total	109.3	288.3	55.7	107.8	259.8	161.7
Buildings and other structures	15.8	51.3	9.9	20.6	57.4	35.2
Machinery and equipment	93.5	237.0	45.9	87.1	202.4	126.5
Rental payments:						
Total	22.5	102.4	16.2	29.8	54.7	52.3
Buildings and other structures	9.6	46.0	7.7	13.9	26.6	28.5
Machinery and equipment	12.9	56.4	8.5	15.9	28.0	23.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned specialties (SIC 2032)		Canned fruits and vegetables (SIC 2033)		Dehydrated fruits, vegetables, and soups (SIC 2034)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.6	(X)	14.8	(X)	1.4	(X)
Response coverage ratio (percent)[2]	88.7	(X)	82.5	(X)	80.8	(X)
Machinery	39.6	(X)	102.7	(X)	25.7	(X)
Response coverage ratio (percent)[2]	88.7	(X)	82.6	(X)	81.2	(X)
Other purchased services:						
Communications	2.6	(X)	8.5	(X)	2.5	(X)
Response coverage ratio (percent)[2]	88.7	(X)	73.2	(X)	82.5	(X)
Legal	.4	(X)	9.6	(X)	2.0	(X)
Response coverage ratio (percent)[2]	86.7	(X)	76.2	(X)	83.8	(X)
Accounting and bookkeeping	.8	(X)	4.4	(X)	2.9	(X)
Response coverage ratio (percent)[2]	87.5	(X)	76.0	(X)	81.2	(X)
Advertising	4.2	(X)	112.9	(X)	30.7	(X)
Response coverage ratio (percent)[2]	87.5	(X)	76.5	(X)	83.8	(X)
Software and other data processing	1.3	(X)	3.1	(X)	.6	(X)
Response coverage ratio (percent)[2]	87.5	(X)	76.0	(X)	81.2	(X)
Refuse removal, including hazardous waste	4.5	(X)	15.1	(X)	3.1	(X)
Response coverage ratio (percent)[2]	88.7	(X)	82.6	(X)	81.2	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned specialties (SIC 2032)		Canned fruits and vegetables (SIC 2033)		Dehydrated fruits, vegetables, and soups (SIC 2034)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	188.9	(X)	341.1	(X)	74.4	(X)
Automobiles, trucks, etc., for highway use	.6	10	3.2	8	.6	67
Computers and peripheral data processing equipment	8.8	7	7.3	4	3.4	7
All other	179.6	1	330.7	1	70.4	1
Adjustment ratio[3]	1.5	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	2 900.4	(X)	7 293.9	(X)	1 212.4	(X)
Materials purchased or transferred from foreign sources[4]	170.9	3	280.2	6	6.4	10
Materials purchased or transferred from domestic sources	2 729.5	1	7 013.7	1	1 206.0	1
Adjustment ratio[3]	1.2	(X)	1.8	(X)	1.4	(X)

Item	Pickles, sauces, and salad dressings (SIC 2035)		Frozen fruits and vegetables (SIC 2037)		Frozen specialties, n.e.c. (SIC 2038)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.1	(X)	15.8	(X)	7.9	(X)
Response coverage ratio (percent)[2]	84.2	(X)	67.4	(X)	72.5	(X)
Machinery	74.9	(X)	152.8	(X)	42.7	(X)
Response coverage ratio (percent)[2]	84.2	(X)	70.1	(X)	74.7	(X)
Other purchased services:						
Communications	4.0	(X)	6.9	(X)	4.6	(X)
Response coverage ratio (percent)[2]	82.7	(X)	63.4	(X)	71.7	(X)
Legal	2.7	(X)	5.0	(X)	2.6	(X)
Response coverage ratio (percent)[2]	83.3	(X)	69.6	(X)	70.7	(X)
Accounting and bookkeeping	1.1	(X)	5.1	(X)	2.2	(X)
Response coverage ratio (percent)[2]	83.3	(X)	63.5	(X)	72.2	(X)
Advertising	55.5	(X)	19.7	(X)	25.4	(X)
Response coverage ratio (percent)[2]	83.3	(X)	65.8	(X)	75.7	(X)
Software and other data processing	1.3	(X)	2.4	(X)	.8	(X)
Response coverage ratio (percent)[2]	70.7	(X)	62.7	(X)	71.8	(X)
Refuse removal, including hazardous waste	7.0	(X)	12.6	(X)	6.0	(X)
Response coverage ratio (percent)[2]	83.9	(X)	66.0	(X)	74.7	(X)
New machinery and equipment expenditures	136.5	(X)	219.3	(X)	199.5	(X)
Automobiles, trucks, etc., for highway use	.5	13	6.8	10	10.2	56
Computers and peripheral data processing equipment	8.6	7	5.5	11	8.5	30
All other	127.4	1	207.1	1	180.7	4
Adjustment ratio[3]	1.1	(X)	1.2	(X)	.9	(X)
Cost of materials, components, parts, etc., used	2 517.1	(X)	4 246.7	(X)	3 427.4	(X)
Materials purchased or transferred from foreign sources[4]	49.2	18	350.6	6	85.5	5
Materials purchased or transferred from domestic sources	2 467.9	1	3 896.1	1	3 341.9	1
Adjustment ratio[3]	1.9	(X)	1.3	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2032, CANNED SPECIALTIES												
Total	**–**	**220**	**21.0**	**561.0**	**17.2**	**35.5**	**427.4**	**3 617.5**	**3 057.2**	**6 662.7**	**274.7**	**859.7**
Establishments with an average of–												
1 to 4 employees	E9	84	.1	2.5	.1	.2	1.9	14.2	12.8	27.0	1.3	3.3
5 to 9 employees	E8	27	.2	3.1	.1	.3	2.4	14.8	13.3	28.1	1.1	3.4
10 to 19 employees	E3	33	.5	7.6	.4	.7	5.6	37.5	37.4	74.9	2.3	8.5
20 to 49 employees	E3	25	.7	14.0	.6	1.2	8.6	72.0	60.9	132.8	4.0	15.4
50 to 99 employees	–	12	.8	19.9	.6	1.3	13.3	105.3	92.3	197.8	14.6	19.4
100 to 249 employees	–	19	3.1	66.0	2.5	4.9	47.5	331.5	361.7	692.6	16.8	87.2
250 to 499 employees	–	7	2.8	74.1	2.3	4.9	55.3	500.5	402.0	896.6	26.4	153.2
500 to 999 employees	–	8	4.8	126.4	3.9	8.4	93.8	752.9	830.7	1 576.2	208.1	220.1
1,000 to 2,499 employees	–	5	8.0	247.5	6.7	13.6	199.1	1 788.9	1 246.3	3 036.8	(D)	349.3
Covered by administrative records[2]	E9	91	.2	3.4	.2	.4	2.6	16.9	15.1	32.0	1.3	3.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2033, CANNED FRUITS AND VEGETABLES												
Total	**–**	**683**	**63.7**	**1 466.7**	**53.2**	**109.3**	**1 101.4**	**6 959.4**	**8 032.5**	**15 065.5**	**445.1**	**3 749.0**
Establishments with an average of—												
1 to 4 employees	E7	148	.2	4.5	.2	.4	3.5	23.3	30.2	53.6	1.3	13.0
5 to 9 employees	E6	66	.4	7.9	.4	.7	5.8	36.4	42.9	79.4	2.3	20.0
10 to 19 employees	E3	72	1.0	19.3	.8	1.6	13.1	78.4	103.4	178.5	4.2	74.2
20 to 49 employees	E2	107	3.5	79.8	2.7	5.7	57.0	400.5	440.7	849.3	20.3	155.1
50 to 99 employees	E1	110	7.9	181.1	6.4	13.1	128.1	685.7	952.6	1 635.2	60.0	457.4
100 to 249 employees	–	104	16.6	353.9	13.9	29.0	259.8	1 532.8	1 885.9	3 447.6	101.0	883.1
250 to 499 employees	–	56	19.8	461.8	17.2	34.6	364.8	2 271.9	2 262.9	4 538.6	168.7	1 255.2
500 to 999 employees	–	18	14.3	358.3	11.7	24.1	269.2	1 930.6	2 314.0	4 283.2	87.4	890.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	155	.3	5.2	.3	.6	4.0	21.8	28.8	50.5	1.5	11.8
INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS												
Total	**–**	**155**	**13.5**	**320.8**	**11.3**	**21.9**	**224.4**	**1 515.0**	**1 317.9**	**2 853.1**	**91.7**	**709.4**
Establishments with an average of—												
1 to 4 employees	E9	33	(Z)	.9	(Z)	.1	.6	3.3	4.0	7.3	.3	1.8
5 to 9 employees	E7	19	.1	2.3	.1	.2	1.6	7.4	9.0	16.4	.6	3.9
10 to 19 employees	E4	19	.3	5.8	.2	.4	3.9	16.7	24.4	41.0	1.3	7.2
20 to 49 employees	E1	29	.9	15.6	.7	1.3	11.3	76.7	54.2	116.5	3.1	38.0
50 to 99 employees	E1	16	1.1	23.7	.8	1.7	14.3	72.2	129.4	212.7	5.6	47.9
100 to 249 employees	–	25	4.1	76.4	3.6	6.9	59.5	268.3	310.0	603.6	31.2	204.4
250 to 499 employees	–	7	2.5	65.6	2.1	4.3	43.0	326.9	276.0	582.7	22.1	162.6
500 to 999 employees	E1	7	4.5	130.4	3.6	7.0	90.1	743.5	510.9	1 272.8	27.5	243.6
Covered by administrative records[2]	E9	38	.1	1.7	.1	.2	1.2	5.9	7.2	13.2	.5	3.4
INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS												
Total	**E1**	**376**	**21.4**	**531.3**	**16.3**	**32.7**	**347.4**	**3 749.2**	**2 651.3**	**6 398.0**	**158.8**	**700.4**
Establishments with an average of—												
1 to 4 employees	E7	111	.2	3.2	.1	.2	2.1	23.2	21.2	44.4	.8	4.6
5 to 9 employees	E7	55	.4	7.4	.3	.6	4.8	39.5	38.4	80.3	1.6	9.4
10 to 19 employees	E4	58	.8	17.5	.6	1.1	9.6	68.2	78.0	146.4	2.3	18.7
20 to 49 employees	E2	53	1.7	37.5	1.2	2.5	21.2	149.1	175.9	322.4	6.8	47.8
50 to 99 employees	E2	34	2.3	56.3	1.7	3.5	34.1	216.1	226.7	443.0	12.6	73.5
100 to 249 employees	E1	40	6.7	177.2	5.0	10.5	108.5	1 336.7	885.2	2 220.9	60.6	237.6
250 to 499 employees	–	22	9.4	232.2	7.5	14.2	167.1	1 916.3	1 225.8	3 140.5	74.1	308.8
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	114	.2	3.5	.2	.3	2.3	20.2	19.0	39.2	.8	5.0
INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES												
Total	**–**	**255**	**48.0**	**917.6**	**41.5**	**79.1**	**678.2**	**2 910.4**	**4 613.4**	**7 535.0**	**254.8**	**1 775.9**
Establishments with an average of—												
1 to 4 employees	E6	21	(Z)	.8	(Z)	.1	.5	2.0	3.6	5.6	.2	1.2
5 to 9 employees	E5	20	.1	2.9	.1	.2	1.9	10.1	12.7	22.3	1.2	5.8
10 to 19 employees	E3	13	.2	3.7	.1	.3	2.3	9.0	16.0	25.0	.8	5.2
20 to 49 employees	E1	42	1.4	30.6	1.1	2.1	20.3	122.9	229.1	345.9	9.0	86.7
50 to 99 employees	E1	39	2.9	57.0	2.4	4.7	39.0	198.5	335.7	530.9	22.6	146.7
100 to 249 employees	E1	62	10.1	206.0	8.6	16.4	151.3	653.0	1 341.4	1 998.0	62.4	467.2
250 to 499 employees	E1	28	9.7	194.7	8.6	16.0	141.4	614.8	785.1	1 438.9	52.5	436.9
500 to 999 employees	–	23	15.4	270.8	13.5	25.6	213.1	945.7	1 199.2	2 122.3	61.6	460.3
1,000 to 2,499 employees	–	7	8.3	151.0	7.1	13.8	108.5	354.3	690.5	1 046.0	44.4	165.8
Covered by administrative records[2]	E9	23	.1	1.1	.1	.1	.8	3.0	5.3	8.3	.3	1.9
INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.												
Total	**–**	**363**	**46.7**	**971.5**	**38.3**	**73.4**	**673.6**	**4 075.9**	**3 808.9**	**7 885.7**	**249.7**	**582.8**
Establishments with an average of—												
1 to 4 employees	E9	64	.1	2.0	.1	.2	1.5	8.1	9.1	17.2	.4	1.2
5 to 9 employees	E8	43	.3	5.2	.2	.5	3.7	19.1	21.8	40.9	1.0	2.8
10 to 19 employees	E4	53	.8	13.7	.6	1.2	10.0	44.5	55.0	99.6	2.6	7.1
20 to 49 employees	E3	62	1.9	35.7	1.5	2.8	23.0	119.3	132.6	252.0	6.5	17.9
50 to 99 employees	–	34	2.5	55.4	1.8	3.8	30.9	179.9	191.0	369.4	9.1	29.4
100 to 249 employees	E2	52	9.3	187.2	7.2	14.0	123.3	814.4	608.8	1 425.0	62.3	94.0
250 to 499 employees	–	34	12.7	292.5	9.8	20.1	182.3	1 381.2	1 143.5	2 525.1	67.7	175.9
500 to 999 employees	–	12	8.2	155.4	7.2	12.8	116.8	764.1	625.1	1 389.2	37.4	73.7
1,000 to 2,499 employees	–	9	11.0	224.4	9.7	18.1	182.1	745.3	1 021.9	1 767.4	62.6	180.9
Covered by administrative records[2]	E9	89	.3	4.9	.3	.5	3.6	16.3	18.4	34.7	.9	2.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2032	**Canned specialties:**										
	All establishments in industry	220	21.0	561.0	17.2	35.5	427.4	3 617.5	3 057.2	6 662.7	274.7
	Establishments with this product class primary:										
20321	Canned baby foods, except cereal and biscuits	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20322	Canned soups, except frozen or seafood	8	6.7	197.7	5.5	11.0	148.5	1 561.5	1 369.5	2 931.2	105.1
20323	Canned dry beans	25	4.4	99.5	3.4	7.3	73.6	381.0	607.7	987.6	26.7
20324	Other canned specialties and canned nationality foods	26	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2033	**Canned fruits and vegetables:**										
	All establishments in industry	683	63.7	1 466.7	53.2	109.3	1 101.4	6 959.4	8 032.5	15 065.5	445.1
	Establishments with this product class primary:										
20331	Canned fruits, except baby foods	62	14.7	313.7	12.7	25.6	241.4	1 379.3	1 403.5	2 781.1	41.4
20332	Canned vegetables, except hominy and mushrooms	145	18.7	354.6	16.6	34.7	288.5	1 336.8	1 494.4	2 843.5	79.1
20333	Canned hominy and mushrooms	11	.9	21.6	.7	1.6	15.0	47.9	144.3	193.0	1.8
20335	Canned vegetable juices	3	.1	2.1	.1	.1	1.5	4.7	7.0	8.4	(D)
20336	Catsup and other tomato sauces, pastes, etc.	64	11.8	319.3	10.2	20.7	260.0	1 764.5	1 967.3	3 738.2	168.1
20338	Jams, jellies, and preserves	29	3.3	90.8	2.5	5.6	59.2	422.1	436.5	857.1	25.1
2033A	Canned fruit juices, nectars, and concentrates	54	8.3	231.3	5.9	11.6	138.0	1 298.4	1 815.2	3 160.0	80.1
2033B	Fresh fruit juices and nectars, single strength	41	3.4	87.1	2.6	5.3	64.1	536.8	547.8	1 099.2	38.7
2034	**Dehydrated fruits, vegetables, and soups:**										
	All establishments in industry	155	13.5	320.8	11.3	21.9	224.4	1 515.0	1 317.9	2 853.1	91.7
	Establishments with this product class primary:										
20342	Soup mixes, dried	13	2.6	75.6	2.2	4.2	57.2	552.1	312.0	862.7	18.4
20343	Dried and dehydrated fruits and vegetables (including freeze-dried)	76	10.3	234.7	8.6	16.8	160.2	933.3	970.3	1 925.1	70.6
2035	**Pickles, sauces, and salad dressings:**										
	All establishments in industry	376	21.4	531.3	16.3	32.7	347.4	3 749.2	2 651.3	6 398.0	158.8
	Establishments with this product class primary:										
20352	Pickles and other pickled products	62	7.8	155.0	6.4	12.5	103.3	653.5	597.1	1 251.0	27.5
20353	Prepared sauces (except tomato)	47	3.7	100.9	2.7	5.4	61.3	829.1	499.5	1 325.5	43.1
20354	Mayonnaise, salad dressings, and sandwich spreads	69	8.8	253.2	6.4	13.0	169.0	2 152.0	1 442.7	3 594.9	83.7
2037	**Frozen fruits and vegetables:**										
	All establishments in industry	255	48.0	917.6	41.5	79.1	678.2	2 910.4	4 613.4	7 535.0	254.8
	Establishments with this product class primary:										
20371	Frozen fruits, juices, ades, drinks, and cocktails	79	11.9	255.0	9.5	19.3	169.6	772.1	2 310.6	3 102.7	80.1
20372	Frozen vegetables	112	35.0	641.0	31.0	58.0	494.0	2 081.2	2 218.8	4 291.8	168.8
2038	**Frozen specialties, n.e.c.:**										
	All establishments in industry	363	46.7	971.5	38.3	73.4	673.6	4 075.9	3 808.9	7 885.7	249.7
	Establishments with this product class primary:										
20382	Frozen dinners: beef, pork, and poultry pies; and nationality foods	152	36.3	736.2	30.1	57.4	519.3	2 803.8	2 958.9	5 765.0	192.7
20384	Other frozen specialties, n.e.c.	50	8.8	207.7	6.8	13.5	134.4	1 171.2	740.7	1 910.4	51.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2032, CANNED SPECIALTIES			
Total value of shipments	6 662.7	5 350.1	4 140.8
Primary products value of shipments	4 984.4	4 079.3	3 149.8
Secondary products value of shipments	1 533.2	1 165.3	867.4
Total miscellaneous receipts	145.1	105.4	123.7
Value of resales	114.1	93.8	110.6
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	76	78	78
Value of primary products shipments made in all industries	5 707.6	4 444.1	3 484.6
Value of primary products shipments made in this industry	4 984.4	4 079.3	3 149.8
Value of primary products shipments made in other industries	723.2	364.8	334.8
Coverage ratio	87	92	90
INDUSTRY 2033, CANNED FRUITS AND VEGETABLES			
Total value of shipments	15 065.5	11 889.5	9 283.4
Primary products value of shipments	12 701.3	10 318.7	8 010.3
Secondary products value of shipments	1 761.9	1 151.7	1 036.2
Total miscellaneous receipts	602.3	419.1	236.9
Value of resales	517.8	360.1	185.6
Contract receipts	71.6	39.1	41.9
Other miscellaneous receipts	12.8	19.9	9.3
Primary products specialization ratio	88	90	89
Value of primary products shipments made in all industries	15 174.5	12 244.4	9 255.3
Value of primary products shipments made in this industry	12 701.3	10 318.7	8 010.3
Value of primary products shipments made in other industries	2 473.3	1 925.6	1 245.1
Coverage ratio	84	84	87
INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS			
Total value of shipments	2 853.1	1 821.9	1 745.1
Primary products value of shipments	2 546.3	1 652.3	1 623.7
Secondary products value of shipments	(D)	124.2	95.1
Total miscellaneous receipts	(D)	45.5	26.2
Value of resales	35.2	32.8	(D)
Contract receipts	(D)	7.3	16.4
Other miscellaneous receipts	(D)	5.4	(D)
Primary products specialization ratio	(D)	93	94
Value of primary products shipments made in all industries	2 785.7	2 079.2	1 749.2
Value of primary products shipments made in this industry	2 546.3	1 652.3	1 623.7
Value of primary products shipments made in other industries	239.5	426.9	125.5
Coverage ratio	91	79	93
INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS			
Total value of shipments	6 398.0	5 050.3	4 268.8
Primary products value of shipments	5 167.0	3 838.4	2 708.9
Secondary products value of shipments	1 119.2	1 068.0	1 284.4
Total miscellaneous receipts	111.7	143.9	275.5
Value of resales	89.4	134.8	269.5
Contract receipts	8.5	6.4	1.9
Other miscellaneous receipts	13.8	2.7	4.1
Primary products specialization ratio	82	78	68
Value of primary products shipments made in all industries	6 531.3	4 479.3	3 252.7
Value of primary products shipments made in this industry	5 167.0	3 838.4	2 708.9
Value of primary products shipments made in other industries	1 364.3	640.9	543.7
Coverage ratio	79	86	83
INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES			
Total value of shipments	7 535.0	6 606.2	5 374.6
Primary products value of shipments	6 864.0	5 831.0	4 705.3
Secondary products value of shipments	526.4	564.6	339.2
Total miscellaneous receipts	144.6	210.6	330.0
Value of resales	110.1	146.3	209.2
Contract receipts	25.8	49.7	(D)
Other miscellaneous receipts	8.6	14.6	(D)
Primary products specialization ratio	93	91	93
Value of primary products shipments made in all industries	7 415.5	6 253.7	5 062.0
Value of primary products shipments made in this industry	6 864.0	5 831.0	4 705.3
Value of primary products shipments made in other industries	551.5	422.6	356.7
Coverage ratio	93	93	93

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.			
Total value of shipments	7 885.7	5 624.8	(NA)
Primary products value of shipments	6 978.8	4 912.4	(NA)
Secondary products value of shipments	514.6	361.3	(NA)
Total miscellaneous receipts	392.3	351.2	(NA)
Value of resales	377.2	334.7	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	93	93	(NA)
Value of primary products shipments made in all industries	7 219.7	5 252.1	(NA)
Value of primary products shipments made in this industry	6 978.8	4 912.4	(NA)
Value of primary products shipments made in other industries	240.9	339.7	(NA)
Coverage ratio	97	94	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2032– ––	**CANNED SPECIALTIES**						
	Total	**(NA)**	**(X)**	**5 707.6**	**(NA)**	**(X)**	**4 444.1**
20321	Canned baby foods, except cereal and biscuits[3]	(NA)	(X)	(D)	(NA)	(X)	652.0
20321 00	Canned baby foods, except cereal and biscuits (mil lb)	5	(D)	(D)	(NA)	(NA)	652.0
20322	Canned soups, except frozen or seafood[3]	(NA)	(X)	1 986.2	(NA)	(X)	(D)
20322 00	Canned soups, except frozen or seafood	22	(X)	1 986.2	19	(X)	(D)
20323	Canned dry beans[3]	(NA)	(X)	1 119.5	(NA)	(X)	895.3
	Beans with pork, including baked:						
20323 70	7.1 oz to 13 oz (8 oz short, 8 oz tall, No. 1 picnic, etc.) (1,000 cases of 48)	5	(D)	(D)	8	14 244.3	118.2
20323 71	13.1 oz to 22 oz (No. 300, No. 303, No. 2, etc.) (1,000 cases of 24)	21	25 922.1	256.5	(NA)	22 520.4	251.4
20323 75	22.1 oz to 27 oz (jumbo, etc.) (1,000 cases of 24)	4	(D)	(D)	3	401.3	4.7
20323 76	27.1 oz to 40 oz (No. 2 1/2 quart glass, etc.) (1,000 cases of 24)	11	3 384.5	44.1	14	3 953.9	56.9
20323 79	Other sizes	12	(X)	67.5	17	(X)	65.7
	Beans with sauce, vegetarian style, including baked:						
20323 82	13.1 oz to 18 oz (No. 300, No. 303, etc.) (1,000 cases of 24)	14	6 747.1	58.9	14	3 963.8	34.9
20323 84	Other sizes	13	(X)	49.8	16	(X)	45.1
	All other dry beans, including chili con carne containing less than 20 percent meat:						
20323 86	13.1 oz to 18 oz (No. 300, No. 303, etc.) (1,000 cases of 24)	24	36 876.9	344.2	25	22 199.7	186.3
20323 91	Other sizes	16	(X)	149.6	22	(X)	128.1
20323 00	Canned dry beans, n.s.k.	(NA)	(X)	.3	(NA)	(X)	3.9
20324	Other canned specialties and canned nationality foods[3]	(NA)	(X)	(D)	(NA)	(X)	(D)
20324 63	Spaghetti with or without meat	10	(X)	(D)	(NA)	(X)	(D)
20324 68	Chinese foods (bean sprouts, chop suey, etc.)	2	(X)	(D)	5	(X)	(D)
20324 91	Mincemeat (mil lb)	4	(D)	(D)	5	8.0	8.5
20324 93	Spanish foods (Mexican rice, tortillas, enchiladas, etc.)	13	(X)	129.7	16	(X)	116.7
20324 94	Ravioli	5	(X)	209.9	6	(X)	90.0
20324 96	Macaroni with or without meat	5	(X)	(D)	7	(X)	(D)
20324 97	Canned gravy	6	(X)	(D)	4	(X)	(D)
20324 99	Other canned specialties, including canned puddings (other than canned meats)	27	(X)	395.9	25	(X)	309.8
20324 00	Other canned specialties and canned nationality foods, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	2.4
20320	Canned specialties, n.s.k.	(NA)	(X)	189.8	(NA)	(X)	145.0
20320 00	Canned specialties, n.s.k.[4]	(NA)	(X)	157.8	(NA)	(X)	58.5
20320 02	Canned specialties, n.s.k.[5]	(NA)	(X)	32.0	(NA)	(X)	86.5

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 12
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2033– —	**CANNED FRUITS AND VEGETABLES**						
	Total	**(NA)**	**(X)**	**15 174.5**	**(NA)**	**(X)**	**12 244.4**
20331	Canned fruits, except baby foods[3]	(NA)	(X)	2 371.9	(NA)	(X)	2 084.5
20331 12	Apples, 1,000 cases (24/2 1/2 s)	14	*5 311.3	75.2	14	2 953.3	40.3
20331 13	Applesauce, 1,000 cases (24/2 1/2 s)	16	25 711.9	351.8	18	19 751.1	238.8
20331 15	Apricots, 1,000 cases (24/2 1/2 s)	7	2 089.3	47.4	6	1 321.4	26.3
20331 22	Cherries, red pitted, 1,000 cases (24/2 1/2 s)	9	623.3	12.4	9	562.7	10.1
20331 24	Cherries, sweet, 1,000 cases (24/2 1/2 s)	10	1 051.3	19.2	12	1 468.5	28.1
20331 28	Cranberries and cranberry sauce, 1,000 cases (24/2 1/2 s)	3	(D)	(D)	4	9 937.6	106.5
20331 32	Fruit cocktail, 1,000 cases (24/2 1/2 s)	5	15 991.9	282.8	7	15 466.2	277.6
20331 34	Fruits for salads, including mixed fruits other than fruit cocktail, 1,000 cases (24/2 1/2 s)	5	4 793.7	99.5	8	3 682.7	79.7
20331 36	Olives, ripe and green ripe, including stuffed (drained net weight), 1,000 cases (24/2 1/2 s)	10	11 234.2	283.5	10	11 326.0	280.2
20331 38	Peaches, including spiced, 1,000 cases (24/2 1/2 s)	14	30 497.5	502.9	12	23 413.9	368.5
20331 41	Pears, including spiced, 1,000 cases (24/2 1/2 s)	8	13 687.9	205.5	8	11 756.0	185.1
20331 57	Pineapple (all styles), 1,000 cases (24/2 1/2 s)	5	8 580.9	151.8	6	(D)	(D)
20331 59	Other canned fruit, 1,000 cases (24/2 1/2 s)	19	(D)	(D)	(NA)	(D)	(D)
	Canned fruit pie mixes:						
20331 61	Apple, 1,000 cases (24/2 1/2 s)	10	1 363.8	27.4	11	1 344.8	28.4
20331 63	Cherry, 1,000 cases (24/2 1/2 s)	9	3 178.2	68.8	9	2 731.2	62.4
20331 65	Peach, 1,000 cases (24/2 1/2 s)	6	351.6	8.3	6	219.7	6.0
20331 69	Other fruit pie mixes, 1,000 cases (24/2 1/2 s)	13	1 633.2	48.2	13	1 480.5	40.2
20331 00	Canned fruits, except baby foods, n.s.k.	(NA)	(X)	12.8	(NA)	(X)	15.1
20332	Canned vegetables, except hominy and mushrooms[3]	(NA)	(X)	2 694.4	(NA)	(X)	2 297.8
20332 03	Beans, green lima, 1,000 cases (24/303 s)	9	2 549.2	22.0	8	3 613.7	28.9
20332 05	Beans, green and wax (including blue lake), 1,000 cases (24/303 s)	25	55 141.1	431.7	28	49 727.9	358.2
20332 15	Carrots, 1,000 cases (24/303 s)	13	5 540.7	41.5	14	4 652.5	35.0
20332 35	Vegetable combinations (mixed vegetables, succotash, carrots and peas, vegetable salad, etc.), 1,000 cases (24/303 s)	19	11 947.6	119.1	18	9 769.1	85.1
20332 37	Green peas, 1,000 cases (24/303 s)	19	29 448.4	254.6	19	26 807.9	238.5
20332 39	Other peas (blackeye, crowder, purple hull, field, etc.), 1,000 cases (24/303 s)	6	2 315.2	20.8	4	1 576.6	14.0
20332 53	Pumpkin and squash, including pie mix, 1,000 cases (24/303 s)	8	(D)	(D)	8	2 535.2	36.1
20332 55	Spinach, 1,000 cases (24/303 s)	6	6 089.2	50.5	7	5 162.4	43.5
20332 74	Sweet potatoes, including pie mix, 1,000 cases (24/303 s)	6	*8 296.8	87.5	11	6 353.9	65.5
20332 75	White potatoes, 1,000 cases (24/303 s)	13	6 487.6	48.8	16	6 141.8	46.5
20332 76	Sauerkraut, 1,000 cases (24/303 s)	10	6 378.5	47.0	10	6 552.7	50.3
20332 91	Asparagus, 1,000 cases (24/303 s)	15	4 532.7	86.8	13	3 983.2	80.2
20332 93	Beets, 1,000 cases (24/303 s)	9	9 442.8	68.7	11	10 050.3	71.8
20332 94	Sweet corn, whole kernel, 1,000 cases (24/303 s)	17	68 459.1	515.1	20	56 287.4	437.5

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 13
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2033– —	**CANNED FRUITS AND VEGETABLES**—Con.						
20332	Canned vegetables, except hominy and mushrooms[3]—Con.						
20332 95	Sweet corn, cream style ---- 1,000 cases (24/303 s)	13	14 851.2	116.6	15	12 744.0	101.2
20332 97	Tomatoes, including stewed ---- 1,000 cases (24/303 s)	37	58 361.4	538.6	37	45 490.3	427.6
20332 98	Other canned vegetables ---- 1,000 cases (24/303 s)	24	(D)	(D)	(NA)	(NA)	145.7
20332 00	Canned vegetables, except hominy and mushrooms, n.s.k.	(NA)	(X)	8.5	(NA)	(X)	32.2
20333	Canned hominy and mushrooms[3]	(NA)	(X)	202.0	(NA)	(X)	165.5
20333 15	Hominy ---- 1,000 cases (24/303 s)	8	4 057.2	26.5	8	6 812.0	50.9
20333 21	Mushrooms ---- 1,000 cases (24/303 s)	14	5 452.2	175.5	12	4 305.8	114.3
20333 00	Canned hominy and mushrooms, n.s.k.	(NA)	(X)	–	(NA)	(X)	.4
20335	Canned vegetable juices[3]	(NA)	(X)	409.4	(NA)	(X)	310.3
20335 15	Tomato juice, including combinations containing 70 percent tomato juice or more ---- mil gal	21	125.1	391.3	25	97.8	296.5
20335 98	Other vegetable juices ---- mil gal	7	5.2	17.8	6	2.0	7.4
20335 00	Canned vegetable juices, n.s.k.	(NA)	(X)	.3	(NA)	(X)	6.5
20336	Catsup and other tomato sauces, pastes, etc.[3]	(NA)	(X)	3 671.6	(NA)	(X)	3 024.4
	Tomato sauces; excluding pulp, puree, and paste:						
20336 14	7.1 oz to 10 oz (8 oz tall, etc.) ---- 1,000 cases of 72	15	11 761.5	154.0	13	15 025.3	215.1
20336 15	Other sizes ---- 1,000 cases (12/12 glass)	22	61 227.9	226.0	28	63 660.3	326.0
	Catsup:						
20336 22	14 oz to 32 oz ---- 1,000 cases of 24	14	31 826.8	485.3	13	31 082.9	482.3
20336 23	All other sizes, including individual serving sizes ---- 1,000 cases (12/12 glass)	22	*48 380.6	462.2	29	44 951.8	405.3
20336 31	Spaghetti, pizza, and marinara sauces, with or without other added ingredients, including those with less than 20% meat ---- 1,000 cases (12/12 glass)	39	157 034.8	1 315.3	28	78 909.4	552.9
20336 51	Chili sauce ---- 1,000 cases (12/12 glass)	16	10 533.0	78.9	22	13 286.3	88.6
20336 55	Barbecue sauce ---- 1,000 cases (12/12 glass)	24	27 398.1	264.0	25	26 531.6	270.4
20336 67	Tomato paste ---- mil lb	21	22 123.8	575.7	(NA)	(NA)	558.9
20336 91	Tomato pulp and puree ---- 1,000 cases (24/303 s)	18	10 732.5	85.4	19	15 595.6	113.3
20336 00	Catsup and other tomato sauces, pastes, etc., n.s.k.	(NA)	(X)	24.8	(NA)	(X)	11.6
20338	Jams, jellies, and preserves[3]	(NA)	(X)	922.3	(NA)	(X)	664.1
	Jams and preserves, pure:						
20338 11	Strawberry ---- mil lb	26	314.1	251.7	23	223.5	156.1
20338 12	Raspberry ---- mil lb	14	217.2	156.1	20	231.4	156.2
20338 13	Other ---- mil lb	17	67.8	46.1			
	Jellies, pure:						
20338 21	Grape ---- mil lb	21	225.0	153.7	20	180.3	119.7
20338 25	Other ---- mil lb	26	**129.3	100.8	24	84.6	60.3
20338 31	Imitation jellies, jams, and preserves ---- mil lb	6	56.2	43.6	8	58.2	50.4
20338 41	Marmalades ---- mil lb	8	*24.3	21.7	8	18.9	15.1
20338 51	Fruit butter ---- mil lb	10	*56.1	57.4	8	36.7	34.7
20338 61	Maraschino cherries, excluding glace and candied ---- mil gal	8	9.7	58.4	8	10.6	64.6
20338 00	Jams, jellies, and preserves, n.s.k.	(NA)	(X)	32.7	(NA)	(X)	6.8
2033A	Canned fruit juices, nectars, and concentrates[3]	(NA)	(X)	3 319.7	(NA)	(X)	2 343.9
	Juices and nectars, single strength:						
2033A 11	Apple ---- mil gal	43	232.1	486.6	34	151.4	355.0
2033A 25	Orange ---- mil gal	43	624.6	1 815.0	32	374.5	1 196.6
2033A 31	Grapefruit ---- mil gal	26	54.7	182.0	26	67.1	224.7
2033A 41	Prune ---- mil gal	13	*13.0	45.2	9	6.8	24.5
2033A 78	Other whole fruit juices and mixtures of whole fruit juices ---- mil gal	38	176.2	510.2	41	118.0	337.7
2033A 93	Nectars ---- mil gal	4	*2.5	7.7	5	3.4	10.0
2033A 94	Fruit juices, concentrated, hot pack ---- mil gal sngl st equiv	17	57.2	210.1	15	48.3	177.1
2033A 00	Canned fruit juices, nectars, and concentrates, n.s.k.	(NA)	(X)	63.0	(NA)	(X)	18.3
2033B	Fresh fruit juices and nectars, single strength[3]	(NA)	(X)	1 213.0	(NA)	(X)	951.4
	Juices and nectars, single strength:						
2033B 12	Orange ---- mil gal	136	251.0	540.3	124	223.3	489.2
2033B 19	Other ---- mil gal	69	*161.4	421.4	66	122.2	377.7
2033B 21	Concentrated fruit juice, except for fountain use ---- mil gal sngl st equiv	16	*83.6	236.2	19	29.3	84.5
2033B 00	Fresh fruit juices and nectars, single strength, n.s.k.	(NA)	(X)	15.0	(NA)	(X)	–
20330	Canned fruits and vegetables, n.s.k.	(NA)	(X)	370.3	(NA)	(X)	402.3
20330 00	Canned fruits and vegetables, n.s.k.[6]	(NA)	(X)	312.5	(NA)	(X)	272.6
20330 02	Canned fruits and vegetables, n.s.k.[7]	(NA)	(X)	57.7	(NA)	(X)	129.8

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 14
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2034– —	**DRIED AND DEHYDRATED FRUITS, VEGETABLES, AND SOUPS**						
	Total	**(NA)**	**(X)**	**2 785.7**	**(NA)**	**(X)**	**2 079.2**
20342	Soup mixes, dried	(NA)	(X)	592.4	(NA)	(X)	461.2
20342 00	Soup mixes, including oriental, dried and dehydrated, and freeze-dried—mil lb	18	282.2	592.4	17	214.1	461.2
20343	Dried and dehydrated fruits and vegetables (including freeze-dried)	(NA)	(X)	2 124.3	(NA)	(X)	1 544.3
	Fruits, dried and dehydrated:						
20343 13	Raisins—mil lb	10	477.0	434.2	10	349.9	333.7
20343 15	Prunes—mil lb	10	*344.6	305.0	9	313.4	265.2
20343 21	Apples—mil lb	10	52.7	73.0	8	46.4	63.3
20343 25	Other dried and dehydrated fruits and fruit peels, including fruit flour, meal, and powder—mil lb	24	*123.6	239.3	(NA)	(D)	(D)
20343 32	Dried and dehydrated potatoes (except potato flour), not packaged with other ingredients—mil lb	10	619.0	470.8	(NA)	(D)	(D)
	Vegetables, dried and dehydrated (except potatoes), including vegetable flour:						
20343 37	Onions—mil lb	6	184.8	210.3	5	134.0	133.8
20343 39	Other dried and dehydrated vegetables and vegetable flours, including potato flour—mil lb	18	230.7	383.9	(NA)	(D)	(D)
20343 00	Dried and dehydrated fruits and vegetables (including freeze-dried), n.s.k.	(NA)	(X)	7.8	(NA)	(X)	r1.2
20340	Dried and dehydrated fruits, vegetables, and soups, n.s.k.	(NA)	(X)	69.0	(NA)	(X)	73.6
20340 00	Dried and dehydrated fruits, vegetables, and soups, n.s.k.[8]	(NA)	(X)	55.9	(NA)	(X)	11.3
20340 02	Dried and dehydrated fruits, vegetables, and soups, n.s.k.[9]	(NA)	(X)	13.2	(NA)	(X)	62.3
2035– —	**PICKLES, SAUCES, AND SALAD DRESSINGS**						
	Total	**(NA)**	**(X)**	**6 531.3**	**(NA)**	**(X)**	**4 479.3**
20352	Pickles and other pickled products[3]	(NA)	(X)	1 206.9	(NA)	(X)	1 000.2
	Finished pickles and other pickled products:						
	Cucumber:						
20352 11	Dill—mil gal	21	139.2	502.2	26	106.5	392.8
20352 13	Sour—mil gal	7	9.8	38.5	11	12.2	45.2
20352 15	Sweet—mil gal	17	117.3	193.6	17	113.7	164.4
20352 19	Refrigerated pickles, including overnight, half sour, artificially acidified, etc.—mil gal	17	24.5	85.5	15	27.7	87.8
20352 21	Other finished pickles and pickled products (mushrooms, peppers, onions, etc.)—mil gal	14	43.2	162.6	(NA)	(10)	(10)
20352 31	Horseradish (excluding sauce)—mil gal	10	*2.8	19.5	6	2.0	12.7
20352 33	Relishes—mil gal	20	*30.3	97.6	(NA)	(10)	(10)
20352 35	Sauerkraut—mil gal	7	*4.0	8.5	(NA)	(10)	(10)
20352 39	Other finished pickled products—mil gal	10	16.1	37.1	41	1054.1	10216.0
	Unfinished pickled products:						
20352 71	Unfinished pickles (salt stock)—mil gal	7	*17.7	17.8	9	13.9	12.8
20352 75	Brined cherries—mil gal	4	3.1	18.4	6	3.2	21.6
20352 98	Other bulk pickled products, such as mushrooms, sauerkraut, etc.—mil gal	8	8.3	24.6	12	14.1	35.6
20352 00	Pickles and other pickled products, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	11.4
20353	Prepared sauces (except tomato)[3]	(NA)	(X)	1 754.3	(NA)	(X)	903.9
20353 11	Prepared mustard—mil gal	41	118.7	324.0	46	91.2	258.5
20353 51	Other sauces (worcestershire, soy, horseradish, meat, vegetable, seafood, etc.)—mil gal	104	*279.7	1 412.5	88	156.7	644.3
20353 00	Prepared sauces (except tomato), n.s.k.	(NA)	(X)	17.8	(NA)	(X)	1.1
20354	Mayonnaise, salad dressings, and sandwich spreads	(NA)	(X)	3 339.7	(NA)	(X)	2 271.5
	Spoon type dressing:						
20354 11	Salad dressing—mil gal	49	166.7	852.1	47	107.0	585.0
20354 23	Mayonnaise—mil gal	39	214.0	899.4	44	117.1	508.1
20354 29	Other spoon type dressing, including sandwich spreads, refrigerated dressings, and all other semisolid type dressing—mil gal	43	137.3	674.4	33	132.3	679.0
20354 35	Pourable dressing (including reduced calorie, cheese, vinegar and oil, etc.)—mil gal	41	*182.1	904.4	40	97.4	493.1
20354 00	Mayonnaise, salad dressings, and sandwich spreads, n.s.k.	(NA)	(X)	9.4	(NA)	(X)	6.3
20350	Pickles, sauces, and salad dressings, n.s.k.	(NA)	(X)	230.3	(NA)	(X)	303.7
20350 00	Pickles, sauces, and salad dressings, n.s.k.[6]	(NA)	(X)	185.3	(NA)	(X)	132.4
20350 02	Pickles, sauces, and salad dressings, n.s.k.[7]	(NA)	(X)	45.0	(NA)	(X)	171.3
2037– —	**FROZEN FRUITS AND VEGETABLES**						
	Total	**(NA)**	**(X)**	**7 415.5**	**(NA)**	**(X)**	**6 253.7**

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 15
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2037– —	**FROZEN FRUITS AND VEGETABLES**—Con.						
20371	Frozen fruits, juices, ades, drinks, and cocktails[3]	(NA)	(X)	2 864.0	(NA)	(X)	2 481.6
	Frozen fruits:						
20371 35	Strawberries—mil lb	20	312.2	182.8	17	228.5	126.0
20371 41	Red sour cherries—mil lb	11	*106.7	52.8	12	86.9	42.9
20371 55	Apples and applesauce—mil lb	14	183.3	98.5	9	98.5	53.7
20371 57	Berries, including blueberries, raspberries, blackberries, etc.—mil lb	15	104.3	93.8	15	64.9	60.0
20371 61	Other frozen fruits—mil lb	26	275.9	172.6	21	187.6	109.0
	Frozen fruit and berry juices, concentrated:						
	Orange juice:						
	Consumer and institutional sizes:						
20371 62	6 oz or less—1,000 cases of 48	11	8 122.9	121.2	17	11 966.3	182.2
20371 65	6.1 oz to 12 oz—1,000 cases of 24	15	25 876.7	515.0	11	21 287.5	430.6
20371 66	12.1 oz to 24 oz—1,000 cases of 24	7	(S)	132.9	10	8 032.2	164.1
20371 68	24.1 oz or more—1,000 cases	11	5 810.0	142.3	12	6 733.5	167.5
20371 69	Bulk—1,000 lb solid	18	428.4	620.0	20	362.5	503.8
	Grape juice:						
20371 70	4.1 oz to 7 oz—1,000 cases of 48	5	1 745.6	17.8	8	1 832.4	18.4
20371 72	10.1 oz to 13 oz—1,000 cases of 24	5	2 709.1	31.3	7	2 499.0	32.1
20371 74	Other sizes—1,000 lb solid	10	28.9	25.2	5	11.2	11.1
20371 80	Grapefruit juice—1,000 lb solid	17	75.5	135.1	22	68.6	120.1
20371 83	Other frozen fruit and berry juices, concentrated—1,000 lb solid	19	211.2	273.7	20	183.4	255.1
	Frozen fruit ades, drinks, and cocktails, concentrated:						
	Lemonade:						
20371 85	4.1 oz to 7 oz—1,000 cases of 48	3	(D)	(D)	5	1 641.4	14.8
20371 86	10.1 oz to 13 oz—1,000 cases of 24	7	8 873.5	87.7	7	7 878.7	51.8
20371 87	Other sizes—1,000 lb solid	9	32.7	32.8	6	11.3	11.7
20371 94	All other ades, drinks, and cocktails—1,000 lb solid	8	93.8	84.8	10	114.9	91.2
20371 97	Citrus pulp—1,000 s tons	11	300.5	30.6	16	310.3	35.2
20371 00	Frozen fruits, juices, ades, drinks, and cocktails, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	.1
20372	Frozen vegetables[3]	(NA)	(X)	4 418.7	(NA)	(X)	3 645.3
20372 11	Asparagus—mil lb	5	14.5	22.0	6	21.1	30.7
20372 13	Beans: green, regular, and french-cut—mil lb	17	305.0	160.7	17	261.9	111.1
20372 21	Lima beans: baby, emerald, and fordhook—mil lb	12	81.6	40.5	19	110.4	52.6
20372 25	Broccoli—mil lb	14	*172.3	90.7	18	330.0	174.6
20372 31	Brussels sprouts—mil lb	6	35.4	21.2	9	52.8	30.2
20372 33	Carrots—mil lb	21	256.7	78.0	25	272.0	78.0
20372 35	Cauliflower—mil lb	12	87.8	46.6	20	126.7	73.4
20372 41	Green peas—mil lb	22	310.8	153.7	28	375.2	153.5
20372 42	Spinach—mil lb	10	121.6	51.6	18	175.3	64.8
20372 45	Vegetable combinations (succotash, peas and carrots, mixed vegetables, vegetables with pasta, etc.)—mil lb	21	*786.8	386.3	24	612.8	277.5
20372 48	French-fried potatoes—mil lb	13	6 146.0	1 841.2	15	4 735.1	1 465.6
20372 49	Other potato products (patties, puffs, etc.)—mil lb	21	1 018.9	435.0	20	905.1	387.8
20372 53	Sweet cut corn, yellow—mil lb	22	552.0	230.4	24	457.7	192.2
20372 55	Sweet cob corn, yellow—mil lb	13	332.5	147.9	12	249.6	106.3
20372 61	Southern greens: collards, kale, mustard, and turnip—mil lb	5	67.1	21.0	6	76.8	26.4
20372 63	Onions (rings, dices, chopped, etc.)—mil lb	21	410.1	244.3	47	725.9	411.5
20372 69	Other frozen vegetables—mil lb	32	680.2	440.7			
20372 00	Frozen vegetables, n.s.k.	(NA)	(X)	6.9	(NA)	(X)	9.2
20370	Frozen fruits and vegetables, n.s.k.	(NA)	(X)	132.8	(NA)	(X)	126.8
20370 00	Frozen fruits and vegetables, n.s.k.[8]	(NA)	(X)	101.6	(NA)	(X)	81.8
20370 02	Frozen fruits and vegetables, n.s.k.[9]	(NA)	(X)	31.1	(NA)	(X)	45.0
2038– —	**FROZEN SPECIALTIES, N.E.C.**						
	Total	**(NA)**	**(X)**	**7 219.7**	**(NA)**	**(X)**	**5 252.1**
20382	Frozen dinners: beef, pork, and poultry pies; and nationality foods[3]	(NA)	(X)	5 334.6	(NA)	(X)	4 103.5
	Frozen dinners:						
20382 11	With red-meat entree—mil lb	18	306.0	492.5	19	606.3	810.9
20382 13	With poultry entree—mil lb	16	406.9	655.0			
20382 15	With pasta entree—mil lb	14	204.4	217.1			
20382 19	With other entree—mil lb	9	*119.6	175.9			
	Frozen entrees and side dishes, excluding rice dishes and nationality foods:						
20382 21	With pasta products as major ingredient—mil lb	35	339.3	367.5	44	1 146.2	1 339.1
20382 23	With other products as major ingredient—mil lb	24	*441.0	644.8			
20382 28	Frozen rice dishes—mil lb	(NA)	–	–	2	([11])	([11])
20382 31	Frozen beef and pork pies—mil lb	7	57.9	53.5	11	68.3	56.7
20382 35	Frozen poultry pies—mil lb	7	(D)	(D)	10	[11]152.7	[11]117.0

See footnotes at end of table.

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TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2038– —	**FROZEN SPECIALTIES, N.E.C.**—Con.						
20382	Frozen dinners: beef, pork, and poultry pies; and nationality foods[3]—Con.						
	Frozen nationality foods:						
20382 37	Enchiladas ---- mil lb	11	51.6	54.5	(NA)	(NA)	(NA)
20382 38	Tortillas ---- mil lb	12	215.0	231.5	(NA)	(NA)	(NA)
20382 39	Tamales ---- mil lb	10	72.7	81.9	(NA)	(NA)	(NA)
20382 40	Pizza ---- mil lb	38	1 046.6	1 424.2	38	755.5	1 039.4
20382 43	Chow mein ---- mil lb	3	(D)	(D)	(NA)	(NA)	(NA)
20382 45	Chop suey ---- mil lb	2	(D)	(D)	(NA)	(NA)	(NA)
20382 47	Egg rolls ---- mil lb	8	74.7	86.8	(NA)	(NA)	(NA)
20382 49	All other frozen nationality foods ---- mil lb	47	502.9	684.4	(NA)	(NA)	(NA)
20382 00	Frozen dinners: beef, pork, and poultry pies; and nationality foods, n.s.k. ----	(NA)	(X)	8.4	(NA)	(X)	r6.6
20384	Other frozen specialties, n.e.c.[3] ----	(NA)	(X)	1 662.6	(NA)	(X)	972.4
20384 51	Whipped topping (dairy product substitute, dairy or nondairy base) ---- mil lb	10	650.3	446.3	7	341.1	270.3
20384 59	Other frozen dairy product substitutes, except mellorine and similar products ----	5	(X)	13.4	4	(X)	7.1
20384 63	Frozen waffles, pancakes, and french toast ---- mil lb	19	463.9	473.6	9	200.2	187.3
20384 69	Other frozen specialties, except seafood, including soups, etc. ---- mil lb	48	679.5	714.9	43	420.1	507.7
20384 00	Other frozen specialties, n.e.c., n.s.k. ----	(NA)	(X)	14.3	(NA)	(X)	–
20380	Frozen specialties, n.e.c., n.s.k. ----	(NA)	(X)	222.5	(NA)	(X)	176.2
20380 00	Frozen specialties, n.e.c., n.s.k.[8] ----	(NA)	(X)	187.7	(NA)	(X)	110.7
20380 02	Frozen specialties, n.e.c., n.s.k.[9] ----	(NA)	(X)	34.7	(NA)	(X)	65.6

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Data for this product class represent value of production rather than value of shipments.
[4]Typically for establishments with 20 employees or more.
[5]Typically for establishments with less than 20 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.
[10]For 1987, data for product codes 20352 21, 20352 33, and 20352 35 were included with product code 20352 39.
[11]For 1987, data for product code 20382 28 were included with product code 20382 35.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20321, CANNED BABY FOODS, EXCEPT CEREAL AND BISCUITS		
United States	**(D)**	**652.0**
20322, CANNED SOUPS, EXCEPT FROZEN OR SEAFOOD		
United States	**1 986.2**	**(D)**
20323, CANNED DRY BEANS		
United States	**1 119.5**	**895.3**
California	67.7	89.3
Indiana	75.3	118.7
Louisiana	20.2	(NA)
North Carolina	46.1	(NA)
Texas	186.1	144.7
20324, OTHER CANNED SPECIALTIES AND CANNED NATIONALITY FOODS		
United States	**(D)**	**(D)**
California	154.0	382.3
Illinois	92.4	165.3
Texas	85.8	434.9
Wisconsin	49.1	(NA)
20331, CANNED FRUITS, EXCEPT BABY FOODS		
United States	**2 371.9**	**2 084.5**
California	1 227.5	1 086.6
Michigan	166.1	94.3
New York	155.7	125.2
South Carolina	11.3	(NA)
Washington	222.5	143.5

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 17
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20332, CANNED VEGETABLES, EXCEPT HOMINY AND MUSHROOMS		
United States	**2 694.4**	**2 297.8**
California	474.3	389.7
Illinois	161.9	115.5
Indiana	49.3	35.2
Michigan	52.0	47.1
Minnesota	355.7	336.7
North Carolina	26.5	30.3
Ohio	41.6	30.9
Oregon	71.2	89.5
Washington	114.3	83.6
Wisconsin	664.4	605.9
20333, CANNED HOMINY AND MUSHROOMS		
United States	**202.0**	**165.5**
California	14.5	7.0
Pennsylvania	125.1	114.0
20335, CANNED VEGETABLE JUICES		
United States	**409.4**	**310.3**
California	100.7	89.3
Indiana	20.7	18.4
Pennsylvania	7.3	(NA)
20336, CATSUP AND OTHER TOMATO SAUCES, PASTES, ETC.		
United States	**3 671.6**	**3 024.4**
California	1 575.5	1 479.1
Indiana	118.5	48.1
New Jersey	123.8	152.9
New York	391.5	256.7
Ohio	635.6	608.1
Pennsylvania	103.6	94.9
Texas	113.5	77.3
Wisconsin	48.2	(NA)
20338, JAMS, JELLIES, AND PRESERVES		
United States	**922.3**	**664.1**
California	205.1	127.0
Illinois	12.1	(NA)
Kentucky	20.3	(NA)
New York	131.6	68.6
Pennsylvania	52.6	50.4
2033A, CANNED FRUIT JUICES, NECTARS, AND CONCENTRATES		
United States	**3 319.7**	**2 343.9**
California	265.9	219.2
Florida	1 543.6	1 097.3
Illinois	61.3	92.9
Michigan	223.8	103.3
New Jersey	191.3	148.3
New York	206.9	67.7
Ohio	22.5	(NA)
Pennsylvania	200.4	97.3
Texas	125.2	108.7
Washington	77.1	175.2
Wisconsin	24.8	12.8
2033B, FRESH FRUIT JUICES AND NECTARS, SINGLE STRENGTH		
United States	**1 213.0**	**951.4**
Alabama	16.3	8.5
Arizona	3.0	(NA)
California	190.4	97.7
Colorado	7.3	(NA)
Connecticut	16.5	(NA)
Florida	193.1	69.7
Illinois	4.5	13.7
Kentucky	24.6	16.2
Louisiana	8.8	6.5
Maryland	24.1	18.3
Massachusetts	34.3	(NA)
Michigan	85.3	102.4
Missouri	10.8	5.9
New Jersey	14.3	16.1
New York	169.7	136.2
2033B, FRESH FRUIT JUICES AND NECTARS, SINGLE STRENGTH—Con.		
North Carolina	14.1	11.2
Ohio	26.6	15.2
Oklahoma	7.5	2.4
Pennsylvania	57.5	155.9
Tennessee	31.4	18.4
Texas	30.4	(NA)
Virginia	9.2	4.5
Washington	120.9	76.8
20342, SOUP MIXES, DRIED		
United States	**592.4**	**461.2**
20343, DRIED AND DEHYDRATED FRUITS AND VEGETABLES (INCLUDING FREEZE-DRIED)		
United States	**2 124.3**	**1 544.3**
California	1 288.5	1 115.6
Idaho	417.8	150.2
Oregon	19.8	13.8
Washington	77.0	(NA)
20352, PICKLES AND OTHER PICKLED PRODUCTS		
United States	**1 206.9**	**1 000.2**
California	179.6	168.2
Illinois	68.9	29.0
Michigan	290.7	238.3
New York	35.5	54.3
Texas	7.9	22.3
20353, PREPARED SAUCES (EXCEPT TOMATO)		
United States	**1 754.3**	**903.9**
Alabama	5.0	(NA)
California	330.1	227.5
Illinois	117.7	64.9
Louisiana	126.1	63.5
New Jersey	80.3	60.5
New York	55.8	41.1
Ohio	65.4	55.4
Pennsylvania	114.6	73.5
Tennessee	7.6	(NA)
Texas	312.8	89.8
Washington	7.2	(NA)
Wisconsin	135.2	(NA)
20354, MAYONNAISE, SALAD DRESSINGS, AND SANDWICH SPREADS		
United States	**3 339.7**	**2 271.5**
Alabama	63.8	67.4
California	514.1	371.2
Georgia	230.3	194.2
Illinois	912.0	557.7
Indiana	59.6	(NA)
New York	107.8	50.5
Ohio	97.4	73.7
20371, FROZEN FRUITS, JUICES, ADES, DRINKS, AND COCKTAILS		
United States	**2 864.0**	**2 481.6**
California	627.2	381.9
Florida	1 469.2	1 585.5
Maine	43.4	20.8
Michigan	34.4	77.5
New York	53.7	37.3
Oregon	153.4	112.0
Washington	175.3	98.5
20372, FROZEN VEGETABLES		
United States	**4 418.7**	**3 645.3**
California	390.6	483.1
Idaho	833.8	641.2
Maine	80.2	97.9
Minnesota	209.8	123.7
New York	210.9	(NA)
Oregon	732.5	632.1
Pennsylvania	38.9	34.4
Texas	74.7	50.5
Washington	880.3	601.0
Wisconsin	384.0	283.8

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 18
TSF:20C_92.DAT;3 5/11/95 10:31:41 UTF:20C_93.DAT;3 5/11/95 10:31:42 META:TIPS96-10313192.DAT;1 5/11/95 10:33:51

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20382, FROZEN DINNERS: BEEF, PORK, AND POULTRY PIES; AND NATIONALITY FOODS			**20382, FROZEN DINNERS: BEEF, PORK, AND POULTRY PIES; AND NATIONALITY FOODS—Con.**		
United States	**5 334.6**	**4 103.5**	Oregon	68.3	(NA)
			Pennsylvania	172.3	196.1
Arkansas	420.1	(NA)	Texas	231.8	101.3
California	748.8	429.7	Wisconsin	374.7	180.3
Connecticut	116.4	(NA)			
Florida	16.7	(NA)	**20384, OTHER FROZEN SPECIALTIES, N.E.C.**		
Illinois	93.8	75.1	**United States**	**1 662.6**	**972.4**
Indiana	9.7	60.2	California	194.7	95.8
Massachusetts	8.5	9.7	Georgia	74.7	71.6
Minnesota	107.5	125.1	Illinois	91.7	57.9
New Jersey	138.5	134.0	Indiana	52.3	(NA)
New York	163.3	117.1	Iowa	22.7	(NA)
Ohio	698.1	637.2	Texas	6.5	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2032-	**Canned specialties**	**5 707.6**	**5 467.1**	**5 221.6**	**5 174.0**	**4 797.6**	**4 444.1**	**3 484.6**	**2 429.0**
20321	Canned baby foods, except cereal and biscuits	(D)	857.4	814.1	781.4	727.3	652.0	596.4	401.3
20322	Canned soups, except frozen or seafood	1 986.2	(D)	(D)	(D)	(D)	(D)	(D)	(NA)
20323	Canned dry beans	1 119.5	894.4	920.8	880.2	984.4	895.3	735.3	556.5
20324	Other canned specialties and canned nationality foods	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20320	Canned specialties, n.s.k.	189.8	184.0	180.8	172.3	137.0	145.0	117.8	(NA)
2033-	**Canned fruits and vegetables**	**15 174.5**	**16 050.0**	**15 255.2**	**14 252.0**	**12 836.9**	**12 244.4**	**9 255.3**	**6 621.4**
20331	Canned fruits, except baby foods	2 371.9	2 314.0	2 210.8	2 093.6	2 000.9	2 084.5	1 590.6	1 289.3
20332	Canned vegetables, except hominy and mushrooms	2 694.4	2 679.1	2 697.2	2 720.0	2 324.2	2 297.8	2 047.2	1 650.9
20333	Canned hominy and mushrooms	202.0	220.2	209.3	166.8	184.6	165.5	139.0	149.8
20335	Canned vegetable juices	409.4	640.9	617.7	565.8	341.5	310.3	270.3	251.8
20336	Catsup and other tomato sauces, pastes, etc.	3 671.6	4 100.9	3 810.4	3 631.7	3 284.0	3 024.4	2 174.4	1 350.0
20338	Jams, jellies, and preserves	922.3	938.8	858.3	770.8	697.7	664.1	603.0	396.9
2033A	Canned fruit juices, nectars, and concentrates	3 319.7	3 631.2	3 459.0	3 016.6	2 604.8	2 343.9	1 409.9	1 223.4
2033B	Fresh fruit juices and nectars, single strength	1 213.0	1 165.6	979.7	916.9	993.3	951.4	652.2	
20330	Canned fruits and vegetables, n.s.k.	370.3	359.2	412.6	369.7	405.8	402.3	368.7	309.4
2034-	**Dried and dehydrated fruits, vegetables, and soups**	**2 785.7**	**2 757.8**	**2 640.1**	**2 696.8**	**2 138.7**	**2 079.2**	**(NA)**	**(NA)**
20342	Soup mixes, dried	592.4	596.6	539.4	531.8	476.3	461.2	332.8	224.7
20343	Dried and dehydrated fruits and vegetables (including freeze-dried)	2 124.3	2 051.4	1 984.8	2 054.6	1 588.4	1 544.3	(NA)	(NA)
20340	Dried and dehydrated fruits, vegetables, and soups, n.s.k.	69.0	109.8	115.9	110.3	74.0	73.6	91.9	76.9
2035-	**Pickles, sauces, and salad dressings**	**6 531.2**	**6 034.7**	**5 562.3**	**5 064.5**	**4 779.1**	**4 479.3**	**3 252.7**	**2 242.8**
20352	Pickles and other pickled products	1 206.9	1 249.4	1 232.0	1 054.8	1 041.5	1 000.2	694.5	553.2
20353	Prepared sauces (except tomato)	1 754.3	1 287.3	1 169.4	991.5	983.2	903.9	540.0	261.6
20354	Mayonnaise, salad dressings, and sandwich spreads	3 339.7	3 198.1	2 853.5	2 710.8	2 436.0	2 271.5	1 815.4	1 292.3
20350	Pickles, sauces, and salad dressings, n.s.k.	230.1	299.9	307.4	307.3	318.5	303.7	202.7	135.7
2037-	**Frozen fruits and vegetables**	**7 415.5**	**7 286.2**	**7 411.9**	**7 158.6**	**6 749.3**	**6 253.7**	**5 062.0**	**3 047.2**
20371	Frozen fruits, juices, ades, drinks, and cocktails	2 864.0	2 834.7	3 005.3	2 846.5	2 749.5	2 481.6	1 860.4	1 153.5
20372	Frozen vegetables	4 418.7	4 301.0	4 277.1	4 190.8	3 874.7	3 645.3	3 089.7	1 797.9
20370	Frozen fruits and vegetables, n.s.k.	132.8	150.4	129.5	121.4	125.1	126.8	111.9	95.8
2038-	**Frozen specialties, n.e.c.**	**7 219.7**	**7 846.0**	**7 033.7**	**6 459.1**	**5 524.5**	**5 252.1**	**3 124.9**	**(NA)**
20382	Frozen dinners: beef, pork, and poultry pies; and nationality foods	5 334.6	6 252.5	5 580.6	5 070.7	4 356.0	4 103.5	2 356.6	1 297.7
20384	Other frozen specialties, n.e.c.	1 662.6	1 391.9	1 279.1	1 190.9	984.8	972.4	624.3	(NA)
20380	Frozen specialties, n.e.c., n.s.k.	222.5	201.7	173.9	197.4	183.7	176.2	143.8	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 19
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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2032, CANNED SPECIALTIES				
	Materials, ingredients, containers, and supplies	**(X)**	**2 900.4**	**(X)**	**2 549.0**
	Fresh fruits:				
017411	Oranges, 1,000 s tons	–	–		
017511	Apples, 1,000 s tons	(D)	(D)		
017515	Apricots, 1,000 s tons	(D)	(D)		
017211	Grapes, 1,000 s tons	–	–		
017521	Peaches, 1,000 s tons	64.9	17.8	200.3	39.1
017525	Pears, 1,000 s tons	(D)	(D)		
017911	Pineapples, 1,000 s tons	(D)	(D)		
017412	Grapefruit, 1,000 s tons	–	–		
017021	Other fresh fruits, 1,000 s tons	(S)	4.6		
	Fresh vegetables:				
016111	Green peas, 1,000 s tons	**12.1	6.2	(S)	1.9
013411	White potatoes, 1,000 s tons	89.8	16.2	90.2	16.8
018211	Mushrooms, mil lb	(D)	(D)	(D)	(D)
016141	Tomatoes, 1,000 s tons	137.7	34.5	206.3	52.4
016131	Sweet corn, 1,000 s tons	(D)	(D)	5.3	1.2
016121	Green (snap) or wax beans, 1,000 s tons	**35.1	7.8	39.1	7.2
016191	Other fresh vegetables, 1,000 s tons	*191.6	61.9	(D)	(D)
	Sweeteners:				
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	**46.3	23.9	48.7	23.6
204604	High fructose corn syrup (HFCS)(in terms of solids), mil lb	100.3	13.9	*87.8	10.4
204611	Crystalline fructose (dry fructose), mil lb	(D)	(D)	.4	.2
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight), mil lb	*90.1	16.2	75.1	11.4
	Other materials, ingredients, containers, and supplies:				
201013	Fresh, frozen, and prepared meats, mil lb	181.6	194.1	219.3	229.1
201501	Dressed poultry purchased for processing (cooking, smoking, canning, raw-boning, freezing, dehydrating), mil lb	90.7	137.0	54.9	88.4
203411	Dried fruits, 1,000 s tons	(D)	(D)	(NA)	(2)
203413	Dried beans, 1,000 s tons	227.1	121.1	264.3	147.8
203348	Concentrated fruit juices, mil gal	3.2	25.9	(NA)	(2)
203701	Frozen fruits (for further processing), mil lb	(D)	(D)	(NA)	(2)
203702	Frozen vegetables (for further processing), mil lb	183.0	100.9	143.9	81.6
203361	Tomato paste (24 percent NTSS equivalent), mil lb	287.8	155.3	468.0	187.8
204110	Wheat flour, 1,000 cwt	2 077.7	19.9	2 009.1	20.1
207006	Fats and oils, all types (purchased as such), mil lb	120.0	41.1	121.7	38.4
275001	Printed labels	(X)	54.7	(X)	47.6
190003	Flexible packaging materials	(X)	39.8	(X)	33.0
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	83.2	(X)	91.8
341101	Metal cans, can lids and ends	(X)	650.1	(X)	504.1
322101	Glass containers	(X)	139.3	(X)	147.0
970099	All other materials and components, parts, containers, and supplies	(X)	752.4	(X)	[2]586.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	93.4	(X)	76.3
	INDUSTRY 2033, CANNED FRUITS AND VEGETABLES				
	Materials, ingredients, containers, and supplies	**(X)**	**7 293.9**	**(X)**	**5 951.0**
	Fresh fruits:				
017411	Oranges, 1,000 s tons	1 635.0	282.7	1 063.0	230.7
017511	Apples, 1,000 s tons	1 194.8	176.5	977.9	111.6
017515	Apricots, 1,000 s tons	46.5	12.7	42.4	12.3
017211	Grapes, 1,000 s tons	511.1	93.7	384.1	82.8
017521	Peaches, 1,000 s tons	559.9	132.1	442.9	97.5
017525	Pears, 1,000 s tons	428.2	95.7	375.2	69.3
017911	Pineapples, 1,000 s tons	351.0	57.6	362.6	53.7
017412	Grapefruit, 1,000 s tons	(D)	(D)	267.8	51.6
017021	Other fresh fruits, 1,000 s tons	385.7	186.9	402.5	156.1
	Fresh vegetables:				
016111	Green peas, 1,000 s tons	303.4	79.9	250.7	60.4
013411	White potatoes, 1,000 s tons	118.7	14.7	130.8	19.2
018211	Mushrooms, mil lb	133.3	94.5	83.3	59.7
016141	Tomatoes, 1,000 s tons	8 220.2	520.0	7 414.2	454.4
016131	Sweet corn, 1,000 s tons	1 864.7	143.0	1 686.3	117.4
016121	Green (snap) or wax beans, 1,000 s tons	528.3	86.7	427.2	67.8
016191	Other fresh vegetables, 1,000 s tons	*811.2	143.1	946.3	167.2
	Sweeteners:				
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	138.8	65.7	126.5	58.7
204604	High fructose corn syrup (HFCS)(in terms of solids), mil lb	870.7	119.5	705.8	82.0
204611	Crystalline fructose (dry fructose), mil lb	77.5	11.8	37.5	4.4
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight), mil lb	651.5	71.2	550.4	56.1
	Other materials, ingredients, containers, and supplies:				
201013	Fresh, frozen, and prepared meats, mil lb	1 157.3	33.7	(NA)	(4)
201501	Dressed poultry purchased for processing (cooking, smoking, canning, raw-boning, freezing, dehydrating), mil lb	(D)	(D)	(NA)	(4)
203411	Dried fruits, 1,000 s tons	13.7	16.1	13.7	12.8
203413	Dried beans, 1,000 s tons	**49.7	26.5	32.9	15.6
203348	Concentrated fruit juices, mil gal	*140.6	635.1	121.8	576.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2033, CANNED FRUITS AND VEGETABLES—Con.				
	Other materials, ingredients, containers, and supplies—Con.				
203701	Frozen fruits (for further processing) ---- mil lb	198.6	116.2	195.1	96.7
203702	Frozen vegetables (for further processing) ---- mil lb	55.9	22.7	34.9	14.7
203361	Tomato paste (24 percent NTSS equivalent) ---- mil lb	567.6	229.2	392.2	165.2
204110	Wheat flour ---- 1,000 cwt	(D)	(D)	(NA)	(4)
207006	Fats and oils, all types (purchased as such) ---- mil lb	*95.2	28.9	82.3	18.9
275001	Printed labels	(X)	87.7	(X)	55.9
190003	Flexible packaging materials	(X)	99.2	(X)	82.0
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	311.3	(X)	216.6
341101	Metal cans, can lids and ends	(X)	1 221.1	(X)	1 079.8
322101	Glass containers	(X)	531.1	(X)	448.9
970099	All other materials and components, parts, containers, and supplies	(X)	1 202.8	(X)	4892.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	305.4	(X)	262.0
	INDUSTRY 2034, DEHYDRATED FRUITS, VEGETABLES, AND SOUPS				
	Materials, ingredients, containers, and supplies ----	**(X)**	**1 212.4**	**(X)**	**r847.1**
016151	Cucumbers ---- 1,000 s tons	(D)	(D)	1 135.9	93.4
016102	Other fresh vegetables ---- 1,000 s tons				
017011	Fresh fruits ---- 1,000 s tons	**167.6	40.9	163.9	45.2
203411	Dried fruits ---- 1,000 s tons	363.8	382.8	311.2	311.3
204602	Corn syrup ---- mil lb	(D)	(D)	(NA)	(5)
206011	Sugar, cane and beet (in terms of sugar solids) ---- 1,000 s tons	28.1	13.7	4.6	2.5
267101	Packaging paper and plastics film, coated and laminated	(X)	34.4	(X)	(5)
267301	Bags; plastics, foil, and coated paper	(X)	28.1	(X)	(5)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	84.4	(X)	88.7
970099	All other materials and components, parts, containers, and supplies	(X)	414.9	(X)	5268.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	45.8	(X)	r38.1
	INDUSTRY 2035, PICKLES, SAUCES, AND SALAD DRESSINGS				
	Materials, ingredients, containers, and supplies ----	**(X)**	**2 517.1**	**(X)**	**2 344.8**
016151	Cucumbers ---- 1,000 s tons	*772.4	181.4	704.3	160.2
016102	Other fresh vegetables ---- 1,000 s tons	*269.8	86.6	246.7	83.4
017011	Fresh fruits ---- 1,000 s tons	*41.9	10.1	61.5	14.6
203411	Dried fruits ---- 1,000 s tons	*1.8	1.3	.4	.3
204602	Corn syrup ---- mil lb	323.4	42.9	392.4	43.9
206011	Sugar, cane and beet (in terms of sugar solids) ---- 1,000 s tons	63.1	32.0	78.3	32.5
207006	Fats and oils, all types (purchased as such) ---- mil lb	1 967.5	419.1	1 844.7	402.8
267101	Packaging paper and plastics film, coated and laminated	(X)	35.9	(X)	(6)
267301	Bags; plastics, foil, and coated paper	(X)	25.0	(X)	(6)
322101	Glass containers	(X)	359.4	(X)	388.7
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	68.5	(X)	59.8
970099	All other materials and components, parts, containers, and supplies	(X)	1 120.9	(X)	6985.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	134.0	(X)	173.5
	INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES				
	Materials, ingredients, containers, and supplies ----	**(X)**	**4 246.7**	**(X)**	**3 347.0**
	Fresh fruits:				
017411	Oranges ---- 1,000 s tons	**3 051.2	643.1	2 068.5	423.5
017511	Apples ---- 1,000 s tons	279.9	65.6	183.3	52.1
017111	Strawberries ---- 1,000 s tons	117.1	80.1	100.3	61.3
017022	Other fresh fruits ---- 1,000 s tons	863.6	233.7	798.1	229.1
	Fresh vegetables:				
016111	Green peas ---- 1,000 s tons	188.5	47.6	152.2	36.7
013411	White potatoes ---- 1,000 s tons	6 678.6	651.7	5 218.0	539.5
016131	Sweet corn ---- 1,000 s tons	896.9	62.8	686.6	46.0
016121	Green (snap) or wax beans ---- 1,000 s tons	188.6	43.0	119.4	26.3
016103	Other fresh vegetables ---- 1,000 s tons	**1 106.5	293.5	1 019.2	280.0
203701	Frozen fruits (for further processing) ---- mil lb	190.9	164.1	73.3	49.2
203702	Frozen vegetables (for further processing) ---- mil lb	**491.3	194.5	349.6	131.2
202220	Cheese, natural and process, including (imitation cheese and cheese substitutes) ---- mil lb	17.3	26.1	(NA)	(7)
206011	Sugar, cane and beet (in terms of sugar solids) ---- 1,000 s tons	63.2	30.5	63.1	28.1
204110	Wheat flour ---- 1,000 cwt	(S)	9.6	(NA)	(7)
207006	Fats and oils, all types (purchased as such) ---- mil lb	*422.1	116.7	262.5	68.3
203361	Tomato paste (24 percent NTSS equivalent) ---- mil lb	.8	.3	(NA)	(7)
190038	Poultry; live, fresh, frozen, or prepared ---- mil lb	2.4	3.0	(NA)	(7)
201014	Meat; fresh, frozen, or prepared ---- mil lb	2.6	3.0	(NA)	(7)
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	7.5	(X)	(7)
267101	Packaging paper and plastics film, coated and laminated	(X)	72.2	(X)	(7)
267301	Bags; plastics, foil, and coated paper	(X)	19.7	(X)	(7)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	265.5	(X)	263.8
341101	Metal cans, can lids and ends	(X)	105.2	(X)	119.4

See footnotes at end of table.

TIPS [UPF] BATCH_178 [MCD_SRB,J_SMITH] MCD-SRB 5/11/95 10:34 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 21
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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2037, FROZEN FRUITS AND VEGETABLES—Con.				
970099	All other materials and components, parts, containers, and supplies	(X)	963.7	(X)	[7]919.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	144.0	(X)	72.6
	INDUSTRY 2038, FROZEN SPECIALTIES, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 427.4**	**(X)**	**[r]2 542.6**
	Fresh fruits:				
017411	Oranges, 1,000 s tons	(D)	(D)		
017511	Apples, 1,000 s tons	(D)	(D)	2.5	1.7
017111	Strawberries, 1,000 s tons	–	–		
017022	Other fresh fruits, 1,000 s tons	(D)	(D)		
	Fresh vegetables:				
016111	Green peas, 1,000 s tons	(D)	(D)		
013411	White potatoes, 1,000 s tons	42.3	13.4		
016131	Sweet corn, 1,000 s tons	(D)	(D)	760.2	167.2
016121	Green (snap) or wax beans, 1,000 s tons	–	–		
016103	Other fresh vegetables, 1,000 s tons	1 081.5	237.7		
203701	Frozen fruits (for further processing), mil lb	36.0	23.5	(NA)	([8])
203702	Frozen vegetables (for further processing), mil lb	402.1	171.2	216.3	90.8
202220	Cheese, natural and process, including (imitation cheese and cheese substitutes), mil lb	349.1	417.4	260.3	295.1
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	32.5	18.9	25.9	13.8
204110	Wheat flour, 1,000 cwt	10 218.6	138.2	11 118.9	135.3
207006	Fats and oils, all types (purchased as such), mil lb	259.0	76.7	222.9	49.8
203361	Tomato paste (24 percent NTSS equivalent), mil lb	176.2	67.3	230.1	82.5
190038	Poultry; live, fresh, frozen, or prepared, mil lb	505.9	367.9	343.0	255.1
201014	Meat; fresh, frozen, or prepared, mil lb	438.3	527.2	373.2	458.7
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	13.6	(X)	([8])
267101	Packaging paper and plastics film, coated and laminated	(X)	83.9	(X)	([8])
267301	Bags; plastics, foil, and coated paper	(X)	34.2	(X)	([8])
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	375.7	(X)	288.7
341101	Metal cans, can lids and ends	(X)	9.1	(X)	3.8
970099	All other materials and components, parts, containers, and supplies	(X)	683.7	(X)	[8]606.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	154.5	(X)	[r]94.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data for material codes 203411, 203348, and 203701 were included with material code 970099.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, data for material codes 201013, 201501, and 204110 were included with material code 970099.
[5]For 1987, data for material codes 204602, 267101, and 267301 were included with material code 970099.
[6]For 1987, data for material codes 267101 and 267301 were combined with material code 970099.
[7]For 1987, data for material codes 202220, 204110, 203361, 190038, 201014, 349701, 267101, and 267301 were included with material code 970099.
[8]For 1987, data for material codes 203701, 349701, 267101, 267301, and 267401 were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
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20999 59	20999 98
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2099A 03	20997 81
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
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20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
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20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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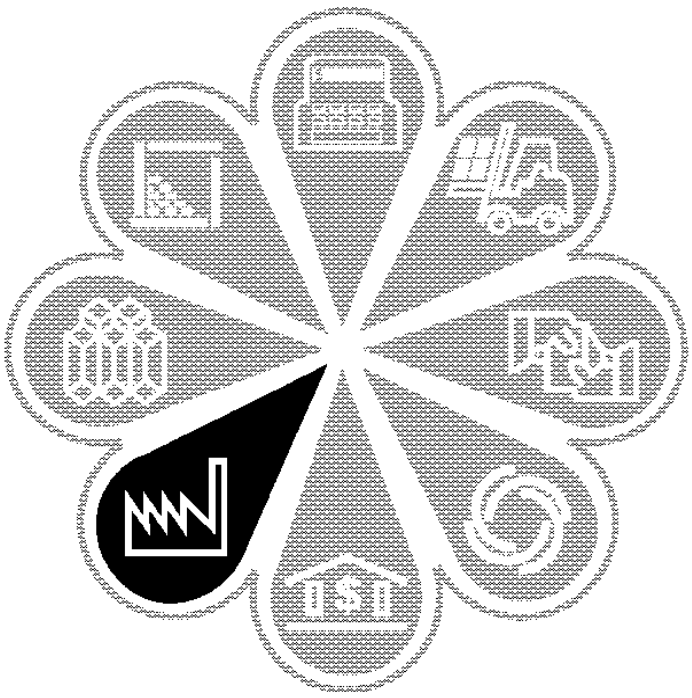
1992 Census of Manufactures

MC92-I-20D

INDUSTRY SERIES

Grain Mill Products

Industries 2041, 2043, 2044, 2045, 2046, 2047, and 2048



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20D

INDUSTRY SERIES

Grain Mill Products

Industries 2041, 2043, 2044, 2045, 2046, 2047, and 2048

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief.

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2041	Flour and Other Grain Mill Products
2043	Cereal Breakfast Foods
2044	Rice Milling
2045	Prepared Flour Mixes and Doughs
2046	Wet Corn Milling
2047	Dog and Cat Food
2048	Prepared Feeds, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS

This industry is made up of establishments primarily engaged in milling flour or meal from grain except rice. Establishments primarily engaged in manufacturing prepared flour mixes or doughs from purchased ingredients are classified in industry 2045, and those milling rice are classified in industry 2044. Products of this industry also are collected in the Current Industrial Report (CIR) M-20A, Flour Milling Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2041, Flour and Other Grain Mill Products, had employment of 13.1 thousand. The employment figure was 2 percent below the 13.3 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, New York, Kansas, and Illinois. This represents a shift from 1987 when Tennessee, Illinois, Texas, and Kansas were the leading States.

The total value of shipments for establishments classified in this industry was $6.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2041 shipped $5.9 billion of flour and other grain mill products considered primary to the industry, $106.4 million of secondary products, and had $271.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2041, no matter in what industry they were produced, appear in table 6a and aggregate to $6.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the flour and other grain mill products industry amounted to $4.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2043, CEREAL BREAKFAST FOODS

This industry is made up of establishments primarily engaged in manufacturing cereal breakfast foods and related preparations, except breakfast bars. Establishments primarily engaged in manufacturing granola bars and other types of breakfast bars are classified in industry 2064.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2043, Cereal Breakfast Foods, had employment of 16.1 thousand. The employment figure was 1 percent above the 16.0 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Illinois, Iowa, and California. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $9.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2043 shipped $7.5 billion of cereal breakfast foods considered primary to the industry, $1.4 billion of secondary products, and had $846.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 84 percent (specialization ratio). In 1987, the specialization ratio was 79 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2043, no matter in what industry they were produced, appear in table 6a and aggregate to $7.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cereal breakfast foods industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2044, RICE MILLING

This industry is made up of establishments primarily engaged in cleaning and polishing rice and in manufacturing rice flour and mill. Other important products of this industry include brown rice, milled rice, (including polished rice), rice polish, and rice bran.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2044, Rice Milling, had employment of 3.9 thousand. The employment figure was 13 percent below the 4.5 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arkansas, California, Louisiana, and Texas, accounting for approximately 84 percent of the industry's employment. This represents a shift from 1987 when Arkansas, California, Texas, Louisiana, and Mississippi accounted for approximately 93 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.7 billion.

The products primary to industry 2044, no matter in what industry they were produced, appear in table 6a and aggregate to $1.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the rice milling industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS

This industry is made up of establishments primarily engaged in preparing flour mixes or doughs from purchased flour. Establishments primarily engaged in milling flour from grain and producing mixes or doughs are classified in industry 2041.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2045, Prepared Flour Mixes and Doughs, had employment of 15.8 thousand. The employment figure was 31 percent above the 12.1 thousand reported in 1987. Compared with 1991, employment increased 31 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Missouri, Illinois, Tennessee, and California. This represents a shift from 1987 when Illinois, Tennessee, Indiana, and Missouri were the leading States.

The total value of shipments for establishments classified in this industry was $3.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2045 shipped $3.3 billion of prepared flour mixes and doughs considered primary to the industry, $320.0 million of secondary products, and had $203.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 2045, no matter in what industry they were produced, appear in table 6a and aggregate to $3.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the prepared flour mixes and doughs industry amounted to $2.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2046, WET CORN MILLING

This industry is made up of establishments primarily engaged in milling corn or sorghum grain (milo) by the wet process and producing starch, syrup, oil, sugar, and byproducts, such as gluten feed and meal. Also included in this industry are establishments primarily engaged in manufacturing starch from other vegetable sources (e.g., potatoes, wheat). Establishments primarily engaged in manufacturing table syrups from corn syrup and other ingredients, and those manufacturing starch base dessert powders, are classified in industry 2099.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2046, Wet Corn Milling, had employment of 9.2 thousand. The employment figure was 7 percent above the 8.6 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Iowa, Illinois, Indiana, and Tennessee. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $7.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2046 shipped $6.1 billion of wet corn milling considered primary to the industry, $823.2 million of secondary products, and had $122.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio also was 88 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2046, no matter in what industry they were produced, appear in table 6a and aggregate to $6.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wet corn milling industry amounted to $3.7 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2047, DOG AND CAT FOOD

This industry is made up of establishments primarily engaged in manufacturing dog and cat food from cereal, meat, and other ingredients. These preparations may be canned, frozen, or dry. Establishments primarily engaged in manufacturing feed for animals other than dogs and cats are classified in industry 2048.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2047, Dog and Cat Food, had employment of 13.8 thousand. The employment figure was 3 percent above the 13.4 thousand reported in 1987. Compared with 1991, employment increased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, California, Kansas, and Missouri, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Iowa, Ohio, and California accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.0 billion.

The products primary to industry 2047, no matter in what industry they were produced, appear in table 6a and aggregate to $6.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the dog and cat food industry amounted to $3.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2048, PREPARED FEEDS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing prepared feeds and feed ingredients and adjuncts for animals and fowls, except dogs and cats. Included in this industry are poultry and livestock feed and feed ingredients, such as alfalfa meal, feed supplements, and feed concentrates and feed premixes. Also included are establishments primarily engaged in slaughtering animals for animal feed. Establishments primarily engaged in slaughtering animals for human consumption are classified in industry group 201. Establishments primarily engaged in manufacturing dog and cat food are classified in industry 2047.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2048, Prepared Feeds, N.E.C., had employment of 35.5 thousand. The employment figure was 3 percent above the 34.5 thousand reported in 1987. Compared with 1991, employment decreased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Iowa, Illinois, Texas, and California, accounting for approximately 30 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 30 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $14.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2048 shipped $13.1 billion of prepared feeds, not elsewhere classified, considered primary to the industry, $260.9 million of secondary products, and had $999.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2048, no matter in what industry they were produced, appear in table 6a and

aggregate to $13.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the prepared feeds, not elsewhere classified, industry amounted to $11.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS															
1992 Census	230	365	172	13.1	408.9	9.5	21.5	276.8	1 624.5	4 675.3	6 294.4	253.5	570.7	98	96
1991 ASM	(NA)	(NA)	(NA)	12.4	362.0	9.2	20.4	248.5	1 394.4	3 806.2	5 207.1	152.1	432.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.3	351.0	9.1	19.9	240.3	1 251.3	4 348.0	5 624.7	114.2	388.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.3	339.6	9.0	20.0	231.7	1 420.3	4 362.6	5 776.5	92.4	484.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.8	351.0	9.6	21.2	249.5	1 439.4	3 781.4	5 204.9	130.3	509.2	(NA)	(NA)
1987 Census	237	358	165	13.3	354.6	9.9	21.4	246.0	1 336.7	3 657.0	4 984.8	79.5	346.8	98	97
1986 ASM	(NA)	(NA)	(NA)	13.5	348.7	9.9	21.4	241.3	1 345.9	3 642.5	5 003.1	62.8	318.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.3	331.5	9.8	21.0	230.1	1 159.4	4 039.0	5 204.6	82.7	407.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.9	335.5	10.3	22.3	234.4	1 208.0	4 108.5	5 305.7	68.7	396.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.7	335.4	10.9	24.2	237.3	1 198.4	4 012.1	5 228.6	64.6	354.9	(NA)	(NA)
1982 Census	251	360	174	15.1	323.0	11.4	24.2	233.3	1 094.3	3 825.5	4 932.8	90.6	361.6	97	94
1981 ASM	(NA)	(NA)	(NA)	15.8	305.7	11.6	26.1	214.6	1 113.7	4 189.1	5 313.8	67.3	382.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.5	273.9	11.3	25.6	195.7	1 030.4	3 819.8	4 835.4	53.3	439.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	255.5	11.2	25.2	181.3	942.5	3 281.2	4 218.3	68.4	402.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	241.6	11.1	24.4	168.5	845.3	2 934.3	3 760.9	56.9	303.8	(NA)	(NA)
1977 Census	300	407	173	15.6	222.3	11.3	24.6	153.4	824.5	2 854.2	3 683.3	52.4	263.2	98	94
INDUSTRY 2043, CEREAL BREAKFAST FOODS															
1992 Census	42	65	42	16.1	745.3	13.1	29.7	597.6	7 338.1	2 470.9	9 798.6	396.6	365.7	84	96
1991 ASM	(NA)	(NA)	(NA)	15.7	707.1	12.7	27.1	558.9	6 580.7	2 371.5	8 954.4	297.9	325.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.1	684.0	13.1	29.0	546.4	6 325.3	2 371.4	8 704.6	396.8	351.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.0	665.1	13.2	30.2	532.0	5 754.1	2 150.4	7 912.3	483.1	360.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.4	654.6	13.7	30.3	525.5	5 463.8	1 823.3	7 274.4	394.5	340.3	(NA)	(NA)
1987 Census	33	53	34	16.0	598.9	13.1	28.4	478.6	4 904.5	1 669.8	6 565.7	333.4	306.6	79	98
1986 ASM	(NA)	(NA)	(NA)	16.4	585.1	13.3	27.8	464.9	4 513.1	1 681.4	6 167.6	270.1	308.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.3	563.1	13.3	27.3	447.1	3 994.7	1 721.2	5 718.1	228.3	275.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.2	525.9	13.2	26.8	415.0	3 478.6	1 636.2	5 107.2	189.3	264.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.3	483.0	13.3	26.7	376.3	3 069.3	1 502.0	4 571.9	176.7	255.4	(NA)	(NA)
1982 Census	32	52	37	15.6	435.0	12.8	25.5	340.0	2 622.8	1 475.0	4 131.9	165.4	229.2	77	96
1981 ASM	(NA)	(NA)	(NA)	15.6	412.6	13.4	27.6	329.0	2 361.9	1 586.7	3 950.2	126.6	251.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.9	375.5	13.7	28.1	302.3	2 108.4	1 401.6	3 476.1	138.2	250.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.3	347.2	14.1	28.6	280.0	1 859.6	1 261.3	3 095.7	92.0	214.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.6	305.2	14.0	28.3	240.3	1 598.7	1 084.0	2 674.1	62.5	164.5	(NA)	(NA)
1977 Census	32	48	35	16.4	287.4	13.8	28.8	230.0	1 447.0	1 061.2	2 497.5	79.8	152.1	74	93
INDUSTRY 2044, RICE MILLING															
1992 Census	44	53	33	3.9	94.4	3.1	6.7	65.6	437.0	1 204.4	1 650.7	23.5	316.6	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	4.2	96.8	3.4	7.5	66.0	450.9	1 267.9	1 739.2	25.2	296.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.3	95.7	3.5	7.7	65.0	592.5	1 180.7	1 771.7	23.2	293.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.7	97.1	3.7	7.9	66.3	553.4	1 203.0	1 743.0	27.0	301.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.5	97.9	3.5	7.7	65.0	398.4	1 163.6	1 603.4	38.4	316.4	(NA)	(NA)
1987 Census	48	63	35	4.5	89.1	3.5	7.3	60.4	469.6	819.4	1 234.9	48.8	395.5	98	95
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS															
1992 Census	156	209	122	15.8	429.2	11.8	24.4	276.1	1 821.7	2 040.3	3 865.7	160.6	227.2	91	86
1991 ASM	(NA)	(NA)	(NA)	12.1	337.1	8.4	17.3	203.7	1 691.7	1 628.3	3 302.0	103.6	202.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.0	313.3	8.4	17.6	197.0	1 496.7	1 669.3	3 155.5	108.3	180.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.4	311.2	8.4	17.7	187.8	1 287.6	1 640.1	2 912.0	101.1	185.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.4	290.2	8.4	17.2	168.6	1 400.5	1 418.4	2 802.9	67.3	174.5	(NA)	(NA)
1987 Census	120	149	97	12.1	275.9	8.2	16.5	156.8	1 278.8	1 339.6	2 625.1	66.1	152.6	89	78
INDUSTRY 2046, WET CORN MILLING															
1992 Census	28	51	34	9.2	371.3	6.1	14.7	233.8	3 257.5	3 742.3	7 045.2	409.2	337.8	88	95
1991 ASM	(NA)	(NA)	(NA)	9.7	386.6	6.2	14.5	217.2	3 265.9	3 867.5	7 114.1	369.5	385.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.3	355.6	6.0	13.7	205.7	2 867.7	3 860.1	6 696.4	290.4	365.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.3	359.4	6.0	13.5	193.7	2 554.7	3 745.8	6 287.9	283.9	305.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.2	351.1	6.0	13.3	194.4	2 120.2	3 230.7	5 312.5	383.2	305.2	(NA)	(NA)
1987 Census	31	60	35	8.6	298.9	5.9	12.9	192.8	2 074.5	2 694.4	4 788.9	281.9	244.2	88	94
1986 ASM	(NA)	(NA)	(NA)	8.3	263.2	5.6	12.2	167.6	1 472.8	2 778.7	4 273.5	340.5	231.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.7	266.5	6.1	13.0	177.5	1 363.4	2 826.4	4 189.7	450.9	262.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.4	247.9	5.9	12.5	167.2	1 020.3	2 803.4	3 814.8	179.3	243.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.9	254.0	6.3	13.5	171.2	1 224.1	2 279.9	3 501.2	131.3	253.3	(NA)	(NA)
1982 Census	25	42	27	9.5	254.7	6.7	13.8	170.6	1 157.4	2 101.0	3 268.4	326.2	243.4	89	92
1981 ASM	(NA)	(NA)	(NA)	10.4	266.6	7.4	14.8	185.2	1 428.7	2 403.7	3 836.0	469.7	229.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.7	242.7	7.6	14.9	166.7	1 240.6	2 018.5	3 239.1	183.1	247.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.8	216.1	7.5	14.9	152.7	847.5	1 615.5	2 442.4	140.0	208.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.1	196.9	8.1	15.9	142.8	690.0	1 443.9	2 122.5	205.3	185.9	(NA)	(NA)
1977 Census	22	39	27	10.9	191.1	7.8	15.7	132.2	666.7	1 338.0	2 014.8	232.2	158.4	94	93
INDUSTRY 2047, DOG AND CAT FOOD															
1992 Census	102	161	105	13.8	455.6	10.5	22.4	301.5	3 729.9	3 295.5	7 023.9	179.8	347.9	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	12.8	405.0	9.6	20.6	271.4	3 619.8	3 467.3	7 097.4	167.7	336.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.9	395.4	9.5	20.0	262.3	3 842.2	3 210.5	7 015.0	167.9	371.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.2	395.1	9.8	20.1	263.6	3 577.6	3 149.2	6 703.3	144.2	327.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.7	384.6	10.1	20.8	254.4	3 088.4	2 911.0	5 956.3	143.9	299.3	(NA)	(NA)
1987 Census	130	186	101	13.4	365.8	9.9	20.5	244.2	2 741.5	2 296.8	5 069.3	108.2	234.9	99	97
INDUSTRY 2048, PREPARED FEEDS, N.E.C.															
1992 Census	1 160	1 714	569	35.5	875.0	19.7	41.5	417.1	2 875.6	11 487.7	14 373.9	183.6	723.9	98	99
1991 ASM	(NA)	(NA)	(NA)	35.8	831.0	21.1	44.3	420.2	2 831.0	10 872.4	13 696.5	161.7	685.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	35.8	806.0	20.7	44.1	395.5	2 919.0	10 662.5	13 570.2	215.7	705.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.9	766.6	19.7	42.0	378.2	2 762.3	10 801.2	13 538.8	228.5	675.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	33.4	710.2	19.3	40.3	343.4	2 806.8	10 046.5	12 790.6	139.7	685.1	(NA)	(NA)
1987 Census	1 182	1 738	545	34.5	720.4	19.5	40.8	349.0	2 603.0	8 871.0	11 468.2	153.7	595.5	98	96

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/13/95 14:44:04 EPCV23 TLP:20D.BTI;27 6/13/95 13:13:34 DATA:NONE UPF:92MFFI_PUBS:20DDAT.UPF PAGE: 1
TSF:20D_92.DAT;2 6/13/95 13:13:54 UTF:20D_93.DAT;8 6/13/95 14:39:18 META:TIPS96-14425032.DAT;1 6/13/95 14:43:37

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS									
1992 Census	31 214	73	2 263	12.87	74	81	124 008	25	75.56
1991 ASM	29 194	74	2 217	12.18	73	80	112 452	26	68.35
1990 ASM	28 537	74	2 187	12.08	77	84	101 732	28	62.88
1989 ASM	27 610	73	2 222	11.59	76	81	115 472	24	71.01
1988 ASM	27 422	75	2 208	11.77	73	79	112 453	24	67.90
1987 Census	26 662	74	2 162	11.50	73	80	100 504	27	62.46
1986 ASM	25 830	73	2 162	11.28	73	80	99 696	26	62.89
1985 ASM	24 925	74	2 143	10.96	78	84	87 173	29	55.21
1984 ASM	24 137	74	2 165	10.51	77	84	86 906	28	54.17
1983 ASM	22 816	74	2 220	9.81	77	83	81 524	28	49.52
1982 Census	21 391	75	2 123	9.64	78	84	72 470	30	45.22
1981 ASM	19 348	73	2 250	8.22	79	85	70 487	27	42.67
1980 ASM	17 671	73	2 265	7.64	79	85	66 477	27	40.25
1979 ASM	16 699	73	2 250	7.19	78	84	61 601	27	37.40
1978 ASM	16 000	74	2 198	6.91	78	84	55 980	29	34.64
1977 Census	14 250	72	2 177	6.24	77	84	52 853	27	33.52
INDUSTRY 2043, CEREAL BREAKFAST FOODS									
1992 Census	46 292	81	2 267	20.12	25	33	455 783	10	247.07
1991 ASM	45 038	81	2 134	20.62	26	34	419 153	11	242.83
1990 ASM	42 484	81	2 214	18.84	27	35	392 876	11	218.11
1989 ASM	41 569	83	2 288	17.62	27	36	359 631	12	190.53
1988 ASM	39 915	84	2 212	17.34	25	34	333 159	12	180.32
1987 Census	37 431	82	2 168	16.85	25	35	306 531	12	172.69
1986 ASM	35 677	81	2 090	16.72	27	37	275 189	13	162.34
1985 ASM	34 546	82	2 053	16.38	30	40	245 074	14	146.33
1984 ASM	32 463	81	2 030	15.49	32	42	214 728	15	129.80
1983 ASM	29 632	82	2 008	14.09	33	43	188 301	16	114.96
1982 Census	27 885	82	1 992	13.33	36	46	168 128	17	102.85
1981 ASM	26 449	86	2 060	11.92	40	51	151 404	17	85.58
1980 ASM	23 616	86	2 051	10.76	40	51	132 604	18	75.03
1979 ASM	21 301	87	2 028	9.79	41	52	114 086	19	65.02
1978 ASM	18 386	84	2 021	8.49	41	52	96 307	19	56.49
1977 Census	17 524	84	2 087	7.99	42	54	88 232	20	50.24
INDUSTRY 2044, RICE MILLING									
1992 Census	24 205	79	2 161	9.79	73	79	112 051	22	65.22
1991 ASM	23 048	81	2 206	8.80	73	78	107 357	21	60.12
1990 ASM	22 256	81	2 200	8.44	67	72	137 791	16	76.95
1989 ASM	20 660	79	2 135	8.39	69	75	117 745	18	70.05
1988 ASM	21 756	78	2 200	8.44	73	79	88 533	25	51.74
1987 Census	19 800	78	2 086	8.27	66	74	104 356	19	64.33
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS									
1992 Census	27 165	75	2 068	11.32	53	64	115 297	24	74.66
1991 ASM	27 860	69	2 060	11.77	49	60	139 810	20	97.79
1990 ASM	26 108	70	2 095	11.19	53	63	124 725	21	85.04
1989 ASM	25 097	68	2 107	10.61	56	67	103 839	24	72.75
1988 ASM	23 403	68	2 048	9.80	51	61	112 944	21	81.42
1987 Census	22 802	68	2 012	9.50	51	62	105 686	22	77.50
INDUSTRY 2046, WET CORN MILLING									
1992 Census	40 359	66	2 410	15.90	53	58	354 076	11	221.60
1991 ASM	39 856	64	2 339	14.98	54	60	336 691	12	225.23
1990 ASM	38 237	65	2 283	15.01	58	63	308 355	12	209.32
1989 ASM	38 645	65	2 250	14.35	60	65	274 699	14	189.24
1988 ASM	38 163	65	2 217	14.62	61	67	230 457	17	159.41
1987 Census	34 756	69	2 186	14.95	56	63	241 221	14	160.81
1986 ASM	31 711	67	2 179	13.74	65	71	177 446	18	120.72
1985 ASM	30 632	70	2 131	13.65	67	74	156 713	20	104.88
1984 ASM	29 512	70	2 119	13.38	73	80	121 464	24	81.62
1983 ASM	28 539	71	2 143	12.68	65	72	137 539	21	90.67
1982 Census	26 811	71	2 060	12.36	64	72	121 832	22	83.87
1981 ASM	25 635	71	2 000	12.51	63	70	137 375	19	96.53
1980 ASM	22 682	71	1 961	11.19	62	70	115 944	20	83.26
1979 ASM	20 009	69	1 987	10.25	66	75	78 472	25	56.88
1978 ASM	17 739	73	1 963	8.98	68	77	62 162	29	43.40
1977 Census	17 532	72	2 013	8.42	66	76	61 165	29	42.46

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2047, DOG AND CAT FOOD								
1992 Census	33 014	76	2 133	13.46	47	53	270 283	12	166.51
1991 ASM	31 641	75	2 146	13.17	49	55	282 797	11	175.72
1990 ASM	30 651	74	2 105	13.12	46	51	297 845	10	192.11
1989 ASM	29 932	74	2 051	13.11	47	53	271 030	11	177.99
1988 ASM	28 073	74	2 059	12.23	49	55	225 431	12	148.48
1987 Census	27 299	74	2 071	11.91	45	53	204 590	13	133.73
	INDUSTRY 2048, PREPARED FEEDS, N.E.C.								
1992 Census	24 648	55	2 107	10.05	80	86	81 003	30	69.29
1991 ASM	23 212	59	2 100	9.49	79	85	79 078	29	63.91
1990 ASM	22 514	58	2 130	8.97	79	85	81 536	28	66.19
1989 ASM	21 966	56	2 132	9.00	80	85	79 149	28	65.77
1988 ASM	21 263	58	2 088	8.52	79	84	84 036	25	69.65
1987 Census	20 881	57	2 092	8.55	77	84	75 449	28	63.80

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS														
United States	–	**365**	**172**	**13.1**	**408.9**	**9.5**	**21.5**	**276.8**	**1 624.5**	**4 675.3**	**6 294.4**	**253.5**	**13.3**	**1 336.7**
California	–	29	10	.6	22.5	.4	1.0	14.7	99.9	290.0	390.6	51.7	F	(D)
Colorado	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	5	3	.1	3.7	.1	.2	3.1	22.2	88.8	110.9	.4	(NA)	(NA)
Georgia	–	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Hawaii	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	14	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.8	1.0	70.8
Indiana	–	14	8	.4	11.9	.3	.6	7.3	42.6	144.2	187.2	2.1	.4	30.5
Iowa	–	9	5	.6	21.5	.4	.9	12.7	76.5	136.1	213.8	5.0	.2	16.2
Kansas	–	22	17	.9	25.1	.7	1.6	18.0	109.8	370.3	477.7	5.6	1.0	107.1
Kentucky	–	5	4	.1	3.3	.1	.2	2.0	8.9	15.8	25.3	(D)	(NA)	(NA)
Maryland	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	11	7	.7	23.6	.5	1.0	15.3	69.4	134.0	203.3	3.0	.6	67.1
Minnesota	–	18	12	.7	25.5	.6	1.4	20.2	86.3	378.7	465.2	5.3	.8	87.8
Missouri	–	13	9	.7	21.2	.5	1.0	15.7	144.2	286.3	432.3	7.5	.6	74.1
Montana	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	6	5	.4	13.4	.3	.7	10.6	50.2	148.5	197.8	(D)	E	(D)
New York	–	20	10	.9	34.2	.7	1.7	26.8	123.3	451.0	574.0	(D)	.8	70.3
North Carolina	–	23	8	.6	13.5	.4	.9	8.1	33.0	145.2	178.8	2.4	F	(D)
North Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	11	8	.4	15.0	.3	.6	9.1	45.6	191.2	235.9	2.8	.4	27.6
Oklahoma	–	5	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	3	3	.1	4.7	.1	.2	2.8	15.1	92.8	108.2	(D)	.2	32.7
Pennsylvania	E1	26	3	.2	6.2	.2	.4	4.5	23.2	113.7	136.7	1.7	.3	22.4
Tennessee	–	9	5	.5	15.9	.4	1.0	10.2	129.9	214.2	343.4	2.8	1.4	234.4
Texas	–	18	11	1.6	41.1	1.2	2.4	23.5	137.8	294.5	428.7	22.6	1.1	101.5
Utah	–	9	5	.3	8.7	.2	.4	5.4	24.6	83.7	109.0	.6	.3	30.7
Virginia	E1	12	2	.1	3.3	.1	.2	2.0	21.6	49.7	71.2	(D)	(NA)	(NA)
Washington	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2043, CEREAL BREAKFAST FOODS														
United States	–	**65**	**42**	**16.1**	**745.3**	**13.1**	**29.7**	**597.6**	**7 338.1**	**2 470.9**	**9 798.6**	**396.6**	**16.0**	**4 904.5**
California	–	11	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	582.9
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	4	4	1.9	86.1	1.5	3.4	67.1	927.6	256.3	1 182.0	(D)	2.0	654.4
Iowa	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E9	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	3	3	3.9	201.6	3.3	8.1	166.5	1 773.1	529.3	2 301.7	(D)	3.8	1 074.9
Minnesota	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nebraska	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	11.1	F	(D)
Ohio	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2044, RICE MILLING														
United States	–	**53**	**33**	**3.9**	**94.4**	**3.1**	**6.7**	**65.6**	**437.0**	**1 204.4**	**1 650.7**	**23.5**	**4.5**	**469.6**
Arkansas	–	15	9	1.5	31.8	1.3	2.9	23.9	115.4	490.7	599.7	9.8	1.3	56.7
California	E1	11	6	.7	19.7	.5	1.1	14.2	95.7	192.6	283.4	(D)	F	(D)
Louisiana	–	8	8	.6	13.0	.5	1.0	9.0	71.0	171.9	241.4	2.3	.5	43.8
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	8	6	.5	16.4	.4	.9	10.1	71.6	232.5	307.7	(D)	1.1	97.3
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS														
United States	–	**209**	**122**	**15.8**	**429.2**	**11.8**	**24.4**	**276.1**	**1 821.7**	**2 040.3**	**3 865.7**	**160.6**	**12.1**	**1 278.8**
Arkansas	E5	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	23	10	1.0	29.7	.7	1.3	17.7	103.9	73.0	177.0	11.1	E	(D)
Georgia	–	7	5	.9	22.6	.6	1.2	13.1	82.2	87.5	169.4	4.5	F	(D)
Illinois	–	19	11	2.0	51.6	1.5	3.5	34.9	251.9	307.8	558.5	28.4	1.9	230.8
Indiana	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E7	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	C	(D)
Massachusetts	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	8	4	.4	13.8	.3	.6	5.9	51.0	47.9	98.3	1.8	E	(D)
Minnesota	E1	8	4	.4	10.2	.2	.5	4.8	15.4	24.7	39.2	3.0	C	(D)
Mississippi	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	6	4	.4	12.7	.2	.4	3.7	35.3	44.4	79.7	(D)	E	(D)
New York	–	15	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	11	8	.7	14.4	.5	.9	10.2	110.5	117.4	227.8	7.8	.5	43.7
Oregon	E1	8	5	.3	8.0	.3	.6	5.1	26.1	43.5	69.7	1.0	.2	8.9
Pennsylvania	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	10	6	.7	23.0	.5	1.1	15.6	192.8	105.5	299.8	(D)	.6	121.3
Utah	E7	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E5	7	6	.7	21.6	.4	.8	8.7	64.7	123.1	186.6	(D)	.3	44.5
Wisconsin	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	48.1
INDUSTRY 2046, WET CORN MILLING														
United States	–	**51**	**34**	**9.2**	**371.3**	**6.1**	**14.7**	**233.8**	**3 257.5**	**3 742.3**	**7 045.2**	**409.2**	**8.6**	**2 074.5**
Alabama	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	6	4	2.0	81.5	1.5	3.3	56.6	810.3	1 100.6	1 932.1	99.0	2.2	558.0
Indiana	–	4	4	1.7	71.2	1.1	2.8	42.8	497.6	323.4	834.7	47.8	1.6	285.7
Iowa	–	8	8	3.0	122.3	1.8	4.1	73.8	1 078.0	1 318.6	2 399.9	140.8	2.4	753.5
Kansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Minnesota	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2047, DOG AND CAT FOOD														
United States	–	**161**	**105**	**13.8**	**455.6**	**10.5**	**22.4**	**301.5**	**3 729.9**	**3 295.5**	**7 023.9**	**179.8**	**13.4**	**2 741.5**
Alabama	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	15	9	1.3	47.8	1.1	2.3	32.2	281.3	235.8	512.5	8.1	G	(D)
Colorado	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	167.4
Indiana	–	4	3	.2	5.7	.1	.3	3.1	20.2	25.6	45.6	(D)	C	(D)
Iowa	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	10	7	1.3	46.8	.7	1.5	23.6	350.1	194.9	548.8	(D)	F	(D)
Michigan	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	8	5	.3	7.5	.3	.6	6.1	51.7	40.9	93.0	1.2	.3	37.8
Mississippi	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	11	7	1.0	29.6	.8	1.6	20.3	314.5	200.1	514.6	(D)	.5	148.9
Nebraska	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New York	–	6	4	.8	30.6	.6	1.3	21.9	408.8	276.5	684.9	14.4	.7	231.7
North Carolina	E8	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	10	8	.9	33.3	.7	1.6	24.3	266.0	250.4	517.6	9.9	1.1	237.3
Oklahoma	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Pennsylvania	–	8	6	1.6	59.1	1.1	2.3	30.8	210.3	242.4	450.8	13.8	1.6	245.5
Tennessee	–	4	3	.2	4.1	.1	.2	2.6	24.5	33.8	58.3	(D)	.2	28.6
Texas	E1	11	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.5	F	(D)
Utah	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	E1	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	(NA)	(NA)
Wisconsin	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2048, PREPARED FEEDS, N.E.C.														
United States	**E1**	**1 714**	**569**	**35.5**	**875.0**	**19.7**	**41.5**	**417.1**	**2 875.6**	**11 487.7**	**14 373.9**	**183.6**	**34.5**	**2 603.0**
Alabama	–	46	20	1.0	20.4	.7	1.3	12.2	55.6	620.1	675.9	3.7	1.0	48.7
Arizona	–	11	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	C	(D)
Arkansas	–	56	23	1.2	28.1	.8	1.7	16.7	62.2	862.7	925.7	4.4	1.0	85.1
California	E2	110	33	2.2	65.4	1.3	2.9	31.8	183.0	964.2	1 161.8	7.5	2.4	169.1
Colorado	E1	34	6	.4	9.7	.2	.5	4.5	29.5	100.8	130.3	1.4	.5	33.5
Connecticut	E4	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Delaware	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	–	35	7	.5	11.7	.3	.6	5.2	44.4	168.3	212.4	5.9	.7	35.3
Georgia	E1	59	24	1.4	35.5	.8	1.8	17.4	91.6	766.1	856.1	5.4	1.5	141.4
Hawaii	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Idaho	E1	11	3	.2	5.3	.1	.2	2.5	13.6	21.1	35.1	(D)	E	(D)
Illinois	E2	83	28	2.7	73.5	1.2	2.6	29.8	176.2	565.1	737.4	8.7	2.5	203.0
Indiana	–	47	20	1.0	27.0	.5	1.1	12.7	120.5	300.6	420.9	4.9	.8	110.7
Iowa	–	117	46	3.1	78.2	1.3	2.5	28.5	260.4	753.0	1 012.4	17.1	3.1	234.7
Kansas	–	57	16	1.0	23.1	.7	1.5	14.5	65.4	265.5	333.1	4.8	1.0	64.2
Kentucky	–	27	9	.4	9.9	.3	.5	5.5	32.6	91.7	124.0	(D)	E	(D)
Louisiana	–	22	7	.3	5.0	.2	.4	3.1	21.4	87.4	110.9	(D)	E	(D)
Maryland	–	12	5	.3	7.0	.2	.5	4.7	16.7	211.8	228.4	.3	C	(D)
Massachusetts	–	6	3	.1	2.5	.1	.1	1.3	5.5	18.9	24.0	(D)	(NA)	(NA)
Michigan	–	26	5	.3	7.0	.2	.4	3.5	30.4	83.3	111.8	1.6	C	(D)
Minnesota	–	68	20	1.1	30.5	.6	1.3	14.8	115.3	284.2	399.8	7.4	1.1	75.0
Mississippi	–	29	10	.4	7.3	.4	.8	5.5	33.2	151.9	185.5	6.1	.4	22.3
Missouri	E2	56	21	1.3	29.5	.8	1.5	14.2	114.9	400.5	516.6	4.2	1.2	95.1
Montana	E1	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	C	(D)
Nebraska	–	79	24	1.3	31.1	.7	1.6	15.4	125.5	251.0	378.0	4.3	1.5	172.3
New Jersey	–	6	3	.2	6.0	.1	.3	3.4	15.5	23.9	39.3	1.2	C	(D)
New York	–	49	18	.9	22.9	.5	.9	9.7	68.5	218.8	286.6	(D)	.8	55.1
North Carolina	–	72	22	1.3	30.2	.7	1.5	14.6	131.4	682.4	813.0	10.0	1.5	117.4
North Dakota	E2	14	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	51	16	1.1	26.9	.7	1.5	13.9	88.6	250.9	338.8	5.5	.8	42.7
Oklahoma	E1	38	12	.9	16.8	.5	1.0	8.7	84.6	229.2	313.6	4.3	.7	33.4
Oregon	E1	20	8	.4	12.4	.2	.5	5.9	35.5	116.4	152.2	1.4	.4	26.1
Pennsylvania	E3	89	19	1.6	43.9	.7	1.4	13.8	122.9	476.8	598.1	8.3	1.5	118.6
South Carolina	E2	14	4	.3	3.9	.1	.2	2.3	8.6	78.2	87.0	(D)	.3	10.2
South Dakota	E3	17	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E2	26	9	.6	14.0	.4	.8	8.2	25.3	199.9	223.3	2.8	.7	37.7
Texas	–	102	46	2.7	60.3	1.8	3.7	31.5	201.2	777.1	979.1	13.8	2.5	138.5
Utah	–	17	6	.3	6.3	.2	.3	3.2	22.6	59.2	82.4	.5	.3	26.0
Vermont	–	6	4	.3	6.8	.2	.3	3.7	23.3	71.7	95.0	(D)	E	(D)
Virginia	–	30	6	.6	14.0	.3	.7	7.6	41.4	191.8	232.4	6.6	E	(D)
Washington	E1	33	16	.6	15.7	.3	.9	7.7	41.7	161.1	203.7	2.1	.6	46.3
Wisconsin	E1	85	21	1.6	41.0	.9	1.8	18.0	150.7	306.5	457.4	4.7	1.3	100.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flour and other grain mill products (SIC 2041)	Cereal breakfast foods (SIC 2043)	Rice milling (SIC 2044)	Prepared flour mixes and doughs (SIC 2045)	Wet corn milling (SIC 2046)	Dog and cat food (SIC 2047)	Prepared feeds, n.e.c. (SIC 2048)
Companies ---- number	230	42	44	156	28	102	1 160
All establishments ---- number	365	65	53	209	51	161	1 714
With 1 to 19 employees ---- number	193	23	20	87	17	56	1 145
With 20 to 99 employees ---- number	138	15	22	73	8	64	533
With 100 employees or more ---- number	34	27	11	49	26	41	36
Employment and labor costs:							
Employees ---- 1,000	13.1	16.1	3.9	15.8	9.2	13.8	35.5
Compensation, total ---- mil dol	516.9	954.9	122.2	534.6	464.1	577.6	1 072.9
Annual payroll ---- mil dol	408.9	745.3	94.4	429.2	371.3	455.6	875.0
Fringe benefits ---- mil dol	108.0	209.6	27.8	105.4	92.8	121.9	197.9
Social Security and other legally required payments ---- mil dol	49.7	91.1	12.2	43.3	39.0	43.6	95.0
Employer voluntary payments ---- mil dol	58.3	118.5	15.6	62.1	53.8	78.4	102.9
Production workers:							
Average for year ---- 1,000	9.5	13.1	3.1	11.8	6.1	10.5	19.7
March ---- 1,000	9.8	12.5	3.0	11.7	6.1	10.5	19.9
May ---- 1,000	9.4	13.2	3.1	11.9	6.2	10.5	19.8
August ---- 1,000	9.5	13.6	3.1	11.9	6.2	10.5	19.9
November ---- 1,000	9.3	13.2	3.1	11.8	6.1	10.4	19.4
Hours ---- millions	21.5	29.7	6.7	24.4	14.7	22.4	41.5
Wages ---- mil dol	276.8	597.6	65.6	276.1	233.8	301.5	417.1
Cost of materials[1] ---- mil dol	4 675.3	2 470.9	1 204.4	2 040.3	3 742.3	3 295.5	11 487.7
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 323.3	1 966.5	1 117.7	1 858.5	3 184.0	2 538.6	10 434.5
Resales ---- mil dol	219.6	414.0	53.3	137.3	103.9	669.2	836.4
Fuels ---- mil dol	17.0	33.8	5.8	8.5	230.0	28.7	66.4
Purchased electricity ---- mil dol	108.7	47.6	21.7	28.9	179.1	42.3	133.8
Contract work ---- mil dol	6.7	9.0	5.8	7.1	45.4	16.7	16.6
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	2 019.9	901.9	390.6	526.6	4 590.6	795.4	2 205.8
Generated less sold ---- mil kWh	(D)	(D)	(D)	–	1 915.8	(D)	(D)
Total value of shipments ---- mil dol	6 294.4	9 798.6	1 650.7	3 865.7	7 045.2	7 023.9	14 373.9
Value added ---- mil dol	1 624.5	7 338.1	437.0	1 821.7	3 257.5	3 729.9	2 875.6
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	511.4	351.5	297.6	235.9	391.5	342.6	751.4
Finished goods ---- mil dol	95.8	166.4	87.7	127.6	194.9	181.5	259.9
Work in process ---- mil dol	9.8	.8	13.3	6.7	20.1	10.9	84.5
Materials and supplies ---- mil dol	405.7	184.4	196.7	101.6	176.5	150.2	406.9
End of 1992 ---- mil dol	570.7	365.7	316.6	227.2	337.8	347.9	723.9
Finished goods ---- mil dol	99.1	176.6	81.1	122.8	146.8	183.0	256.5
Work in process ---- mil dol	11.9	.9	10.5	7.7	22.8	10.9	77.4
Materials and supplies ---- mil dol	459.6	188.2	225.0	96.7	168.2	154.0	390.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flour and other grain mill products (SIC 2041)	Cereal breakfast foods (SIC 2043)	Rice milling (SIC 2044)	Prepared flour mixes and doughs (SIC 2045)	Wet corn milling (SIC 2046)	Dog and cat food (SIC 2047)	Prepared feeds, n.e.c. (SIC 2048)
Gross book value of depreciable assets:							
Total:							
Beginning of year	5 278.1	3 665.3	544.6	848.0	5 121.1	1 584.4	6 472.3
New capital expenditures[1]	253.5	396.6	23.5	160.6	409.2	179.8	183.6
Used capital expenditures	6.3	3.3	(D)	16.5	.9	(D)	10.8
Retirements	3 565.2	65.3	(D)	13.1	31.5	(D)	66.6
End of year	1 972.8	3 999.8	554.4	1 011.9	5 499.7	1 732.8	6 600.1
Buildings and other structures:							
Beginning of year	461.0	756.6	131.8	217.2	706.9	350.0	4 207.0
New capital expenditures	117.0	56.2	3.7	37.7	50.9	22.9	38.6
Used capital expenditures	1.0	(D)	(D)	10.3	(D)	(D)	1.6
Retirements	10.2	(D)	(D)	.8	(D)	(D)	11.7
End of year	568.8	808.7	135.0	264.5	755.8	370.8	4 235.5
Machinery and equipment:							
Beginning of year	4 817.2	2 908.7	412.8	630.8	4 414.2	1 234.4	2 265.3
New capital expenditures[1]	136.5	340.4	19.7	122.9	358.3	156.9	145.0
Used capital expenditures	5.3	(D)	(D)	6.1	(D)	(D)	9.2
Retirements	3 555.0	(D)	(D)	12.4	(D)	(D)	54.9
End of year	1 404.0	3 191.1	419.4	747.4	4 743.9	1 362.0	2 364.6
Depreciation charges during 1992:							
Total	103.0	227.1	26.2	47.3	286.7	100.6	195.0
Buildings and other structures	18.2	24.5	4.1	7.5	29.0	14.5	38.4
Machinery and equipment	84.8	202.6	22.1	39.7	257.7	86.2	156.6
Rental payments:							
Total	25.4	10.3	6.3	22.5	22.5	26.0	79.7
Buildings and other structures	11.4	4.2	3.2	13.4	2.6	16.5	36.0
Machinery and equipment	14.1	6.0	3.0	9.1	19.9	9.4	43.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flour and other grain mill products (SIC 2041)		Cereal breakfast foods (SIC 2043)		Rice milling (SIC 2044)		Prepared flour mixes and doughs (SIC 2045)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	3.0	(X)	17.2	(X)	.4	(X)	9.4	(X)
Response coverage ratio (percent)[2]	86.5	(X)	92.5	(X)	68.5	(X)	81.7	(X)
Machinery	37.2	(X)	47.2	(X)	10.2	(X)	16.5	(X)
Response coverage ratio (percent)[2]	90.3	(X)	92.5	(X)	68.5	(X)	86.3	(X)
Other purchased services:								
Communications	4.4	(X)	3.0	(X)	.8	(X)	3.6	(X)
Response coverage ratio (percent)[2]	84.9	(X)	92.5	(X)	68.5	(X)	82.0	(X)
Legal	1.6	(X)	.1	(X)	.6	(X)	2.0	(X)
Response coverage ratio (percent)[2]	86.6	(X)	89.8	(X)	68.5	(X)	84.1	(X)
Accounting and bookkeeping	1.2	(X)	.6	(X)	(S)	(X)	2.1	(X)
Response coverage ratio (percent)[2]	87.8	(X)	89.8	(X)	(S)	(X)	79.5	(X)
Advertising	4.6	(X)	.1	(X)	7.1	(X)	10.9	(X)
Response coverage ratio (percent)[2]	87.9	(X)	89.8	(X)	68.5	(X)	83.9	(X)
Software and other data processing	.7	(X)	1.9	(X)	.2	(X)	1.0	(X)
Response coverage ratio (percent)[2]	82.2	(X)	92.5	(X)	68.5	(X)	79.2	(X)
Refuse removal, including hazardous waste	1.6	(X)	5.5	(X)	(S)	(X)	3.5	(X)
Response coverage ratio (percent)[2]	86.6	(X)	92.5	(X)	(S)	(X)	84.1	(X)
New machinery and equipment expenditures	136.5	(X)	340.4	(X)	19.7	(X)	122.9	(X)
Automobiles, trucks, etc., for highway use	2.8	25	.3	2	.2	5	3.0	43
Computers and peripheral data processing equipment	2.5	23	7.2	2	.4	5	2.2	15
All other	131.3	1	333.0	1	19.2	1	117.7	2
Adjustment ratio[3]	1.6	(X)	1.1	(X)	1.3	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	4 323.3	(X)	1 966.5	(X)	1 117.7	(X)	1 858.5	(X)
Materials purchased or transferred from foreign sources[4]	49.6	15	65.7	3	–	(X)	18.6	46
Materials purchased or transferred from domestic sources	4 273.7	1	1 900.8	1	1 117.7	1	1 839.9	1
Adjustment ratio[3]	1.3	(X)	1.0	(X)	1.4	(X)	1.5	(X)

Item	Wet corn milling (SIC 2046)		Dog and cat food (SIC 2047)		Prepared feeds, n.e.c. (SIC 2048)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	28.2	(X)	6.3	(X)	34.2	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.4	(X)	83.6	(X)
Machinery	128.0	(X)	18.4	(X)	120.2	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.8	(X)	85.6	(X)
Other purchased services:						
Communications	4.0	(X)	2.3	(X)	18.1	(X)
Response coverage ratio (percent)[2]	81.5	(X)	60.3	(X)	83.7	(X)
Legal	1.5	(X)	.7	(X)	163.4	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.4	(X)	84.0	(X)
Accounting and bookkeeping	.4	(X)	(Z)	(X)	4.9	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.4	(X)	83.6	(X)
Advertising	1.9	(X)	15.1	(X)	12.9	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.4	(X)	83.9	(X)
Software and other data processing	1.5	(X)	1.5	(X)	3.4	(X)
Response coverage ratio (percent)[2]	94.9	(X)	68.4	(X)	81.2	(X)
Refuse removal, including hazardous waste	8.8	(X)	5.7	(X)	5.6	(X)
Response coverage ratio (percent)[2]	91.0	(X)	68.8	(X)	82.2	(X)
New machinery and equipment expenditures	358.3	(X)	156.9	(X)	145.0	(X)
Automobiles, trucks, etc., for highway use	.8	1	.6	19	20.0	24
Computers and peripheral data processing equipment	4.3	1	8.9	10	4.1	19
All other	353.2	1	147.4	1	120.9	5
Adjustment ratio[3]	1.1	(X)	1.5	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	3 184.0	(X)	2 538.6	(X)	10 434.5	(X)
Materials purchased or transferred from foreign sources[4]	8.0	2	13.1	15	51.4	18
Materials purchased or transferred from domestic sources	3 176.0	1	2 525.4	1	10 383.0	1
Adjustment ratio[3]	1.2	(X)	1.7	(X)	1.3	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. Industry Statistics by Employment Size of Establishment: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS												
Total	**–**	**365**	**13.1**	**408.9**	**9.5**	**21.5**	**276.8**	**1 624.5**	**4 675.3**	**6 294.4**	**253.5**	**570.7**
Establishments with an average of—												
1 to 4 employees	E7	95	.1	3.8	.1	.2	2.5	14.3	48.4	63.0	.9	3.7
5 to 9 employees	E5	45	.3	6.4	.2	.5	4.3	21.4	77.9	99.3	1.4	7.7
10 to 19 employees	E2	53	.8	17.9	.6	1.2	12.2	70.0	247.7	318.1	29.1	22.0
20 to 49 employees	–	92	3.0	92.7	2.2	5.1	64.5	365.3	1 348.3	1 710.7	52.5	121.2
50 to 99 employees	–	46	3.2	102.1	2.3	5.3	67.0	395.7	1 405.1	1 796.8	18.5	169.8
100 to 249 employees	–	30	4.2	142.6	3.0	7.2	99.4	611.3	1 391.7	2 002.3	151.3	203.7
250 to 499 employees	–	4	1.4	43.4	1.1	2.1	27.0	146.5	156.1	304.2	(D)	42.6
Covered by administrative records[2]	E9	72	.1	2.0	.1	.1	1.4	6.4	22.3	28.7	.5	1.9
INDUSTRY 2043, CEREAL BREAKFAST FOODS												
Total	**–**	**65**	**16.1**	**745.3**	**13.1**	**29.7**	**597.6**	**7 338.1**	**2 470.9**	**9 798.6**	**396.6**	**365.7**
Establishments with an average of—												
1 to 4 employees	E2	13	(Z)	.4	(Z)	(Z)	.2	2.0	1.6	3.6	.1	.4
5 to 9 employees	E3	4	(Z)	.4	(Z)	(Z)	.3	3.4	2.1	5.5	(D)	.2
10 to 19 employees	–	6	.1	2.3	.1	.1	1.3	21.3	8.9	30.5	.5	1.5
20 to 49 employees	E1	10	.3	10.0	.2	.4	5.6	73.5	36.9	110.5	4.2	8.1
50 to 99 employees	–	5	.4	8.7	.2	.5	5.1	98.0	26.5	124.3	(D)	4.4
100 to 249 employees	E2	6	1.1	33.1	.9	1.7	24.2	326.5	103.5	429.8	34.1	17.1
250 to 499 employees	–	7	2.6	118.0	2.1	4.7	94.1	1 237.2	436.7	1 660.4	114.9	63.9
500 to 999 employees	–	11	7.0	344.3	5.7	12.9	279.0	3 641.3	1 310.3	4 951.9	162.5	196.5
1,000 to 2,499 employees	–	3	4.6	228.1	3.9	9.3	187.8	1 934.8	544.4	2 482.1	80.2	73.6
INDUSTRY 2044, RICE MILLING												
Total	**–**	**53**	**3.9**	**94.4**	**3.1**	**6.7**	**65.6**	**437.0**	**1 204.4**	**1 650.7**	**23.5**	**316.6**
Establishments with an average of—												
1 to 4 employees	E7	6	(Z)	.2	(Z)	(Z)	.1	1.0	.9	2.0	(Z)	.5
5 to 9 employees	E6	6	(Z)	.9	(Z)	.1	.6	4.7	8.4	13.2	.2	3.1
10 to 19 employees	E1	8	.1	1.8	.1	.2	1.1	8.8	14.5	23.3	.3	3.6
20 to 49 employees	–	10	.3	6.8	.3	.6	4.4	29.0	110.1	140.6	1.7	11.2
50 to 99 employees	–	12	.9	21.8	.7	1.5	15.4	99.4	271.1	376.0	6.4	32.6
100 to 249 employees	–	8	1.3	38.8	.9	2.0	25.5	221.8	423.9	650.5	9.0	82.9
250 to 499 employees	–	3	1.2	24.2	1.0	2.3	18.4	72.4	375.3	445.1	5.9	182.8
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS												
Total	**–**	**209**	**15.8**	**429.2**	**11.8**	**24.4**	**276.1**	**1 821.7**	**2 040.3**	**3 865.7**	**160.6**	**227.2**
Establishments with an average of—												
1 to 4 employees	E7	38	.1	1.3	(Z)	.1	.8	5.9	5.6	11.4	.4	.8
5 to 9 employees	E7	22	.1	3.3	.1	.2	2.1	14.5	13.5	27.8	.9	2.3
10 to 19 employees	E5	27	.4	9.5	.3	.6	5.2	31.1	32.2	62.8	1.8	6.2
20 to 49 employees	E1	41	1.4	33.8	.9	1.9	17.8	97.3	165.9	262.0	4.8	17.9
50 to 99 employees	E1	32	2.3	57.5	1.8	3.5	36.7	219.3	292.9	505.8	12.2	32.2
100 to 249 employees	–	34	5.2	155.2	3.6	7.5	85.0	689.2	744.6	1 433.9	81.0	91.6
250 to 499 employees	–	11	3.8	107.3	2.9	6.1	77.7	558.3	466.9	1 035.5	41.2	55.7
500 to 999 employees	–	4	2.5	61.2	2.2	4.7	50.9	206.2	318.7	526.5	18.4	20.4
Covered by administrative records[2]	E9	36	.1	1.4	(Z)	.1	.9	6.1	6.0	12.1	.4	.8
INDUSTRY 2046, WET CORN MILLING												
Total	**–**	**51**	**9.2**	**371.3**	**6.1**	**14.7**	**233.8**	**3 257.5**	**3 742.3**	**7 045.2**	**409.2**	**337.8**
Establishments with an average of—												
1 to 4 employees	E1	9	(Z)	.2	(Z)	(Z)	.1	.8	2.2	3.0	(Z)	.6
5 to 9 employees	–	3	(Z)	.3	(Z)	(Z)	.3	1.6	2.3	3.9	.2	.2
10 to 19 employees	–	5	.1	1.7	(Z)	.1	1.3	4.7	13.2	17.9	8.9	2.5
20 to 49 employees	–	3	.1	3.0	(Z)	.1	1.7	9.5	20.0	29.7	(D)	1.3
50 to 99 employees	–	5	.4	10.9	.3	.6	7.5	86.7	94.2	181.5	3.2	14.4
100 to 249 employees	–	11	1.8	74.2	1.3	2.9	45.1	971.1	1 324.4	2 304.9	55.9	74.9
250 to 499 employees	–	10	3.2	130.4	2.2	5.8	89.7	1 417.8	1 492.5	2 923.2	211.2	124.8
500 to 999 employees	–	4	3.6	150.6	2.3	5.2	88.1	765.4	793.5	1 581.2	129.9	119.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2047, DOG AND CAT FOOD												
Total	–	**161**	**13.8**	**455.6**	**10.5**	**22.4**	**301.5**	**3 729.9**	**3 295.5**	**7 023.9**	**179.8**	**347.9**
Establishments with an average of—												
1 to 4 employees	E9	29	(Z)	.9	(Z)	.1	.6	7.9	6.5	14.3	.4	.8
5 to 9 employees	E8	8	.1	1.1	(Z)	.1	.8	10.7	9.0	19.6	.5	1.0
10 to 19 employees	E4	19	.3	6.9	.2	.4	4.1	34.5	35.4	69.9	1.1	4.0
20 to 49 employees	E1	38	1.2	28.6	.9	1.8	17.4	154.5	213.4	367.7	25.3	23.3
50 to 99 employees	–	26	1.8	41.8	1.4	2.8	29.4	300.9	359.9	661.7	10.5	34.9
100 to 249 employees	–	25	4.0	127.9	3.2	6.7	86.9	1 038.3	1 151.8	2 188.2	71.1	80.9
250 to 499 employees	–	13	4.5	164.7	3.8	8.3	123.4	1 669.5	1 115.6	2 781.3	54.3	164.8
500 to 999 employees	–	3	1.9	83.8	1.0	2.3	38.9	513.6	404.0	921.2	16.6	38.2
Covered by administrative records[2]	E9	20	(Z)	.4	(Z)	(Z)	.3	3.7	3.1	6.8	.2	.4
INDUSTRY 2048, PREPARED FEEDS, N.E.C.												
Total	**E1**	**1 714**	**35.5**	**875.0**	**19.7**	**41.5**	**417.1**	**2 875.6**	**11 487.7**	**14 373.9**	**183.6**	**723.9**
Establishments with an average of—												
1 to 4 employees	E6	373	.8	14.6	.5	.9	7.9	42.1	222.2	264.5	2.5	14.6
5 to 9 employees	E1	371	2.5	50.4	1.6	3.5	28.6	152.8	701.1	853.7	10.7	48.8
10 to 19 employees	E1	401	5.6	126.8	3.4	7.0	66.6	435.3	2 143.0	2 580.5	20.8	124.6
20 to 49 employees	–	424	12.8	317.9	7.5	15.8	162.7	1 180.5	4 811.0	6 001.6	85.9	287.4
50 to 99 employees	–	109	7.3	193.5	4.1	8.9	90.7	622.5	2 232.6	2 857.2	37.8	136.4
100 to 249 employees	E2	32	4.8	130.6	2.0	4.2	45.9	334.5	1 074.1	1 406.5	20.5	72.1
250 to 499 employees	E6	3	1.6	41.1	.6	1.2	14.8	107.8	303.7	409.7	5.5	40.0
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	318	.9	11.2	.5	.8	5.5	27.7	116.6	144.3	1.3	7.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2041	**Flour and other grain mill products:**										
	All establishments in industry	365	13.1	408.9	9.5	21.5	276.8	1 624.5	4 675.3	6 294.4	253.5
	Establishments with this product class primary:										
20411	Wheat flour, except flour mixes	168	8.8	288.9	6.3	14.8	199.5	1 128.5	3 865.1	4 991.4	187.7
20412	Wheat mill products other than flour	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20413	Corn mill products	22	1.7	46.3	1.3	3.1	31.4	257.7	378.6	630.5	25.9
20415	Flour mixes and refrigerated and frozen doughs and batters	12	1.2	35.2	.9	1.6	21.7	121.6	165.2	285.6	7.5
20416	Other grain mill products	7	.5	20.2	.3	.8	12.5	55.4	79.5	138.5	(D)
2043	**Cereal breakfast foods:**										
	All establishments in industry	65	16.1	745.3	13.1	29.7	597.6	7 338.1	2 470.9	9 798.6	396.6
	Establishments with this product class primary:										
20431	Ready to serve cereal breakfast foods, except infant cereals	37	14.9	707.4	12.2	27.8	570.1	7 015.5	2 344.3	9 346.9	382.4
20432	Other cereal breakfast foods	13	1.1	35.3	.8	1.7	25.5	302.8	119.2	424.5	13.2
2044	**Rice milling:**										
	All establishments in industry	53	3.9	94.4	3.1	6.7	65.6	437.0	1 204.4	1 650.7	23.5
2045	**Prepared flour mixes and doughs:**										
	All establishments in industry	209	15.8	429.2	11.8	24.4	276.1	1 821.7	2 040.3	3 865.7	160.6
2046	**Wet corn milling:**										
	All establishments in industry	51	9.2	371.3	6.1	14.7	233.8	3 257.5	3 742.3	7 045.2	409.2
	Establishments with this product class primary:										
20461	Corn sweeteners	19	5.9	242.8	3.9	9.8	157.7	2 457.8	3 021.2	5 513.4	295.8
20462	Manufactured starch	17	2.6	104.4	1.7	3.8	61.3	607.8	516.3	1 134.6	104.2
20463	Corn oil	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2047	**Dog and cat food:**										
	All establishments in industry	161	13.8	455.6	10.5	22.4	301.5	3 729.9	3 295.5	7 023.9	179.8
	Establishments with this product class primary:										
20473	Dog food	92	10.0	341.0	7.4	16.0	221.1	2 794.7	2 493.4	5 290.9	117.7
20474	Cat food	17	3.2	102.2	2.6	5.5	71.7	858.1	739.6	1 593.5	58.9
2048	**Prepared feeds, n.e.c.:**										
	All establishments in industry	1 714	35.5	875.0	19.7	41.5	417.1	2 875.6	11 487.7	14 373.9	183.6
	Establishments with this product class primary:										
20481	Chicken and turkey feed, supplements, concentrates, and premixes	201	5.3	136.4	3.2	7.1	74.8	439.4	4 485.0	4 938.4	41.7
20482	Dairy cattle feed, complete	152	4.9	133.4	2.7	6.1	62.8	436.8	1 519.2	1 958.4	22.1
20483	Dairy cattle feed supplements, concentrates, and premixes	87	2.3	59.0	1.0	2.0	23.5	183.4	532.0	713.6	12.3
20484	Swine feed, complete	40	.7	19.5	.5	.9	9.4	46.8	242.1	287.8	8.9
20485	Swine feed supplements, concentrates, and premixes	183	6.1	158.3	2.7	5.2	62.5	542.8	1 523.5	2 063.9	19.7
20486	Beef cattle feed, complete	65	2.1	51.7	1.3	3.0	26.3	127.4	459.0	588.9	10.6
20487	Beef cattle feed supplements, concentrates, and premixes	78	1.9	41.2	1.1	2.0	19.2	140.0	379.7	519.4	9.2
20488	Other poultry and livestock feed	52	1.6	46.8	.9	1.8	19.4	173.5	261.4	433.7	8.5
20489	Other prepared animal feeds, including feeding materials and adjuncts	89	1.4	32.1	1.0	2.1	17.8	86.9	214.8	301.9	3.7
2048A	Specialty feeds	72	2.7	66.3	1.8	3.7	36.7	302.9	499.0	805.0	18.4

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS			
Total value of shipments	6 294.4	4 984.8	4 932.8
Primary products value of shipments	5 916.7	4 556.4	4 590.1
Secondary products value of shipments	106.4	80.5	124.8
Total miscellaneous receipts	271.2	348.0	217.9
Value of resales	267.0	342.6	206.6
Contract receipts	(D)	3.1	(D)
Other miscellaneous receipts	(D)	2.3	(D)
Primary products specialization ratio	98	98	97
Value of primary products shipments made in all industries	6 194.8	4 690.1	4 871.6
Value of primary products shipments made in this industry	5 916.7	4 556.4	4 590.1
Value of primary products shipments made in other industries	278.1	133.7	281.5
Coverage ratio	96	97	94
INDUSTRY 2043, CEREAL BREAKFAST FOODS			
Total value of shipments	9 798.6	6 565.7	4 131.9
Primary products value of shipments	7 507.3	4 964.5	2 982.9
Secondary products value of shipments	1 445.2	1 282.2	885.2
Total miscellaneous receipts	846.1	319.0	263.8
Value of resales	840.4	318.3	261.9
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	1.9
Primary products specialization ratio	84	79	77
Value of primary products shipments made in all industries	7 795.4	5 081.1	3 111.5
Value of primary products shipments made in this industry	7 507.3	4 964.5	2 982.9
Value of primary products shipments made in other industries	288.1	116.6	128.6
Coverage ratio	96	98	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2044, RICE MILLING			
Total value of shipments	1 650.7	1 234.9	(NA)
Primary products value of shipments	(D)	1 199.4	(NA)
Secondary products value of shipments	(D)	24.4	(NA)
Total miscellaneous receipts	64.4	11.1	(NA)
Value of resales	58.0	8.2	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	(D)	98	(NA)
Value of primary products shipments made in all industries	1 617.9	1 257.5	(NA)
Value of primary products shipments made in this industry	1 545.0	1 199.4	(NA)
Value of primary products shipments made in other industries	72.8	58.1	(NA)
Coverage ratio	(D)	95	(NA)
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS			
Total value of shipments	3 865.7	2 625.1	(NA)
Primary products value of shipments	3 342.4	2 209.2	(NA)
Secondary products value of shipments	320.0	282.4	(NA)
Total miscellaneous receipts	203.3	133.5	(NA)
Value of resales	197.2	128.5	(NA)
Contract receipts	2.7	(D)	(NA)
Other miscellaneous receipts	3.5	(D)	(NA)
Primary products specialization ratio	91	89	(NA)
Value of primary products shipments made in all industries	3 898.4	2 821.6	(NA)
Value of primary products shipments made in this industry	3 342.4	2 209.2	(NA)
Value of primary products shipments made in other industries	556.0	612.4	(NA)
Coverage ratio	86	78	(NA)
INDUSTRY 2046, WET CORN MILLING			
Total value of shipments	7 045.2	4 788.9	3 268.4
Primary products value of shipments	6 099.3	4 157.3	2 852.2
Secondary products value of shipments	823.2	559.1	361.4
Total miscellaneous receipts	122.7	72.5	54.8
Value of resales	112.7	68.8	50.5
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	88	88	89
Value of primary products shipments made in all industries	6 415.5	4 446.2	3 105.7
Value of primary products shipments made in this industry	6 099.3	4 157.3	2 852.2
Value of primary products shipments made in other industries	316.2	288.9	253.5
Coverage ratio	95	94	92
INDUSTRY 2047, DOG AND CAT FOOD			
Total value of shipments	7 023.9	5 069.3	(NA)
Primary products value of shipments	(D)	4 556.2	(NA)
Secondary products value of shipments	(D)	46.6	(NA)
Total miscellaneous receipts	(D)	466.6	(NA)
Value of resales	(D)	(D)	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	3.1	7.0	(NA)
Primary products specialization ratio	(D)	99	(NA)
Value of primary products shipments made in all industries	6 316.2	4 710.2	(NA)
Value of primary products shipments made in this industry	6 128.4	4 556.2	(NA)
Value of primary products shipments made in other industries	187.8	154.0	(NA)
Coverage ratio	(D)	97	(NA)
INDUSTRY 2048, PREPARED FEEDS, N.E.C.			
Total value of shipments	14 373.9	11 468.2	(NA)
Primary products value of shipments	13 113.9	10 320.0	(NA)
Secondary products value of shipments	260.9	207.0	(NA)
Total miscellaneous receipts	999.1	941.3	(NA)
Value of resales	966.9	844.9	(NA)
Contract receipts	22.8	40.9	(NA)
Other miscellaneous receipts	9.4	55.5	(NA)
Primary products specialization ratio	98	98	(NA)
Value of primary products shipments made in all industries	13 285.6	10 712.9	(NA)
Value of primary products shipments made in this industry	13 113.9	10 320.0	(NA)
Value of primary products shipments made in other industries	171.7	392.9	(NA)
Coverage ratio	99	96	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2041– —	**FLOUR AND OTHER GRAIN MILL PRODUCTS**						
	Total	**(NA)**	**(X)**	**6 194.8**	**(NA)**	**(X)**	**4 690.1**
20411	Wheat flour, except flour mixes	(NA)	(X)	4 192.4	(NA)	(X)	3 218.7
	White flour:						
	Shipped for export:						
20411 05	Commercial dollar exports, all white flour types, 1,000 sacks (cwt)	9	15 393.8	148.8	12	17 310.6	140.6
20411 07	All other exports of white flour, such as those under Public Law 480, 1,000 sacks (cwt)	5	(D)	(D)	5	(S)	97.5
	Domestic shipments:						
	Bakers' and institutional white bread-type flours:						
20411 11	Shipped in bulk cars or trucks, 1,000 sacks (cwt)	22	174 188.0	1 772.5	21	**149 500.8	1 326.2
20411 13	Shipped in containers, including tote bins, 1,000 sacks (cwt)	15	40 922.2	441.6	16	23 528.3	256.1
	Bakers' and institutional soft wheat flour (bakery, restaurant, etc.):						
20411 15	Shipped in bulk cars or trucks, 1,000 sacks (cwt)	26	43 425.0	408.4	24	38 640.3	320.9
20411 17	Shipped in containers, including tote bins, 1,000 sacks (cwt)	13	8 568.7	84.4	20	8 692.7	89.8
	Family white flour, other than self-rising:						
20411 21	Shipped in containers less than 25 lb, 1,000 sacks (cwt)	25	32 972.3	513.2	24	*29 069.2	358.5
20411 23	Shipped in containers 25 lb or more, 1,000 sacks (cwt)	19	*8 163.3	98.0	16	*9 907.7	99.3
20411 26	Self-rising family white flour, 1,000 sacks (cwt)	16	6 178.0	109.7	15	3 664.1	66.2
	Flour shipped to blenders or other processors:						
20411 29	For use in food products (mixes, refrigerated doughs, soups, etc.), 1,000 sacks (cwt)	13	15 291.5	140.8	12	**9 795.5	81.6
20411 28	For use in nonfood products (pet food, industrial, etc.), 1,000 sacks (cwt)	7	2 640.0	15.9	10	*3 062.3	16.6
	Other than white flour:						
20411 31	Whole wheat, 1,000 sacks (cwt)	24	5 853.2	62.4	16	5 383.4	50.4
20411 51	Durum flour and semolina, 1,000 sacks (cwt)	8	33 208.1	295.0	10	26 727.8	258.3
20411 61	Bulgur, 1,000 sacks (cwt)	3	(D)	(D)	5	(S)	30.1
20411 98	Other wheat flour, including farina, 1,000 sacks (cwt)	7	4 663.9	46.3	10	2 022.7	21.4
20411 00	Wheat flour, except flour mixes, n.s.k.	(NA)	(X)	.6	(NA)	(X)	5.2
20412	Wheat mill products other than flour	(NA)	(X)	494.4	(NA)	(X)	336.9
20412 13	Wheat mill feed, 1,000 s tons	48	6 325.6	461.9	42	*5 353.7	298.3
20412 19	Other wheat mill products, including wheat germ, wheat bran, etc., 1,000 s tons	19	573.6	32.5	20	307.4	38.4
20412 00	Wheat mill products other than flour, n.s.k.	(NA)	(X)	–	(NA)	(X)	.2
20413	Corn mill products	(NA)	(X)	775.7	(NA)	(X)	561.2
	Corn products for human consumption:						
20413 11	Whole cornmeal, 1,000 sacks (cwt)	14	4 251.8	56.5	14	(S)	36.8
20413 15	Degermed cornmeal, 1,000 sacks (cwt)	11	(S)	66.7	11	*11 856.6	165.3
20413 21	Corn grits and hominy, except for brewers' use, 1,000 sacks (cwt)	8	(D)	(D)	7	**8 310.1	54.5
20413 23	Corn grits and flakes for brewers' use, 1,000 sacks (cwt)	5	5 039.4	37.7	4	*3 147.9	18.5
20413 65	Hominy feed, cornmeal, and other byproducts of dry corn milling (for animal feed), 1,000 s tons	23	1 502.1	121.2	18	*823.7	68.9
20413 93	Corn flour, 1,000 sacks (cwt)	11	13 930.9	193.5	8	(S)	118.8
	Other corn mill products:						
20413 95	For human consumption, 1,000 sacks (cwt)	18	16 627.2	192.7	8	8 272.0	89.9
20413 97	Not for human consumption, 1,000 sacks (cwt)	4	(D)	(D)	5	1 095.5	7.7
20413 00	Corn mill products, n.s.k.	(NA)	(X)	–	(NA)	(X)	.7
20415	Flour mixes and refrigerated and frozen doughs and batters[3]	(NA)	(X)	345.9	(NA)	(X)	340.5
	Flour mixes:						
20415 11	Pancake and waffle mixes, 1,000 sacks (cwt)	11	2 444.3	65.8	(NA)	(D)	(D)
20415 13	Cake mixes, including gingerbread, 1,000 sacks (cwt)	5	341.5	15.1	(NA)	(D)	(D)
20415 15	Biscuit mixes, 1,000 sacks (cwt)	13	1 350.5	50.2	(NA)	(D)	(D)
20415 17	Pie crust mixes, 1,000 sacks (cwt)	1	(D)	(D)	1	(D)	(D)
20415 19	Doughnuts and other sweet yeast goods mixes, 1,000 sacks (cwt)	1	(D)	(D)	3	(D)	(D)
20415 21	Bread and bread-type roll mixes, 1,000 sacks (cwt)	9	1 140.1	46.4	(NA)	(D)	(D)

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2041– —	**FLOUR AND OTHER GRAIN MILL PRODUCTS —Con.**						
20415	Flour mixes and refrigerated and frozen doughs and batters[3]—Con.						
	Flour mixes—Con.						
20415 25	Other prepared flour mixes, including cookie mixes ---1,000 sacks (cwt)--	14	**6 126.6	160.4	(NA)	(D)	(D)
	Refrigerated doughs and batters:						
20415 81	Biscuit dough----mil lb--	(NA)	–	–	(NA)	–	–
20415 85	Bread and bread-type roll dough, including dinner ----mil lb--	(NA)	–	–	(NA)	–	–
20415 86	Cookie dough ----mil lb--	(NA)	–	–			
20415 88	Pasta dough ----mil lb--	(NA)	–	–			
20415 89	Other doughs and batters, including pizza, coffeecake, pancake, etc.----mil lb--	3	(S)	1.3	(NA)	(D)	(D)
	Frozen doughs and batters:						
20415 91	Bread and bread-type roll dough ----mil lb--	1	(D)	(D)	1	(D)	(D)
20415 92	Cookie dough ----mil lb--	–	(D)	(D)			
20415 95	Other frozen doughs and batters, including pizza, coffeecake, pancake, etc.----mil lb--	1	(D)	(D)	(NA)	–	–
20415 00	Flour mixes and refriferated and frozen doughs and batters, n.s.k.----	(NA)	(X)	–	(NA)	(X)	–
20416	Other grain mill products ----	(NA)	(X)	173.4	(NA)	(X)	82.2
20416 13	Rye, oats, buckwheat, and other flour----1,000 sacks (cwt)--	10	5 225.9	63.4	(NA)	(D)	(D)
20416 27	Other mill feed (oats, rye, buckwheat, etc.) ----1,000 sacks (cwt)--	9	947.9	110.0	9	(D)	(D)
20416 00	Other grain mill products, n.s.k.----	(NA)	(X)	–	(NA)	(X)	1.4
20410	Flour and other grain mill products, n.s.k.----	(NA)	(X)	213.0	(NA)	(X)	150.5
20410 00	Flour and other grain mill products, n.s.k.[4] ----	(NA)	(X)	184.3	(NA)	(X)	13.5
20410 02	Flour and other grain mill products, n.s.k.[5] ----	(NA)	(X)	28.7	(NA)	(X)	137.0
2043– —	**CEREAL BREAKFAST FOODS**						
	Total----	**(NA)**	**(X)**	**7 795.4**	**(NA)**	**(X)**	**5 081.1**
20431	Ready to serve cereal breakfast foods, except infant cereals ----	(NA)	(X)	7 269.6	(NA)	(X)	(NA)
	Corn flakes and other corn breakfast foods:						
20431 01	With fruits and/ or nuts ----mil lb--	4	(S)	1 400.6	9	801.9	1 302.3
20431 03	Without fruits or nuts ----mil lb--	12					
	Wheat flakes and other wheat breakfast foods:						
20431 05	With fruits and/ or nuts ----mil lb--	8	1 045.9	1 801.7	10	841.7	1 359.6
20431 07	Without fruits or nuts ----mil lb--	13					
	Oat breakfast foods:						
20431 09	With fruits and/ or nuts ----mil lb--	12	(S)	1 307.2	10	382.3	706.9
20431 11	Without fruits and/ or nuts----mil lb--	8					
	Rice breakfast foods:						
20431 13	With fruits and/ or nuts ----mil lb--	2	429.7	681.7	9	257.1	518.1
20431 16	Without fruits or nuts ----mil lb--	9					
	Preparations of other grains and mixed grains:						
20431 18	With fruits and/ or nuts ----mil lb--	13	(S)	2 078.4	13	366.0	743.1
20431 19	Without fruits or nuts ----mil lb--	13					
20431 00	Ready to serve cereal breakfast foods, except infant cereals, n.s.k. ----	(NA)	(X)	–	(NA)	(X)	(NA)
20432	Other cereal breakfast foods ----	(NA)	(X)	495.6	(NA)	(X)	(NA)
20432 01	Infants' cereals, all types ----mil lb--	3	(D)	(D)	4	(D)	(D)
20432 03	Instant hot cereals, all types of grains (mix with hot water and eat type) ----mil lb--	5	(D)	(D)	3	(D)	(D)
	Cereals to be cooked before serving, except instant and infants':						
20432 05	Farina and other wheat foods ----mil lb--	5	81.0	94.3	5	82.0	60.2
20432 07	Rolled oats and oatmeal----mil lb--	7	422.3	169.0	4	287.7	120.5
20432 09	Preparations of other grains and mixed grains ----mil lb--	5	*7.9	9.7	3	9.8	9.0
20432 00	Other cereal breakfast foods, n.s.k.----	(NA)	(X)	3.4	(NA)	(X)	(NA)
20430	Cereal breakfast foods, n.s.k. ----	(NA)	(X)	30.2	(NA)	(X)	15.9
20430 00	Cereal breakfast foods, n.s.k.[6] ----	(NA)	(X)	30.2	(NA)	(X)	6.2
20430 02	Cereal breakfast foods, n.s.k.[7] ----	(NA)	(X)	–	(NA)	(X)	9.7
2044– —	**RICE MILLING**						
	Total----	**(NA)**	**(X)**	**1 617.9**	**(NA)**	**(X)**	**1 257.5**
20440	Milled rice and byproducts ----	(NA)	(X)	1 617.9	(NA)	(X)	1 257.5
	Head rice not packaged with other ingredients:						
20440 11	Packed in bags 100 lb or more----mil lb--	30	5 178.1	594.0	30	**5 387.2	517.7
20440 15	Packed in containers 3 lb or less ----mil lb--	16	814.7	250.6	12	727.9	106.1
20440 17	Packed in all other containers----mil lb--	19	2 502.9	526.7	16	*3 321.7	446.3
20440 21	Second heads----mil lb--	14	475.8	56.0	15	892.2	48.8
20440 35	Screenings and brewers' rice ----mil lb--	17	(S)	35.9	15	657.4	33.2
20440 51	Bran----mil lb--	20	**733.3	23.7	14	(S)	14.8
20440 98	Sharps and other residues and byproducts ----mil lb--	9	1 069.4	18.1	12	(S)	65.0
20440 93	All other milled rice, including rice flour----mil lb--	8	610.7	92.1			
20440 00	Rice milling, n.s.k.[6] ----	(NA)	(X)	20.7	(NA)	(X)	8.8
20440 02	Rice milling, n.s.k.[7] ----	(NA)	(X)	–	(NA)	(X)	16.8

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2045– —	**PREPARED FLOUR MIXES AND DOUGHS**						
	Total	**(NA)**	**(X)**	**3 898.4**	**(NA)**	**(X)**	**2 821.6**
20450	Flour mixes and refrigerated and frozen doughs and batters	(NA)	(X)	3 898.4	(NA)	(X)	2 821.6
	Flour mixes:						
20450 11	Pancake and waffle mixes, 1,000 sacks (cwt)	18	3 049.2	166.0	(NA)	(D)	(D)
20450 13	Cake mixes, including gingerbread, 1,000 sacks (cwt)	20	7 655.0	629.7	(NA)	(D)	(D)
20450 15	Biscuit mixes, 1,000 sacks (cwt)	13	4 093.9	137.2	(NA)	(D)	(D)
20450 17	Pie crust mixes, 1,000 sacks (cwt)	5	256.4	19.7	6	(D)	(D)
20450 19	Doughnuts and other sweet yeast goods mixes, 1,000 sacks (cwt)	21	**10 232.4	338.8	14	5 858.8	168.1
20450 21	Bread and bread-type roll mixes, 1,000 sacks (cwt)	18	*3 522.9	128.7	(NA)	(D)	(D)
20450 25	Other prepared flour mixes, including cookie mixes, 1,000 sacks (cwt)	32	28 097.5	461.1	(NA)	(D)	(D)
	Refrigerated doughs and batters:						
20450 81	Biscuit dough, mil lb	4	(D)	(D)	4	(D)	(D)
20450 85	Bread and bread-type roll dough, including dinner, mil lb	2	(D)	(D)	2	(D)	(D)
20450 86	Cookie dough, mil lb	2	(D)	(D)			
20450 88	Pasta dough, mil lb	–	–	–	12	(D)	(D)
20450 89	Other doughs and batters, including pizza, coffeecake, pancake, etc., mil lb	9	336.2	162.3			
	Frozen doughs and batters:						
20450 91	Bread and bread-type roll dough, mil lb	29	*1 227.5	448.5	26	(D)	(D)
20450 92	Cookie dough, mil lb	29	129.0	150.0			
20450 95	Other doughs and batters, including pizza, coffeecake, pancake, etc., mil lb	51	1 109.3	574.6	30	529.0	253.5
20450 00	Prepared flour mixes and doughs, n.s.k.[4]	(NA)	(X)	82.2	(NA)	(X)	24.5
20450 02	Prepared flour mixes and doughs, n.s.k.[5]	(NA)	(X)	18.2	(NA)	(X)	67.2
2046– —	**WET CORN MILLING**						
	Total	**(NA)**	**(X)**	**6 415.5**	**(NA)**	**(X)**	**4 446.2**
20461	Corn sweeteners	(NA)	(X)	2 911.0	(NA)	(X)	2 182.5
	Glucose syrup (corn syrup):						
20461 03	Type I (20 up to 38 dextrose equivalent), mil lb	5	1 028.9	102.1	4	1 261.4	90.6
20461 04	Type II (38 up to 58 dextrose equivalent), mil lb	7	3 245.0	321.2	7	3 056.4	231.4
20461 13	Type III (58 up to 90 dextrose equivalent), mil lb	5	1 384.3	134.9	4	677.6	45.0
20461 16	Type IV (90 dextrose equivalent or more), mil lb	3	(D)	(D)	2	(D)	(D)
20461 18	Glucose syrup solids (dried glucose syrup) and maltodextrins less than 20 dextrose equivalent, mil lb	4	328.2	76.9	(NA)	(D)	(D)
20461 23	Dextrose monohydrate and dextrose anhydrous, mil lb	3	(D)	(D)	(NA)	(NA)	(NA)
	High fructose corn syrup (HFCS):						
20461 25	20 up to 50 percent fructose, mil lb	8	6 961.4	693.3	(NA)	(NA)	(NA)
20461 29	50 percent or more fructose, including crystalline fructose (adjusted to a liquid equivalent, 77 percent solids basis), mil lb	7	10 787.7	1 198.7	(NA)	(NA)	(NA)
20461 00	Corn sweeteners, n.s.k.	(NA)	(X)	–	(NA)	(X)	.7
20462	Manufactured starch	(NA)	(X)	1 305.5	(NA)	(X)	774.3
	Corn (including sorghum) starch and dextrin:						
20462 11	Modified, mil lb	13	3 907.1	872.0	(NA)	(NA)	(NA)
20462 13	Not modified, mil lb	11	2 853.7	330.8	(NA)	(NA)	(NA)
	Other starch and dextrin (potato, rice, wheat, etc.):						
20462 15	Modified, mil lb	5	(D)	(D)	(NA)	(NA)	(NA)
20462 17	Not modified, mil lb	7	(D)	(D)	(NA)	(NA)	(NA)
20462 00	Manufactured starch, n.s.k.	(NA)	(X)	4.8	(NA)	(X)	9.8
20463	Corn oil	(NA)	(X)	801.6	(NA)	(X)	613.1
20463 53	Crude, mil lb	10	1 085.0	240.5	10	1 186.6	264.0
20463 54	Once-refined, after alkali or caustic wash, but before deodorizing or use in end products, mil lb	3	57.0	17.2	3	(D)	(D)
20463 56	Fully-refined, including margarine oil, mil lb	8	1 339.2	511.7	9	(D)	(D)
20463 59	Once-refined, purchased and deodorized only, mil lb	5	*85.5	32.2	5	(D)	(D)
20463 00	Corn oil, n.s.k.	(NA)	(X)	–	(NA)	(X)	2.9
20464	Wet process corn byproducts	(NA)	(X)	1 363.5	(NA)	(X)	845.8
20464 62	Corn gluten feed, mil lb	9	11 903.5	659.5	10	9 064.6	480.3
20464 65	Corn gluten meal, mil lb	11	2 598.7	352.2	11	1 896.3	213.5
20464 72	Gluten (except corn), including wheat, rice, potato, etc., mil lb	1	(D)	(D)	6	669.1	71.3
20464 75	Other wet process corn byproducts, including steepwater concentrate (50 percent solids basis), mil lb	9	(D)	(D)	8	1 386.1	80.8
20464 00	Wet process corn byproducts, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20460	Wet corn milling, n.s.k.	(NA)	(X)	34.0	(NA)	(X)	30.5
20460 00	Wet corn milling, n.s.k.[8]	(NA)	(X)	34.0	(NA)	(X)	21.0
20460 02	Wet corn milling, n.s.k.[9]	(NA)	(X)	–	(NA)	(X)	9.5

See footnotes at end of table.

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TSF:20D_92.DAT;2 6/13/95 13:13:54 UTF:20D_93.DAT;8 6/13/95 14:39:18 META:TIPS96-14425032.DAT;1 6/13/95 14:43:37

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2047– —	**DOG AND CAT FOOD**						
	Total	**(NA)**	**(X)**	**6 316.2**	**(NA)**	**(X)**	**4 710.2**
20473	Dog food	(NA)	(X)	3 899.8	(NA)	(X)	3 074.6
	Canned:						
20473 21	Ration type — mil lb	14	668.4	259.5	13	682.3	189.5
20473 23	Other — mil lb	16	2 018.2	842.8	12	1 345.5	613.7
	Dry and semimoist:						
20473 26	Shipped in packages less than 25 lb — mil lb	52	**2 765.4	1 111.5	38	3 631.2	979.1
20473 38	Shipped in packages 25 lb or more — mil lb	74	**5 610.7	1 658.0	71	4 924.2	1 255.0
20473 00	Dog food, n.s.k.	(NA)	(X)	28.0	(NA)	(X)	37.3
20474	Cat food	(NA)	(X)	2 271.1	(NA)	(X)	1 446.3
	Canned:						
20474 41	Fish base — mil lb	12	2 031.5	727.7	17	1 063.2	366.4
20474 43	Meat base — mil lb	16	801.0	410.0	13	441.0	269.6
20474 45	Other (ration meal base) — mil lb	3	210.4	44.2	4	(D)	(D)
20474 54	Dry — mil lb	41	**1 809.0	974.1	32	1 338.2	640.5
20474 57	Semimoist — mil lb	7	99.7	104.3	6	(D)	(D)
20474 00	Cat food, n.s.k.	(NA)	(X)	10.8	(NA)	(X)	9.2
20470	Dog and cat food, n.s.k.	(NA)	(X)	145.3	(NA)	(X)	189.2
20470 00	Dog and cat food, n.s.k.[4]	(NA)	(X)	138.5	(NA)	(X)	131.1
20470 02	Dog and cat food, n.s.k.[5]	(NA)	(X)	6.8	(NA)	(X)	58.1
2048– —	**PREPARED FEEDS, N.E.C.**						
	Total	**(NA)**	**(X)**	**13 285.6**	**(NA)**	**(X)**	**10 712.9**
20481	Chicken and turkey feed, supplements, concentrates, and premixes	(NA)	(X)	4 890.3	(NA)	(X)	3 378.5
	Complete feeds:						
	Chicken:						
20481 11	Starter-grower — 1,000 s tons	84	3 630.6	571.2	89	2 365.4	348.5
20481 15	Layer-breeder — 1,000 s tons	111	4 843.6	679.3	123	4 740.8	628.0
20481 16	Broiler — 1,000 s tons	47	15 861.5	2 563.0	50	9 238.1	1 355.6
20481 18	Turkey — 1,000 s tons	54	3 143.1	458.9	53	2 092.9	376.2
	Feed supplements and concentrates:						
	Chicken:						
20481 21	Starter-grower — 1,000 s tons	14	(S)	18.9	23	(S)	75.7
20481 22	Layer-breeder — 1,000 s tons	28	*233.4	60.3	31	530.3	106.1
20481 23	Broiler — 1,000 s tons	9	581.4	133.0	13	(S)	123.4
20481 24	Turkey — 1,000 s tons	11	**28.3	6.8	18	*118.8	26.6
	Feed premixes (feed-base):						
	Chicken:						
20481 31	Starter-grower — 1,000 s tons	6	(D)	(D)	16	190.3	31.6
20481 32	Layer-breeder — 1,000 s tons	14	**58.8	27.8	20	(S)	23.1
20481 33	Broiler — 1,000 s tons	6	(S)	15.2	11	(S)	35.0
20481 34	Turkey — 1,000 s tons	3	(D)	(D)	8	15.7	6.2
20481 00	Chicken and turkey feed, supplements, concentrates, and premixes, n.s.k.	(NA)	(X)	334.6	(NA)	(X)	242.5
20482	Dairy cattle feed, complete	(NA)	(X)	1 454.7	(NA)	(X)	1 221.5
20482 00	Dairy cattle feed, complete — 1,000 s tons	164	*11 761.0	1 454.7	184	8 620.4	1 221.5
20483	Dairy cattle feed supplements, concentrates, and premixes	(NA)	(X)	678.5	(NA)	(X)	543.0
20483 01	Feed supplements and concentrates — 1,000 s tons	125	3 196.9	532.0	99	1 680.3	398.2
20483 02	Feed premixes (feed-base) — 1,000 s tons	46	*323.2	127.8	(NA)	**213.5	87.2
20483 00	Dairy cattle feed supplements, concentrates, and premixes, n.s.k.	(NA)	(X)	18.6	(NA)	(X)	57.6
20484	Swine feed, complete	(NA)	(X)	541.9	(NA)	(X)	416.3
20484 00	Swine feed, complete — 1,000 s tons	151	*2 526.5	541.9	173	2 144.5	416.3
20485	Swine feed supplements, concentrates, and premixes	(NA)	(X)	1 181.4	(NA)	(X)	1 265.6
20485 03	Feed supplements and concentrates — 1,000 s tons	100	4 504.7	906.8	109	3 360.8	930.4
20485 04	Feed premixes (feed-base) — 1,000 s tons	59	*441.6	246.8	59	627.3	258.8
20485 00	Swine feed supplements, concentrates, and premixes, n.s.k.	(NA)	(X)	27.7	(NA)	(X)	76.5
20486	Beef cattle feed, complete	(NA)	(X)	524.2	(NA)	(X)	431.2
20486 00	Beef cattle feed, complete — 1,000 s tons	141	**3 611.0	524.2	133	*3 056.9	431.2

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/13/95 14:44:04 EPCV23 TLP:20D.BTI;27 6/13/95 13:13:34 DATA:NONE UPF:92MFFI_PUBS:20DDAT.UPF PAGE: 15
TSF:20D_92.DAT;2 6/13/95 13:13:54 UTF:20D_93.DAT;8 6/13/95 14:39:18 META:TIPS96-14425032.DAT;1 6/13/95 14:43:37

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2048– ––	**PREPARED FEEDS, N.E.C.**—Con.						
20487	Beef cattle feed supplements, concentrates, and premixes	(NA)	(X)	623.0	(NA)	(X)	548.1
20487 05	Feed supplements and concentrates, 1,000 s tons	88	4 340.7	522.1	102	*2 642.4	476.2
20487 06	Feed premixes (feed-base), 1,000 s tons	41	(S)	94.3	33	191.5	66.9
20487 00	Beef cattle feed supplements, concentrates, and premixes, n.s.k.	(NA)	(X)	6.7	(NA)	(X)	5.0
20488	Other poultry and livestock feed	(NA)	(X)	511.9	(NA)	(X)	425.6
	Poultry:						
20488 11	Complete feeds (duck, etc.), 1,000 s tons	18	*120.8	18.7	16	**85.4	12.7
20488 12	Feed supplements and concentrates (duck, etc.), 1,000 s tons	5	(D)	(D)	5	(S)	5.0
20488 13	Feed premixes (feed-base) (duck, etc.), 1,000 s tons	1	(D)	(D)	9	338.3	52.9
	Livestock:						
	Complete livestock feeds:						
20488 16	Horse and mule, 1,000 s tons	111	*1 379.2	250.1	116	1 316.1	225.1
20488 21	Other (sheep, etc.), 1,000 s tons	45	*301.7	69.5	46	*275.2	45.8
	Livestock feed supplements and concentrates:						
20488 23	Horse and mule, 1,000 s tons	23	(S)	11.3	22	98.5	18.1
20488 25	Other (sheep, etc.), 1,000 s tons	27	**146.0	41.8	30	*183.9	26.4
	Livestock feed premixes (feed-base):						
20488 31	Horse and mule, 1,000 s tons	7	(S)	2.0	12	*38.6	6.6
20488 33	Other (sheep, etc.), 1,000 s tons	10	(S)	20.8	12	(S)	10.9
20488 00	Other poultry and livestock feed, n.s.k.	(NA)	(X)	33.2	(NA)	(X)	22.1
20489	Other prepared animal feeds, including feeding materials and adjuncts	(NA)	(X)	465.4	(NA)	(X)	468.1
20489 11	Grain: ground, rolled, pulverized, chopped, or crimped, excluding cornmeal, 1,000 sacks (cwt)	69	(S)	106.6	67	32.3	211.4
20489 22	Mineral mixtures, including oyster shells prepared for feed use, mil lb	49	(S)	157.1	56	**1 486.7	134.1
	Alfalfa meal:						
20489 35	Dehydrated, 1,000 s tons	23	(S)	30.3	29	(S)	35.2
20489 39	Sun cured and cubed, 1,000 s tons	18	(S)	23.3	19	(S)	47.9
20489 41	Other, 1,000 s tons	29	(S)	101.5	(NA)	(X)	39.6
20489 00	Other prepared animal feeds, including feeding materials and adjuncts, n.s.k.	(NA)	(X)	46.8			
2048A	Specialty feeds	(NA)	(X)	747.4	(NA)	(X)	537.8
2048A 01	Fresh and frozen meat of horses and other animals for pet food, mil lb	11	342.7	61.0	16	(S)	52.4
2048A 03	Other pet food, except dog and cat, mil lb	11	(S)	156.9	14	(S)	107.5
2048A 05	Laboratory (mouse, guinea pig, etc.), 1,000 s tons	8	72.5	35.4	7	89.3	24.0
2048A 07	Fur (mink, fox, etc.), 1,000 s tons	6	11.8	2.5	9	**61.1	9.8
2048A 09	Bird (wild, tame, pigeon, game), 1,000 s tons	31	(S)	143.0	29	*242.2	105.3
2048A 11	Rabbit, 1,000 s tons	35	**174.5	37.5	38	154.0	27.9
2048A 12	Fish, 1,000 s tons	30	(S)	167.1	45	741.1	169.5
2048A 19	Other, 1,000 s tons	24	(S)	92.5			
2048A 00	Specialty feeds, n.s.k.	(NA)	(X)	51.5	(NA)	(X)	41.4
20480	Prepared feeds, n.e.c., n.s.k.	(NA)	(X)	1 666.8	(NA)	(X)	1 477.1
20480 00	Prepared feeds, n.e.c., n.s.k.[10]	(NA)	(X)	1 520.4	(NA)	(X)	1 025.3
20480 02	Prepared feeds, n.e.c., n.s.k.[11]	(NA)	(X)	146.4	(NA)	(X)	451.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]This product class is primary to more than one industry.
[4]Typically for establishments with 10 employees or more.
[5]Typically for establishments with less than 10 employees.
[6]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 10 employees or more.
[7]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 10 employees.
[8]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 5 employees or more.
[9]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 5 employees.
[10]Typically for establishments with 5 employees or more.
[11]Typically for establishments with less than 5 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Flour mixes, and refrigerated and frozen doughs and batters	(NA)	(X)	4 244.3	(NA)	(X)	3 162.1
20415	Made chiefly from flour milled in the same establishment	(NA)	(X)	345.9	(NA)	(X)	340.5
20450	Made chiefly from purchased flour	(NA)	(X)	3 898.4	(NA)	(X)	2 821.6
	Pancake and waffle mixes, 1,000 sacks (cwt)	(NA)	5 493.5	231.9	(NA)	2 645.7	111.4
20415 11	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	11	2 444.3	65.8	(NA)	(D)	(D)
20450 11	Made chiefly from purchased flour, 1,000 sacks (cwt)	18	3 049.2	166.0	(NA)	(D)	(D)
	Cake mixes, including gingerbread, 1,000 sacks (cwt)	(NA)	7 996.5	644.8	(NA)	3 831.5	294.5
20415 13	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	5	341.5	15.1	(NA)	(D)	(D)
20450 13	Made chiefly from purchased flour, 1,000 sacks (cwt)	20	7 655.0	629.7	(NA)	(D)	(D)
	Biscuit mixes, 1,000 sacks (cwt)	(NA)	5 444.4	187.4	(NA)	1 443.6	61.5
20415 15	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	13	1 350.5	50.2	(NA)	(D)	(D)
20450 15	Made chiefly from purchased flour, 1,000 sacks (cwt)	13	4 093.9	137.2	(NA)	(D)	(D)
	Pie crust mixes, 1,000 sacks (cwt)	(NA)	(D)	(D)	(NA)	231.4	16.2
20415 17	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	1	(D)	(D)	1	(D)	(D)
20450 17	Made chiefly from purchased flour, 1,000 sacks (cwt)	5	256.4	19.7	6	(D)	(D)
	Doughnuts and other sweet yeast goods mixes, 1,000 sacks (cwt)	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 19	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	1	(D)	(D)	3	(D)	(D)
20450 19	Made chiefly from purchased flour, 1,000 sacks (cwt)	21	**10 232.4	338.8	14	5 858.8	168.1
	Bread and bread-type roll mixes, 1,000 sacks (cwt)	(NA)	*4 663.0	175.1	(NA)	826.5	28.2
20415 21	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	9	1 140.1	46.4	(NA)	(D)	(D)
20450 21	Made chiefly from purchased flour, 1,000 sacks (cwt)	18	*3 522.9	128.7	(NA)	(D)	(D)
	Other prepared flour mixes, including cookie mixes, 1,000 sacks (cwt)	(NA)	*34 224.2	621.4	(NA)	4 853.8	328.0
20415 25	Made chiefly from flour milled in the same establishment, 1,000 sacks (cwt)	14	**6 126.6	160.4	(NA)	(D)	(D)
20450 25	Made chiefly from purchased flour, 1,000 sacks (cwt)	32	28 097.5	461.1	(NA)	(D)	(D)
	Refrigerated biscuit dough, mil lb	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 81	Made chiefly from flour milled in the same establishment, mil lb	–	–	–	(NA)	–	–
20450 81	Made chiefly from purchased flour, mil lb	4	(D)	(D)	4	(D)	(D)
	Refrigerated bread and bread-type roll dough, including dinner, mil lb	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 85	Made chiefly from flour milled in the same establishment, mil lb	–	–	–	(NA)	–	–
20450 85	Made chiefly from purchased flour, mil lb	2	(D)	(D)	2	(D)	(D)
	Refrigerated cookie dough, mil lb	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 86	Made chiefly from flour milled in the same establishment, mil lb	–	–	–	(NA)	(D)	(D)
20450 86	Made chiefly from purchased flour, mil lb	2	(D)	(D)	(NA)	(D)	(D)
	Refrigerated pasta dough, mil lb	(NA)	–	–	(NA)	(D)	(D)
20415 88	Made chiefly from flour milled in the same establishment, mil lb	–	–	–	(NA)	(D)	(D)
20450 88	Made chiefly from purchased flour, mil lb	–	–	–	(NA)	(D)	(D)
	Other refrigerated doughs and batters, including pizza, coffeecake, pancake, etc., mil lb	(NA)	(S)	163.5	(NA)	(D)	(D)
20415 89	Made chiefly from flour milled in the same establishment, mil lb	3	(S)	1.3	(NA)	(D)	(D)
20450 89	Made chiefly from purchased flour, mil lb	9	336.2	162.3	(NA)	(D)	(D)
	Frozen bread and bread-type roll dough, mil lb	(NA)	(D)	(D)	(NA)	852.6	332.7
20415 91	Made chiefly from flour milled in the same establishment, mil lb	1	(D)	(D)	1	(D)	(D)
20450 91	Made chiefly from purchased flour, mil lb	29	*1 227.5	448.5	26	(D)	(D)
	Frozen cookie dough, mil lb	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 92	Made chiefly from flour milled in the same establishment, mil lb	–	(D)	(D)	(NA)	–	–
20450 92	Made chiefly from purchased flour, mil lb	29	129.0	150.0	30	(D)	(D)
	Other frozen doughs and batters, including pizza, coffeecake, pancake, etc., mil lb	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 95	Made chiefly from flour milled in the same establishment, mil lb	1	(D)	(D)	(NA)	–	–
20450 95	Made chiefly from purchased flour, mil lb	51	1 109.3	574.6	(NA)	(D)	(D)
	Flour mixes, and refrigerated and frozen doughs and batters, n.s.k.	(NA)	(X)	100.4	(NA)	(X)	91.7
20415 00	Made chiefly from flour milled in the same establishment	(NA)	(X)	–	(NA)	(X)	–
20450 00	Made chiefly from purchased flour	(NA)	(X)	82.2	(NA)	(X)	24.5

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Flour mixes, and refrigerated and frozen doughs and batters—Con.						
	Flour mixes, and refrigerated and frozen doughs and batters, n.s.k.—Con.						
20450 02	Made chiefly from purchased flour	(NA)	(X)	18.2	(NA)	(X)	67.2

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20411, WHEAT FLOUR, EXCEPT FLOUR MIXES		
United States	**4 192.4**	**3 218.7**
California	301.6	176.1
Florida	93.9	65.1
Georgia	54.2	40.6
Illinois	229.0	171.9
Kansas	330.7	281.3
Michigan	55.7	46.7
Minnesota	347.1	324.5
Missouri	381.5	225.7
Nebraska	70.1	83.7
New York	508.5	313.0
North Carolina	120.8	78.7
Ohio	207.8	141.4
Oregon	53.1	43.2
Tennessee	218.1	299.9
Texas	150.3	135.0
Utah	87.9	81.1
20412, WHEAT MILL PRODUCTS OTHER THAN FLOUR		
United States	**494.4**	**336.9**
California	38.4	23.3
Florida	11.7	9.2
Georgia	8.9	6.1
Illinois	24.3	9.0
Kansas	45.0	48.1
Michigan	21.4	12.7
Minnesota	39.8	26.6
Missouri	34.0	18.2
New York	44.5	29.8
North Carolina	14.2	10.8
Ohio	23.2	14.7
Oklahoma	11.5	6.9
Oregon	8.9	6.1
Tennessee	22.2	(NA)
Texas	22.3	15.2
Utah	14.2	(NA)
20413, CORN MILL PRODUCTS		
United States	**775.7**	**561.2**
Illinois	190.1	116.7
Indiana	49.4	30.6
New York	4.0	(NA)
North Carolina	20.5	6.9
Texas	118.3	36.8
20415, FLOUR MIXES AND REFRIGERATED AND FROZEN DOUGHS AND BATTERS		
United States	**345.9**	**340.5**
Texas	39.4	(NA)
20416, OTHER GRAIN MILL PRODUCTS		
United States	**173.4**	**82.2**
Minnesota	52.5	36.4
20431, READY TO SERVE CEREAL BREAKFAST FOODS, EXCEPT INFANT CEREALS		
United States	**7 269.6**	**(NA)**
Illinois	805.3	(NA)
Michigan	2 054.3	(NA)
20432, OTHER CEREAL BREAKFAST FOODS		
United States	**495.6**	**(NA)**
California	3.4	(NA)
Minnesota	124.8	(NA)
20461, CORN SWEETENERS		
United States	**2 911.0**	**2 182.5**
Illinois	757.0	552.5
Iowa	936.4	729.9
20462, MANUFACTURED STARCH		
United States	**1 305.5**	**774.3**
Indiana	410.4	269.2
Iowa	373.3	195.4
20463, CORN OIL		
United States	**801.6**	**613.1**
Illinois	583.9	460.6
Iowa	86.0	76.9
20464, WET PROCESS CORN BYPRODUCTS		
United States	**1 363.5**	**845.8**
Illinois	380.8	256.2
Indiana	114.8	72.9
Iowa	527.7	277.2

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20473, DOG FOOD		
United States	**3 899.8**	**3 074.6**
Alabama	136.7	91.8
Arizona	15.9	(NA)
California	246.6	185.7
Colorado	24.5	(NA)
Georgia	142.2	(NA)
Illinois	228.9	208.4
Indiana	38.6	24.1
Iowa	471.0	(NA)
Kansas	472.0	(NA)
Kentucky	4.6	(NA)
Maryland	6.6	(NA)
Michigan	22.5	(NA)
Minnesota	50.7	37.4
Mississippi	42.9	106.5
Missouri	191.6	117.8
Nebraska	199.8	(NA)
New Jersey	42.3	(NA)
New Mexico	14.1	(NA)
New York	428.8	196.9
North Carolina	22.8	(NA)
Ohio	358.1	244.9
Oklahoma	144.6	(NA)
Pennsylvania	244.7	318.8
South Dakota	3.3	(NA)
Tennessee	48.1	44.4
Texas	89.3	26.4
Utah	28.1	(NA)
Vermont	6.8	(NA)
Virginia	48.9	(NA)
Washington	25.9	(NA)
Wisconsin	94.1	(NA)
20474, CAT FOOD		
United States	**2 271.1**	**1 446.3**
Alabama	5.9	10.5
Arizona	2.7	(NA)
California	271.3	111.7
Colorado	74.5	(NA)
Georgia	61.0	(NA)
Illinois	50.9	(NA)
Indiana	10.7	(NA)
Iowa	310.2	246.5
Kansas	84.4	(NA)
Michigan	3.3	(NA)
Minnesota	36.8	(NA)
Mississippi	40.2	(NA)
Missouri	339.2	(NA)
Nebraska	74.8	(NA)
New Jersey	24.4	(NA)
New York	147.9	(NA)
Ohio	161.5	(NA)
Oklahoma	50.2	(NA)
Pennsylvania	191.8	(NA)
South Dakota	7.5	(NA)
Tennessee	12.9	(NA)
Texas	100.4	(NA)
Utah	4.0	(NA)
Virginia	3.5	(NA)
Washington	9.5	(NA)
Wisconsin	189.7	(NA)
20481, CHICKEN AND TURKEY FEED, SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
United States	**4 890.3**	**3 378.5**
Alabama	556.6	217.3
Arkansas	779.0	420.0
California	390.7	158.8
Colorado	26.3	15.8
Connecticut	37.7	(NA)
Delaware	161.0	153.4
Florida	60.9	74.5
Georgia	541.6	398.7
Illinois	12.9	13.6
Indiana	69.1	109.0
Iowa	67.0	56.3
Kansas	12.1	5.7
Kentucky	6.8	8.1
Maryland	203.2	122.7
Michigan	22.4	16.5
Minnesota	62.6	33.2
Mississippi	77.8	59.9
Missouri	107.9	113.8
Nebraska	8.7	12.7
New York	11.5	15.2
20481, CHICKEN AND TURKEY FEED, SUPPLEMENTS, CONCENTRATES, AND PREMIXES—Con.		
North Carolina	525.9	393.2
Ohio	48.3	38.2
Oklahoma	124.6	41.9
Oregon	26.9	(NA)
Pennsylvania	185.7	171.0
South Dakota	3.6	3.4
Tennessee	56.1	80.1
Texas	298.3	210.8
Virginia	153.1	89.7
Washington	23.0	27.8
Wisconsin	11.1	15.7
20482, DAIRY CATTLE FEED, COMPLETE		
United States	**1 454.7**	**1 221.5**
Alabama	18.3	13.4
Arkansas	13.6	16.5
California	328.7	266.3
Colorado	7.7	2.2
Florida	70.0	51.3
Georgia	55.8	40.4
Illinois	58.7	19.0
Indiana	14.0	9.7
Iowa	7.6	6.7
Kansas	12.1	8.8
Kentucky	35.8	53.2
Maine	16.7	(NA)
Maryland	8.2	12.8
Michigan	7.3	3.0
Minnesota	19.9	20.2
Missouri	56.8	49.9
Nebraska	6.0	4.9
New York	115.3	132.9
North Carolina	32.8	36.6
Ohio	33.8	11.5
Oklahoma	11.5	15.1
Pennsylvania	59.3	50.3
South Dakota	2.5	(NA)
Texas	121.8	53.4
Utah	2.5	(NA)
Vermont	45.8	38.1
Virginia	24.6	29.7
Washington	72.5	38.9
Wisconsin	48.4	21.7
20483, DAIRY CATTLE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
United States	**678.5**	**543.0**
California	77.8	54.1
Colorado	3.4	6.0
Florida	7.2	(NA)
Georgia	10.2	10.2
Illinois	42.7	66.7
Indiana	32.6	34.8
Iowa	51.0	51.0
Kansas	11.0	6.5
Kentucky	12.6	7.5
Maryland	3.3	2.5
Michigan	23.9	9.4
Minnesota	79.8	53.5
Missouri	16.7	8.3
Nebraska	13.8	12.8
New York	31.2	7.8
North Carolina	9.9	9.1
Ohio	31.9	33.2
Oklahoma	2.6	(NA)
Pennsylvania	53.4	40.8
South Dakota	4.3	3.9
Tennessee	6.0	(NA)
Texas	29.2	8.8
Utah	3.0	(NA)
Vermont	6.7	(NA)
Virginia	9.8	4.3
Washington	8.6	2.4
Wisconsin	79.7	73.4

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20484, SWINE FEED, COMPLETE		
United States	**541.9**	**416.3**
Alabama	4.0	10.2
California	10.0	5.2
Colorado	3.9	(NA)
Florida	2.7	2.4
Georgia	21.2	19.2
Illinois	53.1	34.3
Indiana	36.1	25.2
Iowa	77.3	80.2
Kansas	6.8	4.7
Kentucky	7.3	7.3
Michigan	3.5	2.3
Minnesota	13.4	18.6
Missouri	26.8	18.9
Nebraska	33.2	29.7
New York	2.1	(NA)
North Carolina	52.9	35.7
Ohio	14.0	6.5
Oklahoma	19.0	6.5
Oregon	2.6	2.6
Pennsylvania	22.3	29.9
South Carolina	5.7	5.9
South Dakota	5.7	8.1
Texas	13.1	9.5
Washington	3.1	2.6
Wisconsin	21.0	13.3
20485, SWINE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
United States	**1 181.4**	**1 265.3**
Colorado	2.1	(NA)
Georgia	22.3	26.2
Illinois	177.6	241.2
Indiana	81.8	139.0
Iowa	411.7	371.3
Kansas	24.0	33.4
Kentucky	15.8	13.1
Michigan	15.3	7.5
Minnesota	71.0	70.7
Missouri	57.0	44.7
Nebraska	114.1	152.1
North Carolina	44.9	44.9
Ohio	35.2	14.7
Pennsylvania	7.0	6.0
South Dakota	35.8	23.7
Tennessee	7.7	(NA)
Texas	4.3	12.5
Wisconsin	20.0	18.9
20486, BEEF CATTLE FEED, COMPLETE		
United States	**524.2**	**431.2**
Alabama	5.1	6.2
Arkansas	15.8	14.7
California	11.0	10.9
Colorado	12.6	(NA)
Florida	19.6	12.3
Georgia	8.4	5.8
Indiana	5.8	(NA)
Iowa	11.4	15.3
Kansas	102.0	46.8
Kentucky	7.8	4.8
Louisiana	6.7	7.4
Minnesota	11.9	(NA)
Mississippi	5.4	4.3
Missouri	23.7	21.4
Montana	3.6	(NA)
Nebraska	19.3	14.2
North Carolina	2.5	6.2
Ohio	4.8	(NA)
Oklahoma	45.7	41.9
Oregon	9.0	(NA)
South Dakota	3.8	5.0
Texas	104.8	95.1
Virginia	4.4	3.5
Washington	4.3	3.2
Wisconsin	2.2	(NA)
20487, BEEF CATTLE FEED SUPPLEMENTS, CONCENTRATES, AND PREMIXES		
United States	**623.0**	**548.1**
California	7.9	2.7
Colorado	22.6	25.9
Florida	7.6	12.5
Georgia	8.3	5.5
Illinois	42.2	38.4
Indiana	16.1	68.5
Iowa	70.1	61.5
Kansas	80.7	60.2
Kentucky	6.2	3.2
Michigan	2.4	(NA)
Minnesota	21.4	27.8
Missouri	21.0	14.8
Montana	9.5	6.0
Nebraska	68.3	69.4
North Carolina	16.4	2.0
Ohio	11.8	4.2
Oklahoma	19.4	(NA)
Pennsylvania	4.3	(NA)
South Dakota	25.4	27.8
Tennessee	6.4	3.2
Texas	92.8	62.2
Wisconsin	14.7	6.8
20488, OTHER POULTRY AND LIVESTOCK FEED		
United States	**511.9**	**425.6**
Alabama	6.8	16.1
Arkansas	5.9	5.5
California	26.5	39.2
Colorado	9.6	6.9
Florida	23.3	9.5
Georgia	14.8	15.2
Illinois	81.6	11.1
Indiana	24.0	9.7
Iowa	22.2	21.2
Kansas	6.5	3.4
Kentucky	4.8	6.6
Louisiana	3.9	7.5
Michigan	3.8	(NA)
Minnesota	5.1	3.5
Mississippi	4.2	2.2
Missouri	7.7	31.7
Nebraska	12.8	5.3
New York	22.4	27.2
North Carolina	12.1	28.8
Ohio	17.9	5.8
Oklahoma	16.6	16.0
Oregon	3.9	(NA)
Pennsylvania	18.3	12.3
South Dakota	3.1	2.4
Tennessee	10.0	12.2
Texas	53.6	47.7
Utah	3.8	(NA)
Virginia	7.4	11.9
Washington	3.5	12.0
Wisconsin	48.1	12.6
20489, OTHER PREPARED ANIMAL FEEDS, INCLUDING FEEDING MATERIALS AND ADJUNCTS		
United States	**465.4**	**468.1**
Alabama	10.1	5.2
Arkansas	6.4	(NA)
California	14.9	26.6
Colorado	9.7	(NA)
Florida	9.2	2.1
Georgia	25.4	22.9
Illinois	59.2	(NA)
Indiana	10.5	4.7
Iowa	21.1	22.4
Kansas	17.9	18.4
Kentucky	3.1	2.0
Michigan	3.3	(NA)
Minnesota	15.7	16.8
Missouri	13.2	6.2
Nebraska	20.7	16.0
North Carolina	17.8	7.4
Ohio	24.5	16.5
Oklahoma	6.3	4.5
Pennsylvania	21.9	8.8
South Dakota	3.6	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20489, OTHER PREPARED ANIMAL FEEDS, INCLUDING FEEDING MATERIALS AND ADJUNCTS—Con.			**2048A, SPECIALTY FEEDS**—Con.		
			Illinois	15.6	14.6
Texas	40.2	27.0	Iowa	5.1	3.5
Utah	14.6	(NA)	Kansas	10.4	3.1
Virginia	2.1	(NA)	Kentucky	2.5	(NA)
Washington	11.7	2.3	Michigan	6.5	2.7
Wisconsin	25.7	36.7	Minnesota	36.3	4.7
			Mississippi	70.6	(NA)
2048A, SPECIALTY FEEDS			Missouri	6.6	6.1
			Nebraska	16.6	27.3
United States	**747.4**	**537.6**	New York	20.3	12.9
			North Carolina	5.7	2.7
Alabama	7.8	3.4	Ohio	26.9	15.9
Arkansas	17.4	(NA)	Oklahoma	4.7	6.2
California	48.0	52.5	Pennsylvania	32.6	31.7
Colorado	18.0	4.2	Tennessee	3.0	3.2
Florida	4.0	2.7	Texas	64.3	25.0
Georgia	5.3	3.4	Washington	11.3	22.2

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2041-	**Flour and other grain mill products**	**6 194.8**	**5 215.9**	**5 533.8**	**5 649.0**	**4 869.4**	**4 690.1**	**4 871.6**	**3 678.6**
20411	Wheat flour, except flour mixes	4 192.4	3 242.3	3 591.8	3 734.7	3 202.9	3 218.7	3 102.3	2 208.9
20412	Wheat mill products other than flour	494.4	450.8	486.5	570.7	429.8	336.9	478.5	455.4
20413	Corn mill products	775.7	691.2	648.3	617.0	512.3	561.2	553.8	413.3
20415	Flour mixes and refrigerated and frozen doughs and batters	345.9	489.6	498.3	427.2	428.3	340.5	382.4	287.2
20416	Other grain mill products	173.4	150.1	124.0	127.9	135.8	82.2	165.6	98.3
20410	Flour and other grain mill products, n.s.k.	213.0	191.8	184.9	171.6	160.4	150.5	188.9	215.5
2043-	**Cereal breakfast foods**	**7 795.4**	**7 007.5**	**6 678.9**	**6 382.6**	**5 666.9**	**5 081.1**	**3 111.5**	**1 832.9**
20431	Ready to serve cereal breakfast foods, except infant cereals	7 269.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
20432	Other cereal breakfast foods	495.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
20430	Cereal breakfast foods, n.s.k.	30.2	(NA)	(NA)	(NA)	(NA)	15.9	(NA)	(NA)
2044-	**Rice milling**	**1 617.9**	**1 705.3**	**1 798.8**	**1 731.9**	**1 611.9**	**1 257.5**	**1 797.0**	**(NA)**
20440	Milled rice and byproducts	1 617.9	1 705.3	1 798.8	1 731.9	1 611.9	1 257.5	1 797.0	(NA)
2045-	**Prepared flour mixes and doughs**	**3 898.4**	**3 357.9**	**3 189.7**	**3 036.1**	**2 938.6**	**2 821.6**	**1 691.8**	**(NA)**
20450	Flour mixes and refrigerated and frozen doughs and batters	3 898.4	3 357.9	3 189.7	3 036.1	2 938.6	2 821.6	1 691.8	(NA)
2046-	**Wet corn milling**	**6 415.5**	**6 482.8**	**6 284.2**	**5 846.1**	**4 996.8**	**4 446.2**	**3 105.7**	**1 946.1**
20461	Corn sweeteners	2 911.0	3 038.4	2 996.8	2 777.6	2 185.2	2 182.5	1 610.4	
20462	Manufactured starch	1 305.5	1 310.3	1 211.8	1 120.9	970.4	774.3	655.1	
20463	Corn oil	801.6	911.2	938.9	775.2	775.0	613.1	234.9	1 946.1
20464	Wet process corn byproducts	1 363.5	1 199.8	1 100.3	1 127.7	1 043.0	845.8	577.7	
20460	Wet corn milling, n.s.k.	34.0	23.0	36.4	44.7	23.1	30.5	27.6	
2047-	**Dog and cat food**	**6 316.2**	**6 083.8**	**5 985.5**	**5 715.8**	**5 342.4**	**4 710.2**	**4 080.8**	**(NA)**
20473	Dog food	3 899.8	3 951.2	3 839.3	3 602.9	3 509.3	3 074.6	2 655.4	2 985.2
20474	Cat food	2 271.1	1 888.8	1 718.7	1 691.4	1 620.8	1 446.3	1 272.9	
20470	Dog and cat food, n.s.k.	145.3	243.8	427.4	421.5	212.2	189.2	152.5	(NA)
2048-	**Prepared feeds, n.e.c.**	**13 285.6**	**12 643.4**	**12 457.3**	**12 555.5**	**12 067.4**	**10 712.9**	**10 847.2**	**(NA)**
20481	Chicken and turkey feed, supplements, concentrates, and premixes	4 890.3	4 851.4	4 509.2	4 479.7	3 714.3	3 378.5	3 642.1	2 758.6
20482	Dairy cattle feed, complete	1 454.7	1 560.9	1 565.3	1 452.6	1 341.0	1 221.5	1 473.9	1 145.6
20483	Dairy cattle feed supplements, concentrates, and premixes	678.5	713.1	761.2	722.7	620.2	543.0	544.3	308.5
20484	Swine feed, complete	541.9	652.8	563.4	605.7	544.2	416.3	585.9	575.8
20485	Swine feed supplements, concentrates, and premixes	1 181.4	1 200.1	1 183.5	1 236.2	1 517.1	1 265.6	1 113.7	892.3
20486	Beef cattle feed, complete	524.2	593.2	577.1	525.5	466.1	431.2	511.4	367.1
20487	Beef cattle feed supplements, concentrates, and premixes	623.0	558.9	615.2	594.5	618.8	548.1	607.7	603.8
20488	Other poultry and livestock feed	511.9	779.7	742.9	662.6	560.5	425.6	400.6	337.9
20489	Other prepared animal feeds, including feeding materials and adjuncts	465.4	382.6	368.8	477.2	521.3	468.1	361.2	338.0
2048A	Specialty feeds	747.4	532.3	564.1	560.1	636.4	537.8	358.9	268.1
20480	Prepared feeds, n.e.c., n.s.k.	1 666.8	818.4	1 006.5	1 238.8	1 527.4	1 477.1	1 247.4	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**4 323.3**	**(X)**	**3 332.7**
	Grain:				
011111	Wheat — mil bushels	875.9	3 177.8	*744.9	2 343.9
011521	Corn — mil bushels	133.9	287.7	**100.1	185.6
011913	Barley — mil bushels	(S)	8.8	**.8	1.6
011931	Oats — mil bushels	32.6	58.0	**16.6	27.3
011990	Other — mil bushels	**12.4	43.8	(NA)	(2)
204110	Wheat flour — 1,000 cwt	23 336.2	146.9	**33 661.6	282.2
206011	Sugar, cane and beet (in terms of sugar solids) — 1,000 s tons	*97.9	30.6	(S)	25.0
207003	Fats and oils — mil lb	(S)	39.6	**105.8	22.2
267101	Packaging paper and plastics film, coated and laminated	(X)	36.1	(X)	(2)
267301	Bags; plastics, foil, and coated paper	(X)	14.2	(X)	(2)
267401	Bags; uncoated paper and multiwall	(X)	49.2	(X)	(2)
239303	Bags, textile (burlap, cotton, polypropylene, etc.)	(X)	3.7	(X)	15.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	16.5	(X)	25.1
970099	All other materials and components, parts, containers, and supplies	(X)	225.2	(X)	[2]222.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	185.1	(X)	181.9
	INDUSTRY 2043, CEREAL BREAKFAST FOODS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 966.5**	**(X)**	**1 423.7**
	Grain:				
011111	Wheat — mil bushels	18.5	76.3	17.8	68.3
011931	Oats — mil bushels	(S)	78.2	30.4	46.7
011521	Corn — mil bushels	(D)	(D)	(NA)	(4)
011913	Barley — mil bushels	18.1	2.4	(NA)	(4)
011241	Rice, rough — mil lb	297.3	54.5	282.5	30.6
011090	Other grains — mil bushels	(S)	1.2	(NA)	(4)
204139	Corn grits — mil bushels	523.7	51.4	(NA)	(4)
204132	Corn meal and flakes — 1,000 cwt	(D)	(D)	(NA)	(4)
204110	Wheat flour — 1,000 cwt	(S)	33.5	3 599.7	31.0
204160	Flour, other than wheat — 1,000 cwt	(S)	60.7	4 069.2	47.8
204150	Prepared flour mixes — 1,000 cwt	(D)	(D)		
	Sugar, cane and beet, in terms of sugar solids:				
206012	White — 1,000 s tons	511.5	238.1	408.2	198.7
206090	Brown — 1,000 s tons	*19.8	11.8		
207003	Fats and oils — mil lb	133.6	38.8	86.2	23.0
203416	Raisins — 1,000 cwt	787.8	70.8	1 709.3	163.1
203490	Dried fruits except raisins — 1,000 cwt	133.1	28.1		
206890	Nut meats, dried or dehydrated — 1,000 cwt	63.6	7.7		
017390	Nuts and nut meats, raw — 1,000 cwt	234.5	38.9		
267101	Packaging paper and plastics film, coated and laminated	(X)	103.2	(X)	(4)
267301	Bags; plastics, foil, and coated paper	(X)	59.6	(X)	(4)
267401	Bags; uncoated paper and multiwall	(X)	(D)	(X)	(4)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	451.0	(X)	313.6
970099	All other materials and components, parts, containers, and supplies	(X)	502.6	(X)	[4]498.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	6.5	(X)	2.4
	INDUSTRY 2044, RICE MILLING				
	Materials, ingredients, containers, and supplies	**(X)**	**1 117.7**	**(X)**	**[r]783.8**
	Grain:				
011241	Rice, rough — mil lb	13 455.5	795.8	*11 567.0	725.4
011521	Corn — mil bushels	–	–	(NA)	(5)
011961	Sorghum — mil bushels	–	–	(NA)	(5)
281993	Calcium carbonate	(X)	(D)	(X)	(5)
286968	Enzymes	(X)	–	(X)	(5)
286988	Acids, organic	(X)	–	(X)	(5)
239303	Bags, textile (burlap, cotton, polypropylene, etc.)	(X)	22.0	(X)	(5)
267301	Bags; plastics, foil, and coated paper	(X)	2.8	(X)	(5)
267401	Bags; uncoated paper and multiwall	(X)	4.3	(X)	(5)
267101	Packaging paper and plastics film, coated and laminated	(X)	14.5	(X)	(5)
970099	All other materials and components, parts, containers, and supplies	(X)	(D)	(X)	[5]45.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	19.7	(X)	[r]12.9
	INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 858.5**	**(X)**	**1 208.3**
	Grain:				
011111	Wheat — mil bushels	(D)	(D)	(NA)	(6)
011931	Oats — mil bushels	(S)	.5	(NA)	(6)
011521	Corn — mil bushels	–	–	(NA)	(6)
011913	Barley — mil bushels	–	–	(NA)	(6)
011241	Rice, rough — mil lb	–	–	(NA)	(6)
011090	Other grains — mil bushels	(D)	(D)	(NA)	(6)
204139	Corn grits — mil bushels	(D)	(D)	(NA)	(6)
204132	Corn meal and flakes — 1,000 cwt	13.8	1.3	(NA)	(6)
204110	Wheat flour — 1,000 cwt	20 397.8	465.1	19 972.0	195.3
204160	Flour, other than wheat — 1,000 cwt	2 400.5	245.4	**384.1	37.1
204150	Prepared flour mixes — 1,000 cwt	1 400.6	11.8		

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS—Con.				
	Sugar, cane and beet, in terms of sugar solids:				
206012	White ---- 1,000 s tons	263.0	130.2	196.2	101.0
206090	Brown ---- 1,000 s tons	6.0	2.6		
207003	Fats and oils ---- mil lb	315.6	103.9	181.4	47.4
203416	Raisins ---- 1,000 cwt	(S)	4.3	(NA)	(6)
203490	Dried fruits except raisins ---- 1,000 cwt	(D)	(D)	(NA)	(6)
206890	Nut meats, dried or dehydrated ---- 1,000 cwt	(D)	(D)	(NA)	(6)
017390	Nuts and nut meats, raw ---- 1,000 cwt	14.3	2.5	(NA)	(6)
267101	Packaging paper and plastics film, coated and laminated ----	(X)	44.0	(X)	(6)
267301	Bags; plastics, foil, and coated paper ----	(X)	5.9	(X)	(6)
267401	Bags; uncoated paper and multiwall ----	(X)	12.5	(X)	(6)
265001	Paperboard containers, boxes, and corrugated paperboard ----	(X)	179.4	(X)	88.2
970099	All other materials and components, parts, containers, and supplies ----	(X)	449.7	(X)	[6]567.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3] ----	(X)	142.2	(X)	172.1
	INDUSTRY 2046, WET CORN MILLING				
	Materials, ingredients, containers, and supplies ----	**(X)**	**3 184.0**	**(X)**	**2 169.5**
	Grain:				
011241	Rice, rough ---- mil lb	(D)	(D)	(NA)	(7)
011521	Corn ---- mil bushels	1 303.1	2 587.7	796.7	1 435.9
011961	Sorghum ---- mil bushels	(D)	(D)	(NA)	(7)
281993	Calcium carbonate ----	(X)	(D)	(X)	(7)
286968	Enzymes ----	(X)	60.9	(X)	(7)
286988	Acids, organic ----	(X)	42.1	(X)	(7)
239303	Bags, textile (burlap, cotton, polypropylene, etc.) ----	(X)	(D)	(X)	(7)
267301	Bags; plastics, foil, and coated paper ----	(X)	(D)	(X)	(7)
267401	Bags; uncoated paper and multiwall ----	(X)	24.0	(X)	(7)
267101	Packaging paper and plastics film, coated and laminated ----	(X)	4.2	(X)	(7)
970099	All other materials and components, parts, containers, and supplies ----	(X)	404.5	(X)	[7]717.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3] ----	(X)	10.6	(X)	16.6
	INDUSTRY 2047, DOG AND CAT FOOD				
	Materials, ingredients, containers, and supplies ----	**(X)**	**2 538.6**	**(X)**	**1 810.4**
	Grain:				
011101	Wheat ---- 1,000 s tons	238.3	27.2	*402.5	37.5
011503	Field corn, whole grain ---- mil lb	(S)	168.7	1 467.4	107.3
011901	Oats ---- 1,000 s tons	(D)	(D)	*34.0	5.0
011904	Barley ---- 1,000 s tons	4.7	1.2	(S)	2.5
011905	Sorghum ---- 1,000 s tons	36.7	5.4	(S)	8.7
204110	Wheat flour ---- 1,000 cwt	3 375.5	27.4	2 878.5	20.9
	Millfeed and screenings:				
204122	Wheat ---- 1,000 s tons	*360.4	34.8	248.1	22.2
207522	Soybean ---- 1,000 s tons	37.7	7.7	58.9	10.2
204161	Other ---- 1,000 s tons	(D)	(D)	(S)	3.0
204133	Hominy feed and meal ---- 1,000 s tons	28.1	3.9	(S)	3.9
204135	Corn meal ---- 1,000 cwt	*594.7	7.3	(S)	11.5
204607	Corn gluten feed and meal ---- 1,000 s tons	*334.3	80.5	305.4	61.1
204893	Alfalfa meal, excluding alfalfa hay ---- 1,000 s tons	10.5	1.6	22.6	2.7
206011	Sugar, cane and beet (in terms of sugar solids) ---- 1,000 s tons	(S)	5.8	**14.5	2.2
206013	Molasses ---- 1,000 s tons	2.6	.3	9.3	1.9
207441	Cottonseed cake and meal ---- 1,000 s tons	(D)	(D)	70.1	15.4
207004	Fats and oils ---- 1,000 s tons	*272.1	92.8	186.7	58.2
207721	Meat meal and tankage ---- 1,000 s tons	*941.3	194.8	634.4	143.2
207722	Poultry feather and byproducts meal ---- 1,000 s tons	320.0	118.4	354.9	74.9
207736	Fish meal and solubles (dry weight equivalent) ---- 1,000 s tons	116.8	50.6	109.6	36.9
208249	Brewers' and distillers' grains ---- 1,000 s tons	111.7	21.5	70.7	9.4
207521	Soybean cake and meal ---- 1,000 s tons	(S)	150.3	451.4	102.0
	Minerals, except trace minerals:				
281990	Calcium ---- 1,000 s tons	(S)	4.6	(S)	2.0
281996	Phosphorus, elemental (technical) ---- 1,000 s tons	**15.2	11.9	(S)	5.9
289912	Salt ---- 1,000 s tons	49.0	4.8	59.2	4.0
281999	Other minerals except trace minerals ---- 1,000 s tons	**20.2	8.7	(S)	9.7
	Microingredients:				
283311	Vitamins ----	(X)	24.6	(X)	15.2
283312	Drugs and antibiotics ----	(X)	.4	(X)	.4
283304	Other microingredients including trace minerals ----	(X)	47.6	(X)	30.2
265001	Paperboard containers, boxes, and corrugated paperboard ----	(X)	117.5	(X)	103.2
267101	Packaging paper and plastics film, coated and laminated ----	(X)	36.3	(X)	(8)
239305	Bags, textile (burlap, cotton, polypropylene, etc.) ----	(X)	(D)	(X)	33.5
267301	Bags; plastics, foil, and coated paper ----	(X)	88.8	(X)	(8)
267401	Bags; uncoated paper and multiwall ----	(X)	90.8	(X)	(8)
341101	Metal cans, can lids, and ends ----	(X)	291.8	(X)	(8)
970099	All other materials and components, parts, containers, and supplies ----	(X)	660.0	(X)	[8]748.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3] ----	(X)	122.0	(X)	117.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2048, PREPARED FEEDS, N.E.C.					
	Materials, ingredients, containers, and supplies		**(X)**	**10 434.5**	**(X)**	**[r]8 008.2**
	Grain:					
011101	Wheat	1,000 s tons	835.4	74.6	*1 412.4	83.8
011503	Field corn, whole grain	mil lb	(S)	2 147.6	16 232.5	1 102.0
011901	Oats	1,000 s tons	573.6	72.1	*629.6	65.6
011904	Barley	1,000 s tons	*707.5	79.4	(D)	(D)
011905	Sorghum	1,000 s tons	1 075.5	103.0	*2 213.3	164.4
204110	Wheat flour	1,000 cwt	*8 555.5	48.2	(D)	(D)
	Millfeed and screenings:					
204122	Wheat	1,000 s tons	3 326.2	337.0	2 694.2	186.2
207522	Soybean	1,000 s tons	*1 210.1	170.6	768.2	52.9
204161	Other	1,000 s tons	**2 254.0	195.1	1 261.1	69.5
204133	Hominy feed and meal	1,000 s tons	*134.6	14.5	(D)	(D)
204135	Corn meal	1,000 cwt	(D)	(D)	(D)	(D)
204607	Corn gluten feed and meal	1,000 s tons	(D)	(D)	351.4	83.1
204893	Alfalfa meal, excluding alfalfa hay	1,000 s tons	*298.9	36.4	(D)	(D)
206011	Sugar, cane and beet (in terms of sugar solids)	1,000 s tons	*19.6	7.7	(S)	11.0
206013	Molasses	1,000 s tons	(S)	75.3	*1 540.6	70.1
207441	Cottonseed cake and meal	1,000 s tons	1 068.7	129.6	(D)	(D)
207004	Fats and oils	1,000 s tons	1 106.7	291.8	646.3	172.1
207721	Meat meal and tankage	1,000 s tons	1 307.2	308.0	(D)	(D)
207722	Poultry feather and byproducts meal	1,000 s tons	754.5	179.2	447.5	93.2
207736	Fish meal and solubles (dry weight equivalent)	1,000 s tons	315.6	106.3	288.1	97.6
208249	Brewers' and distillers' grains	1,000 s tons	501.3	70.2	*441.8	52.7
207521	Soybean cake and meal	1,000 s tons	8 751.6	1 644.7	(D)	(D)
	Minerals, except trace minerals:					
281990	Calcium	1,000 s tons	(S)	59.8	(S)	39.6
281996	Phosphorus, elemental (technical)	1,000 s tons	689.9	161.6	601.0	116.2
289912	Salt	1,000 s tons	(S)	26.3	483.6	17.3
281999	Other minerals, except trace minerals	1,000 s tons	(S)	177.2	288.4	51.6
	Microingredients:					
283311	Vitamins		(X)	273.7	(X)	162.4
283312	Drugs and antibiotics		(X)	331.8	(X)	248.5
283304	Other microingredients including trace minerals		(X)	285.1	(X)	226.0
265001	Paperboard containers, boxes, and corrugated paperboard		(X)	8.1	(X)	5.7
267101	Packaging paper and plastics film, coated and laminated		(X)	7.9	(X)	(NA)
239305	Bags, textile (burlap, cotton, polypropylene, etc.)		(X)	8.1	(X)	18.3
267301	Bags; plastics, foil, and coated paper		(X)	15.5	(X)	(NA)
267401	Bags; uncoated paper and multiwall		(X)	79.1	(X)	(NA)
341101	Metal cans, can lids, and ends		(X)	4.0	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies		(X)	662.9	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]		(X)	2 108.7	(X)	[r]1 981.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data are included with material code 970099.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, data are included with material code 970099.
[5]For 1987, data are included with material code 970099.
[6]For 1987, data are included with material code 970099.
[7]For 1987, data are included with material code 970099.
[8]For 1987, data are included with material code 970099.

TIPS UPF [APS_PSB,C_BROOKS] 6/13/95 14:44:04 EPCV23 TLP:20D.BTI;27 6/13/95 13:13:34 DATA:NONE UPF:92MFFI_PUBS:20DDAT.UPF PAGE: 24
TSF:20D_92.DAT;2 6/13/95 13:13:54 UTF:20D_93.DAT;8 6/13/95 14:39:18 META:TIPS96-14425032.DAT;1 6/13/95 14:43:37

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
20489 41	20489 00
2048A 12	2048A 13
2048A 19	2048A 13
20511 21	20511 11
20511 22	20511 11
20511 27	20511 13
20511 29	20511 13
20511 31	20511 15
20511 33	20511 15
20511 35	20511 17
20511 37	20511 17
20511 41	20511 28
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20512 30	20512 33
20512 31	20512 33
20512 43	20512 35
20512 44	20512 35
20512 50	20512 36
20512 51	20512 36
20512 60	20512 37
20512 61	20512 37
20512 70	20512 39
20512 71	20512 39
20512 80	20512 40
20512 81	20512 40
20512 90	20512 42
20512 91	20512 42
20522 16	20522 19
20522 17	20522 19
20522 18	20522 19
20522 20	20522 19
20530 20	20530 13
20530 25	20530 13
20530 40	20530 19
20530 50	20530 19
20630 09	20630 07
20630 12	20630 07
20630 35	20630 89
20630 76	20630 75
20630 76	20630 81
20630 91	20630 89
20752 97	20752 32
20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
20853 65	20853 63
20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
20922 19	20922 22
20923 21	20923 24
20923 21	20923 31
20923 21	20923 33
20923 23	20923 25
20923 23	20923 35
20923 26	20923 31
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20923 29	20923 35
20925 27	20925 31
20925 28	20925 31
20925 29	20925 35
20925 30	20925 32
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20952 00	20952 17
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20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
2099B 07	20997 41
2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
20223 00	20223 01
20223 00	20223 02
20224 21	20224 11
20224 21	20224 13
20238 11	20238 01
20238 11	20238 03
20238 11	20238 05
20238 11	20238 07
20238 11	20238 19
20321 11	20321 00
20321 21	20321 00
20321 31	20321 00
20321 51	20321 00
20321 71	20321 00
20321 98	20321 00
20323 73	20323 71
20323 74	20323 71
20324 61	20324 63
20324 62	20324 63
20331 18	20331 59
20331 31	20331 59
20331 97	20331 59
20332 58	20332 98
20332 73	20332 98
20332 99	20332 98
20336 61	20336 67
20336 63	20336 67
20336 65	20336 67
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20338 15	20338 13
20343 18	20343 25
20343 23	20343 25
20343 29	20343 32
20343 31	20343 32
20343 38	20343 39
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20352 34	20352 21
20352 34	20352 33
20352 34	20352 35
20352 34	20352 39
20372 98	20372 63
20372 98	20372 69
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20415 60	20415 17
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20415 67	20415 21
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20415 74	20415 25
20415 87	20415 86
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20415 93	20415 92
20415 93	20415 95
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20416 23	20416 13
20430	20431
20430	20432
20430 11	20431 01
20430 11	20431 03
20430 12	20431 05
20430 12	20431 07
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20450 87	20450 86
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20461 37	20461 29
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20980 21	20980 01
20980 21	20980 02
20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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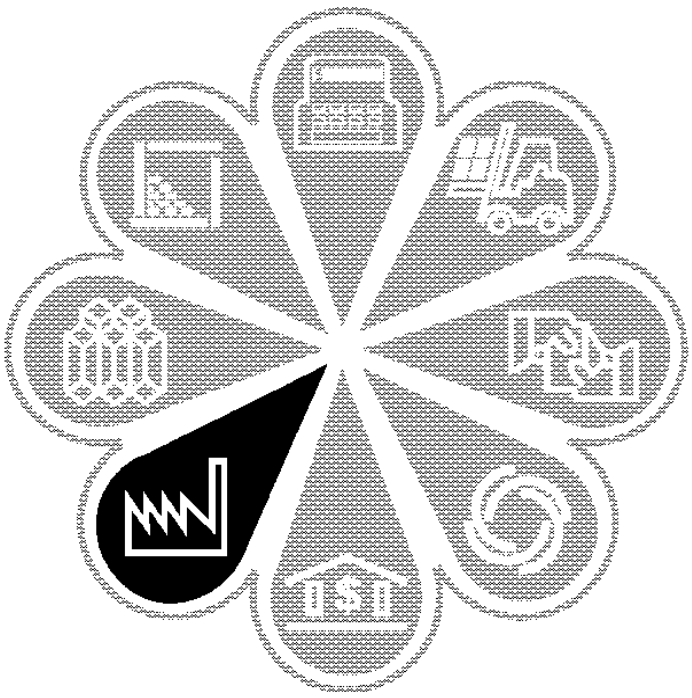
1992 Census of Manufactures

MC92-I-20E

INDUSTRY SERIES

Bakery Products

Industries 2051, 2052, and 2053



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20E

INDUSTRY SERIES

Bakery Products

Industries 2051, 2052, and 2053

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief, with primary staff assistance by **John Miller.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2051	Bread, Cake, and Related Products
2052	Cookies and Crackers
2053	Frozen Bakery Products, Except Bread

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing fresh or frozen bread and bread-type rolls and fresh cakes, pies, pastries, and other similar ''perishable'' bakery products. Establishments primarily engaged in producing ''dry'' bakery products, such as biscuits, crackers, and cookies are classified in industry 2052. Establishments primarily engaged in manufacturing frozen bakery products, except bread and bread-type rolls are classified in industry 2053.

Establishments producing bakery products primarily for direct sale on the premises to household consumers are classified in retail trade, industry 5461.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2051, Bread, Cake, and Related Products, had employment of 155.1 thousand. The employment figure was 4 percent below the 161.9 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania, accounting for approximately 31 percent of the industry's employment. This represents a shift from 1987 when California, New York, Pennsylvania, and Texas accounted for approximately 32 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $18.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2051 shipped $14.1 billion of bread, cake, and related products considered primary to the industry, $680.5 million of secondary products, and had $3.3 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 2051, no matter in what industry they were produced, appear in table 6a and aggregate to $14.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the bread, cake, and related products industry amounted to $6.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2052, COOKIES AND CRACKERS

This industry is made up of establishments primarily engaged in manufacturing fresh cookies, crackers, pretzels, and similar ''dry'' bakery products.

Establishments primarily engaged in producing other fresh bakery products are classified in industry 2051.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2052, Cookies and Crackers, had employment of 47.2 thousand. The employment figure was 4 percent above the 45.3 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, Illinois, North Carolina, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $8.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2052 shipped $7.1 billion of cookie and cracker products considered primary to the industry, $509.2 million of secondary products, and had $1.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2052, no matter in what industry they were produced, appear in table 6a and aggregate to $7.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cookies and crackers industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD

This industry is made up of establishments primarily engaged in manufacturing frozen bakery products, except bread and bread-type rolls. Establishments primarily engaged in manufacturing frozen bread and bread-type rolls are classified in industry 2051.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2053, Frozen Bakery Products, Except Bread, had employment of 12.7 thousand. The employment figure was 28 percent above the 9.9 thousand reported in 1987. Compared with 1991, employment increased 35 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Michigan, North Carolina, and Pennsylvania. This represents a shift from 1987 when California, Illinois, Michigan, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2053 shipped $1.5 billion of frozen bakery products, except bread considered primary to the industry, $175.3 million of

secondary products, and had $29.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 2053, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the frozen bakery products, except bread industry amounted to $762.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS														
1992 Census	2 180	2 539	946	155.1	4 061.6	88.3	172.1	2 034.3	11 462.0	6 680.1	18 142.5	514.4	456.1	95	97
1991 ASM	(NA)	(NA)	(NA)	150.2	3 833.7	83.0	164.9	1 917.8	10 800.7	6 484.5	17 278.6	515.9	395.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	149.0	3 763.3	82.4	161.5	1 887.5	10 475.5	6 549.3	17 019.2	541.5	394.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	153.8	3 702.3	82.0	161.6	1 800.5	10 259.0	6 327.3	16 580.1	483.8	400.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	162.8	3 676.4	86.4	171.8	1 756.6	10 466.3	5 899.6	16 362.2	446.3	391.5	(NA)	(NA)
1987 Census	1 948	2 357	1 031	161.9	3 558.0	86.6	169.3	1 713.5	10 525.8	5 696.7	16 221.1	519.3	351.1	97	99
1986 ASM	(NA)	(NA)	(NA)	153.4	3 371.2	81.9	159.9	1 663.3	9 585.8	5 565.9	15 148.2	408.7	325.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	162.1	3 515.4	82.7	159.9	1 624.0	8 810.8	5 576.8	14 388.5	378.0	330.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	162.1	3 366.5	84.8	164.2	1 569.6	8 304.8	5 403.1	13 701.5	408.4	330.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	160.9	3 249.7	85.2	166.1	1 552.2	8 020.1	5 274.5	13 293.4	284.2	318.2	(NA)	(NA)
1982 Census	1 869	2 305	1 074	170.7	3 254.3	89.0	174.5	1 522.3	7 861.1	5 282.7	13 143.3	382.4	305.7	97	98
1981 ASM	(NA)	(NA)	(NA)	176.1	3 087.3	97.5	198.0	1 494.4	7 218.5	5 279.7	12 493.6	267.8	309.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	181.9	2 923.7	101.9	204.5	1 407.9	6 726.5	4 978.1	11 703.1	288.6	299.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	184.4	2 730.2	101.9	203.5	1 318.3	6 224.5	4 515.3	10 737.7	290.4	281.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	179.2	2 572.2	96.0	189.5	1 251.7	5 686.5	4 133.8	9 817.3	324.3	251.7	(NA)	(NA)
1977 Census	2 549	3 062	1 117	178.0	2 335.8	97.4	191.7	1 152.8	5 370.4	3 909.0	9 274.9	280.4	235.1	99	98
	INDUSTRY 2052, COOKIES AND CRACKERS														
1992 Census	374	441	212	47.2	1 250.3	35.1	71.9	851.3	5 523.4	3 151.0	8 687.5	310.3	434.3	93	94
1991 ASM	(NA)	(NA)	(NA)	49.3	1 246.5	36.2	72.2	831.8	4 990.5	3 055.1	8 021.7	406.6	464.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	48.7	1 181.2	35.3	70.3	791.6	4 823.1	3 005.0	7 803.5	255.5	445.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	49.8	1 127.4	35.5	68.8	750.6	4 290.6	2 842.3	7 099.9	240.6	415.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	47.0	1 051.9	34.3	63.6	728.9	4 109.2	2 411.6	6 498.5	202.2	392.3	(NA)	(NA)
1987 Census	316	379	190	45.3	1 007.7	33.7	64.9	701.4	4 087.4	2 235.9	6 290.8	184.8	351.5	95	94
1986 ASM	(NA)	(NA)	(NA)	45.0	1 019.7	33.2	66.6	691.0	3 968.1	2 202.9	6 177.4	163.3	314.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	46.7	962.8	35.2	71.5	665.6	4 183.8	2 288.6	6 445.9	208.4	336.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	47.1	929.2	36.0	72.0	652.7	3 460.9	2 230.4	5 685.2	176.2	310.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.7	858.8	34.7	66.9	611.8	2 988.8	1 928.6	4 914.8	103.6	295.1	(NA)	(NA)
1982 Census	296	358	187	45.6	796.5	35.0	66.8	562.5	2 789.3	1 880.2	4 664.9	107.8	258.4	95	94
1981 ASM	(NA)	(NA)	(NA)	46.5	741.6	35.9	69.7	534.6	2 544.6	1 877.5	4 411.3	111.3	252.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	47.7	692.1	36.7	70.2	494.1	2 289.1	1 757.5	4 036.2	108.5	237.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	47.0	645.1	36.1	68.8	457.4	2 104.1	1 611.5	3 707.8	91.0	206.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	47.3	612.2	36.6	70.1	433.1	1 869.6	1 394.3	3 258.0	84.5	188.0	(NA)	(NA)
1977 Census	263	324	172	43.8	530.2	34.0	67.0	372.2	1 695.9	1 265.3	2 960.5	85.6	172.0	94	94
	INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD														
1992 Census	160	172	101	12.7	288.2	9.8	20.4	197.1	919.2	762.6	1 671.4	37.1	114.5	89	79
1991 ASM	(NA)	(NA)	(NA)	9.4	198.6	7.3	14.9	132.0	660.4	566.1	1 238.3	25.9	68.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.2	199.0	7.9	16.2	138.6	672.4	623.9	1 298.6	30.5	81.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.3	205.2	8.2	16.6	146.5	752.0	635.7	1 386.0	26.4	87.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.7	208.0	8.1	15.3	138.9	679.4	620.4	1 295.9	36.9	93.9	(NA)	(NA)
1987 Census	103	114	66	9.9	195.0	7.5	14.7	132.2	600.1	565.4	1 165.4	31.8	86.6	93	78

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS								
1992 Census	26 187	57	1 949	11.82	37	59	73 901	35	66.60
1991 ASM	25 524	55	1 987	11.63	38	60	71 909	35	65.50
1990 ASM	25 257	55	1 960	11.69	38	61	70 305	36	64.86
1989 ASM	24 072	53	1 971	11.14	38	60	66 704	36	63.48
1988 ASM	22 582	53	1 988	10.22	36	59	64 289	35	60.92
1987 Census	21 977	53	1 955	10.12	35	57	65 014	34	62.17
1986 ASM	21 977	53	1 952	10.40	37	59	62 489	35	59.95
1985 ASM	21 687	51	1 933	10.16	39	63	54 354	40	55.10
1984 ASM	20 768	52	1 936	9.56	39	64	51 233	41	50.58
1983 ASM	20 197	53	1 950	9.34	40	64	49 845	41	48.28
1982 Census	19 064	52	1 961	8.72	40	65	46 052	41	45.05
1981 ASM	17 532	55	2 031	7.55	42	67	40 991	43	36.46
1980 ASM	16 073	56	2 007	6.88	43	68	36 979	43	32.89
1979 ASM	14 806	55	1 997	6.48	42	67	33 755	44	30.59
1978 ASM	14 354	54	1 974	6.61	42	68	31 733	45	30.01
1977 Census	13 122	55	1 968	6.01	42	67	30 171	43	28.01

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2052, COOKIES AND CRACKERS								
1992 Census	26 489	74	2 048	11.84	36	51	117 021	23	76.82
1991 ASM	25 284	73	1 994	11.52	38	54	101 227	25	69.12
1990 ASM	24 255	72	1 992	11.26	39	54	99 037	24	68.61
1989 ASM	22 639	71	1 938	10.91	40	56	86 157	26	62.36
1988 ASM	22 381	73	1 854	11.46	37	53	87 430	26	64.61
1987 Census	22 245	74	1 926	10.81	36	52	90 230	25	62.98
1986 ASM	22 660	74	2 006	10.38	36	52	88 180	26	59.58
1985 ASM	20 617	75	2 031	9.31	36	50	89 589	23	58.51
1984 ASM	19 728	76	2 000	9.07	39	56	73 480	27	48.07
1983 ASM	18 792	76	1 928	9.14	39	57	65 400	29	44.68
1982 Census	17 467	77	1 909	8.42	40	57	61 169	29	41.76
1981 ASM	15 948	77	1 942	7.67	43	59	54 723	29	36.51
1980 ASM	14 509	77	1 913	7.04	44	61	47 990	30	32.61
1979 ASM	13 726	77	1 906	6.65	43	61	44 768	31	30.58
1978 ASM	12 943	77	1 915	6.18	43	62	39 526	33	26.67
1977 Census	12 105	78	1 971	5.56	43	61	38 719	31	25.31
	INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD								
1992 Census	22 693	77	2 082	9.66	46	63	72 378	31	45.06
1991 ASM	21 128	78	2 041	8.86	46	62	70 255	30	44.32
1990 ASM	19 510	77	2 051	8.56	48	63	65 922	30	41.51
1989 ASM	19 922	80	2 024	8.83	46	61	73 010	27	45.30
1988 ASM	19 439	76	1 889	9.08	48	64	63 495	31	44.41
1987 Census	19 697	76	1 960	8.99	49	65	60 616	32	40.82

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS														
United States	–	**2 539**	**946**	**155.1**	**4 061.6**	**88.3**	**172.1**	**2 034.3**	**11 462.0**	**6 680.1**	**18 142.5**	**514.4**	**161.9**	**10 525.8**
Alabama	–	22	17	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Alaska	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	31	14	1.5	37.7	1.0	1.7	23.9	107.3	57.9	165.2	5.0	1.4	76.0
Arkansas	–	14	8	1.4	32.5	1.0	1.7	19.2	78.9	51.5	130.5	2.4	G	(D)
California	E1	336	135	18.3	537.5	10.9	19.9	260.6	1 383.5	730.7	2 113.5	80.0	19.3	1 234.5
Colorado	–	42	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	G	(D)
Connecticut	–	36	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Delaware	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
District of Columbia	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	126	29	5.0	132.4	2.8	5.8	61.7	372.3	220.9	594.5	19.8	6.2	354.0
Georgia	–	39	22	4.7	124.1	2.1	4.3	51.2	374.7	209.1	583.7	8.8	H	(D)
Hawaii	E4	29	10	.9	20.3	.6	1.1	13.1	43.0	27.0	70.0	1.3	.6	21.3
Idaho	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	97	52	9.4	267.2	5.7	12.0	152.4	681.6	407.8	1 088.9	25.1	H	(D)
Indiana	–	35	19	4.2	107.8	2.2	4.2	54.0	278.1	177.0	455.6	8.9	3.8	291.6
Iowa	–	20	12	1.8	45.9	1.1	1.9	22.5	93.2	85.7	179.1	3.3	G	(D)
Kansas	–	19	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	17	8	2.2	54.7	1.1	2.2	23.3	118.4	115.7	233.8	4.1	G	(D)
Louisiana	–	23	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Maine	–	18	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	E2	56	21	2.5	66.8	1.7	3.9	41.8	302.3	138.5	441.0	9.1	G	(D)
Massachusetts	E1	113	29	3.9	95.8	2.4	4.5	52.2	272.4	154.9	427.1	11.7	H	(D)
Michigan	–	75	27	4.5	107.2	2.4	4.0	42.4	268.3	167.6	435.7	11.1	4.0	201.5
Minnesota	–	37	17	2.7	59.3	1.5	2.4	25.9	139.4	103.5	243.5	4.8	3.2	144.3
Mississippi	–	11	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	37	14	2.6	68.4	1.5	3.1	39.2	151.9	104.8	256.7	7.7	4.1	235.1
Montana	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	–	11	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nevada	–	13	4	.3	5.7	.2	.4	3.1	12.8	6.5	19.3	.3	C	(D)
New Jersey	E1	118	39	3.7	97.7	2.7	5.5	66.4	338.6	186.4	524.6	22.0	4.2	394.9
New Mexico	–	12	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	359	79	11.6	317.6	7.2	14.3	173.4	1 033.9	480.0	1 514.3	41.0	12.3	823.0
North Carolina	E1	45	24	5.0	114.4	2.7	5.4	52.8	256.9	172.8	430.1	6.8	H	(D)
North Dakota	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	82	32	6.2	173.8	3.8	7.1	92.0	506.8	323.4	830.3	11.9	6.2	510.4

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS—Con.														
Oklahoma	–	8	5	1.0	28.6	.5	1.0	14.4	91.6	54.8	146.0	(D)	1.2	93.7
Oregon	–	42	15	2.2	60.8	1.2	2.2	29.2	169.4	108.9	278.3	(D)	G	(D)
Pennsylvania	E1	165	72	9.5	234.1	5.8	11.2	126.7	868.9	369.0	1 239.6	29.4	9.2	649.4
Rhode Island	E1	21	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	F	(D)
South Carolina	–	12	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	236.2
South Dakota	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	38	27	9.2	230.6	4.3	8.1	86.2	584.0	485.7	1 069.4	(D)	7.4	433.9
Texas	–	112	44	9.4	241.7	5.0	10.1	116.6	647.5	439.9	1 087.4	56.5	H	(D)
Utah	–	28	8	1.0	31.1	.7	1.3	15.4	78.5	37.7	115.9	(D)	F	(D)
Vermont	E3	16	3	.4	8.0	.2	.5	4.5	16.8	15.3	32.1	(D)	E	(D)
Virginia	–	51	22	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Washington	–	56	17	2.8	87.0	1.6	3.3	45.4	230.6	148.3	378.6	7.7	2.7	175.3
West Virginia	–	13	5	1.1	28.9	.6	1.4	11.6	113.6	50.2	163.8	3.0	1.0	74.9
Wisconsin	E1	51	25	3.0	60.4	2.1	3.8	37.4	160.9	103.5	264.2	(D)	2.6	123.5
INDUSTRY 2052, COOKIES AND CRACKERS														
United States	**–**	**441**	**212**	**47.2**	**1 250.3**	**35.1**	**71.9**	**851.3**	**5 523.4**	**3 151.0**	**8 687.5**	**310.3**	**45.3**	**4 087.4**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	72	28	3.5	91.4	2.6	5.1	60.5	335.5	260.9	602.1	18.3	2.7	272.8
Colorado	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	17	6	1.0	21.5	.8	1.7	14.8	97.2	69.2	165.2	(D)	.6	16.8
Georgia	–	14	10	4.0	119.2	3.2	6.8	92.6	648.4	343.0	993.1	17.9	4.6	384.9
Hawaii	E1	10	3	.2	2.4	.1	.2	1.2	5.8	4.5	10.5	.3	(NA)	(NA)
Illinois	–	24	17	4.6	134.4	3.8	7.9	97.9	932.1	502.3	1 437.7	31.5	5.1	931.4
Indiana	–	8	6	.6	15.3	.5	1.1	9.9	40.0	35.8	76.0	(D)	E	(D)
Iowa	E1	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	5	5	1.5	36.5	1.2	2.5	24.6	187.8	116.0	301.5	5.8	G	(D)
Maryland	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	8	4	.2	4.8	.1	.2	2.8	9.6	9.2	18.8	.4	E	(D)
Michigan	–	10	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Minnesota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Missouri	–	10	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	E	(D)
New Jersey	–	23	9	3.5	102.1	2.9	5.4	76.5	373.8	214.7	592.6	(D)	H	(D)
New York	E1	45	15	1.8	44.8	1.3	2.8	25.2	131.2	77.3	208.4	3.7	G	(D)
North Carolina	–	8	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Ohio	–	17	11	3.2	82.3	2.8	5.3	67.8	510.6	241.9	753.9	9.5	H	(D)
Oklahoma	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	57	33	5.2	148.9	3.9	7.9	99.4	562.0	312.5	872.0	64.2	4.8	375.7
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	21	10	1.7	43.1	1.5	3.1	33.8	101.8	69.4	173.9	(D)	G	(D)
Utah	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	E1	15	5	.4	7.3	.3	.5	5.1	18.3	14.1	32.2	1.2	C	(D)
Wisconsin	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.2	F	(D)
INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD														
United States	**–**	**172**	**101**	**12.7**	**288.2**	**9.8**	**20.4**	**197.1**	**919.2**	**762.6**	**1 671.4**	**37.1**	**9.9**	**600.1**
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	16	13	1.2	24.6	1.0	2.2	15.6	62.5	63.2	124.1	4.8	.9	54.1
Florida	E1	7	2	.2	4.2	.1	.4	2.7	10.0	6.6	16.4	(D)	(NA)	(NA)
Georgia	–	8	5	.7	18.4	.6	1.2	12.3	71.5	54.2	124.6	2.6	C	(D)
Illinois	–	9	7	.4	9.8	.3	.6	6.0	19.1	16.4	36.0	.4	G	(D)
Indiana	–	8	7	.6	13.3	.4	.9	8.1	29.2	37.7	66.2	(D)	E	(D)
Iowa	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	11	3	.3	6.2	.3	.6	4.6	14.1	10.4	24.6	.5	(NA)	(NA)
Michigan	–	7	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Minnesota	E1	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.0	(NA)	(NA)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nebraska	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	7	2	.1	2.0	.1	.2	1.4	5.3	4.6	9.7	(D)	E	(D)
New York	E1	19	7	.4	8.2	.4	.8	5.6	24.7	20.8	45.3	.8	C	(D)
North Carolina	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	7	4	.3	5.7	.2	.4	3.1	19.8	13.0	33.0	.2	(NA)	(NA)
Oklahoma	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	16	13	2.0	53.7	1.6	3.1	38.0	216.9	140.7	354.9	7.5	1.3	156.3
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	5	3	.2	4.6	.2	.3	2.9	19.2	17.4	34.3	1.4	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Bread, cake, and related products (SIC 2051)	Cookies and crackers (SIC 2052)	Frozen bakery products, except bread (SIC 2053)
Companies ---- number	2 180	374	160
All establishments ---- number	2 539	441	172
With 1 to 19 employees ---- number	1 593	229	71
With 20 to 99 employees ---- number	531	112	61
With 100 employees or more ---- number	415	100	40
Employment and labor costs:			
Employees ---- 1,000	155.1	47.2	12.7
Compensation, total ---- mil dol	5 399.3	1 690.0	370.2
Annual payroll ---- mil dol	4 061.6	1 250.3	288.2
Fringe benefits ---- mil dol	1 337.6	439.7	82.1
Social Security and other legally required payments ---- mil dol	493.9	151.5	40.2
Employer voluntary payments ---- mil dol	843.7	288.3	41.9
Production workers:			
Average for year ---- 1,000	88.3	35.1	9.8
March ---- 1,000	87.4	34.0	9.3
May ---- 1,000	88.3	34.7	9.8
August ---- 1,000	88.8	36.2	10.0
November ---- 1,000	88.7	35.7	10.3
Hours ---- millions	172.1	71.9	20.4
Wages ---- mil dol	2 034.3	851.3	197.1
Cost of materials[1] ---- mil dol	6 680.1	3 151.0	762.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 506.3	2 419.4	710.6
Resales ---- mil dol	1 893.4	636.8	22.0
Fuels ---- mil dol	121.2	36.9	7.0
Purchased electricity ---- mil dol	143.3	52.6	21.7
Contract work ---- mil dol	15.9	5.2	1.4
Quantity of electric energy used for heat and power:			
Purchased ---- mil kWh	2 278.6	873.0	361.7
Generated less sold ---- mil kWh	26.7	(D)	–
Total value of shipments ---- mil dol	18 142.5	8 687.5	1 671.4
Value added ---- mil dol	11 462.0	5 523.4	919.2
Inventories by stage of fabrication:			
Beginning of 1992 ---- mil dol	465.5	447.4	99.6
Finished goods ---- mil dol	115.2	236.0	36.3
Work in process ---- mil dol	6.1	4.2	1.5
Materials and supplies ---- mil dol	344.2	207.2	61.9
End of 1992 ---- mil dol	456.1	434.3	114.5
Finished goods ---- mil dol	116.1	223.6	46.7
Work in process ---- mil dol	4.7	3.5	1.5
Materials and supplies ---- mil dol	335.3	207.2	66.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Bread, cake, and related products (SIC 2051)	Cookies and crackers (SIC 2052)	Frozen bakery products, except bread (SIC 2053)
Gross book value of depreciable assets:			
Total:			
Beginning of year	5 729.2	3 050.9	450.8
New capital expenditures[1]	514.4	310.3	37.1
Used capital expenditures	28.4	27.4	2.2
Retirements	238.9	82.7	10.8
End of year	6 033.2	3 305.9	479.2
Buildings and other structures:			
Beginning of year	1 349.1	774.1	122.6
New capital expenditures	101.0	38.0	(D)
Used capital expenditures	7.6	17.9	(D)
Retirements	41.8	2.6	1.4
End of year	1 415.9	827.3	127.1
Machinery and equipment:			
Beginning of year	4 380.1	2 276.8	328.2
New capital expenditures[1]	413.4	272.4	(D)
Used capital expenditures	20.9	9.5	(D)
Retirements	197.1	80.1	9.5
End of year	4 617.3	2 478.6	352.1
Depreciation charges during 1992:			
Total	390.6	224.7	28.7
Buildings and other structures	58.0	31.3	5.2
Machinery and equipment	332.5	193.4	23.5
Rental payments:			
Total	170.2	36.9	17.2
Buildings and other structures	99.6	21.4	9.8
Machinery and equipment	70.6	15.6	7.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Bread, cake, and related products (SIC 2051)		Cookies and crackers (SIC 2052)		Frozen bakery products, except bread (SIC 2053)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	28.6	(X)	10.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	80.3	(X)	86.0	(X)	(S)	(X)
Machinery	104.2	(X)	59.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	80.9	(X)	85.2	(X)	(S)	(X)
Other purchased services:						
Communications	28.8	(X)	10.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	79.5	(X)	85.6	(X)	(S)	(X)
Legal	18.8	(X)	4.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.8	(X)	81.4	(X)	(S)	(X)
Accounting and bookkeeping	7.8	(X)	4.0	(X)	(S)	(X)
Response coverage ratio (percent)[2]	77.1	(X)	82.3	(X)	(S)	(X)
Advertising	137.5	(X)	21.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	80.5	(X)	83.2	(X)	(S)	(X)
Software and other data processing	7.7	(X)	5.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.3	(X)	80.2	(X)	(S)	(X)
Refuse removal, including hazardous waste	10.5	(X)	5.6	(X)	(S)	(X)
Response coverage ratio (percent)[2]	80.8	(X)	82.0	(X)	(S)	(X)
New machinery and equipment expenditures	413.4	(X)	272.4	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	69.8	4	10.4	14	(D)	(X)
Computers and peripheral data processing equipment	23.9	6	17.1	6	(D)	(X)
All other	319.7	1	244.9	1	31.0	1
Adjustment ratio[3]	1.2	(X)	1.1	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	4 506.3	(X)	2 419.4	(X)	710.6	(X)
Materials purchased or transferred from foreign sources[4]	9.1	32	14.7	8	(S)	(X)
Materials purchased or transferred from domestic sources	4 497.2	1	2 404.7	1	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.5	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS												
Total	**–**	**2 539**	**155.1**	**4 061.6**	**88.3**	**172.1**	**2 034.3**	**11 462.0**	**6 680.1**	**18 142.5**	**514.4**	**456.1**
Establishments with an average of—												
1 to 4 employees	E9	881	1.4	26.1	1.2	2.2	19.3	75.2	47.2	122.3	1.3	6.9
5 to 9 employees	E7	375	2.5	37.7	2.0	3.7	28.0	97.0	60.7	157.8	2.0	9.2
10 to 19 employees	E4	337	4.7	70.0	3.6	6.7	48.4	190.0	110.1	299.9	4.3	13.7
20 to 49 employees	E1	354	11.3	206.3	7.9	15.1	130.1	464.4	301.3	766.2	21.5	34.0
50 to 99 employees	E1	177	12.3	259.1	8.6	16.0	158.5	621.6	394.0	1 016.3	27.6	37.4
100 to 249 employees	–	234	38.0	1 001.4	23.5	47.2	556.5	3 018.3	1 885.4	4 903.9	154.1	122.9
250 to 499 employees	–	133	45.3	1 259.3	22.2	45.5	567.4	3 611.7	2 063.5	5 673.8	133.3	113.2
500 to 999 employees	–	41	26.3	800.1	13.2	25.4	372.8	2 153.4	1 224.1	3 378.0	170.3	72.4
1,000 to 2,499 employees	–	6	13.3	401.6	6.0	10.3	153.3	1 230.5	593.8	1 824.3	(D)	46.5
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 291	6.2	82.4	5.1	8.9	61.2	199.3	126.3	325.6	3.0	18.6
INDUSTRY 2052, COOKIES AND CRACKERS												
Total	**–**	**441**	**47.2**	**1 250.3**	**35.1**	**71.9**	**851.3**	**5 523.4**	**3 151.0**	**8 687.5**	**310.3**	**434.3**
Establishments with an average of—												
1 to 4 employees	E9	137	.2	3.7	.2	.3	2.8	13.6	8.2	21.8	.6	1.3
5 to 9 employees	E9	44	.3	4.0	.2	.4	2.9	14.6	9.4	24.0	.7	1.5
10 to 19 employees	E6	48	.7	10.5	.5	1.0	7.7	32.6	22.0	54.6	1.4	4.6
20 to 49 employees	E2	66	2.0	35.6	1.5	2.9	23.9	105.1	64.5	169.1	25.3	12.5
50 to 99 employees	E1	46	3.4	72.1	2.6	4.7	43.1	252.5	167.9	418.9	22.7	22.8
100 to 249 employees	–	47	7.7	174.3	5.9	12.0	112.4	658.1	436.0	1 095.3	45.0	57.5
250 to 499 employees	–	32	12.6	348.1	10.0	21.0	252.1	1 207.6	914.9	2 121.4	58.7	118.5
500 to 999 employees	–	18	12.0	395.8	9.8	20.5	303.2	2 124.2	967.0	3 101.6	155.8	158.0
1,000 to 2,499 employees	–	2	8.3	206.2	4.4	8.9	103.2	1 115.0	561.1	1 680.7	(D)	57.7
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	187	.7	9.2	.6	1.0	6.8	30.3	19.2	49.5	1.5	2.8
INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD												
Total	**–**	**172**	**12.7**	**288.2**	**9.8**	**20.4**	**197.1**	**919.2**	**762.6**	**1 671.4**	**37.1**	**114.5**
Establishments with an average of—												
1 to 4 employees	E9	24	(Z)	.8	(Z)	.1	.5	2.9	2.3	5.2	.1	.4
5 to 9 employees	E8	27	.2	2.8	.1	.3	1.9	9.8	8.1	17.9	.3	1.2
10 to 19 employees	E3	20	.3	4.8	.2	.4	3.0	13.4	11.6	24.9	.4	1.6
20 to 49 employees	–	43	1.3	24.2	1.0	1.9	15.0	66.3	61.1	127.6	2.2	6.7
50 to 99 employees	–	18	1.2	24.4	.9	1.8	15.1	71.3	60.0	131.1	4.0	7.9
100 to 249 employees	–	29	4.4	96.1	3.4	7.4	63.8	281.0	249.8	521.5	13.6	43.6
250 to 499 employees	–	7	5.3	135.1	4.1	8.6	97.8	474.6	369.7	843.3	16.5	53.1
500 to 999 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	48	.2	3.1	.2	.3	2.2	10.9	8.9	19.8	.3	1.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2051	**Bread, cake, and related products:**										
	All establishments in industry	2 539	155.1	4 061.6	88.3	172.1	2 034.3	11 462.0	6 680.1	18 142.5	514.4
	Establishments with this product class primary:										
20511	Bread: white, wheat, and rye (including frozen)	425	82.3	2 336.5	40.8	81.7	1 054.2	6 592.7	3 738.4	10 330.6	260.2
20512	Rolls, bread-type	241	26.3	671.5	16.6	32.3	367.2	1 875.7	1 102.2	2 977.0	81.0
20513	Sweet yeast goods	92	9.3	251.6	6.3	12.1	151.7	649.4	373.7	1 024.2	25.3
20514	Soft cakes	82	20.5	533.7	11.6	22.2	270.0	1 649.1	1 008.5	2 657.9	122.4
20515	Pies (fruit, cream, and custard)	31	1.2	23.3	.9	1.8	17.0	67.3	65.3	133.6	3.3
20516	Pastries	11	1.1	22.6	.9	1.8	16.2	73.4	46.2	119.6	4.9
20517	Doughnuts, cake-type, except frozen	16	.9	18.5	.6	1.1	10.8	86.1	47.6	133.8	2.9

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2052	**Cookies and crackers:**										
	All establishments in industry	441	47.2	1 250.3	35.1	71.9	851.3	5 523.4	3 151.0	8 687.5	310.3
	Establishments with this product class primary:										
20521	Crackers, pretzels, biscuits, and related products	88	20.2	590.0	13.7	29.7	384.7	2 550.7	1 271.4	3 837.1	150.5
20522	Cookies, wafers, and ice cream cones and cups except frozen	126	25.5	639.7	20.2	40.0	451.3	2 905.6	1 837.1	4 740.9	156.5
2053	**Frozen bakery products, except bread:**										
	All establishments in industry	172	12.7	288.2	9.8	20.4	197.1	919.2	762.6	1 671.4	37.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS			
Total value of shipments	18 142.5	16 221.1	13 143.3
Primary products value of shipments	14 143.4	13 327.3	10 769.3
Secondary products value of shipments	680.5	411.8	358.4
Total miscellaneous receipts	3 318.7	2 482.0	2 015.7
Value of resales	3 132.1	2 366.1	1 834.7
Contract receipts	(D)	.8	(D)
Other miscellaneous receipts	(D)	115.0	(D)
Primary products specialization ratio	95	97	97
Value of primary products shipments made in all industries	14 584.9	13 513.0	11 028.1
Value of primary products shipments made in this industry	14 143.4	13 327.3	10 769.3
Value of primary products shipments made in other industries	441.5	185.7	258.9
Coverage ratio	97	99	98
INDUSTRY 2052, COOKIES AND CRACKERS			
Total value of shipments	8 687.5	6 290.8	4 664.9
Primary products value of shipments	7 063.5	5 526.0	4 168.7
Secondary products value of shipments	509.2	287.1	234.1
Total miscellaneous receipts	1 114.8	477.7	262.0
Value of resales	1 080.5	465.2	247.4
Contract receipts	29.4	6.7	(D)
Other miscellaneous receipts	4.9	5.8	(D)
Primary products specialization ratio	93	95	95
Value of primary products shipments made in all industries	7 501.8	5 853.2	4 435.8
Value of primary products shipments made in this industry	7 063.5	5 526.0	4 168.7
Value of primary products shipments made in other industries	438.3	327.2	267.0
Coverage ratio	94	94	94
INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD			
Total value of shipments	1 671.4	1 165.4	(NA)
Primary products value of shipments	1 466.1	1 071.2	(NA)
Secondary products value of shipments	175.4	84.9	(NA)
Total miscellaneous receipts	30.0	9.3	(NA)
Value of resales	29.6	(D)	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	89	93	(NA)
Value of primary products shipments made in all industries	1 845.2	1 372.7	(NA)
Value of primary products shipments made in this industry	1 466.1	1 071.2	(NA)
Value of primary products shipments made in other industries	379.1	301.5	(NA)
Coverage ratio	79	78	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2051– —	**BREAD, CAKE, AND RELATED PRODUCTS**						
	Total	**(NA)**	**(X)**	**14 584.9**	**(NA)**	**(X)**	**13 513.0**
20511	Bread: white, wheat, and rye (including frozen)	(NA)	(X)	5 983.9	(NA)	(X)	5 794.5
20511 21	White pan bread, except frozen — mil lb	129	**5 790.7	2 886.6	125	**6 456.1	3 006.7
20511 22	Frozen white pan bread — mil lb	7	**21.1	6.5			
	Variety breads:						
20511 27	White hearth, except frozen (including french, italian, etc.) — mil lb	165	**1 421.3	801.7	149	1 374.0	699.6
20511 29	Frozen white hearth (including french, italian, etc.) — mil lb	40	**348.2	171.3			
20511 31	Whole wheat, cracked wheat, multigrain, and other dark wheat breads, except frozen — mil lb	126	2 207.6	1 264.1	117	2 271.0	1 240.6
20511 33	Frozen whole wheat, cracked wheat, multigrain, and other dark wheat breads — mil lb	14	82.9	48.1			
20511 35	Rye (including pumpernickel), except frozen — mil lb	88	361.4	264.1	98	459.0	291.2
20511 37	Frozen rye (including pumpernickel) — mil lb	8	13.6	6.8			
20511 41	Other variety breads (raisin, potato, salt-rising, salt-free, canned, etc.), except frozen — mil lb	103	609.4	419.8	78	731.8	457.7
20511 42	Other frozen variety breads (raisin, potato, salt-rising, salt-free, canned, etc.) — mil lb	17	42.5	27.2			
20511 00	Bread: white, wheat, and rye (including frozen), n.s.k.	(NA)	(X)	87.8	(NA)	(X)	98.9
20512	Rolls, bread-type	(NA)	(X)	4 037.0	(NA)	(X)	3 211.9
	Rolls, bread-type (including frozen):						
20512 30	Hamburger and wiener rolls, except frozen — mil lb	120	**3 147.6	1 910.9	130	*3 125.1	1 677.3
20512 31	Frozen hamburger and wiener rolls — mil lb	14	202.7	79.2			
20512 43	Brown and serve rolls, except frozen — mil lb	49	317.8	206.0	61	320.7	218.3
20512 44	Frozen brown and serve rolls — mil lb	4	7.1	4.8			
20512 50	English muffins, except frozen — mil lb	31	365.9	360.5	38	416.8	266.9
20512 51	Frozen english muffins — mil lb	5	15.6	9.7			
20512 60	Hearth rolls, except frozen — mil lb	83	**257.3	195.8	75	**319.3	168.0
20512 61	Frozen hearth rolls — mil lb	12	(S)	20.5			
20512 70	Bagels, except frozen — mil lb	47	*109.2	87.8	29	522.1	268.4
20512 71	Frozen bagels — mil lb	22	347.4	267.0			
20512 80	Croissants, except frozen — mil lb	28	**9.2	17.4	32	86.1	74.4
20512 81	Frozen croissants — mil lb	25	*121.4	142.0			
20512 90	Other bread-type rolls (kaiser except hearth-type, parkerhouse, etc.; except frozen) — mil lb	98	**467.3	326.0	97	461.2	298.7
20512 91	Other frozen bread-type rolls (kaiser except hearth-type, parkerhouse, etc.) — mil lb	13	**103.5	55.8			
20512 49	Bread stuffing, croutons, and bread crumbs (plain and seasoned) — mil lb	29	*565.2	326.8	42	*400.8	213.6
20512 00	Rolls, bread-type, n.s.k.	(NA)	(X)	26.1	(NA)	(X)	26.4
20513	Sweet yeast goods	(NA)	(X)	839.6	(NA)	(X)	994.7
20513 13	Yeast-raised doughnuts, except frozen — mil lb	74	**195.7	159.1	67	*277.5	258.7
20513 98	All other sweet yeast goods, except frozen (including sweet rolls and coffeecake) — mil lb	99	*488.4	668.0	88	602.4	722.7
20513 00	Sweet yeast goods, n.s.k.	(NA)	(X)	12.5	(NA)	(X)	13.3
20514	Soft cakes	(NA)	(X)	1 888.2	(NA)	(X)	1 770.3
20514 13	Snack cakes, except frozen — mil lb	52	1 267.8	1 436.9	47	1 368.8	1 334.9
20514 15	Fruitcakes, holiday-type, except frozen — mil lb	24	(S)	70.1	29	38.1	67.8
20514 19	All other soft cakes, except frozen (including pound, layer, sheet, cheese, etc.) — mil lb	103	*221.2	367.3	96	**250.1	357.8
20514 00	Soft cakes, n.s.k.	(NA)	(X)	13.8	(NA)	(X)	9.8
20515	Pies (fruit, cream, and custard)	(NA)	(X)	415.2	(NA)	(X)	435.7
20515 13	Snack pies, except frozen — mil lb	27	*178.2	248.3	35	314.2	320.7
20515 19	All other pies: fruit, custard, and cream types, etc., except frozen — mil lb	57	*94.5	165.1	50	92.3	114.2
20515 00	Pies (fruit, cream, and custard), n.s.k.	(NA)	(X)	1.9	(NA)	(X)	.8
20516	Pastries	(NA)	(X)	144.9	(NA)	(X)	30.4
20516 00	Pastries (except frozen), all types of baking powder leavened only — mil lb	71	*76.3	144.9	29	(X)	30.4
20517	Doughnuts, cake-type, except frozen	(NA)	(X)	498.4	(NA)	(X)	399.7
20517 00	Doughnuts, cake-type (except frozen) (baking powder leavened) — mil lb	81	**363.5	498.4	57	359.3	399.7
20510	Bread, cake, and related products, n.s.k.	(NA)	(X)	777.7	(NA)	(X)	875.6
20510 00	Bread, cake, and related products, n.s.k.[3]	(NA)	(X)	450.0	(NA)	(X)	555.0
20510 02	Bread, cake, and related products, n.s.k.[4]	(NA)	(X)	327.7	(NA)	(X)	320.6
2052– —	**COOKIES AND CRACKERS**						
	Total	**(NA)**	**(X)**	**7 501.8**	**(NA)**	**(X)**	**5 853.2**
20521	Crackers, pretzels, biscuits, and related products	(NA)	(X)	3 221.3	(NA)	(X)	2 386.1
20521 23	Graham crackers — mil lb	12	*180.3	183.9	16	170.8	190.8
20521 25	Saltines — mil lb	14	556.0	581.3	14	634.1	453.1
20521 33	Cracker meal and crumbs — mil lb	10	(S)	29.9	11	**44.6	27.8
20521 35	Cracker sandwiches made from crackers produced in this plant — mil lb	8	*256.2	405.7	8	125.0	196.5
20521 51	Pretzels — mil lb	33	*472.7	444.2	33	248.6	226.4
20521 98	Other crackers and related products (sponge, sprayed, low-sugar biscuits, melba toast, unsalted soda, taco shells, etc.) — mil lb	50	*1 130.5	1 561.9	46	1 060.0	1 288.8
20521 00	Crackers, pretzels, biscuits, and related products, n.s.k.	(NA)	(X)	14.4	(NA)	(X)	2.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2052– —	**COOKIES AND CRACKERS**—Con.						
20522	Cookies, wafers, and ice cream cones and cups except frozen	(NA)	(X)	4 168.9	(NA)	(X)	3 378.8
	Cookies:						
20522 13	Sandwich cookies, made from cookies made in this plant—mil lb	24	*733.5	820.8	33	741.6	879.3
20522 15	Marshmallow cookies—mil lb	7	*21.4	38.7	13	69.2	78.6
20522 16	Creme-filled cookies—mil lb	12	*130.5	123.3			
20522 17	Chocolate chip cookies—mil lb	61	406.0	644.9			
20522 18	Oatmeal cookies—mil lb	43	145.9	200.2	121	[5]2 052.7	2 149.6
20522 20	Other cookies and wafers, (except wafers for making ice cream sandwiches)—mil lb	129	**1 565.1	1 886.3			
20522 21	Toaster pastries—mil lb	5	264.6	238.2	7	149.8	95.0
20522 35	Wafers for making ice cream sandwiches—mil lb	4	(D)	(D)	4	(D)	(D)
20522 31	Ice cream cones and cups—millions	10	**4 042.5	138.7	13	3 675.5	119.0
20522 00	Cookies, wafers, and ice cream cones and cups except frozen, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	(D)
20520	Cookies and crackers, n.s.k.	(NA)	(X)	111.7	(NA)	(X)	88.2
20520 00	Cookies and crackers, n.s.k.[6]	(NA)	(X)	62.2	(NA)	(X)	32.2
20520 02	Cookies and crackers, n.s.k.[7]	(NA)	(X)	49.5	(NA)	(X)	56.0
2053– —	**FROZEN BAKERY PRODUCTS**						
	Total	**(NA)**	**(X)**	**1 845.2**	**(NA)**	**(X)**	**1 372.7**
20530	Frozen bakery products	(NA)	(X)	1 845.2	(NA)	(X)	1 372.7
20530 20	Frozen yeast-raised doughnuts—mil lb	13	88.6	57.1			
20530 25	All other frozen sweet yeast goods, (including sweet rolls and coffeecake)—mil lb	31	*120.5	107.8	32	*152.6	157.6
20530 14	Frozen soft cakes, (including pound, layer, sheet, fruit, cheese, etc.)—mil lb	70	(S)	435.4	42	*356.2	392.0
20530 11	Frozen pies—mil lb	34	642.8	697.4	30	478.9	449.4
20530 17	Doughnuts, cake-type (baking powder leavened)—mil lb	16	*78.4	66.1	20	*83.9	58.5
20530 40	Pastries, all types of baking powder leavened only (cream puffs, eclairs, lady fingers, fresh pastry, etc.)—mil lb	27	*163.0	178.3			
20530 50	All other frozen bakery products	53	(X)	254.8	39	(X)	288.0
20530 00	Frozen bakery products, n.s.k.[3]	(NA)	(X)	28.5	(NA)	(X)	.1
20530 02	Frozen bakery products, n.s.k.[4]	(NA)	(X)	19.8	(NA)	(X)	27.1

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Revised by 5 percent or more from previously published figures.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20511, BREAD: WHITE, WHEAT, AND RYE (INCLUDING FROZEN)			**20511, BREAD: WHITE, WHEAT, AND RYE (INCLUDING FROZEN)**—Con.		
United States	**5 983.9**	**5 794.5**	Kansas	25.6	31.1
Alabama	155.7	128.7	Kentucky	63.2	56.5
Arizona	82.8	87.4	Louisiana	90.3	111.7
Arkansas	38.6	32.5	Maryland	162.8	141.8
California	724.2	745.0	Massachusetts	194.8	157.3
Colorado	64.0	61.3	Michigan	147.9	160.8
Connecticut	181.0	285.5	Minnesota	65.6	89.2
Florida	241.2	244.2	Missouri	102.4	140.6
Georgia	150.1	138.0	Nevada	12.6	(NA)
Illinois	316.1	313.0	New Jersey	87.4	117.9
Indiana	119.4	124.1	New York	452.9	371.0
Iowa	69.9	71.8	North Carolina	189.0	168.4

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20511, BREAD: WHITE, WHEAT, AND RYE (INCLUDING FROZEN)—Con.		
Ohio	256.3	231.9
Oklahoma	55.2	64.2
Oregon	101.4	79.4
Pennsylvania	446.5	313.0
Rhode Island	6.9	(NA)
South Carolina	57.4	65.9
Tennessee	156.3	145.4
Texas	392.5	396.4
Utah	51.3	(NA)
Virginia	129.4	118.8
Washington	119.1	112.7
West Virginia	90.8	69.1
Wisconsin	100.7	65.3
20512, ROLLS, BREAD-TYPE		
United States	**4 037.0**	**3 211.9**
Alabama	118.2	110.4
Arizona	54.4	20.8
Arkansas	67.0	39.7
California	491.2	396.8
Colorado	41.6	37.3
Connecticut	105.3	96.9
Florida	158.4	94.2
Georgia	61.7	51.1
Hawaii	16.6	6.8
Illinois	377.2	235.2
Indiana	88.8	76.4
Iowa	61.1	25.9
Kansas	32.7	18.1
Kentucky	34.6	29.1
Maryland	175.4	100.4
Massachusetts	81.5	60.5
Michigan	88.9	55.1
Minnesota	79.4	33.1
Missouri	55.7	50.1
New Jersey	200.0	175.6
New York	238.4	179.7
North Carolina	89.5	82.6
Ohio	204.5	149.2
Oklahoma	29.6	29.6
Oregon	77.9	32.1
Pennsylvania	212.5	174.9
Rhode Island	42.7	(NA)
South Carolina	51.7	188.4
Tennessee	81.8	76.8
Texas	177.5	145.7
Virginia	38.6	44.7
Washington	62.5	54.9
West Virginia	41.7	22.2
Wisconsin	73.9	55.5
20513, SWEET YEAST GOODS		
United States	**839.6**	**994.7**
Alabama	33.5	(NA)
California	107.2	99.7
Colorado	3.7	(NA)
Florida	8.2	30.1
Illinois	75.5	74.4
Indiana	35.3	31.1
Maryland	12.9	17.7
North Carolina	32.4	39.6
Ohio	35.1	32.9
Pennsylvania	12.2	9.4
Tennessee	24.2	35.2
Texas	54.1	58.1
Washington	13.9	13.9
Wisconsin	13.6	12.6
20514, SOFT CAKES		
United States	**1 888.2**	**1 770.3**
California	160.4	145.7
Georgia	117.2	67.3
Illinois	114.0	172.8
Indiana	76.4	61.5
New Jersey	124.3	(NA)
New York	155.9	153.8
North Carolina	38.3	50.3
Oregon	3.4	12.5
Texas	99.0	85.5
Wisconsin	7.4	8.4
20515, PIES (FRUIT, CREAM, AND CUSTARD)		
United States	**415.2**	**435.7**
California	32.8	59.7
Florida	10.5	(NA)
Illinois	29.5	25.5
Indiana	8.2	6.3
Louisiana	5.2	(NA)
New Jersey	17.3	(NA)
Ohio	4.2	(NA)
Pennsylvania	82.2	91.3
Tennessee	4.0	5.3
Washington	12.6	(NA)
20516, PASTRIES		
United States	**144.9**	**30.4**
California	44.2	(NA)
Maryland	3.7	(NA)
New York	3.5	(NA)
Pennsylvania	9.5	(NA)
20517, DOUGHNUTS, CAKE-TYPE, EXCEPT FROZEN		
United States	**498.4**	**399.7**
California	85.7	65.4
Florida	14.7	(NA)
Indiana	42.7	(NA)
Maryland	7.7	(NA)
New Jersey	15.7	(NA)
Ohio	9.0	(NA)
Pennsylvania	43.8	(NA)
Texas	14.3	(NA)
20521, CRACKERS, PRETZELS, BISCUITS, AND RELATED PRODUCTS		
United States	**3 221.3**	**2 386.1**
California	259.1	189.0
Georgia	433.0	259.3
Indiana	31.0	28.8
New Jersey	147.3	186.3
New York	148.9	37.5
Ohio	286.4	179.4
Pennsylvania	404.6	286.8
Texas	108.8	(NA)
20522, COOKIES, WAFERS, AND ICE CREAM CONES AND CUPS EXCEPT FROZEN		
United States	**4 168.9**	**3 378.8**
California	241.5	218.9
Florida	55.1	23.2
Georgia	388.9	285.3
Illinois	662.9	675.0
Indiana	47.0	(NA)
Iowa	63.5	43.6
Kentucky	207.9	84.0
Maryland	11.8	(NA)
Massachusetts	13.8	13.4
Missouri	17.7	(NA)
New Jersey	415.3	247.4
New York	135.6	117.8
North Carolina	60.4	84.1
Ohio	441.6	337.0
Oregon	67.0	133.2
Pennsylvania	292.8	190.5
Tennessee	152.2	212.8
Texas	48.9	56.8
Washington	21.1	(NA)

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2051-	**Bread, cake, and related products**	**14 584.9**	**14 293.7**	**14 209.8**	**13 846.7**	**13 469.9**	**13 513.0**	**11 028.1**	**7 965.9**
20511	Bread: white, wheat, and rye (including frozen)	5 983.9	6 113.3	6 001.0	6 138.7	5 562.9	5 794.5	4 698.1	3 500.7
20512	Rolls, bread-type	4 037.0	3 809.0	3 762.9	3 531.8	3 358.1	3 211.9	2 437.7	1 679.6
20513	Sweet yeast goods	839.6	914.4	989.3	959.5	1 001.1	994.7	760.7	640.4
20514	Soft cakes	1 888.2	1 778.8	1 795.5	1 677.6	1 761.7	1 770.3	1 231.2	949.9
20515	Pies (fruit, cream, and custard)	415.2	378.1	381.3	409.4	439.6	435.7	394.5	297.1
20516	Pastries	144.9	98.1	50.2	55.7	47.6	30.4	39.2	31.2
20517	Doughnuts, cake-type, except frozen	498.4	501.8	481.4	407.9	400.0	399.7	465.2	241.1
20510	Bread, cake, and related products, n.s.k.	777.7	700.2	748.1	666.0	898.9	875.6	1 001.5	625.9
2052-	**Cookies and crackers**	**7 501.8**	**7 259.9**	**7 003.9**	**6 497.0**	**6 074.6**	**5 853.2**	**4 435.8**	**2 812.4**
20521	Crackers, pretzels, biscuits, and related products	3 221.3	3 153.5	3 031.3	2 593.0	2 507.6	2 386.1	1 827.8	1 168.9
20522	Cookies, wafers, and ice cream cones and cups except frozen	4 168.9	4 012.8	3 871.8	3 798.4	3 467.0	3 378.8	2 480.8	1 578.4
20520	Cookies and crackers, n.s.k.	111.7	93.6	100.8	105.6	100.0	88.2	127.2	65.1
2053-	**Frozen bakery products**	**1 845.2**	**1 533.0**	**1 542.7**	**1 537.5**	**1 411.8**	**1 372.7**	**1 292.5**	**2 911.9**
20530	Frozen bakery products	1 845.2	1 533.0	1 542.7	1 537.5	1 411.8	1 372.7	1 292.5	2 911.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**4 506.3**	**(X)**	**3 808.2**
	Wheat flour (except prepared mixes):				
204117	White bread type flour, mil lb	9 299.8	992.5	[2]8 842.8	835.6
204116	Cake-type flour, mil lb	424.9	48.4	501.6	49.2
204111	Cookie and cracker-type flour, mil lb	*150.9	15.7	280.4	26.0
204641	Wheat gluten, mil lb	242.7	93.0	228.2	84.2
204114	Other wheat flour (including whole wheat and clear flour; except prepared mixes), mil lb	**999.9	128.0	[2]1 518.2	173.4
	Prepared mixes:				
204061	Doughnut, cake and yeast types, mil lb	*244.1	77.4	196.3	56.6
204062	Bread (including franchise mixes), mil lb	263.9	59.2	116.8	36.7
204063	Cake, mil lb	78.6	28.2	49.7	12.1
204064	Other prepared mixes (including sweetgoods), mil lb	77.8	30.6	153.8	39.5
	Sweeteners:				
206010	Sugar, (cane and beet) in terms of sugar solids, 1,000 s tons	505.2	232.8	453.3	190.5
204608	Glucose syrup (corn syrup) (conventional or regular) in terms of solids, mil lb	268.8	42.1	337.5	37.7
204604	High fructose corn syrup (HFCS) in terms of solids, mil lb	*735.4	108.6	725.6	80.8
200615	Other natural sweeteners (including dextrose, honey, molasses, blends of corn sweeteners and sugar) in terms of solids, mil lb	224.5	62.3	201.1	52.6
286934	Artificial sweeteners in terms of solids, mil lb	*5.2	1.7	14.4	7.0
	Fats and oils, including frying oils:				
	Shortening:				
207010	100 percent vegetable, mil lb	*549.6	162.1	406.5	108.2
207012	Animal and blends of animal and vegetable, mil lb	97.8	25.8	175.8	42.3
201151	Lard, mil lb	**10.4	2.3	255.4	13.4
207014	Other fats and oils (cooking oils, butter, margarine, puff paste, etc.), mil lb	237.6	92.8	152.7	62.5
	Yeast:				
209941	Compressed, mil lb	*290.3	106.7	220.2	78.8
209943	Active dry, mil lb	*83.4	31.0	108.8	39.2
203705	Frozen fruits, mil lb	69.8	52.0	(NA)	[3]
203415	Dried fruits and nuts (including raisins), 1,000 cwt	*841.1	111.8	**802.4	88.6
206401	Glace, candied and crystallized fruits, fruit peel, nuts, and other vegetable substances, mil lb	*12.7	9.6	(NA)	[3]
203301	Jams, jellies, and preserves (including fruit butter and maraschino cherries), mil lb	26.2	16.6	(NA)	[3]
201522	Liquid, dried, and frozen eggs (in terms of dry weight equivalent), mil lb	*135.3	72.0	80.1	52.8
202230	Cheese, process, mil lb	*31.5	23.1	(NA)	[3]
202310	Milk and milk replacers (including dry milk, dry whey, blends, soy whey, and others), mil lb	**124.3	57.4	158.2	54.2
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.), mil lb	79.0	46.0	81.1	48.0
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	22.3	(X)	[3]
267101	Packaging paper and plastics film, coated and laminated	(X)	131.8	(X)	[3]
267301	Bags; plastics, foil, and coated paper	(X)	243.8	(X)	[3]
267401	Bags; uncoated paper and multiwall	(X)	13.5	(X)	[3]
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	247.5	(X)	206.0
970099	All other materials and components, parts, containers, and supplies	(X)	631.7	(X)	[3]825.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	486.0	(X)	[r]506.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2052, COOKIES AND CRAFTERS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 419.4**	**(X)**	**r1 839.2**
	Wheat flour (except prepared mixes):				
204117	White bread type flour, mil lb	325.4	34.7	103.5	10.6
204116	Cake-type flour, mil lb	212.4	22.6	150.9	13.1
204111	Cookie and cracker-type flour, mil lb	2 758.4	278.6	2 342.2	201.9
204641	Wheat gluten, mil lb	*2.5	1.6	2.9	2.0
204114	Other wheat flour (including whole wheat and clear flour; except prepared mixes), mil lb	262.3	27.9	256.2	24.0
	Prepared mixes:				
204061	Doughnut, cake and yeast types, mil lb	–	–		
204062	Bread (including franchise mixes), mil lb	20.7	2.4	–	–
204063	Cake, mil lb	*6.6	.8		
204064	Other prepared mixes (including sweetgoods), mil lb	*8.0	4.5		
	Sweeteners:				
206010	Sugar, (cane and beet) in terms of sugar solids, 1,000 s tons	395.3	199.4	354.9	163.7
204608	Glucose syrup (corn syrup) (conventional or regular) in terms of solids, mil lb	83.2	10.7	73.8	6.9
204604	High fructose corn syrup (HFCS) in terms of solids, mil lb	118.5	17.0	97.1	10.9
200615	Other natural sweeteners (including dextrose, honey, molasses, blends of corn sweeteners and sugar) in terms of solids, mil lb	137.9	39.2	95.8	23.0
286934	Artificial sweeteners in terms of solids, mil lb	**15.3	3.0		
	Fats and oils, including frying oils:				
	Shortening:				
207010	100 percent vegetable, mil lb	700.8	199.6	395.3	95.1
207012	Animal and blends of animal and vegetable, mil lb	16.1	4.1	37.0	9.0
201151	Lard, mil lb	6.4	1.7	150.1	26.6
207014	Other fats and oils (cooking oils, butter, margarine, puff paste, etc.), mil lb	*107.8	37.5	138.0	41.6
	Yeast:				
209941	Compressed, mil lb	(S)	3.7	**7.4	2.9
209943	Active dry, mil lb	3.7	2.2	4.6	2.2
203705	Frozen fruits, mil lb	1.2	.9	(NA)	(3)
203415	Dried fruits and nuts (including raisins), 1,000 cwt	*726.5	95.0	377.5	30.6
206401	Glace, candied and crystallized fruits, fruit peel, nuts, and other vegetable substances, mil lb	*2.4	2.5	(NA)	(3)
203301	Jams, jellies, and preserves (including fruit butter and maraschino cherries), mil lb	39.1	36.1	(NA)	(3)
201522	Liquid, dried, and frozen eggs (in terms of dry weight equivalent), mil lb	*15.8	13.3	14.5	11.1
202230	Cheese, process, mil lb	31.8	49.0	(NA)	(3)
202310	Milk and milk replacers (including dry milk, dry whey, blends, soy whey, and others), mil lb	(S)	15.9	(S)	11.7
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.), mil lb	159.8	126.1	142.7	118.8
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	10.3	(X)	(3)
267101	Packaging paper and plastics film, coated and laminated	(X)	219.1	(X)	(3)
267301	Bags; plastics, foil, and coated paper	(X)	46.3	(X)	(3)
267401	Bags; uncoated paper and multiwall	(X)	15.0	(X)	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	354.9	(X)	248.5
970099	All other materials and components, parts, containers, and supplies	(X)	441.3	(X)	3607.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	102.2	(X)	r177.9
	INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD				
	Materials, ingredients, containers, and supplies	**(X)**	**710.6**	**(X)**	**532.6**
	Wheat flour (except prepared mixes):				
204117	White bread type flour, mil lb	**187.2	20.8		
204116	Cake-type flour, mil lb	**67.7	7.2		
204111	Cookie and cracker-type flour, mil lb	**8.4	1.1	2 *281.6	28.5
204641	Wheat gluten, mil lb	1.1	.6		
204114	Other wheat flour (including whole wheat and clear flour; except prepared mixes), mil lb	96.0	10.2		
	Prepared mixes:				
204061	Doughnut, cake and yeast types, mil lb	37.8	11.7	(NA)	(3)
204062	Bread (including franchise mixes), mil lb	(D)	(D)	(NA)	(3)
204063	Cake, mil lb	*10.7	4.9	(NA)	(3)
204064	Other prepared mixes (including sweetgoods), mil lb	(S)	3.0	(NA)	(3)
	Sweeteners:				
206010	Sugar, (cane and beet) in terms of sugar solids, 1,000 s tons	*77.0	46.6	57.0	28.5
204608	Glucose syrup (corn syrup) (conventional or regular) in terms of solids, mil lb	39.7	5.3	(NA)	(3)
204604	High fructose corn syrup (HFCS) in terms of solids, mil lb	*30.1	4.1	(NA)	(3)
200615	Other natural sweeteners (including dextrose, honey, molasses, blends of corn sweeteners and sugar) in terms of solids, mil lb	12.0	3.4	(NA)	(3)
286934	Artificial sweeteners in terms of solids, mil lb	(D)	(D)	(NA)	(3)
	Fats and oils, including frying oils:				
	Shortening:				
207010	100 percent vegetable, mil lb	*99.3	34.1		
207012	Animal and blends of animal and vegetable, mil lb	5.2	1.6		
201151	Lard, mil lb	11.9	2.7	108.6	36.6
207014	Other fats and oils (cooking oils, butter, margarine, puff paste, etc.), mil lb	48.1	18.0		

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2053, FROZEN BAKERY PRODUCTS, EXCEPT BREAD—Con.				
	Yeast:				
209941	Compressed—mil lb	9.6	5.2	(NA)	(3)
209943	Active dry—mil lb	2.8	1.2	(NA)	(3)
203705	Frozen fruits—mil lb	*132.2	75.5	*90.2	35.9
203415	Dried fruits and nuts (including raisins)—1,000 cwt	*116.3	20.1	(NA)	(3)
206401	Glace, candied and crystallized fruits, fruit peel, nuts, and other vegetable substances—mil lb	(D)	(D)	(NA)	(3)
203301	Jams, jellies, and preserves (including fruit butter and maraschino cherries)—mil lb	7.1	4.3	(NA)	(3)
201522	Liquid, dried, and frozen eggs (in terms of dry weight equivalent)—mil lb	*39.7	21.8	(NA)	(3)
202230	Cheese, process—mil lb	*19.4	17.3	(NA)	(3)
202310	Milk and milk replacers (including dry milk, dry whey, blends, soy whey, and others)—mil lb	33.7	18.5	(NA)	(3)
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.)—mil lb	**10.7	10.2	(NA)	(3)
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	34.7	(X)	(3)
267101	Packaging paper and plastics film, coated and laminated	(X)	16.9	(X)	(3)
267301	Bags; plastics, foil, and coated paper	(X)	4.0	(X)	(3)
267401	Bags; uncoated paper and multiwall	(X)	.3	(X)	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	70.8	(X)	64.3
970099	All other materials and components, parts, containers, and supplies	(X)	111.5	(X)	[3]297.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	107.4	(X)	41.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]Revised by 5 percent or more from previously published figures.
[3]Data are included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.
[4]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

Table 8. **Employees Engaged in Transportation: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting transportation employees			
				Total		Engaged in transportation	
		Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)
2051	Bread, cake, and related products	155.1	4 061.6	99.8	2 782.5	21.6	659.7
2052	Cookies and crackers	47.2	1 250.3	15.6	360.8	1.7	46.0

Note: Establishments in selected industries were instructed to report number of employees included in total employment that were engaged in delivery of products sold by that establishment and utilized as a separate work force.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
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2048A 19	2048A 13
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20511 31	20511 15
20511 33	20511 15
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20511 37	20511 17
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20512 61	20512 37
20512 70	20512 39
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20630 91	20630 89
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20752 97	20752 98
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20999 43	20999 41
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20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
20223 00	20223 01
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20321 98	20321 00
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20324 61	20324 63
20324 62	20324 63
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20331 31	20331 59
20331 97	20331 59
20332 58	20332 98
20332 73	20332 98
20332 99	20332 98
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20415 93	20415 95
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20416 23	20416 13
20430	20431
20430	20432
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20430 11	20431 03
20430 12	20431 05
20430 12	20431 07
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20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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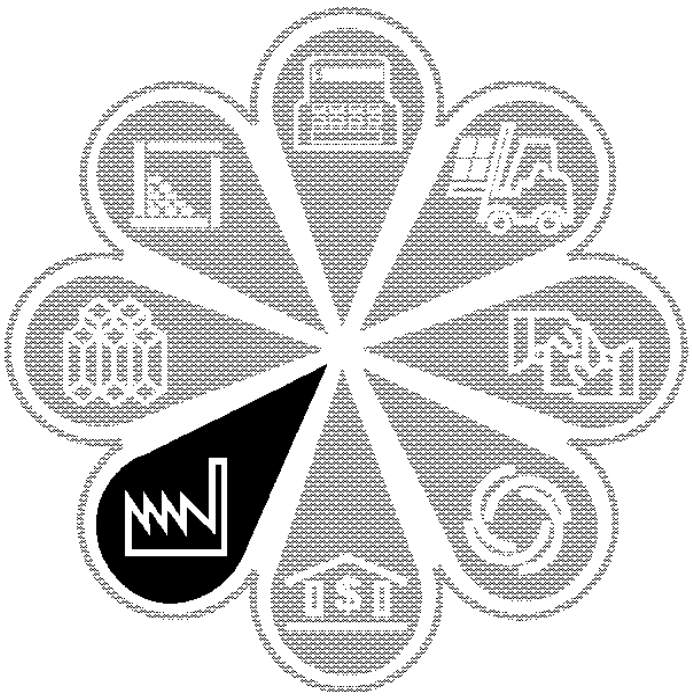
1992 Census of Manufactures

MC92-I-20F

INDUSTRY SERIES

Sugar and Confectionery Products

Industries 2061, 2062, 2063, 2064, 2066, 2067, and 2068



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20F

INDUSTRY SERIES

Sugar and Confectionery Products

Industries 2061, 2062, 2063, 2064, 2066, 2067, and 2068

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

JOBNAME: No Job Name PAGE: 1 SESS: 57 OUTPUT: Wed Jan 11 07:04:14 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ ackjmi

Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief, with primary staff assistance by **John Miller.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2061	Raw Cane Sugar
2062	Cane Sugar Refining
2063	Beet Sugar
2064	Candy and Other Confectionery Products and 2067, Chewing Gum
2066	Chocolate and Cocoa Products
2068	Salted and Roasted Nuts and Seeds

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2061, RAW CANE SUGAR

This industry is made up of establishments primarily engaged in manufacturing raw sugar, syrup, and molasses, and finished (granulated or clarified) cane sugar from sugarcane. Establishments primarily engaged in refining sugar from purchased raw cane sugar or sugar syrup are classified in industry 2062.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2061, Raw Cane Sugar, had employment of 7.0 thousand. The employment figure was 13 percent above the 6.2 thousand reported in 1987. Compared with 1991, employment increased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Florida, Hawaii, Louisiana, and Texas. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.5 billion.

The products primary to industry 2061, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the raw cane sugar industry amounted to $887.6 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2062, CANE SUGAR REFINING

This industry is made up of establishments primarily engaged in refining purchased raw cane sugar and sugar syrup.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2062, Cane Sugar Refining, had employment of 4.8 thousand. The employment figure was 13 percent below the 5.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Louisiana, and New York. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.8 billion.

The products primary to industry 2062, no matter in what industry they were produced, appear in table 6a and aggregate to $2.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cane sugar refining industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2063, BEET SUGAR

This industry is made up of establishments primarily engaged in manufacturing sugar from sugar beets. Establishments primarily engaged in the manufacturing of raw cane sugar are classified in industry 2061. Establishments primarily engaged in cane sugar refining are classified in industry 2062.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2063, Beet Sugar, had employment of 7.6 thousand. The employment figure was 4 percent below the 7.9 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Idaho, Michigan, and Minnesota. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.3 billion.

The products primary to industry 2063, no matter in what industry they were produced, appear in table 6a and aggregate to $2.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the beet sugar industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM

This industry is made up of establishments primarily engaged in manufacturing candy, including chocolate candy, other confections, and related products. Also included in this industry are establishments primarily engaged in manufacturing chewing gum or chewing gum base. Establishments primarily engaged in manufacturing solid chocolate bars from cacao beans are classified in industry 2066. Establishments primarily engaged in roasting and salting nuts and seeds are classified in industry 2068.

In the 1992 Census of Manufactures, Industry 2064, Candy and Other Confectionery Products, and Industry 2067, Chewing Gum, were combined.

In the 1992 Census of Manufactures, Industry 2064, Candy and Other Confectionery Products, and Industry 2067, Chewing Gum, had employment of 51.5 thousand.

The leading States in employment in 1992 were California, Illinois, Pennsylvania and Tennessee.

The total value of shipments for establishments classified in this industry was $10.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2064 shipped $9.5 billion of candy and other confectionery products and chewing gum considered primary to the industry, $238.2 million of secondary products, and had $489.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio).

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio).

The products primary to industry 2064, no matter in what industry they were produced, appear in table 6a and aggregate to $10.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the candy and other confectionery products and chewing gum industry amounted to $3.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in industry 2064 with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages.

No establishments in industry 2067 were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages.

For industries 2064 and 2067, these establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS

This industry is made up of establishments primarily engaged in shelling, roasting, and grinding cacao beans for the purpose of making chocolate liquor from which cocoa powder and cocoa butter are derived, and in the further manufacture of solid chocolate bars, chocolate coatings, and other chocolate and cocoa products. Also included is the manufacture of similar products, except candy, from purchased chocolate or cocoa. Establishments primarily engaged in manufacturing candy from purchased cocoa products are classified in industry 2064.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2066, Chocolate and Cocoa Products, had employment of 9.9 thousand. The employment figure was 10 percent below the 11.0 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, Pennsylvania, and Wisconsin, accounting for approximately 86 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 80 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2066 shipped $2.9 billion of chocolate and cocoa products considered primary to the industry, $163.9 million of secondary products, and had $91.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2066, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the chocolate and cocoa products industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS

This industry is made up of establishments primarily engaged in manufacturing salted, roasted, dried, cooked, or canned nuts, or in processing grains or seeds in a similar manner for snack purposes. Establishments primarily engaged in manufacturing confectionery-coated nuts are classified in industry 2064. Establishments primarily engaged in manufacturing peanut butter are classified in industry 2099.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2068, Salted and Roasted Nuts and Seeds, had employment of 10.4 thousand. The employment figure was 18 percent above the 8.8 thousand reported in 1987.

The leading States in employment in 1992 were California, Georgia, North Carolina, and Virginia. This represents a shift from 1987 when California, Georgia, Minnesota, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2068 shipped $2.5 billion of salted and roasted nuts and seeds considered primary to the industry, $277.4 million of secondary products, and had $45.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2068, no matter in what industry they were produced, appear in table 6a and aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the salted and roasted nuts and seeds industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2061, RAW CANE SUGAR															
1992 Census	37	45	41	7.0	175.8	5.1	11.7	128.2	561.9	887.6	1 459.8	59.3	374.0	(D)	99
1991 ASM	(NA)	(NA)	(NA)	6.2	162.8	4.7	10.4	118.0	554.2	888.6	1 374.4	32.4	383.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.1	156.2	4.6	10.2	112.2	502.0	785.0	1 295.6	82.3	344.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.3	152.2	4.8	10.7	112.2	520.8	894.1	1 436.0	62.6	349.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.2	148.7	4.8	10.9	111.9	493.6	815.1	1 287.1	36.0	352.6	(NA)	(NA)
1987 Census	31	40	40	6.2	143.3	4.8	11.0	108.4	504.2	792.1	1 239.4	46.2	321.9	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	6.4	141.3	5.0	11.3	105.6	429.6	789.6	1 244.0	34.0	281.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.8	141.4	5.4	11.6	106.8	451.7	772.3	1 168.6	49.3	310.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.4	143.2	5.8	12.8	106.4	449.8	791.2	1 232.5	48.7	238.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.6	141.1	6.1	13.0	106.2	478.4	837.8	1 311.6	41.9	229.7	(NA)	(NA)
1982 Census	43	51	44	7.5	133.8	5.8	13.1	100.5	297.7	755.8	1 113.9	89.6	237.9	(D)	99
1981 ASM	(NA)	(NA)	(NA)	7.8	137.6	6.4	14.5	108.0	515.0	873.9	1 344.5	95.5	313.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.9	111.6	5.6	12.9	88.9	771.9	789.7	1 486.3	83.3	233.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.0	102.1	5.7	12.9	83.0	274.0	491.3	842.8	39.4	95.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.2	95.1	5.6	12.3	69.4	297.9	430.2	698.9	42.6	134.8	(NA)	(NA)
1977 Census	49	65	55	8.0	95.8	6.3	13.6	70.8	275.7	440.1	704.0	43.4	107.9	100	99
INDUSTRY 2062, CANE SUGAR REFINING															
1992 Census	12	17	15	4.8	187.5	3.6	7.9	129.4	737.2	2 138.2	2 822.9	56.3	354.7	(D)	98
1991 ASM	(NA)	(NA)	(NA)	4.9	186.0	3.9	8.3	134.8	654.9	2 284.4	2 925.9	50.3	338.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.9	181.5	4.1	8.7	142.8	659.7	2 438.8	3 075.3	45.0	311.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.9	170.7	4.0	8.3	133.1	534.9	2 124.5	2 641.9	42.3	362.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.3	171.7	4.1	8.3	130.4	422.2	2 058.4	2 458.4	33.1	357.4	(NA)	(NA)
1987 Census	14	21	16	5.5	177.4	4.2	9.0	130.4	445.4	2 002.8	2 460.2	32.7	309.9	100	99
1986 ASM	(NA)	(NA)	(NA)	5.5	179.3	4.1	9.2	132.9	551.2	2 063.8	2 604.9	34.9	307.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.8	175.8	4.3	9.4	132.8	583.5	2 029.4	2 616.4	41.0	273.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.4	198.1	5.6	11.6	146.0	536.4	2 538.3	3 081.0	69.5	319.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.6	195.1	5.8	11.8	141.4	631.3	2 512.6	3 145.1	51.9	359.1	(NA)	(NA)
1982 Census	19	30	25	8.3	197.2	6.2	12.8	139.5	622.4	2 424.9	3 040.3	69.2	363.0	99	99
1981 ASM	(NA)	(NA)	(NA)	9.4	223.0	6.9	14.6	156.6	567.6	3 170.6	3 773.0	40.1	350.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.8	210.0	7.2	15.1	149.0	802.6	3 355.8	4 110.5	40.5	469.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.8	189.7	7.1	14.8	132.9	601.0	2 102.0	2 715.0	36.4	242.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.3	183.9	7.4	15.7	127.2	520.7	1 745.3	2 291.5	31.5	250.8	(NA)	(NA)
1977 Census	27	40	27	10.2	168.9	7.2	15.4	116.4	526.2	1 755.1	2 260.0	53.4	345.1	99	99
INDUSTRY 2063, BEET SUGAR															
1992 Census	13	40	37	7.6	220.2	6.6	14.3	173.4	799.7	1 559.3	2 282.0	96.5	715.6	(D)	99
1991 ASM	(NA)	(NA)	(NA)	7.6	209.5	6.5	13.9	162.5	791.2	1 534.7	2 330.7	108.1	649.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.6	197.6	6.5	14.1	158.2	828.8	1 342.2	2 133.9	55.0	656.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.0	193.9	6.9	14.2	157.9	798.1	1 295.4	2 096.8	60.5	572.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.0	195.8	6.7	14.3	152.7	685.2	1 365.8	2 093.3	46.4	569.1	(NA)	(NA)
1987 Census	14	42	38	7.9	190.1	6.6	14.4	151.0	613.2	1 277.0	1 831.5	42.5	630.7	100	99
1986 ASM	(NA)	(NA)	(NA)	7.9	186.2	6.5	14.6	145.4	665.3	1 145.6	1 757.7	88.3	608.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.9	180.6	6.6	14.7	142.8	524.3	1 203.3	1 788.8	85.3	458.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.2	168.4	7.0	14.7	134.7	659.6	1 232.1	1 835.1	62.5	504.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.8	155.1	6.6	14.3	124.6	530.9	1 087.1	1 584.7	27.9	448.2	(NA)	(NA)
1982 Census	14	48	44	10.3	169.4	8.8	17.3	136.4	432.2	1 102.5	1 515.8	32.8	480.5	100	99
1981 ASM	(NA)	(NA)	(NA)	10.3	163.5	8.8	17.3	130.8	541.3	1 336.4	1 872.7	39.8	399.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.9	142.2	8.5	16.6	113.1	527.3	1 225.8	1 802.3	61.2	418.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.7	141.0	8.1	16.5	112.5	375.3	967.5	1 347.8	56.9	426.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.8	150.0	9.4	18.7	123.1	351.3	899.3	1 265.3	53.6	470.8	(NA)	(NA)
1977 Census	14	57	52	11.4	143.3	9.9	21.3	119.0	345.6	836.9	1 181.7	43.5	467.1	99	99
INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM															
1992 Census	705	759	298	51.5	1 262.7	41.0	79.5	842.4	6 348.9	3 903.3	10 207.1	378.7	1 197.6	98	94
INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS															
1992 Census	146	156	32	9.9	323.3	7.1	13.9	199.4	1 475.3	1 632.3	3 106.4	261.9	484.0	95	92
1991 ASM	(NA)	(NA)	(NA)	10.9	319.7	7.8	15.5	196.9	1 501.6	1 513.9	3 013.0	132.8	491.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.3	320.5	8.2	16.0	203.8	1 418.1	1 654.7	3 061.3	129.1	462.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.4	295.9	7.9	15.5	195.0	1 278.0	1 587.4	2 843.1	130.1	391.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.8	309.9	9.1	17.3	203.6	1 467.5	1 731.8	3 212.6	94.4	455.8	(NA)	(NA)
1987 Census	173	186	53	11.0	283.3	8.5	16.3	190.9	1 449.3	1 677.4	3 107.7	74.8	433.8	93	91
INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS															
1992 Census	102	112	69	10.4	233.4	8.1	16.2	143.0	1 028.0	1 837.3	2 834.4	44.7	439.5	90	94
1991 ASM	(NA)	(NA)	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.9	200.2	7.0	13.9	128.6	985.9	1 405.5	2 373.0	34.1	363.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.7	182.4	6.9	14.0	125.5	828.3	1 311.2	2 129.5	36.0	328.7	(NA)	(NA)
1987 Census	79	88	65	8.8	172.1	6.9	13.4	115.3	866.8	1 291.2	2 178.0	28.0	249.3	91	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2061, RAW CANE SUGAR								
1992 Census	25 114	73	2 294	10.96	61	73	80 271	31	48.03
1991 ASM	26 258	76	2 213	11.35	65	76	89 387	29	53.29
1990 ASM	25 607	75	2 217	11.00	61	73	82 295	31	49.22
1989 ASM	24 159	76	2 229	10.49	62	73	82 667	29	48.67
1988 ASM	23 984	77	2 271	10.27	63	75	79 613	30	45.28
1987 Census	23 113	77	2 292	9.85	64	75	81 323	28	45.84
1986 ASM	22 078	78	2 260	9.35	63	75	67 125	33	38.02
1985 ASM	20 794	79	2 148	9.21	66	78	66 426	31	38.94
1984 ASM	19 351	78	2 207	8.31	64	76	60 784	32	35.14
1983 ASM	18 566	80	2 131	8.17	64	75	62 947	29	36.80
1982 Census	17 840	77	2 259	7.67	68	80	39 693	45	22.73
1981 ASM	17 641	82	2 266	7.45	65	75	66 026	27	35.52
1980 ASM	16 174	81	2 304	6.89	53	61	111 870	14	59.84
1979 ASM	14 586	81	2 263	6.43	58	70	39 143	37	21.24
1978 ASM	13 208	78	2 196	5.64	62	75	41 375	32	24.22
1977 Census	11 975	79	2 159	5.21	63	76	34 463	35	20.27
	INDUSTRY 2062, CANE SUGAR REFINING								
1992 Census	39 063	75	2 194	16.38	76	82	153 583	25	93.32
1991 ASM	37 959	80	2 128	16.24	78	84	133 653	28	78.90
1990 ASM	37 041	84	2 122	16.41	79	85	134 633	28	75.83
1989 ASM	34 837	82	2 075	16.04	80	87	109 163	32	64.45
1988 ASM	32 396	77	2 024	15.71	84	91	79 660	41	50.87
1987 Census	32 255	76	2 143	14.49	81	89	80 982	40	49.49
1986 ASM	32 600	75	2 244	14.45	79	86	100 218	33	59.91
1985 ASM	30 310	74	2 186	14.13	78	84	100 603	30	62.07
1984 ASM	26 770	76	2 071	12.59	82	89	72 486	37	46.24
1983 ASM	25 671	76	2 034	11.98	80	86	83 066	31	53.50
1982 Census	23 759	75	2 065	10.90	80	86	74 988	32	48.63
1981 ASM	23 723	73	2 116	10.73	84	90	60 383	39	38.88
1980 ASM	21 429	73	2 097	9.87	82	87	81 898	26	53.15
1979 ASM	19 357	72	2 085	8.98	77	84	61 327	32	40.61
1978 ASM	17 854	72	2 122	8.10	76	84	50 553	35	33.17
1977 Census	16 559	71	2 139	7.56	78	85	51 588	32	34.17
	INDUSTRY 2063, BEET SUGAR								
1992 Census	28 974	87	2 167	12.13	68	78	105 224	28	55.92
1991 ASM	27 566	86	2 138	11.69	66	75	104 105	26	56.92
1990 ASM	26 000	86	2 169	11.22	63	72	109 053	24	58.78
1989 ASM	24 238	86	2 058	11.12	62	71	99 763	24	56.20
1988 ASM	24 475	84	2 134	10.68	65	75	85 650	29	47.92
1987 Census	24 063	84	2 182	10.49	70	80	77 620	31	42.58
1986 ASM	23 570	82	2 246	9.96	65	76	84 215	28	45.57
1985 ASM	22 861	84	2 227	9.71	67	77	66 367	34	35.67
1984 ASM	20 537	85	2 100	9.16	67	76	80 439	26	44.87
1983 ASM	19 885	85	2 167	8.71	69	78	68 064	29	37.13
1982 Census	16 447	85	1 966	7.88	73	84	41 961	39	24.98
1981 ASM	15 874	85	1 966	7.56	71	80	52 553	30	31.29
1980 ASM	14 364	86	1 953	6.81	68	76	53 263	27	31.77
1979 ASM	14 536	84	2 037	6.82	72	82	38 691	38	22.75
1978 ASM	13 889	87	1 989	6.58	71	83	32 528	43	18.79
1977 Census	12 570	87	2 152	5.59	71	83	30 316	41	16.23
	INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM								
1992 Census	24 518	80	1 939	10.60	38	51	123 280	20	79.86
	INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS								
1992 Census	32 657	72	1 958	14.35	53	63	149 020	22	106.14
1991 ASM	29 330	72	1 987	12.70	50	61	137 761	21	96.88
1990 ASM	28 363	73	1 951	12.74	54	65	125 496	23	88.63
1989 ASM	28 452	76	1 962	12.58	56	66	122 885	23	82.45
1988 ASM	26 263	77	1 901	11.77	54	64	124 364	21	84.83
1987 Census	25 755	77	1 918	11.71	54	63	131 755	20	88.91
	INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS								
1992 Census	22 442	78	2 000	8.83	65	73	98 846	23	63.46
1990 ASM	22 494	79	1 986	9.25	59	68	110 775	20	70.93
1988 ASM	20 966	79	2 029	8.96	62	70	95 207	22	59.16
1987 Census	19 557	78	1 942	8.60	59	67	98 500	20	64.69

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2061, RAW CANE SUGAR														
United States	–	**45**	**41**	**7.0**	**175.8**	**5.1**	**11.7**	**128.2**	**561.9**	**887.6**	**1 459.8**	**59.3**	**6.2**	**504.2**
Florida	–	7	7	2.4	72.1	1.8	4.2	55.8	260.2	493.6	777.2	21.0	1.9	235.8
Hawaii	–	11	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	193.6
Louisiana	–	25	22	1.7	37.9	1.5	3.4	29.6	123.9	253.6	365.0	20.3	G	(D)
Texas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2062, CANE SUGAR REFINING														
United States	–	**17**	**15**	**4.8**	**187.5**	**3.6**	**7.9**	**129.4**	**737.2**	**2 138.2**	**2 822.9**	**56.3**	**5.5**	**445.4**
California	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	(NA)	(NA)
Georgia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	3	3	1.0	33.1	.8	1.7	24.8	149.3	426.1	587.6	(D)	1.1	79.0
Maryland	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2063, BEET SUGAR														
United States	–	**40**	**37**	**7.6**	**220.2**	**6.6**	**14.3**	**173.4**	**799.7**	**1 559.3**	**2 282.0**	**96.5**	**7.9**	**613.2**
California	–	9	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Idaho	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	5	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Dakota	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wyoming	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRIES 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND 2067, CHEWING GUM														
United States	–	**759**	**298**	**51.5**	**1 262.7**	**41.0**	**79.5**	**842.4**	**6 348.9**	**3 903.3**	**10 207.1**	**378.7**	**(NA)**	**(NA)**
Alabama	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	80	31	4.0	106.6	3.1	5.8	65.6	430.3	305.5	730.1	20.4	(NA)	(NA)
Colorado	–	10	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	21	5	.4	9.0	.3	.7	5.3	29.0	27.0	55.4	1.1	(NA)	(NA)
Georgia	E1	15	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.6	(NA)	(NA)
Hawaii	E1	12	6	.4	8.2	.3	.6	4.6	20.4	40.4	61.0	(D)	(NA)	(NA)
Illinois	–	65	37	12.2	355.6	9.8	19.9	230.1	1 879.1	1 157.6	3 012.9	128.9	(NA)	(NA)
Indiana	–	12	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.0	(NA)	(NA)
Iowa	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	E2	6	1	.1	1.9	.1	.1	1.4	6.3	5.9	12.2	(D)	(NA)	(NA)
Kentucky	E1	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E1	13	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	(NA)	(NA)
Maryland	E3	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	19	9	1.3	26.2	1.0	1.8	17.6	93.8	63.4	157.4	4.3	(NA)	(NA)
Michigan	–	17	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	14	6	1.2	30.4	1.0	1.8	16.9	104.7	50.6	157.3	(D)	(NA)	(NA)
Missouri	–	12	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	30	13	1.8	70.6	1.2	2.6	43.3	349.6	260.6	617.1	33.4	(NA)	(NA)
New Mexico	E4	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	53	23	2.2	42.9	1.7	3.2	28.2	113.1	110.6	222.6	8.3	(NA)	(NA)
North Carolina	E1	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E1	35	14	1.4	28.2	1.0	1.7	15.3	87.9	63.7	151.2	4.9	(NA)	(NA)
Oklahoma	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	E7	20	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	83	46	7.8	184.5	6.3	12.6	135.5	894.0	536.8	1 425.0	(D)	(NA)	(NA)
Rhode Island	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	15	6	2.7	66.8	2.3	4.5	49.1	517.9	250.9	767.2	54.1	(NA)	(NA)
Texas	–	49	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Utah	–	19	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	E4	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	13	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	22	5	.6	13.2	.4	.8	7.0	37.8	24.4	62.6	1.2	(NA)	(NA)
Wisconsin	E1	22	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS														
United States	–	**156**	**32**	**9.9**	**323.3**	**7.1**	**13.9**	**199.4**	**1 475.3**	**1 632.3**	**3 106.4**	**261.9**	**11.0**	**1 449.3**
California	–	22	5	1.2	38.8	1.0	1.9	26.9	298.2	194.6	496.1	13.2	1.8	314.7
Illinois	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	64.3
Massachusetts	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Jersey	–	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	21	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	21	6	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.2	536.4
Wisconsin	–	10	5	1.2	32.3	.8	1.5	16.9	231.2	193.0	425.1	(D)	G	(D)
INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS														
United States	–	**112**	**69**	**10.4**	**233.4**	**8.1**	**16.2**	**143.0**	**1 028.0**	**1 837.3**	**2 834.4**	**44.7**	**8.8**	**866.8**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	23	17	3.7	85.2	2.8	6.1	49.5	446.7	591.2	1 028.6	15.2	3.3	413.5
Georgia	–	10	7	1.5	33.7	1.2	2.3	21.8	83.4	286.8	366.8	5.6	F	(D)
Hawaii	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	E	(D)
Illinois	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	C	(D)
Michigan	E1	6	3	.2	2.7	.1	.1	.7	9.8	7.9	18.1	.3	(NA)	(NA)
Minnesota	–	4	3	.5	13.2	.4	.7	7.2	36.8	60.4	96.4	.8	F	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	6	5	.7	13.3	.6	1.2	9.9	87.6	120.1	207.8	2.2	F	(D)
North Dakota	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Ohio	–	3	2	.1	2.9	.1	.1	1.3	7.8	11.8	18.9	(D)	C	(D)
Pennsylvania	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Texas	E7	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	10.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Raw cane sugar (SIC 2061)	Cane sugar refining (SIC 2062)	Beet sugar (SIC 2063)	Candy and other confectionery products and chewing gum (SIC 2064)	Chocolate and cocoa products (SIC 2066)	Salted and roasted nuts and seeds (SIC 2068)
Companies	number	37	12	13	705	146	102
All establishments	number	45	17	40	759	156	112
With 1 to 19 employees	number	4	2	3	461	124	43
With 20 to 99 employees	number	21	5	5	173	19	43
With 100 employees or more	number	20	10	32	125	13	26
Employment and labor costs:							
Employees	1,000	7.0	4.8	7.6	51.5	9.9	10.4
Compensation, total	mil dol	223.1	246.4	285.8	1 641.4	426.6	306.6
Annual payroll	mil dol	175.8	187.5	220.2	1 262.7	323.3	233.4
Fringe benefits	mil dol	47.3	59.0	65.6	378.7	103.3	73.2
Social Security and other legally required payments	mil dol	23.5	21.5	30.1	146.7	35.2	24.3
Employer voluntary payments	mil dol	23.7	37.4	35.5	232.0	68.1	48.9
Production workers:							
Average for year	1,000	5.1	3.6	6.6	41.0	7.1	8.1
March	1,000	5.1	3.7	6.0	38.8	6.7	7.7
May	1,000	4.3	3.7	6.0	37.7	6.9	7.6
August	1,000	4.4	3.7	5.4	41.7	7.3	7.7
November	1,000	6.7	3.3	9.0	45.9	7.6	9.3
Hours	millions	11.7	7.9	14.3	79.5	13.9	16.2
Wages	mil dol	128.2	129.4	173.4	842.4	199.4	143.0

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Raw cane sugar (SIC 2061)	Cane sugar refining (SIC 2062)	Beet sugar (SIC 2063)	Candy and other confectionery products and chewing gum (SIC 2064)	Chocolate and cocoa products (SIC 2066)	Salted and roasted nuts and seeds (SIC 2068)
Cost of materials[1] ---- mil dol	887.6	2 138.2	1 559.3	3 903.3	1 632.3	1 837.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	838.6	2 059.8	1 390.3	3 473.0	1 534.6	1 762.5
Resales ---- mil dol	.1	11.1	28.8	245.9	52.1	37.1
Fuels ---- mil dol	26.1	47.0	117.5	33.2	11.6	7.8
Purchased electricity ---- mil dol	8.9	5.9	19.5	79.8	29.2	17.5
Contract work ---- mil dol	13.9	14.4	3.2	71.4	4.7	12.4
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	132.0	80.5	439.1	1 312.4	449.5	263.7
Generated less sold ---- mil kWh	442.2	271.0	469.3	(D)	(D)	(D)
Total value of shipments ---- mil dol	1 459.8	2 822.9	2 282.0	10 207.1	3 106.4	2 834.4
Value added ---- mil dol	561.9	737.2	799.7	6 348.9	1 475.3	1 028.0
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	375.6	332.4	645.0	1 093.3	475.2	398.5
Finished goods ---- mil dol	304.2	85.9	334.8	572.2	171.1	144.4
Work in process ---- mil dol	23.4	99.0	93.6	55.2	40.9	140.3
Materials and supplies ---- mil dol	48.0	147.4	216.6	465.9	263.1	113.8
End of 1992 ---- mil dol	374.0	354.7	715.6	1 197.6	484.0	439.5
Finished goods ---- mil dol	291.8	106.8	404.3	615.6	173.7	165.3
Work in process ---- mil dol	25.4	130.7	101.0	56.8	39.5	150.4
Materials and supplies ---- mil dol	56.7	117.2	210.3	525.2	270.7	123.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Raw cane sugar (SIC 2061)	Cane sugar refining (SIC 2062)	Beet sugar (SIC 2063)	Candy and other confectionery products and chewing gum (SIC 2064)	Chocolate and cocoa products (SIC 2066)	Salted and roasted nuts and seeds (SIC 2068)
Gross book value of depreciable assets:						
Total:						
Beginning of year	1 046.0	773.6	1 143.0	3 396.8	996.0	681.5
New capital expenditures[1]	59.3	56.3	96.5	378.7	261.9	44.7
Used capital expenditures	3.6	(D)	(D)	28.8	(D)	8.2
Retirements	8.8	(D)	(D)	85.3	(D)	15.2
End of year	1 100.0	834.6	1 233.2	3 719.0	1 252.4	719.3
Buildings and other structures:						
Beginning of year	206.9	168.0	158.8	788.5	190.6	170.0
New capital expenditures	8.1	18.0	16.6	39.3	(D)	4.2
Used capital expenditures	(D)	(D)	(D)	6.5	(D)	3.8
Retirements	(D)	(D)	(D)	6.4	3.2	.4
End of year	215.0	192.6	175.1	827.9	265.5	177.6
Machinery and equipment:						
Beginning of year	839.1	605.6	984.1	2 608.2	805.4	511.5
New capital expenditures[1]	51.2	38.2	80.0	339.4	(D)	40.5
Used capital expenditures	(D)	(D)	(D)	22.4	(D)	4.4
Retirements	(D)	(D)	(D)	79.0	(D)	14.8
End of year	885.0	642.0	1 058.1	2 891.1	987.0	541.6
Depreciation charges during 1992:						
Total	54.3	32.6	54.5	240.5	52.8	46.2
Buildings and other structures	8.9	6.6	13.1	41.0	6.8	9.0
Machinery and equipment	45.4	26.0	41.4	199.5	46.0	37.2
Rental payments:						
Total	6.3	2.3	5.8	55.1	26.4	9.1
Buildings and other structures	2.6	1.3	.4	36.6	18.5	4.2
Machinery and equipment	3.7	1.1	5.4	18.5	7.8	4.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Raw cane sugar (SIC 2061)		Cane sugar refining (SIC 2062)		Beet sugar (SIC 2063)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	1.8	(X)	7.7	(X)	2.5	(X)
Response coverage ratio (percent)[2]	79.0	(X)	69.8	(X)	79.4	(X)
Machinery	32.6	(X)	10.9	(X)	13.0	(X)
Response coverage ratio (percent)[2]	81.5	(X)	69.8	(X)	79.4	(X)
Other purchased services:						
Communications	.8	(X)	1.7	(X)	1.0	(X)
Response coverage ratio (percent)[2]	78.0	(X)	69.8	(X)	71.6	(X)
Legal	2.6	(X)	2.2	(X)	.3	(X)
Response coverage ratio (percent)[2]	81.5	(X)	69.8	(X)	79.4	(X)
Accounting and bookkeeping	.8	(X)	2.3	(X)	.3	(X)
Response coverage ratio (percent)[2]	78.6	(X)	69.8	(X)	79.4	(X)
Advertising	.4	(X)	8.4	(X)	.9	(X)
Response coverage ratio (percent)[2]	78.6	(X)	69.8	(X)	79.4	(X)
Software and other data processing	1.1	(X)	1.7	(X)	.4	(X)
Response coverage ratio (percent)[2]	78.6	(X)	69.8	(X)	79.4	(X)
Refuse removal, including hazardous waste	.4	(X)	1.5	(X)	.7	(X)
Response coverage ratio (percent)[2]	81.5	(X)	69.8	(X)	77.7	(X)
New machinery and equipment expenditures	51.2	(X)	38.2	(X)	80.0	(X)
Automobiles, trucks, etc., for highway use	8.3	15	.4	3	1.2	1
Computers and peripheral data processing equipment	.8	18	1.5	10	1.0	1
All other	42.1	4	36.4	1	77.7	1
Adjustment ratio[3]	1.6	(X)	.9	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	838.6	(X)	2 059.8	(X)	1 390.3	(X)
Materials purchased or transferred from foreign sources[4]	(D)	(X)	505.8	2	59.3	4
Materials purchased or transferred from domestic sources	(D)	(X)	1 554.0	1	1 331.1	1
Adjustment ratio[3]	(D)	(X)	1.6	(X)	1.1	(X)

Item	Candy and other confectionery products and chewing gum (SIC 2064)		Chocolate and cocoa products (SIC 2066)		Salted and roasted nuts and seeds (SIC 2068)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	20.5	(X)	5.1	(X)	1.9	(X)
Response coverage ratio (percent)[2]	89.2	(X)	91.3	(X)	81.8	(X)
Machinery	103.4	(X)	22.5	(X)	11.5	(X)
Response coverage ratio (percent)[2]	89.3	(X)	91.3	(X)	80.2	(X)
Other purchased services:						
Communications	10.4	(X)	4.0	(X)	2.1	(X)
Response coverage ratio (percent)[2]	82.2	(X)	91.3	(X)	87.8	(X)
Legal	8.5	(X)	.8	(X)	2.2	(X)
Response coverage ratio (percent)[2]	87.6	(X)	76.2	(X)	82.2	(X)
Accounting and bookkeeping	6.5	(X)	.9	(X)	1.0	(X)
Response coverage ratio (percent)[2]	85.1	(X)	76.2	(X)	82.2	(X)
Advertising	140.0	(X)	(D)	(X)	9.9	(X)
Response coverage ratio (percent)[2]	87.2	(X)	(D)	(X)	87.4	(X)
Software and other data processing	5.0	(X)	1.2	(X)	.8	(X)
Response coverage ratio (percent)[2]	86.7	(X)	91.3	(X)	80.2	(X)
Refuse removal, including hazardous waste	7.3	(X)	1.1	(X)	.9	(X)
Response coverage ratio (percent)[2]	89.0	(X)	91.3	(X)	85.5	(X)
New machinery and equipment expenditures	339.4	(X)	(D)	(X)	40.5	(X)
Automobiles, trucks, etc., for highway use	13.0	4	(D)	(X)	.9	25
Computers and peripheral data processing equipment	16.3	5	(D)	(X)	3.3	5
All other	310.1	1	(D)	(X)	36.2	1
Adjustment ratio[3]	1.1	(X)	(D)	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	3 473.0	(X)	1 534.6	(X)	1 762.5	(X)
Materials purchased or transferred from foreign sources[4]	163.0	20	544.7	6	92.0	9
Materials purchased or transferred from domestic sources	3 310.0	1	990.0	4	1 670.5	1
Adjustment ratio[3]	1.6	(X)	1.3	(X)	1.2	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2061, RAW CANE SUGAR												
Total	–	**45**	**7.0**	**175.8**	**5.1**	**11.7**	**128.2**	**561.9**	**887.6**	**1 459.8**	**59.3**	**374.0**
Establishments with an average of—												
1 to 4 employees	E5	2	.1	1.1	(Z)	.1	.5	3.3	7.2	10.9	(Z)	.9
5 to 9 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	20	1.5	34.1	1.3	2.9	25.6	119.3	228.8	335.1	18.8	102.0
100 to 249 employees	–	12	1.9	56.1	1.5	3.9	42.5	150.9	235.3	397.5	12.8	76.0
250 to 499 employees	–	6	3.5	84.4	2.3	4.7	59.6	288.4	416.3	716.3	27.7	195.1
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2062, CANE SUGAR REFINING												
Total	–	**17**	**4.8**	**187.5**	**3.6**	**7.9**	**129.4**	**737.2**	**2 138.2**	**2 822.9**	**56.3**	**354.7**
Establishments with an average of—												
1 to 4 employees	E1	2	.5	16.2	.4	.9	10.2	85.2	298.6	369.7	7.6	65.5
20 to 49 employees	E4	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	4	1.7	68.6	1.3	2.8	48.6	240.1	651.5	901.9	21.0	101.2
500 to 999 employees	–	4	2.6	102.7	2.0	4.2	70.5	411.9	1 188.2	1 551.4	27.7	187.9
INDUSTRY 2063, BEET SUGAR												
Total	–	**40**	**7.6**	**220.2**	**6.6**	**14.3**	**173.4**	**799.7**	**1 559.3**	**2 282.0**	**96.5**	**715.6**
Establishments with an average of—												
1 to 4 employees	–	1	.4	12.9	.4	.5	7.5	45.4	103.8	148.4	29.8	14.5
5 to 9 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	22	3.9	105.6	3.4	6.9	84.8	352.4	759.2	1 056.5	(D)	339.6
250 to 499 employees	–	10	3.3	101.7	2.9	6.8	81.1	401.9	696.2	1 077.1	66.8	361.6
INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM												
Total	–	**759**	**51.5**	**1 262.7**	**41.0**	**79.5**	**842.4**	**6 348.9**	**3 903.3**	**10 207.1**	**378.7**	**1 197.6**
Establishments with an average of—												
1 to 4 employees	E9	276	.4	6.7	.3	.6	4.4	29.9	23.9	53.8	1.6	5.5
5 to 9 employees	E8	96	.6	11.0	.5	.9	7.4	44.6	34.8	79.4	2.5	8.5
10 to 19 employees	E6	89	1.3	20.3	1.0	1.8	13.1	74.6	68.5	142.7	4.7	14.4
20 to 49 employees	E3	111	3.5	63.5	2.6	4.7	36.7	190.8	163.5	353.9	9.7	38.0
50 to 99 employees	E1	62	4.5	94.0	3.4	6.6	57.3	272.4	228.4	497.8	16.7	76.5
100 to 249 employees	–	62	9.7	211.4	7.5	14.2	127.9	634.5	565.4	1 201.0	60.6	174.2
250 to 499 employees	–	44	15.5	368.8	12.5	26.2	261.8	1 863.5	1 143.9	2 990.7	93.3	341.0
500 to 999 employees	–	16	11.0	337.2	9.0	17.3	216.7	2 419.0	1 222.1	3 623.2	134.4	387.1
1,000 to 2,499 employees	–	2	5.0	149.7	4.1	7.3	116.9	819.6	452.8	1 264.5	55.1	152.3
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	327	1.0	11.7	.8	1.3	8.2	51.0	39.6	90.6	2.8	9.5
INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS												
Total	–	**156**	**9.9**	**323.3**	**7.1**	**13.9**	**199.4**	**1 475.3**	**1 632.3**	**3 106.4**	**261.9**	**484.0**
Establishments with an average of—												
1 to 4 employees	E9	98	.2	3.4	.1	.2	2.2	15.0	15.6	30.6	1.2	4.5
5 to 9 employees	E7	19	.1	2.6	.1	.2	1.7	12.2	14.4	26.9	.9	3.5
10 to 19 employees	E8	7	.1	1.9	.1	.1	1.3	8.2	8.4	16.4	.5	2.4
20 to 49 employees	–	6	.2	4.1	.1	.2	2.1	33.2	33.7	68.9	2.2	11.6
50 to 99 employees	E1	13	1.1	26.7	.8	1.6	16.8	123.2	272.3	391.9	183.3	50.6
100 to 249 employees	–	6	1.0	31.2	.6	1.0	15.4	136.1	197.8	337.9	(D)	46.4
250 to 499 employees	–	2	7.3	253.2	5.3	10.5	160.0	1 147.4	1 089.9	2 233.8	(D)	364.8
500 to 999 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	73.9	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	104	.2	4.1	.2	.3	2.6	17.0	17.7	34.7	1.3	5.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS												
Total	–	**112**	**10.4**	**233.4**	**8.1**	**16.2**	**143.0**	**1 028.0**	**1 837.3**	**2 834.4**	**44.7**	**439.5**
Establishments with an average of—												
1 to 4 employees	E6	14	(Z)	.4	(Z)	(Z)	.3	1.7	2.8	4.5	.1	.6
5 to 9 employees	E6	12	.1	1.6	.1	.1	1.0	5.7	11.0	16.7	.3	2.5
10 to 19 employees	E3	17	.2	5.6	.2	.3	2.9	18.0	35.3	53.3	1.3	7.6
20 to 49 employees	E2	24	.8	14.7	.6	1.1	8.2	56.3	114.5	172.1	2.3	18.2
50 to 99 employees	–	19	1.4	27.1	1.0	2.1	15.7	107.3	291.2	380.7	6.7	99.9
100 to 249 employees	E1	16	2.3	50.8	1.6	3.3	29.6	206.3	395.5	589.7	9.6	103.0
250 to 499 employees	–	6	2.5	65.3	2.1	4.4	45.5	277.4	505.8	793.2	14.2	119.0
500 to 999 employees	–	3	3.2	67.9	2.5	4.9	39.9	355.3	481.2	824.3	10.3	88.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	13	(Z)	.4	(Z)	(Z)	.3	1.5	2.9	4.3	.1	.6

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2061	**Raw cane sugar:**										
	All establishments in industry	45	7.0	175.8	5.1	11.7	128.2	561.9	887.6	1 459.8	59.3
2062	**Cane sugar refining:**										
	All establishments in industry	17	4.8	187.5	3.6	7.9	129.4	737.2	2 138.2	2 822.9	56.3
2063	**Beet sugar:**										
	All establishments in industry	40	7.6	220.2	6.6	14.3	173.4	799.7	1 559.3	2 282.0	96.5
2064	**Candy and other confectionery products and industry 2067, chewing gum:**										
	All establishments in industry	759	51.5	1 262.7	41.0	79.5	842.4	6 348.9	3 903.3	10 207.1	378.7
	Establishments with this product class primary:										
20642	Chocolate and chocolate-type confectionery products made from purchased chocolate	144	22.9	576.2	18.1	36.7	396.6	3 513.9	2 010.8	5 505.5	198.1
20643	Nonchocolate-type confectionery products	135	20.6	499.7	16.3	31.1	333.2	1 883.4	1 342.0	3 205.0	121.2
20648	Chewing gum and chewing gum base	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20649	Other confectionery-type products	8	.4	7.8	.3	.5	4.8	19.6	20.9	40.8	1.1
2066	**Chocolate and cocoa products:**										
	All establishments in industry	156	9.9	323.3	7.1	13.9	199.4	1 475.3	1 632.3	3 106.4	261.9
	Establishments with this product class primary:										
20661	Chocolate coatings	10	1.2	38.0	.8	1.7	24.1	125.6	301.5	425.1	(D)
20662	Chocolate and chocolate-type confectionery products made from cocoa beans ground in same establishment	7	5.8	204.3	4.2	8.2	127.1	875.9	817.0	1 689.9	(D)
20669	Other chocolate and cocoa products	15	2.4	70.7	1.8	3.3	41.6	441.7	480.4	925.9	111.0
2068	**Salted and roasted nuts and seeds:**										
	All establishments in industry	112	10.4	233.4	8.1	16.2	143.0	1 028.0	1 837.3	2 834.4	44.7

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2061, RAW CANE SUGAR			
Total value of shipments	1 459.8	1 239.4	1 113.9
Primary products value of shipments	1 426.2	(D)	1 089.1
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	.1	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	13.0
Primary products specialization ratio	(D)	(D)	(D)
Value of primary products shipments made in all industries	1 433.2	1 223.0	1 091.2
Value of primary products shipments made in this industry	1 426.2	(D)	1 089.1
Value of primary products shipments made in other industries	7.0	(D)	2.1
Coverage ratio	99	(D)	99
INDUSTRY 2062, CANE SUGAR REFINING			
Total value of shipments	2 822.9	2 460.2	3 040.3
Primary products value of shipments	2 796.2	2 411.8	2 987.5
Secondary products value of shipments	(D)	6.1	8.4
Total miscellaneous receipts	(D)	42.3	44.4
Value of resales	12.3	(D)	16.1
Contract receipts	(D)	36.3	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	100	99
Value of primary products shipments made in all industries	2 864.1	2 438.6	2 992.3
Value of primary products shipments made in this industry	2 796.2	2 411.8	2 987.5
Value of primary products shipments made in other industries	67.9	26.8	4.8
Coverage ratio	98	99	99
INDUSTRY 2063, BEET SUGAR			
Total value of shipments	2 282.0	1 831.5	1 515.8
Primary products value of shipments	2 189.1	1 812.1	1 499.2
Secondary products value of shipments	(D)	–	–
Total miscellaneous receipts	(D)	19.4	16.5
Value of resales	33.2	12.9	13.2
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	3.3
Primary products specialization ratio	(D)	100	100
Value of primary products shipments made in all industries	2 189.7	1 831.7	1 506.3
Value of primary products shipments made in this industry	2 189.1	1 812.1	1 499.2
Value of primary products shipments made in other industries	.6	19.6	7.0
Coverage ratio	99	99	99
INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM			
Total value of shipments	10 207.1	(NA)	(NA)
Primary products value of shipments	9 479.7	(NA)	(NA)
Secondary products value of shipments	238.2	(NA)	(NA)
Total miscellaneous receipts	489.2	(NA)	(NA)
Value of resales	436.1	(NA)	(NA)
Contract receipts	(D)	(NA)	(NA)
Other miscellaneous receipts	(D)	(NA)	(NA)
Primary products specialization ratio	98	(NA)	(NA)
Value of primary products shipments made in all industries	10 072.9	7 778.7	5 548.0
Value of primary products shipments made in this industry	9 479.7	(NA)	(NA)
Value of primary products shipments made in other industries	593.1	(NA)	(NA)
Coverage ratio	94	(NA)	(NA)
INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS			
Total value of shipments	3 106.4	3 107.7	(NA)
Primary products value of shipments	2 850.6	2 835.5	(NA)
Secondary products value of shipments	163.9	222.1	(NA)
Total miscellaneous receipts	91.9	50.1	(NA)
Value of resales	78.2	42.2	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	95	93	(NA)
Value of primary products shipments made in all industries	3 090.8	3 122.4	2 419.6
Value of primary products shipments made in this industry	2 850.6	2 835.5	(NA)
Value of primary products shipments made in other industries	240.2	286.9	(NA)
Coverage ratio	92	91	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS			
Total value of shipments	2 834.4	2 178.0	(NA)
Primary products value of shipments	2 511.6	1 937.3	(NA)
Secondary products value of shipments	277.4	202.6	(NA)
Total miscellaneous receipts	45.4	38.0	(NA)
Value of resales	41.7	27.6	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	90	91	(NA)
Value of primary products shipments made in all industries	2 668.6	2 064.4	1 494.3
Value of primary products shipments made in this industry	2 511.6	1 937.3	(NA)
Value of primary products shipments made in other industries	157.0	127.1	(NA)
Coverage ratio	94	94	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2061– —	**RAW CANE SUGAR**						
	Total	**(NA)**	**(X)**	**1 433.2**	**(NA)**	**(X)**	**1 223.0**
20610	Sugarcane mill products and byproducts	(NA)	(X)	1 433.2	(NA)	(X)	1 223.0
20610 11	Raw cane sugar, 1,000 s tons	30	3 460.5	1 344.8	29	3 051.5	1 146.9
	Other sugarcane mill products and byproducts:						
20610 65	Molasses and syrup, including cane blackstrap (except refiners' blackstrap), 1,000 s tons	33	1 343.8	69.4	32	1 173.4	57.4
20610 85	All other sugarcane mill products and byproducts, including sugar for consumer use without further processing, etc., 1,000 s tons	4	(D)	(D)	4	(S)	4.6
20610 00	Raw cane sugar, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	14.1
20610 02	Raw cane sugar, n.s.k.[3]	(NA)	(X)	–	(NA)	(X)	–
2062– —	**CANE SUGAR REFINING**						
	Total	**(NA)**	**(X)**	**2 864.1**	**(NA)**	**(X)**	**2 438.6**
20620	Refined cane sugar and byproducts	(NA)	(X)	2 864.1	(NA)	(X)	2 438.6
	Refined cane sugar:						
	Granulated cane sugar, including cube and tablet sugar:						
20620 09	Shipped in individual services (small paper packets), 1,000 s tons	4	34.9	29.2	5	52.6	44.3
20620 12	Shipped in consumer units (cartons and sacks 25 lb or less), 1,000 s tons	11	1 548.6	926.1	10	1 480.3	808.2
20620 14	Shipped in commercial units (bags and other containers more than 25 lb), 1,000 s tons	9	1 360.0	628.6	6	1 287.2	479.1
20620 15	Shipped in bulk (rail cars, trucks, or bins), 1,000 s tons	8	1 461.7	685.8	6	1 238.1	580.2
	Confectioners' powdered sugar:						
20620 31	Shipped in consumer units (containers 10 lb or less), 1,000 s tons	6	89.2	66.9	5	67.4	49.8
20620 35	Shipped in commercial units (containers more than 10 lb), 1,000 s tons	8	220.3	123.1	6	176.4	97.9
	Soft or brown sugar:						
20620 41	Shipped in consumer units (containers 10 lb or less), 1,000 s tons	6	102.3	79.7	8	101.3	72.3
20620 45	Shipped in commercial units (containers more than 10 lb), 1,000 s tons	7	135.7	70.9	4	121.6	65.3

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2062– —	**CANE SUGAR REFINING**—Con.						
20620	Refined cane sugar and byproducts—Con.						
	Refined cane sugar—Con.						
	Liquid sugar or sugar syrup:						
20620 53	Sucrose type ---- 1,000 s tons	6	369.6	159.1	6	353.4	168.2
20620 56	Invert and/or partially invert type ---- 1,000 s tons	7	90.7	44.5	4	63.9	33.7
20620 75	Other cane sugar refining products and byproducts, including refiners' blackstrap and syrup ---- 1,000 s tons	7	(S)	35.9	5	**76.9	26.9
20620 00	Cane sugar refining, n.s.k.	(NA)	(X)	14.5	(NA)	(X)	12.6
20620 02	Cane sugar refining, n.s.k.[3]	(NA)	(X)	–	(NA)	(X)	–
2063– —	**BEET SUGAR**						
	Total	**(NA)**	**(X)**	**2 189.7**	**(NA)**	**(X)**	**1 831.7**
20630	Refined beet sugar and byproducts	(NA)	(X)	2 189.7	(NA)	(X)	1 831.7
	Refined beet sugar:						
	Granulated beet sugar, including cube and tablet sugar:						
20630 09	Shipped in individual services (small paper packets) ---- 1,000 s tons	2	705.7	370.3	7	309.7	159.8
20630 12	Shipped in consumer units (cartons and sacks 25 lb or less) ---- 1,000 s tons	9					
20630 13	Shipped in commercial units (bags and other containers more than 25 lb) ---- 1,000 s tons	10	948.2	422.3	10	861.5	537.2
20630 15	Shipped in bulk (rail cars, trucks, or bins) ---- 1,000 s tons	9	1 825.4	944.2	11	1 834.7	810.6
20630 33	Confectioners' powdered sugar ---- 1,000 s tons	9	131.3	76.5	7	110.6	60.8
20630 35	Soft or brown sugar ---- 1,000 s tons	7	35.9	24.9	(NA)	(D)	(4)
	Liquid sugar or sugar syrup:						
20630 51	Sucrose type ---- 1,000 s tons	8	193.6	105.3	5	124.2	75.1
20630 55	Invert and/or partially invert type ---- 1,000 s tons	2			5	28.3	13.4
	Other beet sugar factory products and byproducts:						
20630 76	Whole, straighthouse or discard molasses ---- 1,000 s tons	9	942.2	63.1	(NA)	(D)	(4)
20630 82	Molasses beet pulp, bulk ---- 1,000 s tons	7	524.6	44.4	5	457.8	37.7
20630 84	Molasses beet pulp, pelletized ---- 1,000 s tons	9	1 161.5	118.7	8	545.8	40.9
20630 91	All other beet pulp, including raw beet sugar, dried and other beet pulp (plain) ---- 1,000 s tons	6	*208.3	14.8	(NA)	(NA)	493.3
20630 00	Beet sugar, n.s.k.	(NA)	(X)	5.3	(NA)	(X)	2.9
20630 02	Beet sugar, n.s.k.[3]	(NA)	(X)	–	(NA)	(X)	–
2064– —	**CANDY AND OTHER CONFECTIONERY PRODUCTS, AND CHEWING GUM (FORMERLY PRODUCT CODE 2067)**						
	Total	**(NA)**	**(X)**	**10 072.9**	**(NA)**	**(X)**	**7 778.7**
20642	Chocolate and chocolate-type confectionery products made from purchased chocolate	(NA)	(X)	5 167.3	(NA)	(X)	4 082.0
20642 00	Chocolate and chocolate-type confectionery products made from purchased chocolate[5 6]	175	(X)	5 167.3	150	(X)	4 082.0
20643	Nonchocolate-type confectionery products	(NA)	(X)	3 370.1	(NA)	(X)	2 296.7
20643 00	Nonchocolate-type confectionery products, including bar goods, granola bars, package goods, specialties, etc.[5]	180	(X)	3 370.1	165	(X)	2 296.7
20648	Chewing gum and chewing gum base[7]	(NA)	(X)	1 106.3	(NA)	(X)	868.7
	Chewing gum, not medicated:						
20648 11	Containing sugar[7] ---- mil lb	12	322.8	708.1	9	208.8	499.1
20648 14	Not containing sugar[7] ---- mil lb	5	(D)	(D)	5	(D)	(D)
20648 15	Chewing gum base[7] ---- mil lb	3	(D)	(D)	4	(D)	(D)
20648 00	Chewing gum, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20649	Other confectionery-type products	(NA)	(X)	84.4	(NA)	(X)	110.4
20649 21	Cough drops, except pharmaceutical type ---- mil lb	4	12.0	30.4	6	13.7	52.1
20649 76	Glace, candied and crystallized fruits, fruit peels, nuts, and other vegetable substances ---- mil lb	17	51.3	50.8	11	63.5	52.5
20649 00	Other confectionery-type products, n.s.k.	(NA)	(X)	3.2	(NA)	(X)	5.8
20640	Candy and other confectionery products, n.s.k.	(NA)	(X)	344.7	(NA)	(X)	420.9
20640 00	Candy and other confectionery products, n.s.k.[8]	(NA)	(X)	254.2	(NA)	(X)	197.5
20640 02	Candy and other confectionery products, n.s.k.[9]	(NA)	(X)	90.5	(NA)	(X)	223.4

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2066– —	**CHOCOLATE AND COCOA PRODUCTS**						
	Total	**(NA)**	**(X)**	**3 090.8**	**(NA)**	**(X)**	**3 122.4**
20661	Chocolate coatings[10]	(NA)	(X)	589.5	(NA)	(X)	583.6
20661 12	Sweet mil lb	9	88.0	91.0	7	83.5	91.6
20661 22	Milk mil lb	9	230.4	229.7	14	290.7	304.1
20661 32	Liquor mil lb	8	64.7	95.0	12	59.3	89.0
20661 52	Confectionery coatings, including ice cream coating (made chiefly from cocoa powder and fats other than cocoa butter) mil lb	13	*218.6	164.9	17	95.2	95.7
20661 00	Chocolate coatings, n.s.k.	(NA)	(X)	8.9	(NA)	(X)	3.1
20662	Chocolate and chocolate-type confectionery products made from cocoa beans ground in same establishment	(NA)	(X)	1 495.6	(NA)	(X)	1 260.5
20662 00	Chocolate and chocolate-type confectionery products made from cocoa beans ground in same establishment[6]	9	(X)	1 495.6	11	(X)	1 260.5
20669	Other chocolate and cocoa products[10]	(NA)	(X)	943.2	(NA)	(X)	r1 169.7
	Chocolate, except coatings:						
20669 11	Unsweetened mil lb	5	6.6	16.8	7	*45.0	61.1
20669 21	Sweetened mil lb	13	317.0	404.2	14	288.8	517.7
	Cocoa, powdered:						
20669 63	Unsweetened mil lb	14	195.7	137.6	12	91.2	77.9
	Sweetened or mixed with other substances:						
20669 71	In cans or packages 2 1/2 lb or less mil lb	12	66.9	90.6	11	110.4	146.3
20669 75	In other containers and bulk (barrels, drums, bags) mil lb	12	54.0	42.6	17	140.9	114.7
20669 81	Cocoa butter mil lb	6	(D)	(D)	6	26.5	57.1
	Chocolate syrup:						
	Chocolate liquor base:						
20669 92	In cans or packages 16 ounces or less mil lb	6	(D)	(D)	9	50.4	33.6
20669 93	In other containers or in bulk mil lb	11	141.7	126.6	9	(S)	r97.4
20669 95	Cocoa powder base mil lb	12	77.1	49.5	19	85.4	54.5
20669 00	Other chocolate and cocoa products, n.s.k.	(NA)	(X)	4.5	(NA)	(X)	9.4
20660	Chocolate and cocoa products, n.s.k.	(NA)	(X)	62.5	(NA)	(X)	108.6
20660 00	Chocolate and cocoa products, n.s.k.[11]	(NA)	(X)	28.3	(NA)	(X)	14.9
20660 02	Chocolate and cocoa products, n.s.k.[12]	(NA)	(X)	34.2	(NA)	(X)	93.7
2068– —	**NUTS AND SEEDS**						
	Total	**(NA)**	**(X)**	**2 668.6**	**(NA)**	**(X)**	**2 064.4**
20680	Nuts and seeds (salted, roasted, cooked, or blanched)	(NA)	(X)	2 668.6	(NA)	(X)	2 064.4
	Sold in bulk:						
20680 13	Peanuts, shipped separately mil lb	32	567.9	367.2	30	386.8	296.6
20680 15	Mixed nuts, including 4 varieties or more mil lb	15	(S)	17.4	10	4.5	13.1
20680 17	Other nuts, shipped separately or with 3 varieties or less mil lb	34	**227.9	447.0	27	186.6	303.6
	Canned nut meats:						
20680 33	Peanuts, shipped separately mil lb	18	165.3	278.3	18	46.3	123.5
20680 35	Mixed nuts, including 4 varieties or more mil lb	18	*57.6	147.3	16	19.9	49.7
20680 37	Other nuts, canned separately or with 3 varieties or less mil lb	20	**56.8	176.1	14	34.5	123.8
	Other packaged nut meats:						
20680 53	Peanuts, shipped separately mil lb	27	*122.6	203.1	22	189.3	277.3
20680 55	Mixed nuts, including 4 varieties or more mil lb	26	32.6	70.8	19	33.5	62.9
20680 57	Other nuts, packaged separately or with 3 varieties or less mil lb	42	*385.7	797.9	27	326.6	703.4
20680 61	Seeds (sunflower, pumpkin, etc.) mil lb	23	140.9	121.6	23	142.9	66.9
20680 00	Nuts and seeds, n.s.k.[8]	(NA)	(X)	37.8	(NA)	(X)	32.4
20680 02	Nuts and seeds, n.s.k.[9]	(NA)	(X)	4.2	(NA)	(X)	11.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]There were no administrative-record cases for this industry.
[4]For 1987, data for product codes 20630 35, 20630 76, and 20630 91 are combined to avoid disclosing data for individual companies.
[5]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix B, part 3.
[6]This product code is primary to more than one industry. For a list of the products-primary codes and descriptions, see appendix B, part 4.
[7]Product codes 20648, 20648 11, 20648 14, and 20648 15 were collected as 20670, 20670 11, 20670 14, and 20670 15, respectively.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.
[10]Additional detail is collected for this product class in the Current Industrial Reports. For the survey number and title, see appendix B, part 3.
[11]Typically for establishments with 5 employees or more.
[12]Typically for establishments with less than 5 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Chocolate and chocolate-type confectionary products	(NA)	6 662.9	(NA)	5 342.5
20642 00	Made from purchased chocolate	175	5 167.3	150	4 082.0
20662 00	Made from cocoa beans ground in same establishment	9	1 495.6	11	1 260.5

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20642, CHOCOLATE AND CHOCOLATE-TYPE CONFECTIONERY PRODUCTS MADE FROM PURCHASED CHOCOLATE		
United States	**5 167.3**	**4 082.0**
California	253.8	180.6
Georgia	12.3	13.6
Hawaii	73.8	44.6
Illinois	1 342.9	1 027.4
Indiana	48.0	(NA)
Maryland	2.5	2.6
Massachusetts	81.5	65.8
Minnesota	32.3	14.0
Missouri	12.8	(NA)
New York	75.7	63.9
Ohio	58.4	70.0
Pennsylvania	1 065.2	896.1
Utah	19.2	(NA)
Wisconsin	55.2	(NA)
20643, NONCHOCOLATE-TYPE CONFECTIONERY PRODUCTS		
United States	**3 370.1**	**2 296.7**
California	229.3	150.5
Florida	5.6	(NA)
Georgia	114.5	63.5
Illinois	925.5	725.5
Massachusetts	54.0	66.1
Minnesota	109.4	68.3
New Jersey	43.2	42.4
New York	138.8	177.7
North Carolina	21.0	(NA)
Pennsylvania	292.1	207.1
Tennessee	177.9	83.9
Texas	249.3	162.1
Utah	13.8	9.8
Washington	17.4	27.4
Wisconsin	24.1	(NA)

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20648, CHEWING GUM AND CHEWING GUM BASE		
United States	**1 106.3**	**868.7**
Pennsylvania	76.8	(NA)
20649, OTHER CONFECTIONERY-TYPE PRODUCTS		
United States	**84.4**	**110.4**
20661, CHOCOLATE COATINGS		
United States	**589.5**	**583.6**
California	79.0	56.0
Pennsylvania	190.3	219.2
Wisconsin	67.0	(NA)
20662, CHOCOLATE AND CHOCOLATE-TYPE CONFECTIONERY PRODUCTS MADE FROM COCOA BEANS GROUND IN SAME ESTABLISHMENT		
United States	**1 495.6**	**1 260.5**
California	306.8	269.9
20669, OTHER CHOCOLATE AND COCOA PRODUCTS		
United States	**943.2**	**1 169.7**
California	107.9	172.7
Florida	2.6	(NA)
Illinois	37.0	61.0
New Jersey	72.9	118.8
Pennsylvania	202.2	(NA)
Wisconsin	146.3	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2061-	**Raw cane sugar**	**1 433.2**	**1 345.4**	**1 276.4**	**1 419.1**	**1 271.1**	**1 223.0**	**1 091.2**	**707.6**
20610	Sugarcane mill products and byproducts	1 433.2	1 345.4	1 276.4	1 419.1	1 271.1	1 223.0	1 091.2	707.6
2062-	**Cane sugar refining**	**2 864.1**	**2 954.2**	**3 131.0**	**2 685.9**	**2 479.4**	**2 438.6**	**2 992.3**	**2 168.0**
20620	Refined cane sugar and byproducts	2 864.1	2 954.2	3 131.0	2 685.9	2 479.4	2 438.6	2 992.3	2 168.0
2063-	**Beet sugar**	**2 189.7**	**2 306.1**	**2 111.3**	**2 078.2**	**2 097.1**	**1 831.7**	**1 506.3**	**1 160.4**
20630	Refined beet sugar and byproducts	2 189.7	2 306.1	2 111.3	2 078.2	2 097.1	1 831.7	1 506.3	1 160.4
2064-	**Candy and other confectionery products, and chewing gum (formerly product code 2067)**	**10 072.9**	**9 757.6**	**8 974.1**	**8 687.3**	**8 429.8**	**7 778.7**	**5 548.0**	**(NA)**
20642	Chocolate and chocolate-type confectionery products made from purchased chocolate	5 167.3	5 247.5	4 920.2	4 639.9	4 398.1	4 082.0	2 719.6	1 709.3
20643	Nonchocolate-type confectionery products	3 370.1	3 024.2	2 582.6	2 571.0	2 526.1	2 296.7	1 593.7	1 241.7
20648	Chewing gum and chewing gum base	1 106.3	1 065.4	1 059.1	1 014.4	955.9	868.7	817.2	649.3
20649	Other confectionery-type products	84.4	164.2	165.9	116.1	119.3	110.4	76.6	(NA)
20640	Candy and other confectionery products, n.s.k.	344.7	256.4	246.3	345.9	430.4	420.9	340.9	215.2
2066-	**Chocolate and cocoa products**	**3 090.8**	**3 003.6**	**2 980.4**	**2 849.9**	**3 145.9**	**3 122.4**	**2 419.6**	**(NA)**
20661	Chocolate coatings	589.5	573.1	494.9	452.2	520.3	583.6	352.7	340.9
20662	Chocolate and chocolate-type confectionery products made from cocoa beans ground in same establishment	1 495.6	1 228.9	1 434.3	1 348.3	1 557.1	1 260.5	1 040.1	565.4
20669	Other chocolate and cocoa products	943.2	1 076.8	926.6	929.2	958.5	1 169.7	980.8	(NA)
20660	Chocolate and cocoa products, n.s.k.	62.5	124.8	124.5	120.1	109.9	108.6	46.0	16.4
2068-	**Nuts and seeds**	**2 668.6**	**2 457.3**	**2 315.3**	**2 255.4**	**2 038.4**	**2 064.4**	**1 494.3**	**(NA)**
20680	Nuts and seeds (salted, roasted, cooked, or blanched)	2 668.6	2 457.3	2 315.3	2 255.4	2 038.4	2 064.4	1 494.3	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2061, RAW CANE SUGAR				
	Materials, ingredients, containers, and supplies	**(X)**	**838.6**	**(X)**	**750.8**
013321	Sugar cane 1,000 s tons	23 984.2	771.7	23 107.7	644.1
970099	All other materials and components, parts, containers, and supplies	(X)	63.0	(X)	94.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	3.8	(X)	12.0
	INDUSTRY 2062, CANE SUGAR REFINING				
	Materials, ingredients, containers, and supplies	**(X)**	**2 059.8**	**(X)**	**1 951.2**
206101	Raw cane sugar (converted to 96 degree basis) 1,000 s tons	*4 664.3	1 869.9	4 361.7	1 755.4
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	(D)	(X)	(3)
267101	Packaging paper and plastics film, coated and laminated	(X)	32.1	(X)	(3)
267301	Bags; plastics, foil, and coated paper	(X)	(D)	(X)	(3)
267401	Bags; uncoated paper and multiwall	(X)	(D)	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	115.8	(X)	[3]192.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	4.6	(X)	3.4
	INDUSTRY 2063, BEET SUGAR				
	Materials, ingredients, containers, and supplies	**(X)**	**1 390.3**	**(X)**	**1 138.5**
013311	Sugar beets 1,000 s tons	27 617.7	1 188.1	*25 843.1	961.3
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	7.6	(X)	(3)
267101	Packaging paper and plastics film, coated and laminated	(X)	7.2	(X)	(3)
267301	Bags; plastics, foil, and coated paper	(X)	(D)	(X)	(3)
267401	Bags; uncoated paper and multiwall	(X)	(D)	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	178.5	(X)	[3]174.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	–	(X)	2.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2064, CANDY AND OTHER CONFECTIONERY PRODUCTS AND INDUSTRY 2067, CHEWING GUM				
	Materials, ingredients, containers, and supplies	**(X)**	**3 473.0**	**(X)**	**3 180.4**
010012	Nuts, in shell (including peanuts) mil lb	(D)	(D)	(NA)	(NA)
206801	Nutmeats, including peanuts, processed mil lb	186.2	195.5	(NA)	(NA)
017301	Nutmeats, raw mil lb	41.7	54.5	(NA)	(NA)
190045	Fresh and dried fruits mil lb	61.3	43.6	(NA)	(NA)
202000	Milk and milk products	(X)	212.0	(X)	(NA)
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) mil lb	161.8	28.2	(NA)	(NA)
204611	Crystalline fructose (dry fructose) mil lb	**2.8	.9	(NA)	(NA)
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) mil lb	1 165.7	146.0	(NA)	(NA)
286932	Sugar substitutes (mannitol, sorbitol, etc.) 1,000 s tons	49.2	45.8	(NA)	(NA)
206011	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons	1 047.1	461.5	(NA)	(NA)
207007	Fats and oils, including shortening 1,000 s tons	197.4	95.0	(NA)	(NA)
206602	Chocolate coatings 1,000 s tons	171.2	222.3	(NA)	(NA)
206606	Unsweetened chocolate (chocolate liquor) 1,000 s tons	35.5	79.8	(NA)	(NA)
017915	Cocoa beans 1,000 s tons	(D)	(D)	(NA)	(NA)
206608	Cocoa, pressed cake and powder 1,000 s tons	11.1	9.9	(NA)	(NA)
206691	Cocoa butter mil lb	61.2	97.5	(NA)	(NA)
206701	Chewing gum base including chicle	(X)	(D)	(X)	(NA)
286953	Essential oils and flavors, synthetic	(X)	107.5	(X)	(NA)
267101	Packaging paper and plastics film, coated and laminated	(X)	343.3	(X)	(NA)
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	50.8	(X)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	324.1	(X)	(NA)
308015	Plastics containers	(X)	29.1	(X)	(NA)
322101	Glass containers	(X)	6.6	(X)	(NA)
341101	Metal cans, can lids and ends	(X)	11.5	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	397.6	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	307.7	(X)	(NA)
	INDUSTRY 2066, CHOCOLATE AND COCOA PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 534.6**	**(X)**	**1 599.0**
010012	Nuts, in shell (including peanuts) mil lb	(D)	(D)	(D)	(3)
206801	Nutmeats, including peanuts, processed mil lb	*5.2	6.1	40.2	60.9
017301	Nutmeats, raw mil lb	(D)	(D)		
202000	Milk and milk products	(X)	172.4	(X)	160.2
	Sweeteners:				
204604	High fructose corn syrup (HFCS)(in terms of solids) mil lb	66.2	8.2	*54.9	5.3
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight) mil lb	75.1	9.3	61.4	6.1
286932	Sugar substitutes (mannitol, sorbitol, etc.) 1,000 s tons	(S)	1.2	(NA)	(3)
206011	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons	537.2	212.8	355.7	159.9
207007	Fats and oils, including shortening 1,000 s tons	87.2	39.0	*91.1	35.5
206602	Chocolate coatings 1,000 s tons	29.1	29.4	14.2	21.2
206606	Unsweetened chocolate (chocolate liquor) 1,000 s tons	68.8	75.8	53.5	96.8
017915	Cocoa beans 1,000 s tons	310.2	368.4	244.4	438.6
206608	Cocoa, pressed cake and powder 1,000 s tons	65.7	48.3	11.3	11.8
206691	Cocoa butter mil lb	111.3	168.4	94.1	207.5
286953	Essential oils and flavors, synthetic	(X)	15.8	(X)	6.9
267101	Packaging paper and plastics film, coated and laminated	(X)	57.1	(X)	(3)
349701	Aluminum foil packaging products, converted or rolls and sheets	(X)	(D)	(X)	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	42.1	(X)	47.2
308015	Plastics containers	(X)	20.3	(X)	(3)
322101	Glass containers	(X)	(D)	(X)	(3)
341101	Metal cans, can lids and ends	(X)	16.4	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	129.9	(X)	3283.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	45.8	(X)	58.0
	INDUSTRY 2068, SALTED AND ROASTED NUTS AND SEEDS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 762.5**	**(X)**	**1 245.0**
010012	Nuts, in shell (including peanuts) mil lb	1 122.4	635.7	844.8	458.9
206801	Nutmeats, including peanuts, processed mil lb	150.9	125.7	632.6	502.6
017301	Nutmeats, raw mil lb	590.9	661.3		
190045	Fresh and dried fruits mil lb	*13.6	13.1	(NA)	(3)
206011	Sugar, cane and beet (in terms of sugar solids) 1,000 s tons	19.0	8.4	(NA)	(3)
207007	Fats and oils, including shortening 1,000 s tons	46.4	16.8	(S)	8.2
267101	Packaging paper and plastics film, coated and laminated	(X)	41.3	(X)	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	53.9	(X)	24.7
308015	Plastics containers	(X)	5.8	(X)	(3)
322101	Glass containers	(X)	13.3	(X)	18.3
341101	Metal cans, can lids and ends	(X)	29.4	(X)	26.7
970099	All other materials and components, parts, containers, and supplies	(X)	116.7	(X)	3186.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	41.2	(X)	18.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]Data are included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
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2013B 18	2013B 19
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20223 02	20223 00
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20224 13	20224 21
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20321 00	20321 31
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20321 00	20321 71
20321 00	20321 98
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20323 71	20323 74
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20324 63	20324 62
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20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
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20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
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20431 05	20430 12
20431 07	20430 12
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20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
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20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
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20630 12	20630 07
20630 35	20630 89
20630 76	20630 75
20630 76	20630 81
20630 91	20630 89
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20648 15	20670 15
20648 00	20670 00
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20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
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20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
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20923 21	20923 24
20923 21	20923 31
20923 21	20923 33
20923 23	20923 25
20923 23	20923 35
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20925 30	20925 32
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20952 00	20952 17
20952 00	20952 19
20980 01	20980 21
20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
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2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
2099B 19	20997 98

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
20223 00	20223 01
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20238 11	20238 01
20238 11	20238 03
20238 11	20238 05
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20238 11	20238 19
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20321 31	20321 00
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20321 71	20321 00
20321 98	20321 00
20323 73	20323 71
20323 74	20323 71
20324 61	20324 63
20324 62	20324 63
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20331 31	20331 59
20331 97	20331 59
20332 58	20332 98
20332 73	20332 98
20332 99	20332 98
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20336 63	20336 67
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20450 87	20450 86
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20450 87	20450 89
20450 93	20450 92
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20512 36	20512 50
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20512 37	20512 60
20512 37	20512 61
20512 39	20512 70
20512 39	20512 71
20512 40	20512 80
20512 40	20512 81
20512 42	20512 90
20512 42	20512 91
20522 19	20522 16
20522 19	20522 17
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20630 89	20630 35
20630 89	20630 91
20670	20648
20670 11	20648 11
20670 14	20648 14
20670 15	20648 15
20670 00	20648 00
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20752 98	20752 97
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20791 81	20791 85
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20840 00	20840 10
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20851 19	20851 15
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20997	2099A
20997	2099B
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20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
2064200	MA20D, Confectionery
2064300	MA20D, Confectionery
20661	MA20D, Confectionery
20669	MA20D, Confectionery
2064800	MA20D, Confectionery

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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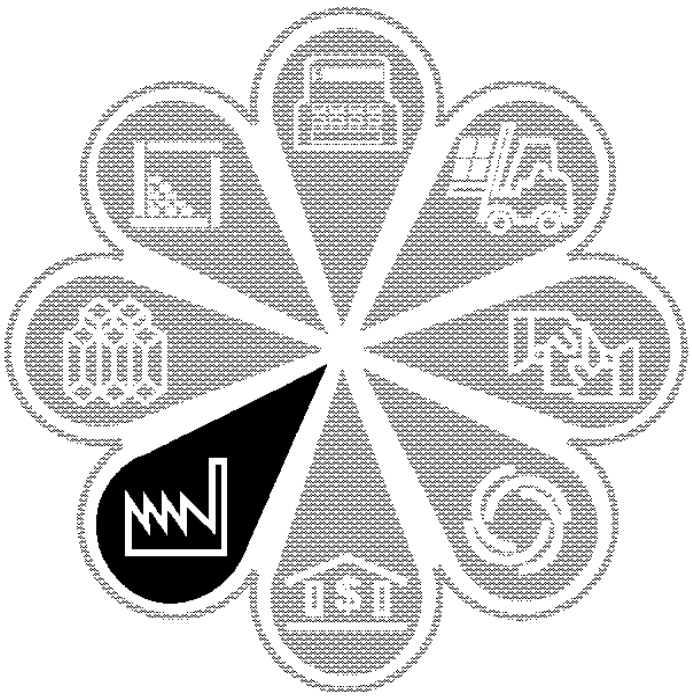
1992 Census of Manufactures

MC92-I-20G

INDUSTRY SERIES

Fats and Oils

Industries 2074, 2075, 2076, 2077, and 2079



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20G

INDUSTRY SERIES

Fats and Oils

Industries 2074, 2075, 2076, 2077, and 2079

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief, with primary staff assistance by **David Gromos.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2074	Cottonseed Oil Mills
2075	Soybean Oil Mills
2076	Vegetable Oil Mills, N.E.C.
2077	Animal and Marine Fats and Oils
2079	Edible Fats and Oils, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2074, COTTONSEED OIL MILLS

This industry is made up of establishments primarily engaged in manufacturing cottonseed oil, cake, meal, and linters, or in processing purchased cottonseed oil other than into edible cooking oils. Establishments primarily engaged in refining cottonseed oil into edible cooking oils are classified in industry 2079.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2074, Cottonseed Oil Mills, had employment of 2.4 thousand. The employment figure was 8 percent below the 2.6 thousand reported in 1987.

The leading States in employment in 1992 were Texas and Mississippi, accounting for approximately 54 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $737.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2074 shipped $659.6 million of products considered primary to the industry, $19.4 million of secondary products, and had $58.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio also was 97 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2074, no matter in what industry they were produced, appear in table 6a and aggregate to $736.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cottonseed oil mills industry amounted to $510.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2075, SOYBEAN OIL MILLS

This industry is made up of establishments primarily engaged in manufacturing soybean oil, cake, and meal and soybean protein isolates and concentrates, or in processing purchased soybean oil other than into edible cooking oils.

Establishments primarily engaged in refining soybean oil into edible cooking oils are classified in industry 2079.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2075, Soybean Oil Mills, had employment of 7.4 thousand. The employment figure was 6 percent above the 7.0 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois and Iowa, accounting for approximately 41 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $10.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2075 shipped $8.5 billion of products considered primary to the industry, $1.6 billion of secondary products, and had $478.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 84 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2075, no matter in what industry they were produced, appear in table 6a and aggregate to $9.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the soybean oil mills industry amounted to $9.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing vegetable oils, cake and meal, except corn, cottonseed, and soybean, or in processing similar purchased oils other than into edible cooking oils. Establishments primarily engaged in manufacturing corn oil and its byproducts are classified in industry 2046. Establishments primarily engaged in refining vegetable oils into edible cooking oils are classified in industry 2079.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2076, Vegetable Oil Mills had employment of .9 thousand. The employment figure was unchanged from the .9 thousand reported in 1987. Compared with 1991, employment increased 80 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Dakota and Texas, accounting for approximately 44 percent of the industry's employment. This represents a shift from 1987 when California and Georgia accounted for approximately 56 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $666.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2076 shipped $569.8 million of products considered primary to the industry.

Establishments in this industry also accounted for 76 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 72 percent.

The products primary to industry 2076, no matter in what industry they were produced, appear in table 6a and aggregate to $745.5 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the vegetable oil mills, not elsewhere classified industry amounted to $532.3 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS

This industry is made up of establishments primarily engaged in manufacturing animal oil, including fish oil and other marine animal oils, and fish and animal meal; and those rendering inedible stearin, grease, and tallow from animal fat, bones, and meat scraps. Establishments primarily engaged in manufacturing lard and edible tallow and stearin are classified in industry group 201.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2077, Animal and Marine Fats and Oils, had employment of 8.5 thousand. The employment figure was 13 percent below the 9.8 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, North Carolina, Texas, and Louisiana. This represents a shift from 1987 when North Carolina, California, Virginia, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2079 shipped $1.7 billion of products considered primary to the industry, $53.5 million of secondary products, and had $85.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio also was 97 percent.

Establishments in this industry also accounted for 62 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 71 percent.

The products primary to industry 2077, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the animal and marine fats and oils industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing shortening, table oils, margarine, and other edible fats and oils, not elsewhere classified. Establishments primarily engaged in producing corn oil are classified in industry 2046.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2079, Edible Fats and Oils, N.E.C., had employment of 8.7 thousand. The employment figure was 6 percent below the 9.3 thousand reported in 1987. Compared with 1991, employment decreased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, and Ohio, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when Illinois, California, and Texas accounted for approximately 41 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2079 shipped $3.9 billion of products considered primary to the industry, $737.4 million of secondary products, and had $231.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 84 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 71 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 77 percent.

The products primary to industry 2079, no matter in what industry they were produced, appear in table 6a and aggregate to $5.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the edible fats and oils, not elsewhere classified industry amounted to $3.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2074, COTTONSEED OIL MILLS															
1992 Census	22	45	35	2.4	49.6	1.9	4.3	33.9	211.4	510.8	737.8	12.0	183.8	97	90
1991 ASM	(NA)	(NA)	(NA)	2.3	43.8	1.8	4.0	29.9	198.4	483.8	716.3	27.4	150.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.8	52.8	2.3	4.9	36.9	185.0	619.6	850.5	24.8	188.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	3.1	59.7	2.5	5.6	41.9	210.1	714.5	938.7	28.8	231.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.9	58.2	2.3	5.3	40.5	264.7	628.6	851.5	19.2	270.3	(NA)	(NA)
1987 Census	31	52	40	2.6	44.8	2.0	4.5	29.8	106.9	378.8	470.7	12.2	145.8	97	93
1986 ASM	(NA)	(NA)	(NA)	3.6	61.2	2.8	6.2	40.3	177.4	487.6	678.0	17.9	133.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.5	64.5	2.7	6.6	44.3	219.3	640.2	880.8	22.0	155.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	3.3	57.9	2.6	6.0	39.4	197.2	727.0	906.2	23.2	187.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.1	65.2	3.3	7.4	44.7	229.9	572.9	791.4	16.9	205.6	(NA)	(NA)
1982 Census	47	77	59	5.2	76.2	4.3	9.7	54.5	202.9	715.0	933.3	59.6	191.8	94	97
1981 ASM	(NA)	(NA)	(NA)	5.5	74.3	4.5	9.5	52.2	223.2	859.8	1 086.1	48.2	233.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.3	63.4	4.3	9.5	45.4	201.8	820.2	1 033.7	24.5	251.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.4	60.0	4.3	9.4	43.0	231.6	733.6	938.2	17.7	276.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.7	58.7	4.6	10.1	41.9	222.0	734.1	969.8	29.9	212.1	(NA)	(NA)
1977 Census	62	97	71	5.2	51.5	4.1	9.3	35.9	197.4	670.8	859.2	13.0	195.4	88	89
INDUSTRY 2075, SOYBEAN OIL MILLS															
1992 Census	42	99	70	7.4	225.3	5.1	11.1	143.1	1 273.8	9 372.5	10 650.6	123.2	857.9	84	95
1991 ASM	(NA)	(NA)	(NA)	6.7	197.2	4.6	10.0	125.6	1 186.5	8 832.5	9 965.0	207.9	854.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.9	199.2	4.8	10.3	127.4	1 519.0	9 516.2	10 966.3	166.0	765.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.0	167.9	4.1	8.9	107.1	1 231.4	9 313.7	10 723.6	99.1	635.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.7	176.5	4.5	9.7	114.1	1 411.4	10 885.4	12 140.2	126.4	1 265.9	(NA)	(NA)
1987 Census	47	106	73	7.0	172.5	4.8	10.1	112.2	1 011.5	8 103.3	9 074.1	90.7	928.8	90	98
1986 ASM	(NA)	(NA)	(NA)	7.0	166.6	4.6	9.4	106.4	676.7	7 104.6	7 815.5	93.3	480.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.3	168.8	4.8	10.1	110.8	711.7	7 911.7	8 629.4	109.5	625.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.9	186.6	5.3	11.0	117.9	651.6	9 067.3	9 988.2	96.5	679.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.1	180.6	5.6	12.1	119.9	888.1	8 362.2	9 059.8	79.5	1 293.5	(NA)	(NA)
1982 Census	52	114	84	8.9	188.7	6.2	13.4	123.1	678.2	7 896.8	8 603.6	113.4	883.9	88	95
1981 ASM	(NA)	(NA)	(NA)	9.9	184.6	7.0	14.9	121.6	819.8	8 375.7	9 176.9	161.0	858.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.3	178.0	7.5	15.7	116.6	846.4	8 813.6	9 752.1	138.9	1 181.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.2	161.6	7.3	15.3	105.1	907.9	8 296.5	9 085.3	93.5	1 150.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.9	149.6	7.0	15.1	100.3	612.9	7 671.1	8 234.4	145.4	888.4	(NA)	(NA)
1977 Census	65	121	87	9.4	130.7	6.6	14.7	87.8	373.8	7 012.8	7 580.0	72.3	804.9	87	98
INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.															
1992 Census	18	26	14	.9	26.2	.6	1.2	15.2	133.8	532.3	666.2	10.4	76.0	(D)	76
1991 ASM	(NA)	(NA)	(NA)	.5	13.0	.3	.6	7.3	120.0	316.0	455.1	6.5	57.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	.7	16.6	.5	1.1	9.5	98.6	405.9	490.4	5.9	97.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	.7	16.8	.5	1.1	10.0	128.8	447.4	591.3	34.8	69.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	.7	15.6	.5	.9	9.7	64.5	397.3	448.8	4.9	79.4	(NA)	(NA)
1987 Census	20	23	15	.9	19.9	.5	1.1	11.4	82.7	353.3	431.5	4.9	81.5	88	72
1986 ASM	(NA)	(NA)	(NA)	1.1	20.4	.8	1.7	12.5	110.4	426.4	524.5	1.3	73.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	1.2	21.4	.9	1.8	14.5	43.1	507.3	566.0	(D)	83.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	1.3	21.9	1.0	2.1	15.4	53.1	546.6	616.7	44.0	110.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	1.3	24.2	1.0	2.1	16.1	134.0	543.0	659.0	58.4	108.0	(NA)	(NA)
1982 Census	26	29	15	1.3	22.3	.9	1.8	14.8	80.0	467.0	556.9	66.9	83.8	93	78
1981 ASM	(NA)	(NA)	(NA)	1.5	25.1	1.1	2.3	17.2	120.1	439.7	581.8	12.7	72.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	1.4	20.9	1.0	2.2	14.2	108.5	339.6	435.1	13.6	92.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	1.4	19.4	1.0	2.1	13.4	103.7	306.4	397.6	9.2	89.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	1.5	18.8	1.1	2.3	13.2	54.5	280.1	346.5	6.2	79.4	(NA)	(NA)
1977 Census	37	42	19	1.5	17.6	1.1	2.5	12.2	58.4	304.7	360.8	7.4	89.3	86	58
INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS															
1992 Census	159	268	137	8.5	220.3	5.5	12.6	130.5	755.4	1 094.6	1 858.2	70.3	90.3	97	62
1991 ASM	(NA)	(NA)	(NA)	8.5	208.4	4.9	10.6	108.1	718.0	1 000.3	1 725.3	40.1	84.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.6	208.0	4.8	10.4	97.9	715.4	1 056.6	1 776.2	45.2	90.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.8	230.9	5.8	12.5	118.6	832.7	1 463.0	2 297.9	57.0	96.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.2	231.0	6.0	12.8	114.4	725.5	1 313.1	2 024.0	102.2	101.9	(NA)	(NA)
1987 Census	194	305	154	9.8	211.1	5.8	11.9	107.7	749.1	1 016.6	1 753.1	57.0	88.3	97	71
1986 ASM	(NA)	(NA)	(NA)	10.8	223.6	5.9	11.2	114.3	635.9	989.6	1 632.8	41.3	55.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.1	233.9	6.9	13.0	122.3	609.6	1 189.2	1 820.2	(D)	62.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.7	253.6	9.2	15.7	136.4	730.0	1 599.1	2 323.2	76.2	82.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.7	215.6	7.1	15.1	126.1	630.1	1 202.6	1 817.7	58.7	91.3	(NA)	(NA)
1982 Census	270	386	189	10.8	215.1	7.2	15.5	127.8	562.6	1 188.5	1 752.5	56.5	81.2	97	68
1981 ASM	(NA)	(NA)	(NA)	11.8	210.9	8.2	17.2	133.6	642.9	1 261.5	1 902.0	55.0	89.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.7	207.1	9.1	19.0	127.4	635.5	1 247.5	1 884.7	50.7	85.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.8	205.5	10.2	22.0	137.3	671.4	1 309.7	1 984.1	50.6	83.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.4	190.8	9.9	21.8	120.7	607.0	1 237.6	1 844.5	56.1	85.5	(NA)	(NA)
1977 Census	384	500	201	12.4	171.2	8.7	19.2	103.8	583.8	1 086.7	1 655.0	53.3	70.2	94	68
INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.															
1992 Census	72	102	66	8.7	257.1	6.1	12.9	160.1	1 384.7	3 446.4	4 830.4	107.0	342.0	84	71
1991 ASM	(NA)	(NA)	(NA)	10.2	281.1	7.1	14.5	174.8	1 592.0	4 278.8	5 873.8	94.4	366.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.3	273.9	7.1	14.2	168.8	1 600.3	3 822.5	5 415.8	85.0	383.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.7	288.2	7.5	15.0	178.9	1 542.9	4 055.6	5 642.9	65.4	360.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.9	274.1	7.0	14.1	175.8	1 454.1	3 637.3	5 052.0	78.6	353.1	(NA)	(NA)
1987 Census	67	100	74	9.3	253.3	6.6	13.7	167.4	1 260.1	2 886.3	4 151.1	86.2	281.1	90	77
1986 ASM	(NA)	(NA)	(NA)	10.4	262.7	7.2	14.5	166.9	1 290.0	3 631.3	4 951.0	82.0	400.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.7	264.8	7.5	15.3	168.9	1 190.4	4 368.1	5 608.4	100.3	418.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.4	271.2	8.2	16.6	175.3	1 291.3	4 444.8	5 716.9	77.2	550.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.6	270.9	8.1	16.6	171.5	1 199.6	3 580.1	4 745.0	84.7	409.5	(NA)	(NA)
1982 Census	79	118	85	12.5	272.0	8.7	17.6	173.8	1 261.7	3 643.3	4 905.6	96.5	353.1	85	77
1981 ASM	(NA)	(NA)	(NA)	12.0	249.3	8.5	17.6	164.5	1 140.3	4 030.2	5 202.0	102.9	357.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.8	243.1	9.0	18.4	160.9	1 030.4	4 114.5	5 131.6	84.1	426.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.8	231.2	8.9	19.0	155.0	1 077.5	4 271.6	5 290.6	82.9	436.7	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	13.1	214.2	9.2	19.0	143.0	937.0	3 887.7	4 783.5	70.7	403.2	(NA)	(NA)
1977 Census	67	109	80	12.7	190.5	9.0	18.7	125.8	691.8	3 293.3	4 025.0	62.1	324.3	89	77

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2074, COTTONSEED OIL MILLS								
1992 Census	20 667	79	2 263	7.88	69	76	88 083	23	49.16
1991 ASM	19 043	78	2 222	7.48	68	74	86 261	22	49.60
1990 ASM	18 857	82	2 130	7.53	73	79	66 071	29	37.76
1989 ASM	19 258	81	2 240	7.48	76	82	67 774	28	37.52
1988 ASM	20 069	79	2 304	7.64	74	81	91 276	22	49.94
1987 Census	17 231	77	2 250	6.62	80	90	41 115	42	23.76
1986 ASM	17 000	78	2 214	6.50	72	81	49 278	34	28.61
1985 ASM	18 429	77	2 444	6.71	73	80	62 657	29	33.23
1984 ASM	17 545	79	2 308	6.57	80	87	59 758	29	32.87
1983 ASM	15 902	80	2 242	6.04	72	81	56 073	28	31.07
1982 Census	14 654	83	2 256	5.62	77	85	39 019	38	20.92
1981 ASM	13 509	82	2 111	5.49	79	86	40 582	33	23.49
1980 ASM	11 962	81	2 209	4.78	79	85	38 075	31	21.24
1979 ASM	11 111	80	2 186	4.57	78	85	42 889	26	24.64
1978 ASM	10 298	81	2 196	4.15	76	82	38 947	26	21.98
1977 Census	9 904	79	2 268	3.86	78	84	37 962	26	21.23
	INDUSTRY 2075, SOYBEAN OIL MILLS								
1992 Census	30 446	69	2 176	12.89	88	90	172 135	18	114.76
1991 ASM	29 433	69	2 174	12.56	89	91	177 090	17	118.65
1990 ASM	28 870	70	2 146	12.37	87	89	220 145	13	147.48
1989 ASM	27 983	68	2 171	12.03	87	88	205 233	14	138.36
1988 ASM	26 343	67	2 156	11.76	90	91	210 657	13	145.51
1987 Census	24 643	69	2 104	11.11	89	91	144 500	17	100.15
1986 ASM	23 800	66	2 043	11.32	91	93	96 671	25	71.99
1985 ASM	23 123	66	2 104	10.97	92	94	97 493	24	70.47
1984 ASM	23 620	67	2 075	10.72	91	93	82 481	29	59.24
1983 ASM	22 296	69	2 161	9.91	92	94	109 642	20	73.40
1982 Census	21 202	70	2 161	9.19	92	94	76 202	28	50.61
1981 ASM	18 646	71	2 129	8.16	91	93	82 808	23	55.02
1980 ASM	17 282	73	2 093	7.43	90	92	82 175	21	53.91
1979 ASM	15 843	72	2 096	6.87	91	93	89 010	18	59.34
1978 ASM	15 111	71	2 157	6.64	93	95	61 909	24	40.59
1977 Census	13 904	70	2 227	5.97	93	94	39 766	35	25.43
	INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.								
1992 Census	29 111	67	2 000	12.67	80	84	148 667	20	111.50
1991 ASM	26 000	60	2 000	12.17	69	72	240 000	11	200.00
1990 ASM	23 714	71	2 200	8.64	83	86	140 857	17	89.64
1989 ASM	24 000	71	2 200	9.09	76	79	184 000	13	117.09
1988 ASM	22 286	71	1 800	10.78	89	92	92 143	24	71.67
1987 Census	22 111	56	2 200	10.36	82	86	91 889	24	75.18
1986 ASM	18 545	73	2 125	7.35	81	85	100 364	18	64.94
1985 ASM	17 833	75	2 000	8.06	90	93	35 917	50	23.94
1984 ASM	16 846	77	2 100	7.33	89	92	40 846	41	25.29
1983 ASM	18 615	77	2 100	7.67	82	86	103 077	18	63.81
1982 Census	17 154	69	2 000	8.22	84	88	61 538	28	44.44
1981 ASM	16 733	73	2 091	7.48	76	80	80 067	21	52.22
1980 ASM	14 929	71	2 200	6.45	78	83	77 500	19	49.32
1979 ASM	13 857	71	2 100	6.38	77	82	74 071	19	49.38
1978 ASM	12 533	73	2 091	5.74	81	86	36 333	34	23.70
1977 Census	11 733	73	2 273	4.88	84	89	38 933	30	23.36

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS								
1992 Census	25 918	65	2 291	10.36	59	71	88 871	29	59.95
1991 ASM	24 518	58	2 163	10.20	58	70	84 471	29	67.74
1990 ASM	24 186	56	2 167	9.41	59	71	83 186	29	68.79
1989 ASM	23 561	59	2 155	9.49	64	74	84 969	28	66.62
1988 ASM	22 647	59	2 133	8.94	65	76	71 127	32	56.68
1987 Census	21 541	59	2 052	9.05	58	70	76 439	28	62.95
1986 ASM	20 704	55	1 898	10.21	61	74	58 880	35	56.78
1985 ASM	21 072	62	1 884	9.41	65	78	54 919	38	46.89
1984 ASM	18 511	67	1 707	8.69	69	80	53 285	35	46.50
1983 ASM	20 150	66	2 127	8.35	66	78	58 888	34	41.73
1982 Census	19 917	67	2 153	8.25	68	80	52 093	38	36.30
1981 ASM	17 873	69	2 098	7.77	66	77	54 483	33	37.38
1980 ASM	16 307	72	2 088	6.71	66	77	50 039	33	33.45
1979 ASM	14 891	74	2 157	6.24	66	76	48 652	31	30.52
1978 ASM	14 239	74	2 202	5.54	67	77	45 299	31	27.84
1977 Census	13 806	70	2 207	5.41	66	76	47 081	29	30.41
	INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.								
1992 Census	29 552	70	2 115	12.41	71	77	159 161	19	107.34
1991 ASM	27 559	70	2 042	12.06	73	78	156 078	18	109.79
1990 ASM	26 592	69	2 000	11.89	71	76	155 369	17	112.70
1989 ASM	26 935	70	2 000	11.93	72	77	144 196	19	102.86
1988 ASM	27 687	71	2 014	12.47	72	77	146 879	19	103.13
1987 Census	27 237	71	2 076	12.22	70	76	135 495	20	91.98
1986 ASM	25 260	69	2 014	11.51	73	79	124 038	20	88.97
1985 ASM	24 748	70	2 040	11.04	78	83	111 252	22	77.80
1984 ASM	23 789	72	2 024	10.56	78	82	113 272	21	77.79
1983 ASM	23 353	70	2 049	10.33	75	81	103 414	23	72.27
1982 Census	21 760	70	2 023	9.88	74	80	100 936	22	71.69
1981 ASM	20 775	71	2 071	9.35	77	82	95 025	22	64.79
1980 ASM	18 992	70	2 044	8.74	80	85	80 500	24	56.00
1979 ASM	18 063	70	2 135	8.16	81	85	84 180	21	56.71
1978 ASM	16 351	70	2 065	7.53	81	86	71 527	23	49.32
1977 Census	15 000	71	2 078	6.73	82	87	54 472	28	36.99

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2074, COTTONSEED OIL MILLS														
United States	–	**45**	**35**	**2.4**	**49.6**	**1.9**	**4.3**	**33.9**	**211.4**	**510.8**	**737.8**	**12.0**	**2.6**	**106.9**
Arkansas	–	4	4	.3	6.3	.3	.6	4.7	17.1	64.4	83.5	2.7	C	(D)
California	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	10	8	.5	8.5	.4	.9	5.5	30.9	72.0	104.4	1.8	E	(D)
Oklahoma	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	12	9	.8	17.0	.6	1.4	11.5	65.7	181.2	243.9	4.3	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2075, SOYBEAN OIL MILLS														
United States	–	**99**	**70**	**7.4**	**225.3**	**5.1**	**11.1**	**143.1**	**1 273.8**	**9 372.5**	**10 650.6**	**123.2**	**7.0**	**1 011.5**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	32.0
Georgia	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	16	13	2.3	72.8	1.6	3.6	46.9	367.0	2 225.7	2 590.4	40.6	1.6	247.9
Indiana	–	5	5	.6	16.9	.4	.8	11.4	86.1	575.4	658.8	(D)	F	(D)
Iowa	–	12	12	.7	20.4	.5	1.0	13.2	154.4	1 504.9	1 679.0	(D)	F	(D)
Kansas	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.4	C	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Minnesota	–	5	3	.4	11.6	.2	.5	6.8	89.4	609.3	699.9	1.7	.4	66.9
Mississippi	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	62.1
Nebraska	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
North Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	5	5	.4	13.1	.3	.6	8.2	67.4	599.2	672.2	(D)	E	(D)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	3	.6	21.1	.5	1.0	15.4	78.1	295.9	373.6	(D)	E	(D)
INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.														
United States	–	**26**	**14**	**.9**	**26.2**	**.6**	**1.2**	**15.2**	**133.8**	**532.3**	**666.2**	**10.4**	**.9**	**82.7**
Minnesota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Dakota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS														
United States	**E1**	**268**	**137**	**8.5**	**220.3**	**5.5**	**12.6**	**130.5**	**755.4**	**1 094.6**	**1 858.2**	**70.3**	**9.8**	**749.1**
Alabama	–	7	3	.2	4.6	.1	.3	2.5	24.1	47.9	73.4	2.5	(NA)	(NA)
California	E2	21	11	.7	22.2	.4	.9	10.5	55.4	83.8	141.6	5.7	F	(D)
Colorado	E2	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	E4	8	5	.3	5.9	.1	.3	2.5	25.3	24.7	50.3	2.5	.3	27.5
Georgia	–	11	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.7	C	(D)
Illinois	–	10	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	10	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	12	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	E	(D)
Kansas	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kentucky	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	7	6	.5	13.3	.3	.7	9.4	38.0	23.1	64.9	(D)	E	(D)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	3	2	.2	5.0	.1	.2	1.4	11.5	13.8	25.1	.6	(NA)	(NA)
Michigan	E1	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Minnesota	–	10	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.4	E	(D)
Mississippi	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	4	2	.1	3.0	.1	.2	2.3	14.8	30.6	45.7	.2	C	(D)
Nebraska	E1	12	7	.3	6.5	.2	.5	4.8	17.5	32.2	50.3	(D)	C	(D)
New Jersey	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	13	8	.6	15.1	.5	1.2	12.9	40.3	59.3	98.3	(D)	G	(D)
Ohio	E3	7	3	.2	7.1	.1	.2	2.4	20.2	20.8	40.9	(D)	E	(D)
Pennsylvania	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	26	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	11	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	F	(D)
Washington	E4	7	4	.3	6.2	.2	.3	3.3	20.9	23.6	44.3	1.3	(NA)	(NA)
Wisconsin	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	35.2
INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.														
United States	–	**102**	**66**	**8.7**	**257.1**	**6.1**	**12.9**	**160.1**	**1 384.7**	**3 446.4**	**4 830.4**	**107.0**	**9.3**	**1 260.1**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	21	12	1.2	38.9	.8	1.6	24.8	246.9	367.0	611.2	8.7	1.0	207.3
Colorado	E9	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E2	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	6	4	.5	13.8	.4	.8	9.9	51.5	148.7	199.7	(D)	.5	62.1
Illinois	–	10	9	1.3	37.4	.9	1.8	23.9	117.1	494.3	613.4	12.7	1.8	169.5
Indiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	20.3	C	(D)
Iowa	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maryland	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	13.7

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.—Con.														
New Jersey	–	6	3	.4	11.2	.3	.6	7.0	84.0	168.6	248.3	(D)	F	(D)
Ohio	–	6	4	.9	29.5	.6	1.2	18.0	194.8	270.7	467.9	8.1	F	(D)
Oregon	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	3	.4	14.1	.3	.7	8.4	101.9	281.4	381.7	(D)	F	(D)
Texas	–	6	6	.8	23.0	.6	1.3	14.8	129.7	272.9	406.3	4.7	1.0	142.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cottonseed oil mills (SIC 2074)	Soybean oil mills (SIC 2075)	Vegetable oil mills, n.e.c. (SIC 2076)	Animal and marine fats and oils (SIC 2077)	Edible fats and oils, n.e.c. (SIC 2079)
Companies ---- number	22	42	18	159	72
All establishments ---- number	45	99	26	268	102
With 1 to 19 employees ---- number	10	29	12	131	36
With 20 to 99 employees ---- number	31	51	13	127	32
With 100 employees or more ---- number	4	19	1	10	34
Employment and labor costs:					
Employees ---- 1,000	2.4	7.4	.9	8.5	8.7
Compensation, total ---- mil dol	66.0	284.9	32.7	277.6	335.7
Annual payroll ---- mil dol	49.6	225.3	26.2	220.3	257.1
Fringe benefits ---- mil dol	16.4	59.6	6.6	57.3	78.6
Social Security and other legally required payments ---- mil dol	6.3	25.0	2.8	28.0	30.0
Employer voluntary payments ---- mil dol	10.1	34.6	3.7	29.3	48.6
Production workers:					
Average for year ---- 1,000	1.9	5.1	.6	5.5	6.1
March ---- 1,000	2.0	5.1	.6	5.5	6.2
May ---- 1,000	1.8	5.1	.6	5.7	6.1
August ---- 1,000	1.7	5.2	.6	5.7	6.1
November ---- 1,000	2.1	5.1	.6	5.3	6.1
Hours ---- millions	4.3	11.1	1.2	12.6	12.9
Wages ---- mil dol	33.9	143.1	15.2	130.5	160.1
Cost of materials[1] ---- mil dol	510.8	9 372.5	532.3	1 094.6	3 446.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	421.4	8 743.4	485.0	897.4	3 178.5
Resales ---- mil dol	53.0	444.4	34.4	71.3	194.4
Fuels ---- mil dol	9.3	107.2	5.4	73.6	32.9
Purchased electricity ---- mil dol	23.6	72.8	6.1	41.9	30.6
Contract work ---- mil dol	3.6	4.7	1.5	10.3	10.0
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	437.9	1 746.8	126.7	706.4	541.7
Generated less sold ---- mil kWh	–	340.4	(D)	(D)	(D)
Total value of shipments ---- mil dol	737.8	10 650.6	666.2	1 858.2	4 830.4
Value added ---- mil dol	211.4	1 273.8	133.8	755.4	1 384.7
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	206.3	876.4	71.1	99.1	327.8
Finished goods ---- mil dol	59.0	384.7	35.5	65.8	124.9
Work in process ---- mil dol	8.6	43.8	1.2	14.5	59.4
Materials and supplies ---- mil dol	138.7	447.8	34.3	18.8	143.6
End of 1992 ---- mil dol	183.8	857.9	76.0	90.3	342.0
Finished goods ---- mil dol	45.7	370.1	35.6	69.4	130.7
Work in process ---- mil dol	6.3	54.2	1.1	2.7	54.3
Materials and supplies ---- mil dol	131.8	433.6	39.3	18.2	157.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cottonseed oil mills (SIC 2074)	Soybean oil mills (SIC 2075)	Vegetable oil mills, n.e.c. (SIC 2076)	Animal and marine fats and oils (SIC 2077)	Edible fats and oils, n.e.c. (SIC 2079)
Gross book value of depreciable assets:					
Total:					
Beginning of year	287.7	2 104.5	223.7	958.5	913.5
New capital expenditures[1]	12.0	123.2	10.4	70.3	107.0
Used capital expenditures	(D)	7.4	(D)	11.9	15.9
Retirements	(D)	21.0	(D)	20.6	9.1
End of year	289.0	2 214.1	233.5	1 020.1	1 027.3
Buildings and other structures:					
Beginning of year	61.5	391.9	41.3	178.1	195.1
New capital expenditures	3.5	18.7	1.2	9.9	22.8
Used capital expenditures	(D)	(D)	(D)	1.8	7.1
Retirements	(D)	(D)	(D)	2.3	.8
End of year	65.6	410.7	42.5	187.5	224.2
Machinery and equipment:					
Beginning of year	226.2	1 712.5	182.4	780.3	718.4
New capital expenditures[1]	8.6	104.5	9.3	60.4	84.2
Used capital expenditures	(D)	(D)	(D)	10.1	8.7
Retirements	(D)	(D)	(D)	18.2	8.3
End of year	223.4	1 803.4	191.0	832.6	803.1
Depreciation charges during 1992:					
Total	16.2	132.7	18.2	73.6	79.9
Buildings and other structures	2.9	15.0	2.6	9.7	12.5
Machinery and equipment	13.4	117.7	15.6	63.9	67.3
Rental payments:					
Total	2.6	7.8	2.4	13.2	19.2
Buildings and other structures	1.2	3.2	1.1	6.3	7.6
Machinery and equipment	1.4	4.6	1.2	6.8	11.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cottonseed oil mills (SIC 2074)		Soybean oil mills (SIC 2075)		Vegetable oil mills, n.e.c. (SIC 2076)		Animal and marine fats and oils (SIC 2077)		Edible fats and oils, n.e.c. (SIC 2079)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.9	(X)	25.6	(X)	(S)	(X)	(S)	(X)	5.5	(X)
Response coverage ratio (percent)[2]	78.6	(X)	95.1	(X)	(S)	(X)	(S)	(X)	82.5	(X)
Machinery	13.3	(X)	73.4	(X)	(S)	(X)	41.0	(X)	28.9	(X)
Response coverage ratio (percent)[2]	78.6	(X)	98.0	(X)	(S)	(X)	61.3	(X)	84.3	(X)
Other purchased services:										
Communications	.6	(X)	4.2	(X)	(S)	(X)	1.9	(X)	3.1	(X)
Response coverage ratio (percent)[2]	77.1	(X)	97.9	(X)	(S)	(X)	58.1	(X)	83.4	(X)
Legal	.2	(X)	.9	(X)	(S)	(X)	.9	(X)	.7	(X)
Response coverage ratio (percent)[2]	78.6	(X)	95.1	(X)	(S)	(X)	54.9	(X)	84.3	(X)
Accounting and bookkeeping	(D)	(X)	.4	(X)	–	(X)	.3	(X)	.5	(X)
Response coverage ratio (percent)[2]	(D)	(X)	95.1	(X)	(S)	(X)	55.3	(X)	81.3	(X)
Advertising	.1	(X)	.4	(X)	(S)	(X)	.9	(X)	1.5	(X)
Response coverage ratio (percent)[2]	78.6	(X)	91.3	(X)	(S)	(X)	60.4	(X)	84.3	(X)
Software and other data processing	(D)	(X)	.6	(X)	(S)	(X)	.4	(X)	.8	(X)
Response coverage ratio (percent)[2]	(D)	(X)	98.0	(X)	(S)	(X)	54.9	(X)	84.3	(X)
Refuse removal, including hazardous waste	(D)	(X)	4.9	(X)	(S)	(X)	1.5	(X)	2.5	(X)
Response coverage ratio (percent)[2]	(D)	(X)	97.6	(X)	(S)	(X)	60.4	(X)	81.3	(X)
New machinery and equipment expenditures	8.6	(X)	104.5	(X)	9.3	(X)	60.4	(X)	84.2	(X)
Automobiles, trucks, etc., for highway use	.4	33	(D)	(X)	(D)	(X)	(D)	(X)	.7	35
Computers and peripheral data processing equipment	(Z)	(X)	(D)	(X)	(D)	(X)	(D)	(X)	1.3	10
All other	8.1	3	102.7	1	(S)	(X)	51.2	5	82.3	1
Adjustment ratio[3]	1.1	(X)	1.0	(X)	(S)	(X)	1.6	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	421.4	(X)	8 743.4	(X)	485.0	(X)	897.4	(X)	3 178.5	(X)
Materials purchased or transferred from foreign sources[4]	–	(X)	–	(X)	(D)	(X)	–	(X)	63.9	5
Materials purchased or transferred from domestic sources	421.4	1	8 743.4	1	(D)	(X)	897.4	1	3 114.5	1
Adjustment ratio[3]	1.0	(X)	1.1	(X)	(D)	(X)	1.6	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2074, COTTONSEED OIL MILLS												
Total	**–**	**45**	**2.4**	**49.6**	**1.9**	**4.3**	**33.9**	**211.4**	**510.8**	**737.8**	**12.0**	**183.8**
Establishments with an average of—												
1 to 4 employees	E1	5	.1	1.4	.1	.1	1.0	10.1	14.0	24.3	.2	1.7
5 to 9 employees	E5	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	12	.4	8.9	.3	.7	5.5	18.9	79.7	103.9	1.5	33.8
50 to 99 employees	–	19	1.3	26.2	1.0	2.3	18.4	85.4	260.6	355.0	6.6	86.7
100 to 249 employees	–	4	.6	13.1	.5	1.1	9.1	97.1	156.5	254.7	3.7	61.6
Covered by administrative records[2]	E9	2	(Z)	.1	(Z)	(Z)	(Z)	.2	.7	.9	(Z)	.1
INDUSTRY 2075, SOYBEAN OIL MILLS												
Total	**–**	**99**	**7.4**	**225.3**	**5.1**	**11.1**	**143.1**	**1 273.8**	**9 372.5**	**10 650.6**	**123.2**	**857.9**
Establishments with an average of—												
1 to 4 employees	E9	19	(Z)	.8	(Z)	(Z)	.4	4.0	34.1	38.3	.3	2.7
5 to 9 employees	E6	5	(Z)	.5	(Z)	(Z)	.4	1.6	11.8	13.3	.1	.8
10 to 19 employees	–	5	.1	1.7	(Z)	.1	1.1	9.2	65.2	74.2	.3	1.1
20 to 49 employees	–	21	.9	24.6	.6	1.2	13.7	150.9	1 691.3	1 836.3	22.7	112.0
50 to 99 employees	–	30	2.2	65.1	1.5	3.2	41.2	376.7	4 121.3	4 519.2	31.8	308.8
100 to 249 employees	–	11	1.8	54.7	1.3	2.7	33.7	368.1	1 383.0	1 746.0	26.9	182.4
250 to 499 employees	–	8	2.5	77.9	1.7	3.8	52.7	363.4	2 065.8	2 423.3	41.2	250.1
Covered by administrative records[2]	E9	3	–	(Z)	–	(Z)	(Z)	.2	1.5	1.7	(Z)	.1
INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.												
Total	**–**	**26**	**.9**	**26.2**	**.6**	**1.2**	**15.2**	**133.8**	**532.3**	**666.2**	**10.4**	**76.0**
Establishments with an average of—												
1 to 4 employees	E7	5	(Z)	.2	(Z)	(Z)	.1	.6	1.8	2.4	.8	.1
5 to 9 employees	E5	4	.1	2.1	(Z)	.1	1.2	12.4	31.0	47.5	(D)	3.1
10 to 19 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	6	.2	7.5	.1	.3	4.2	24.4	131.3	155.0	4.4	21.0
50 to 99 employees	–	7	.6	16.4	.4	.9	9.6	96.4	368.3	461.2	5.3	51.7
100 to 249 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS												
Total	**E1**	**268**	**8.5**	**220.3**	**5.5**	**12.6**	**130.5**	**755.4**	**1 094.6**	**1 858.2**	**70.3**	**90.3**
Establishments with an average of—												
1 to 4 employees	E5	39	.1	1.8	.1	.1	.9	8.0	12.9	20.9	2.2	1.0
5 to 9 employees	E2	45	.3	7.6	.2	.4	4.1	28.9	71.3	100.0	2.6	4.7
10 to 19 employees	E1	47	.7	15.8	.4	.9	8.1	56.0	153.5	210.5	3.3	7.5
20 to 49 employees	–	80	2.8	73.2	1.7	3.9	40.7	272.6	397.2	673.5	25.5	33.0
50 to 99 employees	–	47	3.2	81.7	2.3	5.1	54.0	291.3	322.0	616.1	28.8	29.1
100 to 249 employees	–	10	1.5	40.3	.9	2.1	22.7	98.6	137.8	237.1	7.9	15.0
Covered by administrative records[2]	E9	45	.2	2.7	.1	.2	1.3	8.7	11.8	20.5	.8	1.2
INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.												
Total	**–**	**102**	**8.7**	**257.1**	**6.1**	**12.9**	**160.1**	**1 384.7**	**3 446.4**	**4 830.4**	**107.0**	**342.0**
Establishments with an average of—												
1 to 4 employees	E3	14	(Z)	.8	(Z)	(Z)	.4	5.9	34.4	40.9	9.8	1.2
5 to 9 employees	E5	13	.1	2.3	.1	.1	1.3	7.0	19.4	27.0	(D)	1.9
10 to 19 employees	E3	9	.1	2.7	.1	.2	1.5	16.9	39.4	55.7	(D)	4.8
20 to 49 employees	–	12	.4	11.6	.3	.6	6.9	96.0	246.9	339.8	(D)	21.6
50 to 99 employees	–	20	1.5	44.0	1.1	2.3	26.5	266.9	705.0	967.5	13.0	55.2
100 to 249 employees	–	26	4.1	120.4	3.0	6.3	77.4	664.2	1 595.8	2 262.4	64.4	109.8
250 to 499 employees	–	8	2.4	75.3	1.6	3.5	46.1	327.8	805.5	1 137.0	19.8	147.5
Covered by administrative records[2]	E9	4	(Z)	.1	(Z)	(Z)	(Z)	.4	1.0	1.4	(Z)	.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2074	**Cottonseed oil mills:**										
	All establishments in industry	45	2.4	49.6	1.9	4.3	33.9	211.4	510.8	737.8	12.0
	Establishments with this product class primary:										
20741	Cottonseed oil, crude	8	.4	8.5	.3	.8	6.1	19.4	88.3	114.0	3.4
20742	Cottonseed oil, once-refined	7	.6	13.3	.5	1.2	9.5	62.0	157.0	219.0	3.8
20744	Cottonseed cake and meal and other byproducts	21	1.1	25.1	.9	2.0	16.7	124.6	242.1	376.0	4.6
2075	**Soybean oil mills:**										
	All establishments in industry	99	7.4	225.3	5.1	11.1	143.1	1 273.8	9 372.5	10 650.6	123.2
	Establishments with this product class primary:										
20752	Soybean cake, meal, and other byproducts	73	7.3	221.7	5.0	10.9	140.8	1 268.5	9 326.8	10 599.3	122.8
2076	**Vegetable oil mills, n.e.c.:**										
	All establishments in industry	26	.9	26.2	.6	1.2	15.2	133.8	532.3	666.2	10.4
	Establishments with this product class primary:										
20761	Linseed oil	5	.1	2.6	.1	.1	1.5	14.2	31.9	52.4	(D)
20762	Vegetable oils, n.e.c.	13	.7	21.6	.5	1.0	12.6	118.6	485.7	598.8	8.6
20763	Other vegetable oil mill products, n.e.c.	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2077	**Animal and marine fats and oils:**										
	All establishments in industry	268	8.5	220.3	5.5	12.6	130.5	755.4	1 094.6	1 858.2	70.3
	Establishments with this product class primary:										
20771	Grease and inedible tallow	77	3.2	89.9	1.6	3.7	40.5	269.6	316.6	591.5	19.9
20772	Feed and fertilizer byproducts	81	3.2	78.4	2.5	5.7	56.7	325.4	590.3	917.5	35.7
20773	Animal and marine oil mill products	20	1.1	30.5	.9	1.9	22.8	89.2	91.1	182.0	6.9
2079	**Edible fats and oils, n.e.c.:**										
	All establishments in industry	102	8.7	257.1	6.1	12.9	160.1	1 384.7	3 446.4	4 830.4	107.0
	Establishments with this product class primary:										
20791	Shortening and cooking oils	58	6.1	183.1	4.3	9.1	111.5	881.0	2 822.0	3 696.2	64.9
20792	Margarine	19	2.4	70.3	1.8	3.6	46.3	489.4	591.2	1 086.6	41.4

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2074, COTTONSEED OIL MILLS			
Total value of shipments	737.8	470.7	933.3
Primary products value of shipments	659.6	402.6	785.6
Secondary products value of shipments	19.4	12.2	46.9
Total miscellaneous receipts	58.9	55.9	100.9
Value of resales	(D)	55.5	100.3
Contract receipts	–	(D)	–
Other miscellaneous receipts	(D)	(D)	.6
Primary products specialization ratio	97	97	94
Value of primary products shipments made in all industries	736.7	434.6	812.2
Value of primary products shipments made in this industry	659.6	402.6	785.6
Value of primary products shipments made in other industries	77.2	32.0	26.6
Coverage ratio	90	93	97
INDUSTRY 2075, SOYBEAN OIL MILLS			
Total value of shipments	10 650.6	9 074.1	8 603.6
Primary products value of shipments	8 548.8	7 554.1	6 900.0
Secondary products value of shipments	1 623.7	836.8	964.0
Total miscellaneous receipts	478.1	683.3	739.5
Value of resales	467.6	681.9	732.0
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	7.6
Primary products specialization ratio	84	90	88
Value of primary products shipments made in all industries	8 951.7	7 728.9	7 257.4
Value of primary products shipments made in this industry	8 548.8	7 554.1	6 900.0
Value of primary products shipments made in other industries	402.9	174.8	357.3
Coverage ratio	95	98	95

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.			
Total value of shipments	666.2	431.5	556.9
Primary products value of shipments	569.8	351.6	426.0
Secondary products value of shipments	(D)	50.1	32.5
Total miscellaneous receipts	(D)	29.8	98.5
Value of resales	(D)	22.5	93.6
Contract receipts	(D)	4.7	(D)
Other miscellaneous receipts	–	2.6	(D)
Primary products specialization ratio	(D)	88	93
Value of primary products shipments made in all industries	745.5	490.0	544.3
Value of primary products shipments made in this industry	569.8	351.6	426.0
Value of primary products shipments made in other industries	175.7	138.4	118.3
Coverage ratio	76	72	78
INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS			
Total value of shipments	1 858.2	1 753.1	1 752.5
Primary products value of shipments	1 719.2	1 524.6	1 593.7
Secondary products value of shipments	53.5	60.3	48.9
Total miscellaneous receipts	85.4	168.2	109.8
Value of resales	76.4	149.4	100.1
Contract receipts	3.5	12.8	2.8
Other miscellaneous receipts	5.5	6.0	6.9
Primary products specialization ratio	97	97	97
Value of primary products shipments made in all industries	2 785.8	2 168.0	2 337.1
Value of primary products shipments made in this industry	1 719.2	1 524.6	1 593.7
Value of primary products shipments made in other industries	1 066.6	643.4	743.4
Coverage ratio	62	71	68
INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.			
Total value of shipments	4 830.4	4 151.1	4 905.6
Primary products value of shipments	3 861.6	3 618.6	4 092.0
Secondary products value of shipments	737.4	404.5	705.3
Total miscellaneous receipts	231.4	128.0	108.3
Value of resales	210.8	114.2	96.7
Contract receipts	5.7	3.4	10.4
Other miscellaneous receipts	14.9	10.4	1.2
Primary products specialization ratio	84	90	85
Value of primary products shipments made in all industries	5 468.8	4 694.1	5 340.5
Value of primary products shipments made in this industry	3 861.6	3 618.6	4 092.0
Value of primary products shipments made in other industries	1 607.2	1 075.5	1 248.5
Coverage ratio	71	77	77

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2074– —	**COTTONSEED OIL MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**736.7**	**(NA)**	**(X)**	**(X)**	**434.6**
20741	Cottonseed oil, crude	(NA)	(X)	(X)	110.0	(NA)	(X)	(X)	89.3
20741 00	Cottonseed oil, crude mil lb	16	(S)	(S)	110.0	17	577.5	495.6	89.3
20742	Cottonseed oil, once-refined	(NA)	(X)	(X)	176.0	(NA)	(X)	(X)	80.6
20742 00	Cottonseed oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) mil lb	12	(S)	(S)	176.0	15	444.1	407.0	80.6
20743	Cotton linters	(NA)	(X)	(X)	56.3	(NA)	(X)	(X)	46.9
20743 00	Cotton linters mil lb	16	639.6	625.2	56.3	23	421.3	411.9	46.9
20744	Cottonseed cake and meal and other byproducts	(NA)	(X)	(X)	373.6	(NA)	(X)	(X)	204.1
20744 14	Cottonseed cake and meal 1,000 s tons	18	1 682.3	1 657.7	216.1	25	1 229.4	1 244.3	166.5
20744 51	Hulls 1,000 s tons	15	(D)	(D)	(D)	24	639.4	627.7	31.0
20744 98	Other cottonseed byproducts mil lb	2	(X)	(D)	(D)	2	(X)	(D)	(D)
20744 99	Cottonseed oil, once-refined, purchased and deodorized only mil lb	7	(X)	486.0	118.2	2	(X)	(D)	(D)
20744 00	Cottonseed cake and meal and other byproducts, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
20740	Cottonseed oil mills, n.s.k.	(NA)	(X)	(X)	20.8	(NA)	(X)	(X)	13.7
20740 00	Cottonseed oil mills, n.s.k.[3]	(NA)	(X)	(X)	20.0	(NA)	(X)	(X)	10.3
20740 02	Cottonseed oil mills, n.s.k.[4]	(NA)	(X)	(X)	.9	(NA)	(X)	(X)	3.5
2075– —	**SOYBEAN OIL MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**8 951.7**	**(NA)**	**(X)**	**(X)**	**7 728.9**
20751	Soybean oil	(NA)	(X)	(X)	2 479.9	(NA)	(X)	(X)	2 323.4
	Soybean oil, crude:								
20751 13	Degummed mil lb	15	(S)	(S)	1 347.5	16	3 935.5	2 654.2	437.3
20751 15	Not degummed mil lb	5	(S)	(S)	816.7	10	7 301.0	7 241.2	1 183.2
20751 21	Soybean oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) mil lb	10	(S)	(S)	300.5	12	5 336.7	3 294.1	699.2
20751 31	Soybean oil processed for inedible purposes (acid refined, etc.) mil lb	4	(X)	59.3	11.2	4	(X)	31.2	3.7
20751 00	Soybean oil, n.s.k.	(NA)	(X)	(X)	4.0	(NA)	(X)	(X)	–
20752	Soybean cake, meal, and other byproducts	(NA)	(X)	(X)	6 424.5	(NA)	(X)	(X)	5 359.6
20752 11	Cake and meal 1,000 s tons	17	28 387.2	28 250.7	5 024.0	18	26 385.6	26 450.6	4 962.9
20752 31	Soy flour and grits mil lb	7	(X)	914.0	128.0	6	(X)	(D)	(D)
20752 51	Lecithin mil lb	7	(S)	(S)	41.6	7	93.3	109.4	36.0
20752 61	Millfeed (hullmeal) 1,000 s tons	11	1 674.6	1 673.6	119.4	10	1 219.8	1 043.3	64.3
20752 97	Other soybean products, including isolates and concentrates mil lb	7	(X)	868.5	261.3	(NA)	(X)	(D)	(D)
20752 99	Soybean oil, once-refined, purchased and deodorized only mil lb	13	(X)	3 255.3	848.0	5	(X)	330.1	91.0
20752 00	Soybean cake, meal, and other byproducts, n.s.k.	(NA)	(X)	(X)	2.2	(NA)	(X)	(X)	(Z)
20750	Soybean oil mills, n.s.k.	(NA)	(X)	(X)	47.3	(NA)	(X)	(X)	46.0
20750 00	Soybean oil mills, n.s.k.[5]	(NA)	(X)	(X)	38.5	(NA)	(X)	(X)	3.1
20750 02	Soybean oil mills, n.s.k.[6]	(NA)	(X)	(X)	8.8	(NA)	(X)	(X)	42.9
2076– —	**VEGETABLE OIL MILLS, N.E.C.**								
	Total	**(NA)**	**(X)**	**(X)**	**745.5**	**(NA)**	**(X)**	**(X)**	**490.0**
20761	Linseed oil	(NA)	(X)	(X)	79.5	(NA)	(X)	(X)	104.9
20761 13	Linseed oil, crude mil lb	2	(X)	(D)	(D)	5	(X)	254.9	49.1
20761 33	Linseed oil, processed (refined, blown, heat treated, or chemically modified) mil lb	4	(D)	(D)	(D)	6	154.8	226.3	53.9
20761 00	Linseed oil, n.s.k.	(NA)	(X)	(X)	3.4	(NA)	(X)	(X)	1.9
20762	Vegetable oils, n.e.c.	(NA)	(X)	(X)	465.2	(NA)	(X)	(X)	218.0
20762 23	Coconut oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) mil lb	5	(S)	(S)	63.1	5	226.9	149.8	34.4
	Peanut oil:								
20762 52	Peanut oil, crude mil lb	7	(S)	(S)	74.6	8	143.0	145.4	34.7
20762 57	Peanut oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) mil lb	6	(S)	(S)	22.0	4	(D)	(D)	(D)
	Sunflower oil:								
20762 62	Sunflower seed oil, crude mil lb	3	(D)	(D)	(D)	2	(D)	(D)	(D)
20762 63	Sunflower seed oil, once-refined (after alkali or caustic wash but before deodorizing or use in end products) mil lb	4	(D)	(D)	(D)	4	(D)	(D)	(D)
	Other vegetable oils, including safflower oil, castor oil, tung oil, etc.:								
20762 64	Crude mil lb	5	65.4	66.3	19.0	4	(D)	(D)	(D)
	Once-refined (after alkali or caustic wash but before deodorizing):								
20762 65	Palm mil lb	4	(D)	(D)	(D)	4	137.0	135.6	28.3
20762 68	Other oils mil lb	7	209.8	209.8	66.5	4	63.4	43.2	15.3
20762 73	Processed for inedible purposes (tung oil, dehydrated castor oil, etc.) mil lb	2	(X)	(D)	(D)	3	(X)	(D)	(D)
20762 00	Vegetable oils, n.e.c., n.s.k.	(NA)	(X)	(X)	.5	(NA)	(X)	(X)	5.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2076– —	**VEGETABLE OIL MILLS, N.E.C.**—Con.								
20763	Other vegetable oil mill products, n.e.c.	(NA)	(X)	(X)	186.3	(NA)	(X)	(X)	159.2
20763 11	Linseed cake and meal, 1,000 s tons	3	(D)	(D)	(D)	4	(D)	(D)	(D)
20763 51	Peanut cake and meal, 1,000 s tons	5	(S)	(S)	28.2	7	139.1	147.5	12.3
20763 61	Sunflower seed cake and meal, 1,000 s tons	3	(S)	(S)	41.0	2	(D)	(D)	(D)
20763 97	Other oil seed cake and meal, 1,000 s tons	5	54.0	54.3	4.2	5	(D)	(D)	(D)
20763 91	Palm oil, once-refined, purchased and deodorized only, mil lb	5	(X)	21.6	5.3	(NA)	–	–	–
20763 94	Coconut oil, once-refined, purchased and deodorized only, mil lb	3	(X)	48.5	16.5	(NA)	(X)	180.9	56.5
20763 95	Peanut oil, once-refined, purchased and deodorized only, mil lb	6	(X)	88.2	30.4	(NA)	–	–	–
20763 96	Sunflower oil, once-refined, purchased and deodorized only, mil lb	3	(X)	(D)	(D)	(NA)	–	–	–
20763 98	Other oils, once-refined, except cottonseed, soybean, linseed, peanut, or sunflower, purchased and deodorized only, mil lb	5	(X)	62.7	22.8	(NA)	–	–	–
20763 00	Other vegetable oil mill products, n.e.c., n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
20760	Vegetable oil mills, n.e.c., n.s.k.	(NA)	(X)	(X)	14.5	(NA)	(X)	(X)	7.8
20760 00	Vegetable oil mills, n.e.c., n.s.k.[7]	(NA)	(X)	(X)	14.5	(NA)	(X)	(X)	3.0
20760 02	Vegetable oil mills, n.e.c., n.s.k.[8]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	4.8
2077– —	**ANIMAL AND MARINE FATS AND OILS**								
	Total	**(NA)**	**(X)**	**(X)**	**2 785.8**	**(NA)**	**(X)**	**(X)**	**2 168.0**
20771	Grease and inedible tallow	(NA)	(X)	(X)	962.5	(NA)	(X)	(X)	760.4
20771 11	Inedible tallow, including inedible animal stearin, mil lb	82	(S)	(S)	724.4	88	3 893.8	3 719.2	521.0
20771 13	Grease, other than wool grease, mil lb	45	(S)	(S)	216.3	58	1 971.5	1 802.6	215.4
20771 00	Grease and inedible tallow, n.s.k.	(NA)	(X)	(X)	21.7	(NA)	(X)	(X)	24.0
20772	Feed and fertilizer byproducts	(NA)	(X)	(X)	1 459.3	(NA)	(X)	(X)	1 052.1
20772 11	Meat and bone meal, mil lb	78	(S)	(S)	663.5	81	3 894.4	3 942.6	497.5
20772 12	Dry rendered tankage, mil lb	16	(S)	(S)	64.4	36	453.0	464.0	57.2
20772 37	Feather meal, mil lb	23	659.5	653.4	69.4	17	430.1	437.5	44.3
20772 98	Other feed and fertilizer byproducts (dried blood, poultry fat and byproducts, meal, and raw products for pet food), mil lb	73	(S)	(S)	521.3	61	2 819.3	2 863.1	326.2
20772 00	Feed and fertilizer byproducts, n.s.k.	(NA)	(X)	(X)	140.8	(NA)	(X)	(X)	126.8
20773	Animal and marine oil mill products	(NA)	(X)	(X)	203.2	(NA)	(X)	(X)	195.4
20773 11	Foots: animal, vegetable, and fish, and acidulated soap stock	8	(X)	(X)	27.6	12	(X)	(X)	24.4
20773 46	Animal oil mill products, including all other animal oils, except fatty acids, mil lb	8	(X)	(S)	45.2	7	(X)	168.7	21.5
	Marine animal oil products:								
20773 61	Fish and marine animal oil, mil lb	7	(X)	187.9	29.0	8	(X)	193.2	33.0
20773 66	Fish scrap and meal, mil lb	12	(X)	353.3	67.7	20	(X)	454.4	89.4
20773 79	Other fish and marine animal oil products, mil lb	6	(X)	*116.0	20.3	2	(X)	(D)	(D)
20773 00	Animal and marine oil mill products, n.s.k.	(NA)	(X)	(X)	13.3	(NA)	(X)	(X)	(D)
20770	Animal and marine fats and oils, n.s.k.	(NA)	(X)	(X)	160.9	(NA)	(X)	(X)	160.0
20770 00	Animal and marine fats and oils, n.s.k.[9]	(NA)	(X)	(X)	140.4	(NA)	(X)	(X)	115.7
20770 02	Animal and marine fats and oils, n.s.k.[10]	(NA)	(X)	(X)	20.5	(NA)	(X)	(X)	44.3
2079– —	**EDIBLE FATS AND OILS, N.E.C.**								
	Total	**(NA)**	**(X)**	**(X)**	**5 468.8**	**(NA)**	**(X)**	**(X)**	**4 694.1**
20791	Shortening and cooking oils	(NA)	(X)	(X)	3 980.3	(NA)	(X)	(X)	3 427.2
	Baking or frying fats (shortening):								
20791 13	100 percent vegetable oil, mil lb	33	(S)	(S)	1 734.2	28	5 200.0	4 950.6	1 515.4
20791 15	100 percent animal fat or blends of vegetable oil and animal fat, mil lb	24	(S)	(S)	339.9	25	1 558.0	1 558.3	370.6
20791 42	Hydrogenated oils other than baking or frying fats (for confectionery fats, mellorine fats, whipped topping, etc.), mil lb	5	(X)	433.7	126.7	6	(X)	(D)	(D)
	Salad or cooking oil (fully-refined and deodorized at the same establishment):								
	Soybean cooking or salad oil:								
20791 51	Partially hydrogenated, mil lb	24	(S)	(S)	1 188.2	25	1 602.1	1 554.7	459.5
20791 52	Other, mil lb	6	114.1	111.5	35.5	10	1 013.7	999.3	280.6
20791 53	Cottonseed cooking or salad oil, mil lb	8	106.4	106.4	35.0	6	144.5	162.7	50.0
20791 54	Mixtures of vegetable cooking or salad oil, mil lb	9	44.6	44.6	16.6	7	(D)	(D)	(D)
20791 59	All other cooking or salad oil, mil lb	17	952.1	949.9	422.9	19	672.7	660.3	231.2
20791 71	Vegetable oil winter stearin, mil lb	2	(X)	(D)	(D)	2	(X)	(D)	(D)
20791 83	Canola oil used for margarine, mil lb	3	(X)	(D)	(D)	6	(X)	466.8	106.5
20791 85	Other oils used for margarine, mil lb	1	(X)	(D)	(D)	(NA)	(X)	–	–
20791 98	All other fully-refined oils, except corn, mil lb	5	–	32.8	11.4	8	(X)	242.5	72.5
20791 00	Shortening and cooking oils, n.s.k.	(NA)	(X)	(X)	9.0	(NA)	(X)	(X)	8.1
20792	Margarine	(NA)	(X)	(X)	1 450.3	(NA)	(X)	(X)	1 167.5
20792 00	Margarine, including butter blends, mil lb	20	2 894.5	2 947.3	1 450.3	22	2 189.8	2 247.6	1 167.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2079– –	**EDIBLE FATS AND OILS, N.E.C.**—Con.								
20790	Edible fats and oils, n.e.c., n.s.k.	(NA)	(X)	(X)	38.3	(NA)	(X)	(X)	99.4
20790 00	Edible fats and oils, n.e.c., n.s.k.[9]	(NA)	(X)	(X)	36.8	(NA)	(X)	(X)	66.7
20790 02	Edible fats and oils, n.e.c., n.s.k.[10]	(NA)	(X)	(X)	1.4	(NA)	(X)	(X)	32.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 20 employees or more.
[4]Typically for establishments with less than 20 employees.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 10 employees or more.
[8]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 10 employees.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20741, COTTONSEED OIL, CRUDE		
United States	**110.0**	**89.3**
Arkansas	17.9	13.8
Mississippi	17.3	20.5
20742, COTTONSEED OIL, ONCE-REFINED		
United States	**176.0**	**80.6**
Texas	73.8	35.5
20743, COTTON LINTERS		
United States	**56.3**	**46.9**
Arkansas	7.0	4.6
Texas	20.7	14.8
20744, COTTONSEED CAKE AND MEAL AND OTHER BYPRODUCTS		
United States	**373.6**	**204.1**
Arkansas	27.3	17.4
California	26.0	31.6
Mississippi	39.9	27.1
Texas	105.5	77.2
20751, SOYBEAN OIL		
United States	**2 479.9**	**2 323.4**
Illinois	413.8	560.5
Iowa	515.8	328.2
Kansas	139.3	88.5
Minnesota	236.3	232.7
Missouri	180.3	(NA)
North Carolina	124.7	(NA)
Ohio	156.4	100.7
20752, SOYBEAN CAKE, MEAL, AND OTHER BYPRODUCTS		
United States	**6 424.5**	**5 359.6**
Arkansas	244.2	267.9
Illinois	1 350.8	1 173.9
Indiana	362.0	308.7
Iowa	1 073.1	782.7
Kansas	281.2	200.4
Minnesota	462.5	343.8
Missouri	326.3	297.3
Ohio	378.2	313.2
Tennessee	237.9	206.3
20761, LINSEED OIL		
United States	**79.5**	**104.9**
20762, VEGETABLE OILS, N.E.C.		
United States	**465.2**	**218.0**
California	64.6	30.1
20763, OTHER VEGETABLE OIL MILL PRODUCTS, N.E.C.		
United States	**186.3**	**159.2**
California	4.2	(NA)
20771, GREASE AND INEDIBLE TALLOW		
United States	**962.5**	**760.4**
Arizona	10.8	8.3
California	68.0	58.0
Colorado	37.0	30.4
Georgia	21.3	10.0
Idaho	9.4	(NA)
Illinois	34.7	26.6
Indiana	30.4	22.1
Iowa	80.7	74.5
Kansas	77.4	39.3
Minnesota	41.0	24.8

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20771, GREASE AND INEDIBLE TALLOW—Con.		
Missouri	11.0	8.0
Nebraska	97.1	59.0
Ohio	28.5	23.8
Texas	87.1	54.0
Washington	25.3	13.6
Wisconsin	40.3	29.4
20772, FEED AND FERTILIZER BYPRODUCTS		
United States	**1 459.3**	**1 052.1**
Alabama	64.1	28.9
Arizona	5.3	4.4
Arkansas	61.8	37.4
California	60.8	94.2
Colorado	41.3	24.7
Georgia	115.5	81.0
Idaho	7.0	6.9
Illinois	52.9	63.0
Indiana	25.5	23.3
Iowa	120.5	43.3
Kansas	136.8	88.8
Minnesota	58.4	35.7
Mississippi	31.8	27.0
Missouri	43.9	26.3
Nebraska	110.0	42.3
North Carolina	64.9	59.7
Ohio	8.7	8.8
Oklahoma	5.0	(NA)
Pennsylvania	64.8	47.2
South Carolina	2.1	3.4
20772, FEED AND FERTILIZER BYPRODUCTS—Con.		
South Dakota	12.1	(NA)
Tennessee	18.9	23.4
Texas	111.4	56.1
Virginia	54.2	32.6
Washington	12.6	10.4
Wisconsin	39.8	49.5
20773, ANIMAL AND MARINE OIL MILL PRODUCTS		
United States	**203.2**	**195.4**
Alaska	7.5	(NA)
Georgia	6.1	(NA)
Tennessee	8.0	7.4
Virginia	27.6	(NA)
Washington	5.4	(NA)
20791, SHORTENING AND COOKING OILS		
United States	**3 980.3**	**3 427.2**
California	249.9	179.3
Illinois	700.5	704.8
Iowa	153.8	(NA)
New Jersey	106.3	149.8
Ohio	491.8	(NA)
Oregon	49.4	(NA)
Tennessee	438.7	436.7
Texas	211.3	284.7
20792, MARGARINE		
United States	**1 450.3**	**1 167.5**
California	258.7	263.1
Georgia	137.2	(NA)
Ohio	56.1	55.4
Texas	188.5	141.4

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2074-	**Cottonseed oil mills**	**736.7**	**729.8**	**842.9**	**857.6**	**759.8**	**434.6**	**812.2**	**763.1**
20741	Cottonseed oil, crude	110.0	150.2	190.7	190.0	150.8	89.3	150.2	146.6
20742	Cottonseed oil, once-refined	176.0	123.5	154.0	128.5	128.8	80.6	219.7	236.5
20743	Cotton linters	56.3	107.5	108.7	101.8	79.8	46.9	70.0	43.4
20744	Cottonseed cake and meal and other byproducts	373.6	345.5	385.2	429.8	383.4	204.1	360.1	323.9
20740	Cottonseed oil mills, n.s.k.	20.8	3.1	4.3	7.6	16.9	13.7	12.1	12.6
2075-	**Soybean oil mills**	**8 951.7**	**8 647.7**	**8 996.7**	**8 911.8**	**10 089.6**	**7 728.9**	**7 257.4**	**6 116.5**
20751	Soybean oil	2 479.9	2 979.7	3 318.0	2 683.9	3 188.4	2 323.4	2 375.4	2 070.1
20752	Soybean cake, meal, and other byproducts	6 424.5	5 501.2	5 529.8	6 138.3	6 842.6	5 359.6	4 836.2	4 016.7
20750	Soybean oil mills, n.s.k.	47.3	166.8	149.0	89.6	58.6	46.0	45.7	29.7
2076-	**Vegetable oil mills, n.e.c.**	**745.5**	**601.2**	**665.8**	**676.3**	**632.9**	**490.0**	**544.3**	**401.0**
20761	Linseed oil	79.5	102.8	118.1	136.9	95.0	104.9	84.1	72.5
20762	Vegetable oils, n.e.c.	465.2	337.4	364.4	355.3	363.0	218.0	372.1	210.8
20763	Other vegetable oil mill products, n.e.c.	186.3	147.6	169.4	182.0	156.9	159.2	84.8	86.9
20760	Vegetable oil mills, n.e.c., n.s.k.	14.5	13.4	13.9	2.0	18.0	7.8	3.3	30.8
2077-	**Animal and marine fats and oils**	**2 785.8**	**2 518.4**	**2 755.2**	**2 917.4**	**2 649.0**	**2 168.0**	**2 337.1**	**2 102.2**
20771	Grease and inedible tallow	962.5	900.4	834.0	1 064.4	913.8	760.4	938.0	989.4
20772	Feed and fertilizer byproducts	1 459.3	1 200.6	1 563.4	1 488.5	1 399.5	1 052.1	1 093.5	753.9
20773	Animal and marine oil mill products	203.2	250.8	197.8	223.8	190.6	195.4	205.4	250.4
20770	Animal and marine fats and oils, n.s.k.	160.9	166.6	160.0	140.7	145.1	160.0	100.2	108.4
2079-	**Edible fats and oils, n.e.c.**	**5 468.8**	**5 966.8**	**6 036.2**	**6 269.2**	**5 823.8**	**4 694.1**	**5 340.5**	**4 272.2**
20791	Shortening and cooking oils	3 980.3	4 257.8	4 309.1	4 565.1	4 479.3	3 427.2	4 028.6	3 166.3
20792	Margarine	1 450.3	1 597.3	1 622.0	1 631.6	1 244.1	1 167.5	1 225.1	1 070.4
20790	Edible fats and oils, n.e.c., n.s.k.	38.3	111.7	105.0	72.5	100.3	99.4	86.8	35.5

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2074, COTTONSEED OIL MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**421.4**	**(X)**	**300.0**
013111	Cottonseeds, 1,000 s tons	3 618.9	354.1	2 593.7	255.9
	Cottonseed oil:				
207411	Crude cottonseed oil, mil lb	(D)	(D)	(D)	(2)
207421	Once-refined cottonseed oil, mil lb	(D)	(D)	(D)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	28.9	(X)	235.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	26.7	(X)	8.9
	INDUSTRY 2075, SOYBEAN OIL MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**8 743.4**	**(X)**	**7 283.8**
011611	Soybeans, 1,000 s tons	34 984.7	6 939.3	35 402.1	6 159.0
207511	Crude soybean oil, mil lb	5 461.7	1 060.2	3 373.1	578.2
260091	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	(X)	23.4	(X)	14.8
970099	All other materials and components, parts, containers, and supplies	(X)	666.4	(X)	490.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	54.1	(X)	41.2
	INDUSTRY 2076, VEGETABLE OIL MILLS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**485.0**	**(X)**	**320.3**
	Seeds, nuts, and beans:				
011911	Flaxseed, 1,000 s tons	(D)	(D)	(D)	(D)
011912	Sunflower, 1,000 s tons	1 002.1	183.8	(D)	(D)
013920	Peanut, 1,000 s tons	(D)	(D)	(D)	(D)
010015	Other seeds, nuts, and beans (excluding cottonseed, sunflower, soybean, flaxseed, and peanut)	(X)	(D)	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	181.3	(X)	174.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	5.9	(X)	6.1
	INDUSTRY 2077, ANIMAL AND MARINE FATS AND OILS				
	Materials, ingredients, containers, and supplies	**(X)**	**897.4**	**(X)**	**768.8**
201104	Tallow and stearin, edible	(X)	(4)	(X)	(NA)
	Containers:				
260091	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	(X)	.2	(X)	(NA)
308015	Plastics containers	(X)	.3	(X)	(NA)
322101	Glass containers	(X)	–	(X)	(NA)
340001	Metal containers, excluding drums	(X)	.2	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	4570.4	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	326.3	(X)	(NA)
	INDUSTRY 2079, EDIBLE FATS AND OILS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 178.5**	**(X)**	**2 703.4**
201104	Tallow and stearin, edible, mil lb	(S)	53.3	663.9	112.0
201151	Lard, mil lb	(S)	49.4	263.5	39.1
	Cottonseed oil:				
207411	Crude cottonseed oil, mil lb	1 037.2	193.6	238.7	46.7
207421	Once-refined cottonseed oil, mil lb	195.1	47.8	116.6	24.4
207915	Fully-refined cottonseed oil, mil lb	77.9	22.0	59.8	12.9
	Soybean oil:				
207511	Crude soybean oil, mil lb	3 705.3	740.5	4 854.5	827.9
207512	Once-refined soybean oil, mil lb	552.7	127.9	395.1	98.5
207916	Fully-refined soybean oil, mil lb	2 150.8	547.0	1 394.5	324.0
	Corn oil:				
204651	Crude corn oil, mil lb	158.1	45.9	(NA)	(5)
204652	Once-refined corn oil, mil lb	46.2	15.8	(NA)	(5)
204653	Fully-refined corn oil, mil lb	292.6	98.9	(NA)	(5)
	Other oil:				
207601	Other crude oil, mil lb	673.1	170.7	970.1	209.8
207603	Other once-refined oil, mil lb	42.9	11.6	148.6	34.7
207917	Other fully-refined oil, mil lb	395.0	111.3	569.8	141.1
	Containers:				
260091	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	(X)	137.5	(X)	127.4
308015	Plastics containers	(X)	205.0	(X)	164.6
322101	Glass containers	(X)	6.1	(X)	18.9
340001	Metal containers, excluding drums	(X)	16.6	(X)	38.9
970099	All other materials and components, parts, containers, and supplies	(X)	484.9	(X)	5420.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	92.7	(X)	62.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, material codes 207411 and 207421 were included with material code 970099 to avoid disclosing data for individual companies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1992, material code 201104 is included with material code 970099 to avoid disclosing data for individual companies.
[5]For 1987, material codes 204651, 204652, and 204653 were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
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20512 70	20512 39
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20980 05	20980 31
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20999 45	20999 41
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20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2011B 99	2011B 17
2011B 99	2011B 59
20135	20137
20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
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20321 98	20321 00
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20323 74	20323 71
20324 61	20324 63
20324 62	20324 63
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20331 31	20331 59
20331 97	20331 59
20332 58	20332 98
20332 73	20332 98
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20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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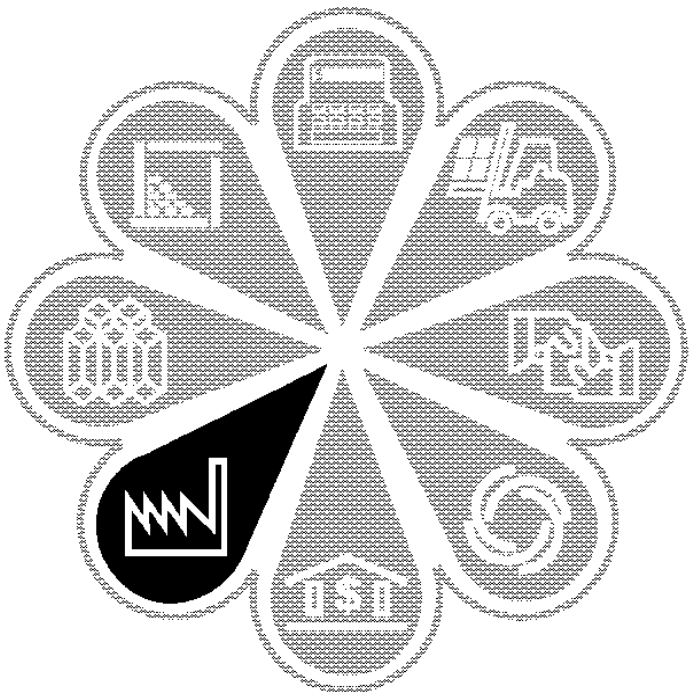
1992 Census of Manufactures

MC92-I-20H

INDUSTRY SERIES

Beverages

Industries 2082, 2083, 2084, 2085, 2086, and 2087



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-20H

INDUSTRY SERIES

Beverages

Industries 2082, 2083, 2084, 2085, 2086, and 2087

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Nathaniel Shelton**, Section Chief, with primary staff assistance by **Stephen Pope.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2082	Malt Beverages
2083	Malt
2084	Wines, Brandy, and Brandy Spirits
2085	Distilled and Blended Liquors
2086	Bottled and Canned Soft Drinks
2087	Flavoring Extracts and Syrups, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2082, MALT BEVERAGES

This industry is made up of establishments primarily engaged in manufacturing malt beverages. Establishments primarily engaged in bottling purchased malt beverages are classified in industry 5181.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2082, Malt Beverages, had employment of 34.5 thousand. The employment figure was 8 percent above the 31.9 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Colorado, Missouri, and Texas, accounting for approximately 45 percent of the industry's employment. This represents a shift from 1987 when California, Colorado, Missouri, and New York accounted for approximately 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $17.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2082 shipped $17.3 billion of malt beverage products considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 100 percent.

The products primary to industry 2082, no matter in what industry they were produced, appear in table 6a and aggregate to $17.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the malt beverage industry amounted to $7.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2083, MALT

This industry is made up of establishments primarily engaged in manufacturing malt or malt byproducts from barley or other grains.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2083, Malt, had employment of 1.3 thousand. The employment figure was 7 percent below the 1.4 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Minnesota, and Washington. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $575.8 million.

The products primary to industry 2083, no matter in what industry they were produced, appear in table 6a and aggregate to $573.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the malt products industry amounted to $387.3 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS

This industry is made up of establishments primarily engaged in manufacturing wines, brandy, and brandy spirits. Also included in this industry are establishments primarily engaged in blending wines from bonded wine cellars. Establishments primarily engaged in bottling purchased wines, brandy, and brandy spirits, but which do not manufacture wines and brandy are classified in wholesale trade industry 5182.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2084, Wines, Brandy, and Brandy Spirits, had employment of 14.0 thousand. The employment figure was 1 percent above the 13.9 thousand reported in 1987.

The leading States in employment in 1992 were California and New York, accounting for approximately 90 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2084 shipped $4.0 billion of wines, brandy, and brandy spirits products considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2084, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wines, brandy, and brandy spirits industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS

This industry is made up of establishments primarily engaged in manufacturing alcoholic liquors by distillation, and in manufacturing cordials and alcoholic cocktails by blending processes or by mixing liquors and other ingredients. Establishments primarily engaged in manufacturing industrial alcohol are classified in industry 2869. Establishments primarily engaged in bottling purchased liquor are classified in wholesale trade industry 5182.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2085, Distilled and Blended Liquors, had employment of 7.1 thousand. The employment figure was 21 percent below the 9.0 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, Kentucky, Maryland, and Tennessee, accounting for approximately 63 percent of the industry's employment. This represents a shift from 1987 when Indiana, Kentucky, Maryland, and Ohio accounted for approximately 59 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2085 shipped $3.1 billion of distilled and blended liquors products considered primary to the industry, $27.7 million of secondary products, and had $314.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2085, no matter in what industry they were produced, appear in table 6a and aggregate to $3.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the distilled and blended liquors industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS

This industry is made up of establishments primarily engaged in manufacturing soft drinks and carbonated waters. Establishments primarily engaged in manufacturing fruit and vegetable juices are classified in industry group 203. Establishments primarily engaged in manufacturing fruit syrups for flavorings are classified in industry 2087.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2086, Bottled and Canned Soft Drinks, had employment of 77.1 thousand. The employment figure was 19 percent below the 95.6 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, California, Florida, and New York, accounting for approximately 30 percent of the industry's employment. This represents a shift from 1987 when Texas, California, Ohio, and Florida accounted for approximately 29 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $25.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2086 shipped $22.9 billion of bottled and canned soft drinks products considered primary to the industry, $651.7 million of secondary products, and had $1.9 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 2086, no matter in what industry they were produced, appear in table 6a and aggregate to $23.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the bottled and canned soft drinks industry amounted to $15.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing flavoring extracts, syrups, powders, and related products, not elsewhere classified, for soda fountain use or for the manufacture of soft drinks, and colors for bakers' and confectioners' use. Establishments primarily engaged in manufacturing chocolate syrup are classified in industry 2066.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2087, Flavoring Extracts and Syrups, N.E.C., had employment of 10.3 thousand. The employment figure was 13 percent above the 9.1 thousand reported in 1987. Compared with 1991, employment increased 27 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New Jersey, and Ohio. This represents a shift from 1987 when California, Illinois, New Jersey, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $6.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2087 shipped $6.3 billion of flavoring extracts and syrups, not elsewhere classified, considered primary to the industry, $558.9 million of secondary products, and had $99.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2087, no matter in what industry they were produced, appear in table 6a and aggregate to $6.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the flavoring extracts and syrups, not elsewhere classified, industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2082, MALT BEVERAGES															
1992 Census	160	194	75	34.5	1 566.7	25.1	45.9	1 050.7	10 189.3	7 179.8	17 340.2	565.0	609.0	(D)	99
1991 ASM	(NA)	(NA)	(NA)	32.4	1 445.8	23.5	43.1	961.0	9 036.7	6 885.8	15 924.9	649.0	572.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.6	1 425.1	23.5	44.3	945.3	8 192.8	6 988.5	15 186.2	542.8	549.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.0	1 364.6	23.3	43.8	931.2	7 783.3	6 555.0	14 321.2	601.8	533.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	32.4	1 316.6	23.2	42.7	905.2	7 450.8	6 414.0	13 870.7	570.3	585.7	(NA)	(NA)
1987 Census	101	134	64	31.9	1 355.4	22.7	44.7	927.9	7 284.8	6 311.8	13 618.6	473.6	609.9	100	100
1986 ASM	(NA)	(NA)	(NA)	34.0	1 255.1	24.8	50.5	890.9	6 184.5	6 502.5	12 677.9	578.3	669.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	40.3	1 357.8	27.0	52.6	952.2	5 681.3	6 529.1	12 215.8	372.2	669.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	38.8	1 313.6	27.4	51.8	931.8	5 393.7	6 485.0	11 868.2	594.1	679.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	40.7	1 302.6	28.5	55.1	892.0	5 324.6	6 443.2	11 797.5	599.8	637.7	(NA)	(NA)
1982 Census	67	109	73	43.0	1 307.9	29.5	57.5	883.5	4 534.8	6 669.7	11 183.2	665.0	654.7	100	100
1981 ASM	(NA)	(NA)	(NA)	43.7	1 247.4	30.1	59.1	857.0	3 842.4	6 339.3	10 178.9	665.7	535.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	43.2	1 122.2	30.5	60.6	793.1	3 639.4	5 753.6	9 361.7	647.6	548.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	43.9	1 051.8	31.3	61.4	752.7	3 190.5	5 177.1	8 352.5	644.7	537.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	45.6	972.5	32.1	64.2	675.6	2 990.6	4 722.7	7 539.4	470.8	654.3	(NA)	(NA)
1977 Census	81	131	91	44.0	857.5	31.1	61.1	589.1	2 602.3	4 045.1	6 652.6	410.3	444.6	100	100
INDUSTRY 2083, MALT															
1992 Census	16	26	18	1.3	44.4	.9	1.8	30.5	175.9	387.3	575.8	27.1	161.4	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	1.4	46.0	1.0	2.0	33.0	179.7	435.9	610.3	18.5	165.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	1.4	45.2	1.0	2.1	33.7	170.8	494.9	700.4	17.4	165.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	1.5	46.0	1.1	2.3	33.8	254.5	565.6	798.1	15.4	204.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	1.4	42.8	1.0	2.1	30.2	178.0	456.1	613.1	28.7	167.4	(NA)	(NA)
1987 Census	15	27	19	1.4	44.2	1.1	2.2	32.1	153.6	368.0	530.9	13.8	137.7	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	1.5	41.0	1.1	2.2	29.6	162.5	368.1	538.6	13.5	137.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	1.6	43.7	1.2	2.3	32.0	161.8	393.4	571.3	29.1	147.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	1.6	45.0	1.2	2.4	32.9	162.2	435.3	586.7	20.6	168.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	1.6	42.9	1.2	2.5	31.2	135.7	414.5	587.1	54.8	129.5	(NA)	(NA)
1982 Census	24	36	25	1.7	42.9	1.3	2.7	31.9	166.2	480.0	661.5	29.5	167.8	100	(D)
1981 ASM	(NA)	(NA)	(NA)	1.6	43.9	1.2	2.5	28.4	192.2	542.6	742.5	27.5	165.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	1.6	39.8	1.2	2.6	25.8	162.2	529.2	679.9	38.2	202.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	1.5	37.7	1.1	2.2	23.2	135.4	429.2	538.3	56.8	162.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	1.7	29.8	1.2	2.4	20.8	103.3	339.9	445.2	44.8	125.2	(NA)	(NA)
1977 Census	27	40	27	1.6	27.4	1.2	2.5	20.0	101.4	377.7	499.3	39.6	134.2	100	100
INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS															
1992 Census	514	553	136	14.0	425.9	6.5	12.6	159.8	2 088.7	2 394.0	4 301.0	114.7	2 019.6	(D)	99
1991 ASM	(NA)	(NA)	(NA)	13.9	378.3	6.8	12.7	154.1	1 797.6	1 884.5	3 585.8	96.9	1 757.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.4	400.8	7.1	13.1	156.6	1 810.1	1 872.5	3 657.8	108.2	1 602.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.9	385.1	7.1	13.1	156.8	1 772.1	1 909.6	3 539.2	123.4	1 539.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.3	372.9	7.4	13.5	157.8	1 710.0	2 032.8	3 528.4	104.3	1 385.6	(NA)	(NA)
1987 Census	469	508	108	13.9	342.0	7.4	13.5	156.5	1 380.0	1 831.2	3 208.2	99.9	1 147.1	99	98
1986 ASM	(NA)	(NA)	(NA)	13.1	318.1	7.0	13.2	146.0	1 234.1	1 896.4	3 162.6	112.1	1 098.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.2	296.6	7.1	13.5	138.8	1 063.1	1 674.1	2 763.4	112.1	1 059.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.2	274.2	7.0	13.2	134.7	1 080.7	1 627.6	2 694.8	93.4	1 037.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.8	257.3	6.7	12.6	131.5	1 058.2	1 711.1	2 836.6	97.7	1 050.0	(NA)	(NA)
1982 Census	324	366	103	11.8	245.8	6.8	12.8	125.4	996.7	1 762.9	2 785.7	136.8	1 113.9	98	98
1981 ASM	(NA)	(NA)	(NA)	11.3	205.8	6.7	12.3	108.5	888.0	1 546.7	2 407.5	83.2	866.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.2	191.1	6.7	12.3	100.4	811.3	1 459.4	2 188.6	58.9	852.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.0	177.5	7.7	14.9	99.0	764.6	1 281.7	1 954.4	77.7	769.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.0	154.7	5.9	11.2	80.7	557.5	1 064.3	1 559.2	74.2	643.8	(NA)	(NA)
1977 Census	233	269	76	9.2	134.1	5.4	10.5	69.6	510.4	893.8	1 362.5	51.1	559.5	98	97
INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS															
1992 Census	43	65	48	7.1	243.9	5.1	10.5	158.0	1 945.6	1 446.9	3 394.1	56.3	1 177.0	99	94
1991 ASM	(NA)	(NA)	(NA)	7.4	236.7	5.2	10.6	150.8	2 147.4	1 545.2	3 656.0	59.1	1 276.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.4	235.4	5.2	11.0	151.6	1 888.3	1 587.0	3 473.5	36.4	1 307.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.5	225.8	5.3	10.8	148.4	2 163.9	1 423.9	3 601.9	37.6	1 237.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.3	237.1	5.9	11.5	155.8	2 038.8	1 413.1	3 468.7	33.4	1 263.6	(NA)	(NA)
1987 Census	48	72	57	9.0	244.0	6.3	12.5	162.9	2 067.7	1 520.1	3 474.3	44.6	1 252.4	99	95
1986 ASM	(NA)	(NA)	(NA)	9.9	261.4	6.8	13.8	173.0	1 845.3	1 730.2	3 504.3	41.4	1 325.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.5	267.6	7.4	15.1	181.6	1 690.9	1 846.1	3 494.8	37.3	1 301.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.3	268.1	7.8	16.0	184.9	1 685.2	1 744.9	3 404.9	48.1	1 170.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.3	261.1	8.2	16.9	184.3	1 534.7	1 839.3	3 396.7	87.2	1 208.2	(NA)	(NA)
1982 Census	71	104	75	12.2	263.8	8.9	18.0	182.7	1 460.1	1 700.5	3 126.1	90.0	1 266.6	97	96
1981 ASM	(NA)	(NA)	(NA)	13.7	264.3	10.3	20.9	184.5	1 764.5	1 860.2	3 605.0	54.3	1 125.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	14.3	252.5	11.1	22.0	181.1	1 849.0	1 562.2	3 389.3	53.8	1 091.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.4	260.4	12.0	23.6	190.7	1 585.0	1 435.6	2 995.5	47.3	1 172.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.7	247.2	12.3	24.0	183.0	1 324.6	1 367.0	2 683.5	33.8	1 119.9	(NA)	(NA)
1977 Census	64	104	77	15.7	232.1	12.0	23.8	168.1	1 149.7	1 163.0	2 296.1	36.3	1 027.9	98	98
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS															
1992 Census	637	926	572	77.1	2 162.8	30.5	65.0	774.3	9 586.4	15 853.4	25 416.9	698.5	1 242.3	97	96
1991 ASM	(NA)	(NA)	(NA)	81.7	2 210.3	31.9	66.8	791.7	9 554.8	15 644.3	25 191.1	548.5	1 113.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	82.4	2 132.0	32.0	65.7	754.1	9 075.1	14 772.2	23 847.5	460.0	1 069.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	87.3	2 190.5	33.4	67.7	743.5	8 898.4	14 146.0	23 002.1	507.8	1 107.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	94.6	2 361.8	35.2	71.8	773.8	9 122.4	14 250.9	23 310.2	567.7	1 081.3	(NA)	(NA)
1987 Census	846	1 190	786	95.6	2 277.4	35.4	71.5	747.2	8 405.0	13 456.8	21 830.4	568.2	1 000.2	98	96
1986 ASM	(NA)	(NA)	(NA)	102.0	2 348.1	35.5	73.5	718.0	8 215.4	12 483.1	20 686.8	560.7	997.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	105.8	2 344.8	37.2	77.8	707.9	7 587.2	11 830.7	19 358.2	720.8	1 032.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	110.4	2 282.8	39.8	81.7	694.9	7 141.8	10 941.1	18 052.0	694.1	915.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	112.3	2 244.8	41.5	85.1	701.5	7 086.1	10 248.5	17 320.8	680.5	885.0	(NA)	(NA)
1982 Census	1 236	1 626	1 094	113.8	2 146.4	42.4	85.2	668.3	6 856.1	9 981.3	16 807.5	649.5	887.9	98	96
1981 ASM	(NA)	(NA)	(NA)	117.3	1 972.2	42.6	86.4	602.3	6 074.6	9 255.6	15 285.7	597.3	771.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	117.5	1 849.8	43.7	89.5	566.2	5 348.2	8 599.9	13 908.8	651.9	703.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	119.0	1 751.0	45.2	91.6	544.5	5 016.1	7 563.5	12 544.0	565.2	676.4	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/11/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 1
TSF:20H_92.DAT;4 4/11/95 11:34:25 UTF:20H_93.DAT;8 4/11/95 11:34:25 META:TIPS96-11340739.DAT;1 4/11/95 11:36:38

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS—Con.														
1978 ASM	(NA)	(NA)	(NA)	115.1	1 592.7	44.3	88.8	486.1	4 627.0	6 822.0	11 417.0	490.5	635.3	(NA)	(NA)
1977 Census	1 757	2 192	1 286	114.1	1 448.8	43.4	89.3	444.8	4 084.5	5 958.6	10 007.2	423.6	551.7	98	97
	INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.														
1992 Census	264	300	123	10.3	341.1	5.8	12.2	157.6	5 269.7	1 651.9	6 911.4	75.6	497.5	92	92
1991 ASM	(NA)	(NA)	(NA)	8.1	274.7	4.6	9.9	130.6	4 123.0	1 514.4	5 642.0	72.9	362.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.1	260.7	4.5	9.7	123.1	3 896.9	1 472.5	5 332.5	49.9	385.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.2	244.4	4.6	9.5	114.6	3 543.3	1 323.8	4 870.8	51.3	322.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.0	220.6	4.5	9.7	111.3	3 509.4	1 422.2	4 930.8	50.9	396.9	(NA)	(NA)
1987 Census	245	280	99	9.1	257.6	4.9	10.0	111.6	3 293.7	1 379.4	4 664.8	53.0	405.3	96	89
1986 ASM	(NA)	(NA)	(NA)	11.3	325.2	6.7	14.8	160.6	3 310.2	1 741.9	5 016.7	60.2	543.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.0	314.0	7.3	15.8	153.9	3 108.4	1 750.4	4 840.3	66.3	433.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.4	276.6	6.7	13.8	137.0	2 824.9	1 772.7	4 573.9	77.3	389.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.7	244.2	6.7	13.2	113.5	2 698.1	1 605.7	4 289.1	39.8	377.8	(NA)	(NA)
1982 Census	297	343	131	11.6	237.3	6.5	13.3	109.1	2 669.8	1 569.3	4 236.8	57.1	338.5	93	88
1981 ASM	(NA)	(NA)	(NA)	10.9	206.1	6.6	13.7	104.7	2 093.6	1 760.7	3 855.3	78.5	349.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.0	191.1	6.8	14.7	93.3	1 898.2	1 604.4	3 512.9	64.1	354.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.1	158.1	6.3	13.5	86.0	1 661.2	1 302.0	2 957.9	41.4	287.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.6	174.0	6.9	14.8	91.4	1 730.1	1 218.4	2 932.5	51.2	265.2	(NA)	(NA)
1977 Census	317	368	132	10.5	149.1	6.3	12.9	77.1	1 452.6	1 069.0	2 511.3	33.1	222.1	92	86

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2082, MALT BEVERAGES								
1992 Census	45 412	73	1 829	22.89	41	50	295 342	15	221.99
1991 ASM	44 623	73	1 834	22.30	43	52	278 911	16	209.67
1990 ASM	43 715	72	1 885	21.34	46	55	251 313	17	184.94
1989 ASM	42 644	73	1 880	21.26	46	55	243 228	18	177.70
1988 ASM	40 636	72	1 841	21.20	46	56	229 963	18	174.49
1987 Census	42 489	71	1 969	20.76	46	56	228 364	19	162.97
1986 ASM	36 915	73	2 036	17.64	51	61	181 897	20	122.47
1985 ASM	33 692	67	1 948	18.10	53	65	140 975	24	108.01
1984 ASM	33 856	71	1 891	17.99	55	66	139 013	24	104.13
1983 ASM	32 005	70	1 933	16.19	55	66	130 826	24	96.64
1982 Census	30 416	69	1 949	15.37	60	71	105 460	29	78.87
1981 ASM	28 545	69	1 963	14.50	62	75	87 927	32	65.02
1980 ASM	25 977	71	1 987	13.09	61	73	84 245	31	60.06
1979 ASM	23 959	71	1 962	12.26	62	75	72 677	33	51.96
1978 ASM	21 327	70	2 000	10.52	63	76	65 583	33	46.58
1977 Census	19 489	71	1 965	9.64	61	74	59 143	33	42.59
	INDUSTRY 2083, MALT								
1992 Census	34 154	69	2 000	16.94	67	75	135 308	25	97.72
1991 ASM	32 857	71	2 000	16.50	71	79	128 357	26	89.85
1990 ASM	32 286	71	2 100	16.05	71	77	122 000	26	81.33
1989 ASM	30 667	73	2 091	14.70	71	77	169 667	18	110.65
1988 ASM	30 571	71	2 100	14.38	74	81	127 143	24	84.76
1987 Census	31 571	79	2 000	14.59	69	78	109 714	29	69.82
1986 ASM	27 333	73	2 000	13.45	68	76	108 333	25	73.86
1985 ASM	27 313	75	1 917	13.91	69	77	101 125	27	70.35
1984 ASM	28 125	75	2 000	13.71	74	82	101 375	28	67.58
1983 ASM	26 813	75	2 083	12.48	71	78	84 813	32	54.28
1982 Census	25 235	76	2 077	11.81	73	79	97 765	26	61.56
1981 ASM	27 438	75	2 083	11.36	73	79	120 125	23	76.88
1980 ASM	24 875	75	2 167	9.92	78	84	101 375	25	62.38
1979 ASM	25 133	73	2 000	10.55	80	87	90 267	28	61.55
1978 ASM	17 529	71	2 000	8.67	76	83	60 765	29	43.04
1977 Census	17 125	75	2 083	8.00	76	81	63 375	27	40.56

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS								
1992 Census	30 421	46	1 938	12.68	56	66	149 193	20	165.77
1991 ASM	27 216	49	1 868	12.13	53	63	129 324	21	141.54
1990 ASM	27 833	49	1 845	11.95	51	62	125 701	22	138.18
1989 ASM	27 705	51	1 845	11.97	54	65	127 489	22	135.27
1988 ASM	26 077	52	1 824	11.69	58	68	119 580	22	126.67
1987 Census	24 604	53	1 824	11.59	57	68	99 281	25	102.22
1986 ASM	24 282	53	1 886	11.06	60	70	94 206	26	93.49
1985 ASM	22 470	54	1 901	10.28	61	71	80 538	28	78.75
1984 ASM	22 475	57	1 886	10.20	60	71	88 582	25	81.87
1983 ASM	21 805	57	1 881	10.44	60	69	89 678	24	83.98
1982 Census	20 831	58	1 882	9.80	63	72	84 466	25	77.87
1981 ASM	18 212	59	1 836	8.82	64	73	78 584	23	72.20
1980 ASM	17 063	60	1 836	8.16	67	75	72 438	24	65.96
1979 ASM	14 792	64	1 935	6.64	66	75	63 717	23	51.32
1978 ASM	15 470	59	1 898	7.21	68	78	55 750	28	49.78
1977 Census	14 576	59	1 944	6.63	66	75	55 478	26	48.61
	INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS								
1992 Census	34 352	72	2 059	15.05	43	50	274 028	13	185.30
1991 ASM	31 986	70	2 038	14.23	42	49	290 189	11	202.58
1990 ASM	31 811	70	2 115	13.78	46	52	255 176	12	171.66
1989 ASM	30 107	71	2 038	13.74	40	46	288 520	10	200.36
1988 ASM	28 566	71	1 949	13.55	41	48	245 639	12	177.29
1987 Census	27 111	70	1 984	13.03	44	51	229 744	12	165.42
1986 ASM	26 404	69	2 029	12.54	49	57	186 394	14	133.72
1985 ASM	25 486	70	2 041	12.03	53	60	161 038	16	111.98
1984 ASM	23 726	69	2 051	11.56	51	59	149 133	16	105.32
1983 ASM	23 106	73	2 061	10.91	54	62	135 814	17	90.81
1982 Census	21 623	73	2 022	10.15	54	63	119 680	18	81.12
1981 ASM	19 292	75	2 029	8.83	52	59	128 796	15	84.43
1980 ASM	17 657	78	1 982	8.23	46	54	129 301	14	84.05
1979 ASM	16 909	78	1 967	8.08	48	57	102 922	16	67.16
1978 ASM	15 745	78	1 951	7.63	51	60	84 369	19	55.19
1977 Census	14 783	76	1 983	7.06	51	61	73 229	20	48.31
	INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS								
1992 Census	28 052	40	2 131	11.91	62	71	124 337	23	147.48
1991 ASM	27 054	39	2 094	11.85	62	71	116 950	23	143.04
1990 ASM	25 874	39	2 053	11.48	62	71	110 135	23	138.13
1989 ASM	25 092	38	2 027	10.98	61	71	101 929	25	131.44
1988 ASM	24 966	37	2 040	10.78	61	71	96 431	26	127.05
1987 Census	23 822	37	2 020	10.45	62	72	87 918	27	117.55
1986 ASM	23 021	35	2 070	9.77	60	72	80 543	29	111.77
1985 ASM	22 163	35	2 091	9.10	61	73	71 713	31	97.52
1984 ASM	20 678	36	2 053	8.51	61	73	64 690	32	87.41
1983 ASM	19 989	37	2 051	8.24	59	72	63 100	32	83.27
1982 Census	18 861	37	2 009	7.84	59	72	60 247	31	80.47
1981 ASM	16 813	36	2 028	6.97	61	73	51 787	32	70.31
1980 ASM	15 743	37	2 048	6.33	62	75	45 517	35	59.76
1979 ASM	14 714	38	2 027	5.94	60	74	42 152	35	54.76
1978 ASM	13 838	38	2 005	5.47	60	74	40 200	34	52.11
1977 Census	12 698	38	2 058	4.98	60	74	35 798	35	45.74
	INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.								
1992 Census	33 117	56	2 103	12.92	24	29	511 621	6	431.94
1991 ASM	33 914	57	2 152	13.19	27	32	509 012	7	416.46
1990 ASM	32 185	56	2 156	12.69	28	33	481 099	7	401.74
1989 ASM	29 805	56	2 065	12.06	27	32	432 110	7	372.98
1988 ASM	27 575	56	2 156	11.47	29	33	438 675	6	361.79
1987 Census	28 308	54	2 041	11.16	30	35	361 945	8	329.37
1986 ASM	28 779	59	2 209	10.85	35	41	292 938	10	223.66
1985 ASM	26 167	61	2 164	9.74	36	43	259 033	10	196.73
1984 ASM	24 263	59	2 060	9.93	39	45	247 798	10	204.70
1983 ASM	20 872	57	1 970	8.60	37	43	230 607	9	204.40
1982 Census	20 457	56	2 046	8.20	37	43	230 155	9	200.74
1981 ASM	18 908	61	2 076	7.64	46	51	192 073	10	152.82
1980 ASM	17 373	62	2 162	6.35	46	51	172 564	10	129.13
1979 ASM	15 653	62	2 143	6.37	44	49	164 475	10	123.05
1978 ASM	15 000	59	2 145	6.18	42	47	149 147	10	116.90
1977 Census	14 200	60	2 048	5.98	43	49	138 343	10	112.60

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2082, MALT BEVERAGES														
United States	–	**194**	**75**	**34.5**	**1 566.7**	**25.1**	**45.9**	**1 050.7**	**10 189.3**	**7 179.8**	**17 340.2**	**565.0**	**31.9**	**7 284.8**
California	–	35	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	44.9	H	(D)
Colorado	–	13	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Florida	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Indiana	E9	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	4	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
New Hampshire	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	E1	9	4	2.7	122.2	1.9	3.5	76.7	664.2	583.5	1 246.5	34.4	2.9	713.3
North Carolina	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	11	4	.4	10.0	.2	.4	6.5	52.4	51.1	102.8	4.9	C	(D)
Pennsylvania	E2	15	8	1.3	42.6	1.0	1.6	30.0	119.6	194.6	313.5	7.4	1.6	149.9
Tennessee	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	8	5	2.8	142.8	2.1	4.3	102.8	1 097.5	889.0	1 987.3	34.4	H	(D)
Virginia	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	14	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.0	F	(D)
Wisconsin	E1	11	7	2.8	115.8	2.3	4.4	92.0	562.8	513.9	1 076.0	18.7	2.8	495.3
INDUSTRY 2083, MALT														
United States	–	**26**	**18**	**1.3**	**44.4**	**.9**	**1.8**	**30.5**	**175.9**	**387.3**	**575.8**	**27.1**	**1.4**	**153.6**
Minnesota	–	8	5	.3	11.0	.2	.5	7.5	49.9	102.2	160.5	12.9	.4	41.8
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	–	7	7	.5	19.6	.4	.7	13.2	74.6	160.9	240.0	7.6	.6	66.9
INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS														
United States	–	**553**	**136**	**14.0**	**425.9**	**6.5**	**12.6**	**159.8**	**2 088.7**	**2 394.0**	**4 301.0**	**114.7**	**13.9**	**1 380.0**
California	–	329	112	11.8	377.4	5.3	10.4	137.5	1 838.0	1 980.9	3 664.3	103.4	10.9	1 142.6
Missouri	E9	14	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	31	6	.8	20.0	.5	1.1	11.3	106.0	286.9	381.9	3.3	G	(D)
Oregon	E4	32	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	28	5	.3	8.0	.1	.2	1.9	63.9	38.2	89.8	3.9	C	(D)
INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS														
United States	–	**65**	**48**	**7.1**	**243.9**	**5.1**	**10.5**	**158.0**	**1 945.6**	**1 446.9**	**3 394.1**	**56.3**	**9.0**	**2 067.7**
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	18	15	2.7	83.8	2.0	3.9	53.0	646.0	532.5	1 169.2	22.7	2.5	590.8
Maryland	–	5	3	.6	24.6	.4	.9	15.3	31.5	76.5	111.4	(D)	F	(D)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	87.3
Ohio	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS														
United States	–	**926**	**572**	**77.1**	**2 162.8**	**30.5**	**65.0**	**774.3**	**9 586.4**	**15 853.4**	**25 416.9**	**698.5**	**95.6**	**8 405.0**
Alabama	E2	11	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	E1	19	13	1.3	35.3	.4	.9	9.0	178.5	248.6	425.3	8.5	G	(D)
Arkansas	–	11	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.8	G	(D)
California	–	97	55	6.8	208.0	3.5	7.6	97.8	1 202.8	1 680.4	2 878.6	103.4	7.7	865.3
Colorado	E2	19	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.1	G	(D)
Connecticut	E3	12	4	.4	13.0	.2	.4	5.6	30.5	57.4	88.0	(D)	F	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	–	47	28	5.1	145.2	1.7	3.6	44.5	701.5	965.9	1 674.8	(D)	5.5	471.4
Georgia	–	21	16	1.7	49.8	.6	1.4	16.7	279.6	472.6	735.8	(D)	2.0	189.4
Hawaii	–	7	4	.5	13.6	.2	.4	4.8	41.7	92.1	134.2	(D)	.5	40.3

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/11/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 4
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS—Con.														
Illinois	E1	32	21	3.2	100.8	1.4	3.3	37.3	510.1	721.8	1 235.5	40.3	2.9	295.9
Indiana	–	24	16	1.9	55.7	.8	1.7	20.1	369.9	514.2	885.2	21.9	3.3	267.7
Iowa	–	12	12	1.2	34.3	.4	.7	9.1	146.7	189.8	335.4	12.2	G	(D)
Kansas	–	10	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.9	G	(D)
Kentucky	E1	21	13	1.4	35.1	.4	.7	6.5	56.0	163.6	226.6	13.8	G	(D)
Louisiana	–	15	12	2.2	53.5	.7	1.5	12.1	175.8	269.7	447.6	21.9	2.4	132.1
Maine	–	5	4	.3	8.9	.1	.3	3.1	39.6	56.7	95.0	3.1	E	(D)
Maryland	E2	17	12	2.0	53.4	.6	1.3	13.7	205.7	375.7	581.8	16.4	1.9	258.7
Massachusetts	E1	25	13	1.3	46.6	.8	1.6	23.2	148.5	382.2	533.5	8.9	G	(D)
Michigan	–	26	12	1.9	51.8	1.2	2.4	31.4	421.5	592.4	1 013.9	16.5	2.6	216.8
Minnesota	–	19	8	1.3	37.7	.7	1.3	15.7	162.9	311.3	472.9	(D)	1.7	399.6
Mississippi	E1	13	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	22	14	1.8	55.4	.6	1.2	15.8	243.9	336.9	578.8	(D)	H	(D)
Montana	–	9	5	.3	6.4	.1	.2	1.7	11.7	34.8	46.2	2.0	C	(D)
Nebraska	–	5	4	.5	10.0	.2	.3	3.1	47.8	91.0	138.8	1.2	F	(D)
New Jersey	–	27	14	2.3	80.6	1.2	2.3	36.6	462.9	521.1	975.1	15.4	1.7	410.1
New Mexico	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	56	26	4.2	132.7	1.9	4.4	64.8	495.1	991.8	1 489.1	33.8	5.0	517.1
North Carolina	–	32	22	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.4	H	(D)
North Dakota	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Ohio	–	31	22	3.5	95.6	1.2	2.6	31.1	182.6	626.3	813.0	30.1	5.7	369.3
Oklahoma	–	20	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	14	10	.9	25.7	.3	.6	7.2	62.9	202.5	265.0	6.2	.8	35.8
Pennsylvania	–	45	25	3.5	101.4	1.5	3.2	35.1	413.9	601.0	1 011.5	46.0	4.1	287.7
Rhode Island	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
South Carolina	–	14	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	E1	19	14	2.8	72.4	1.1	2.5	24.2	355.4	461.6	813.4	(D)	H	(D)
Texas	–	58	40	7.1	188.0	2.3	5.0	55.5	782.5	1 353.1	2 128.8	41.7	8.6	721.4
Utah	–	7	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.6	F	(D)
Virginia	E1	23	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.4	G	(D)
Washington	–	16	11	1.3	40.9	.7	1.3	18.7	215.4	364.7	579.9	31.0	1.3	249.8
West Virginia	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	32.3
Wisconsin	–	24	11	1.0	28.7	.6	1.3	17.2	205.2	396.4	602.1	(D)	1.7	217.0
Wyoming	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.														
United States	**–**	**300**	**123**	**10.3**	**341.1**	**5.8**	**12.2**	**157.6**	**5 269.7**	**1 651.9**	**6 911.4**	**75.6**	**9.1**	**3 293.7**
California	E2	47	19	1.3	44.2	.8	1.9	22.8	455.5	233.6	671.5	7.5	1.3	426.5
Florida	E4	15	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	28	18	1.9	58.1	1.2	2.1	27.9	789.7	329.8	1 114.6	15.8	G	(D)
Indiana	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	E	(D)
Massachusetts	E2	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Missouri	–	16	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	27	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E6	20	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	20	8	1.1	39.8	.5	1.3	17.5	636.7	156.1	791.8	(D)	F	(D)
Pennsylvania	E3	13	7	.4	17.7	.2	.5	7.6	54.9	64.9	120.1	5.6	E	(D)
Texas	–	16	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.2	G	(D)
Washington	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E2	13	2	.1	4.4	.1	.2	2.0	29.6	22.2	51.2	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Malt beverages (SIC 2082)	Malt (SIC 2083)	Wines, brandy, and brandy spirits (SIC 2084)	Distilled and blended liquors (SIC 2085)	Bottled and canned soft drinks (SIC 2086)	Flavoring extracts and syrups, n.e.c. (SIC 2087)
Companies ---- number	160	16	514	43	637	264
All establishments ---- number	194	26	553	65	926	300
With 1 to 19 employees ---- number	119	8	417	17	354	177
With 20 to 99 employees ---- number	31	14	109	25	314	97
With 100 employees or more ---- number	44	4	27	23	258	26
Employment and labor costs:						
Employees ---- 1,000	34.5	1.3	14.0	7.1	77.1	10.3
Compensation, total ---- mil dol	2 059.0	58.3	544.8	306.5	2 757.0	424.9
Annual payroll ---- mil dol	1 566.7	44.4	425.9	243.9	2 162.8	341.1
Fringe benefits ---- mil dol	492.3	13.9	118.8	62.6	594.3	83.8
Social Security and other legally required payments ---- mil dol	164.8	5.7	45.7	24.5	270.0	36.6
Employer voluntary payments ---- mil dol	327.5	8.2	73.1	38.1	324.3	47.2
Production workers:						
Average for year ---- 1,000	25.1	.9	6.5	5.1	30.5	5.8
March ---- 1,000	25.0	.9	6.0	5.0	30.1	5.9
May ---- 1,000	25.4	.9	6.1	5.0	31.2	6.0
August ---- 1,000	25.3	.9	7.4	5.2	31.4	5.8
November ---- 1,000	24.7	.9	6.4	5.3	29.4	5.6
Hours ---- millions	45.9	1.8	12.6	10.5	65.0	12.2
Wages ---- mil dol	1 050.7	30.5	159.8	158.0	774.3	157.6
Cost of materials[1] ---- mil dol	7 179.8	387.3	2 394.0	1 446.9	15 853.4	1 651.9
Materials, parts, containers, etc., consumed[2] ---- mil dol	6 864.3	345.5	2 207.3	1 196.1	14 351.9	1 543.3
Resales ---- mil dol	13.1	3.3	137.9	223.2	1 235.5	70.6
Fuels ---- mil dol	95.4	20.0	10.0	12.4	49.2	11.2
Purchased electricity ---- mil dol	124.9	16.6	32.8	11.1	121.2	18.5
Contract work ---- mil dol	82.1	2.0	6.0	4.1	95.6	8.4
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	2 356.5	419.3	385.4	207.2	1 828.8	274.3
Generated less sold ---- mil kWh	567.2	(D)	(D)	–	20.4	–
Total value of shipments ---- mil dol	17 340.2	575.8	4 301.0	3 394.1	25 416.9	6 911.4
Value added ---- mil dol	10 189.3	175.9	2 088.7	1 945.6	9 586.4	5 269.7
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	591.4	166.7	1 827.8	1 193.2	1 178.3	462.6
Finished goods ---- mil dol	40.2	63.3	533.9	793.5	617.5	218.6
Work in process ---- mil dol	184.6	7.3	1 104.3	321.0	30.6	41.5
Materials and supplies ---- mil dol	366.6	96.1	189.6	78.8	530.3	202.5
End of 1992 ---- mil dol	609.0	161.4	2 019.6	1 177.0	1 242.3	497.5
Finished goods ---- mil dol	77.2	50.9	577.4	765.6	651.4	212.7
Work in process ---- mil dol	176.6	7.0	1 242.5	319.3	19.5	57.7
Materials and supplies ---- mil dol	355.2	103.4	199.7	92.1	571.4	227.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Malt beverages (SIC 2082)	Malt (SIC 2083)	Wines, brandy, and brandy spirits (SIC 2084)	Distilled and blended liquors (SIC 2085)	Bottled and canned soft drinks (SIC 2086)	Flavoring extracts and syrups, n.e.c. (SIC 2087)
Gross book value of depreciable assets:						
Total:						
Beginning of year	10 744.7	535.9	1 879.3	903.7	6 930.3	1 048.5
New capital expenditures[1]	565.0	27.1	114.7	56.3	698.5	75.6
Used capital expenditures	11.7	(D)	3.9	(D)	33.2	(D)
Retirements	58.3	(D)	28.9	(D)	204.3	(D)
End of year	11 263.1	560.6	1 969.0	950.1	7 457.6	1 110.4
Buildings and other structures:						
Beginning of year	2 486.7	125.5	484.2	292.0	1 685.0	297.8
New capital expenditures	109.7	(D)	23.9	11.6	101.7	18.3
Used capital expenditures	3.0	(D)	1.4	(D)	13.1	(D)
Retirements	3.3	(D)	15.7	(D)	21.9	(D)
End of year	2 596.1	130.5	493.8	303.4	1 777.9	319.2
Machinery and equipment:						
Beginning of year	8 257.9	410.4	1 395.0	611.7	5 245.2	750.7
New capital expenditures[1]	455.3	(D)	90.8	44.8	596.8	57.2
Used capital expenditures	8.7	(D)	2.5	(D)	20.1	(D)
Retirements	55.0	(D)	13.2	(D)	182.4	(D)
End of year	8 667.0	430.2	1 475.2	646.7	5 679.7	791.2
Depreciation charges during 1992:						
Total	524.5	28.7	134.9	55.0	551.6	77.3
Buildings and other structures	86.8	4.3	24.0	11.4	79.7	13.4
Machinery and equipment	437.8	24.4	110.9	43.6	471.9	63.9
Rental payments:						
Total	19.8	.7	30.9	11.6	134.8	23.0
Buildings and other structures	8.3	.3	15.9	8.7	70.1	13.2
Machinery and equipment	11.5	.3	15.0	2.9	64.6	9.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Malt beverages (SIC 2082)		Malt (SIC 2083)		Wines, brandy, and brandy spirits (SIC 2084)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	14.8	(X)	(D)	(X)	3.5	(X)
Response coverage ratio (percent)[2]	94.8	(X)	(D)	(X)	84.5	(X)
Machinery	35.0	(X)	(D)	(X)	19.9	(X)
Response coverage ratio (percent)[2]	94.8	(X)	(D)	(X)	85.4	(X)
Other purchased services:						
Communications	(D)	(X)	(D)	(X)	6.4	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	76.7	(X)
Legal	(D)	(X)	(D)	(X)	5.2	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	80.0	(X)
Accounting and bookkeeping	(D)	(X)	(D)	(X)	4.3	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	85.4	(X)
Advertising	(D)	(X)	(D)	(X)	17.5	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	85.3	(X)
Software and other data processing	(D)	(X)	(D)	(X)	2.6	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	85.4	(X)
Refuse removal, including hazardous waste	(D)	(X)	(D)	(X)	2.0	(X)
Response coverage ratio (percent)[2]	(D)	(X)	(D)	(X)	85.4	(X)
New machinery and equipment expenditures	455.3	(X)	(D)	(X)	90.8	(X)
Automobiles, trucks, etc., for highway use	(D)	(X)	(D)	(X)	1.9	28
Computers and peripheral data processing equipment	(D)	(X)	(D)	(X)	6.2	12
All other	438.8	1	(D)	(X)	82.8	1
Adjustment ratio[3]	1.4	(X)	(D)	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	6 864.3	(X)	345.5	(X)	2 207.3	(X)
Materials purchased or transferred from foreign sources[4]	(D)	(X)	(D)	(X)	76.0	4
Materials purchased or transferred from domestic sources	(D)	(X)	(D)	(X)	2 131.3	1
Adjustment ratio[3]	(D)	(X)	(D)	(X)	1.4	(X)

Item	Distilled and blended liquors (SIC 2085)		Bottled and canned soft drinks (SIC 2086)		Flavoring extracts and syrups, n.e.c. (SIC 2087)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.3	(X)	27.5	(X)	8.9	(X)
Response coverage ratio (percent)[2]	78.4	(X)	78.6	(X)	79.3	(X)
Machinery	6.8	(X)	102.6	(X)	11.2	(X)
Response coverage ratio (percent)[2]	78.4	(X)	79.1	(X)	79.3	(X)
Other purchased services:						
Communications	1.1	(X)	20.1	(X)	2.7	(X)
Response coverage ratio (percent)[2]	77.5	(X)	75.6	(X)	76.7	(X)
Legal	1.9	(X)	13.4	(X)	3.0	(X)
Response coverage ratio (percent)[2]	74.4	(X)	78.1	(X)	79.0	(X)
Accounting and bookkeeping	.3	(X)	9.7	(X)	3.7	(X)
Response coverage ratio (percent)[2]	74.4	(X)	76.6	(X)	77.9	(X)
Advertising	12.0	(X)	158.2	(X)	3.9	(X)
Response coverage ratio (percent)[2]	74.4	(X)	77.7	(X)	79.0	(X)
Software and other data processing	.8	(X)	7.5	(X)	1.2	(X)
Response coverage ratio (percent)[2]	74.4	(X)	76.2	(X)	79.1	(X)
Refuse removal, including hazardous waste	.4	(X)	14.6	(X)	1.7	(X)
Response coverage ratio (percent)[2]	71.2	(X)	78.3	(X)	78.8	(X)
New machinery and equipment expenditures	44.8	(X)	596.8	(X)	57.2	(X)
Automobiles, trucks, etc., for highway use	.6	6	80.9	6	(S)	(X)
Computers and peripheral data processing equipment	3.7	2	23.0	5	(S)	(X)
All other	40.4	1	492.8	1	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.2	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	1 196.1	(X)	14 351.9	(X)	1 543.3	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	53.6	3	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	14 298.3	1	(S)	(X)
Adjustment ratio[3]	(S)	(X)	1.6	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2082, MALT BEVERAGES												
Total	**–**	**194**	**34.5**	**1 566.7**	**25.1**	**45.9**	**1 050.7**	**10 189.3**	**7 179.8**	**17 340.2**	**565.0**	**609.0**
Establishments with an average of—												
1 to 4 employees	E9	68	.1	3.6	.1	.2	2.4	16.6	15.6	32.2	1.1	1.2
5 to 9 employees	E8	28	.2	5.4	.1	.2	3.5	27.2	29.1	56.3	1.7	2.1
10 to 19 employees	E6	23	.3	7.2	.2	.4	4.6	31.2	30.8	61.9	1.8	2.9
20 to 49 employees	–	23	.7	17.0	.4	.8	9.0	55.6	32.6	88.0	121.3	6.3
50 to 99 employees	E3	8	.6	12.0	.3	.6	5.7	43.7	39.7	83.4	(D)	5.7
100 to 249 employees	E2	12	1.9	67.2	1.4	2.9	44.0	227.3	304.5	529.7	(D)	35.2
250 to 499 employees	–	9	3.3	125.8	2.5	4.4	90.7	693.2	873.2	1 564.1	39.0	69.4
500 to 999 employees	–	15	27.4	1 328.5	20.1	36.4	890.8	9 094.7	5 854.2	14 924.5	400.0	486.2
1,000 to 2,499 employees	–	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	59	.1	2.8	.1	.1	1.9	11.3	10.8	22.2	.7	.8
INDUSTRY 2083, MALT												
Total	**–**	**26**	**1.3**	**44.4**	**.9**	**1.8**	**30.5**	**175.9**	**387.3**	**575.8**	**27.1**	**161.4**
Establishments with an average of—												
1 to 4 employees	E6	6	(Z)	.2	(Z)	(Z)	.2	1.3	1.4	2.8	(Z)	.8
5 to 9 employees	–	1	.4	13.3	.3	.6	8.4	54.1	110.6	177.1	–	49.1
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	21.1	(D)
20 to 49 employees	–	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	4	.3	10.1	.2	.4	7.3	45.0	116.9	165.0	(D)	46.3
100 to 249 employees	–	4	.6	20.8	.4	.7	14.6	75.5	158.3	231.0	6.0	65.1
INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS												
Total	**–**	**553**	**14.0**	**425.9**	**6.5**	**12.6**	**159.8**	**2 088.7**	**2 394.0**	**4 301.0**	**114.7**	**2 019.6**
Establishments with an average of—												
1 to 4 employees	E6	242	.4	8.7	.1	.3	3.4	45.5	40.4	82.9	3.0	36.4
5 to 9 employees	E4	94	.6	14.2	.3	.6	5.9	58.9	47.5	102.0	3.7	62.0
10 to 19 employees	E2	81	1.1	27.1	.5	1.0	11.0	101.6	90.6	173.1	5.8	127.2
20 to 49 employees	E1	86	2.6	61.9	1.3	2.6	27.5	248.1	256.5	483.7	37.3	350.9
50 to 99 employees	E1	23	1.5	45.2	.7	1.4	16.1	186.4	237.4	398.0	15.2	213.3
100 to 249 employees	–	19	2.8	79.7	1.7	3.1	40.8	453.1	776.2	1 149.5	22.0	594.7
250 to 499 employees	–	7	4.9	189.1	1.8	3.6	55.1	995.1	945.4	1 911.9	27.8	635.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	241	.5	8.7	.2	.4	3.4	39.1	37.4	76.5	2.3	26.6
INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS												
Total	**–**	**65**	**7.1**	**243.9**	**5.1**	**10.5**	**158.0**	**1 945.6**	**1 446.9**	**3 394.1**	**56.3**	**1 177.0**
Establishments with an average of—												
1 to 4 employees	E9	7	(Z)	.3	(Z)	(Z)	.2	2.1	1.7	3.8	(Z)	1.5
5 to 9 employees	E8	6	(Z)	1.0	(Z)	.1	.7	6.9	5.6	12.5	.1	4.2
10 to 19 employees	E6	4	.1	1.7	(Z)	.1	1.1	8.1	7.9	16.0	.1	6.2
20 to 49 employees	E2	15	.6	19.7	.4	.9	13.4	135.6	101.0	233.1	4.0	85.2
50 to 99 employees	–	10	.7	25.3	.5	.9	14.6	138.7	120.6	259.5	8.9	57.9
100 to 249 employees	–	15	2.6	93.7	1.8	3.8	56.0	963.4	728.3	1 694.6	20.4	463.8
250 to 499 employees	–	7	3.1	102.3	2.4	4.7	72.2	690.8	481.8	1 174.7	22.7	558.2
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.3	(Z)	(Z)	.2	1.4	1.2	2.6	(Z)	1.0
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS												
Total	**–**	**926**	**77.1**	**2 162.8**	**30.5**	**65.0**	**774.3**	**9 586.4**	**15 853.4**	**25 416.9**	**698.5**	**1 242.3**
Establishments with an average of—												
1 to 4 employees	E9	160	.2	5.9	.1	.2	2.2	21.2	36.1	57.3	1.9	2.5
5 to 9 employees	E7	87	.6	12.8	.2	.5	4.8	55.8	81.7	137.4	4.3	7.5
10 to 19 employees	E3	107	1.5	33.6	.7	1.4	14.0	134.2	191.9	327.0	8.9	15.6
20 to 49 employees	E1	165	5.6	146.3	2.7	5.7	62.2	883.7	1 483.1	2 367.0	72.1	106.7
50 to 99 employees	E1	149	10.7	294.4	5.3	11.0	127.7	1 877.3	3 431.3	5 296.2	103.6	245.6
100 to 249 employees	–	183	28.9	814.6	12.3	25.9	316.8	3 899.2	6 186.4	10 090.8	262.1	491.4
250 to 499 employees	–	63	22.1	652.9	7.2	16.1	191.4	2 116.6	3 450.0	5 558.1	190.5	294.5
500 to 999 employees	–	12	7.5	202.3	2.0	4.3	55.1	598.3	992.9	1 583.2	55.1	78.4
Covered by administrative records[2]	E9	167	.4	7.4	.1	.3	2.5	23.5	39.8	63.3	1.3	2.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.												
Total	**–**	**300**	**10.3**	**341.1**	**5.8**	**12.2**	**157.6**	**5 269.7**	**1 651.9**	**6 911.4**	**75.6**	**497.5**
Establishments with an average of—												
1 to 4 employees	E9	85	.1	3.5	.1	.2	1.9	69.6	23.6	93.2	.8	4.8
5 to 9 employees	E5	52	.3	9.4	.2	.4	4.9	141.7	61.9	203.7	2.4	16.0
10 to 19 employees	E3	40	.5	17.6	.3	.6	7.1	114.8	61.6	175.6	3.9	14.9
20 to 49 employees	E2	65	2.1	65.0	1.1	2.7	29.2	419.1	370.8	785.4	17.9	98.8
50 to 99 employees	E1	32	2.2	68.1	1.3	2.7	34.0	563.3	277.9	828.4	21.0	123.4
100 to 249 employees	–	21	5.0	177.4	2.8	5.7	80.4	3 961.2	856.1	4 825.0	17.0	239.5
250 to 499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	12.6	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	49	.1	1.1	(Z)	.1	.6	15.5	4.6	20.1	.2	1.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2082	**Malt beverages:**										
	All establishments in industry	194	34.5	1 566.7	25.1	45.9	1 050.7	10 189.3	7 179.8	17 340.2	565.0
	Establishments with this product class primary:										
20821	Canned beer and ale case goods	35	30.3	1 437.3	22.3	40.3	970.7	9 719.3	6 708.4	16 402.7	437.4
20822	Bottled beer and ale case goods	29	2.2	71.3	1.5	2.9	43.4	263.8	229.3	490.6	18.6
20823	Beer and ale in barrels and kegs	5	.2	2.5	.1	.1	1.0	11.6	3.0	14.6	(D)
20824	All other malt beverages and brewing products	12	1.1	35.3	.8	1.7	24.9	135.3	180.1	313.9	5.2
2083	**Malt:**										
	All establishments in industry	26	1.3	44.4	.9	1.8	30.5	175.9	387.3	575.8	27.1
2084	**Wines, brandy, and brandy spirits:**										
	All establishments in industry	553	14.0	425.9	6.5	12.6	159.8	2 088.7	2 394.0	4 301.0	114.7
2085	**Distilled and blended liquors:**										
	All establishments in industry	65	7.1	243.9	5.1	10.5	158.0	1 945.6	1 446.9	3 394.1	56.3
	Establishments with this product class primary:										
20851	Distilled liquor, except brandy	9	.4	16.7	.3	.6	10.7	104.8	64.7	167.0	3.8
20853	Bottled liquor, except brandy	40	6.5	223.2	4.7	9.6	145.2	1 825.1	1 367.9	3 197.2	48.3
2086	**Bottled and canned soft drinks:**										
	All establishments in industry	926	77.1	2 162.8	30.5	65.0	774.3	9 586.4	15 853.4	25 416.9	698.5
	Establishments with this product class primary:										
20863	Bottled carbonated soft drinks	225	27.0	756.4	9.3	19.2	232.1	2 951.9	4 448.5	7 401.0	240.2
20864	Canned carbonated soft drinks	202	32.4	927.6	11.7	25.0	307.3	3 984.2	8 511.2	12 461.5	285.6
20865	Soft drink flavoring syrup sold in bulk	10	.8	22.1	.2	.7	5.7	42.1	102.1	145.2	3.3
20866	Noncarbonated soft drinks	91	9.9	282.8	6.6	14.5	165.4	1 956.7	1 782.2	3 740.2	111.5
2087	**Flavoring extracts and syrups, n.e.c.:**										
	All establishments in industry	300	10.3	341.1	5.8	12.2	157.6	5 269.7	1 651.9	6 911.4	75.6
	Establishments with this product class primary:										
20871	Flavoring extracts, emulsions, and other liquid flavors	42	1.8	64.4	.9	1.7	23.5	192.3	199.4	390.0	15.7
20872	Liquid beverage bases not for use by soft drink bottlers	9	.5	19.9	.2	.6	8.4	77.1	74.3	154.3	2.9
20873	Liquid beverage bases for use by soft drink bottlers	35	2.2	75.1	1.3	2.7	36.2	3 199.6	488.7	3 690.9	13.4
20874	Other flavoring agents (except chocolate syrups)	55	4.4	143.0	2.7	5.3	70.9	1 477.3	752.7	2 220.3	36.7

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2082, MALT BEVERAGES			
Total value of shipments	17 340.2	13 618.6	11 183.2
Primary products value of shipments	17 298.2	13 521.1	11 105.6
Secondary products value of shipments	(D)	42.3	8.2
Total miscellaneous receipts	(D)	55.2	69.4
Value of resales	18.8	(D)	44.8
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	24.6
Primary products specialization ratio	(D)	100	100
Value of primary products shipments made in all industries	17 301.7	13 521.1	11 105.6
Value of primary products shipments made in this industry	17 298.2	13 521.1	11 105.6
Value of primary products shipments made in other industries	3.4	–	–
Coverage ratio	99	100	100
INDUSTRY 2083, MALT			
Total value of shipments	575.8	530.9	661.5
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	–	–	–
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	(D)	(D)	(D)
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	(D)	100
Value of primary products shipments made in all industries	573.3	534.3	654.7
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)
INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS			
Total value of shipments	4 301.0	3 208.2	2 785.7
Primary products value of shipments	4 005.6	3 091.4	2 676.3
Secondary products value of shipments	(D)	23.5	49.3
Total miscellaneous receipts	(D)	93.3	60.1
Value of resales	154.0	46.4	41.6
Contract receipts	(D)	29.3	15.6
Other miscellaneous receipts	(D)	17.7	2.9
Primary products specialization ratio	(D)	99	98
Value of primary products shipments made in all industries	4 050.0	3 162.3	2 719.5
Value of primary products shipments made in this industry	4 005.6	3 091.4	2 676.3
Value of primary products shipments made in other industries	44.5	70.9	43.2
Coverage ratio	99	98	98
INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS			
Total value of shipments	3 394.1	3 474.3	3 126.1
Primary products value of shipments	3 051.7	3 039.4	2 707.4
Secondary products value of shipments	27.7	47.1	72.0
Total miscellaneous receipts	314.7	387.8	346.7
Value of resales	302.2	367.1	299.1
Contract receipts	(D)	14.5	(D)
Other miscellaneous receipts	(D)	6.2	(D)
Primary products specialization ratio	99	99	97
Value of primary products shipments made in all industries	3 255.4	3 187.8	2 809.3
Value of primary products shipments made in this industry	3 051.7	3 039.4	2 707.4
Value of primary products shipments made in other industries	203.7	148.4	101.9
Coverage ratio	94	95	96
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS			
Total value of shipments	25 416.9	21 830.4	16 807.5
Primary products value of shipments	22 857.1	18 872.3	14 368.9
Secondary products value of shipments	651.7	461.5	250.0
Total miscellaneous receipts	1 908.2	2 496.6	2 188.6
Value of resales	1 717.9	2 391.6	2 076.7
Sales of carbonated soft drinks bought and sold without further processing	476.7	(NA)	(NA)
Sales of soft drink syrup bought and sold without further processing	17.2	(NA)	(NA)
Sales of aseptic drinks bought and sold without further processing	2.7	(NA)	(NA)
Sales of sparkling bottled waters bought and sold without further processing	5.8	(NA)	(NA)
Sales of other bottled waters bought and sold without further processing	41.3	(NA)	(NA)
Sales of products bought and sold without further manufacture, processing, or assembly	249.5	(NA)	(NA)
Sales of products bought and sold without further manufacture, processing, or assembly, n.s.k.	924.7	(NA)	(NA)
Contract receipts	128.0	43.3	40.7
Other miscellaneous receipts	62.2	61.7	71.2
Primary products specialization ratio	97	98	98

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS—Con.			
Value of primary products shipments made in all industries	23 774.3	19 611.7	14 891.9
Value of primary products shipments made in this industry	22 857.1	18 872.3	14 368.9
Value of primary products shipments made in other industries	917.2	739.4	523.1
Coverage ratio	96	96	96
INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.			
Total value of shipments	6 911.4	4 664.8	4 236.8
Primary products value of shipments	6 252.7	4 412.5	3 901.4
Secondary products value of shipments	558.9	190.0	284.8
Total miscellaneous receipts	99.7	62.3	50.5
Value of resales	88.8	43.8	44.0
Contract receipts	5.7	(D)	3.8
Other miscellaneous receipts	5.2	(D)	2.8
Primary products specialization ratio	92	96	93
Value of primary products shipments made in all industries	6 784.4	4 925.6	4 455.8
Value of primary products shipments made in this industry	6 252.7	4 412.5	3 901.4
Value of primary products shipments made in other industries	531.7	513.1	554.4
Coverage ratio	92	90	88

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2082– —	**MALT BEVERAGES**						
	Total	**(NA)**	**(X)**	**17 301.7**	**(NA)**	**(X)**	**13 521.1**
20821	Canned beer and ale case goods	(NA)	(X)	10 636.2	(NA)	(X)	8 212.4
20821 01	12 oz cans, 1,000 bbl	20	99 931.7	9 526.9	22	95 347.9	7 250.7
20821 02	16 oz cans, 1,000 bbl	12	9 739.9	876.4	11	9 017.8	715.7
20821 03	Other can sizes, 1,000 bbl	6	2 346.7	231.9	5	2 930.0	246.0
20821 00	Canned beer and ale case goods, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	–
20822	Bottled beer and ale case goods	(NA)	(X)	4 861.8	(NA)	(X)	4 074.2
	Beer:						
	Returnable bottles:						
20822 22	Less than 12 oz bottles, 1,000 bbl	5	166.9	11.4	8	522.9	36.8
20822 24	12 oz bottles, 1,000 bbl	23	11 664.7	1 130.2	21	10 604.0	897.0
20822 27	32 oz bottles, 1,000 bbl	2	(D)	(D)	3	132.5	5.2
20822 28	All other bottle sizes, 1,000 bbl	7	337.6	16.5	12	867.8	40.5
	Nonreturnable bottles:						
20822 32	Less than 12 oz bottles, 1,000 bbl	9	987.3	107.2	11	2 778.4	266.1
20822 34	12 oz bottles, 1,000 bbl	29	27 102.9	2 900.5	21	26 899.0	2 365.9
20822 37	32 oz bottles, 1,000 bbl	9	2 206.6	168.3	14	3 508.5	265.2
20822 38	All other bottle sizes, 1,000 bbl	12	(D)	(D)	12	2 359.7	163.4
20822 41	Ale, 1,000 bbl	12	361.1	42.1	7	393.1	34.2
20822 00	Bottled beer and ale case goods, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20823	Beer and ale in barrels and kegs	(NA)	(X)	1 026.3	(NA)	(X)	722.1
20823 64	One-half barrel size, 1,000 bbl	34	19 636.7	912.6	22	19 524.2	668.6
20823 65	Other barrel sizes, 1,000 bbl	16	2 148.5	113.6	15	1 456.1	53.5
20823 00	Beer and ale in barrels and kegs, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
20824	All other malt beverages and brewing products	(NA)	(X)	652.7	(NA)	(X)	416.5
20824 11	Nonalcoholic beer (quantity of total beer listed above which is nonalcoholic), 1,000 bbl	(NA)	(D)	(X)	(NA)	(NA)	(X)
20824 51	Malt liquors, in either cans and bottles, 1,000 bbl	9	7 615.0	521.2	7	(D)	(D)
	Brewers' spent grains:						
20824 93	Dry, 1,000 s tons	4	231.1	19.2	4	(D)	(D)
20824 95	Wet (dry weight equivalent or actual weight of dry grains employed in the manufacture), 1,000 s tons	9	3 973.6	46.2	10	2 226.8	24.4
20824 99	All other malt beverages and brewery products (porter, stout, malt extracts, malt syrup)	13	(X)	65.3	3	(X)	12.3
20824 00	All other malt beverages and brewing products, n.s.k.	(NA)	(X)	–	(NA)	(X)	–

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/11/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 11
TSF:20H_92.DAT;4 4/11/95 11:34:25 UTF:20H_93.DAT;8 4/11/95 11:34:25 META:TIPS96-11340739.DAT;1 4/11/95 11:36:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2082– —	**MALT BEVERAGES**—Con.						
20820	Malt beverages, n.s.k.	(NA)	(X)	124.7	(NA)	(X)	95.9
20820 00	Malt beverages, n.s.k.[3]	(NA)	(X)	102.6	(NA)	(X)	34.6
20820 02	Malt beverages, n.s.k.[4]	(NA)	(X)	22.2	(NA)	(X)	61.3
2083– —	**MALT**						
	Total	**(NA)**	**(X)**	**573.3**	**(NA)**	**(X)**	**534.3**
20830	Malt and malt byproducts	(NA)	(X)	573.3	(NA)	(X)	534.3
20830 00	Barley, rye, wheat, corn, and rice malt sprouts and malt byproducts (screenings, chaff, skimmings, etc.) (dry weight) mil lb	16	6 038.7	573.3	14	6 538.2	528.8
20830 02	Malt, n.s.k.[5]	(NA)	(X)	–	(NA)	(X)	5.5
2084– —	**WINES, BRANDY, AND BRANDY SPIRITS**						
	Total	**(NA)**	**(X)**	**4 050.0**	**(NA)**	**(X)**	**3 162.3**
20840	Wines, brandy, and brandy spirits	(NA)	(X)	4 050.0	(NA)	(X)	3 162.3
	Grape wines, 14 percent or less:						
20840 12	White mil wine gal	170	424.9	1 469.0	101	370.1	1 128.5
20840 14	Red mil wine gal	144	207.5	759.1	90	127.0	423.0
20840 16	Rose mil wine gal	47	98.7	366.3	49	78.8	237.8
20840 19	Other fruit and berry wines, 14 percent or less mil wine gal	12	8.0	34.9	7	9.0	29.2
20840 25	Dessert wines (excluding specialties) mil wine gal	16	69.5	216.9	21	57.8	175.3
20840 31	Effervescent wines, including sparkling wines (naturally and artificially carbonated) mil wine gal	26	56.4	339.8	21	36.5	223.4
	Specialties:						
20840 41	Vermouth mil wine gal	5	3.5	19.0	8	3.3	15.5
20840 45	Wine coolers mil wine gal	10	68.4	257.3	11	106.0	384.0
20840 46	Other specialty wines mil wine gal	10	20.7	105.2	10	9.9	47.5
20840 10	Nonalcoholic wine (quantity only of wine listed above) mil wine gal	(NA)	(D)	(X)	(NA)	(NA)	(X)
20840 65	Beverage brandy, neutral fruit spirits, and neutral brandy, excluding neutral citrus residue brandy mil tax gal	14	36.7	222.6	14	35.7	163.1
20840 81	Wine removed from fermenters mil wine gal	(NA)	[6]93.8	(X)	(NA)	[6]125.1	(X)
20840 85	Brandy and spirits removed from receiving tanks mil tax gal	(NA)	[6]1.3	(X)	(NA)	[6]4.7	(X)
20840 00	Wines, brandy, and brandy spirits, n.s.k.[3]	(NA)	(X)	160.9	(NA)	(X)	119.7
20840 02	Wines, brandy, and brandy spirits, n.s.k.[4]	(NA)	(X)	76.5	(NA)	(X)	215.3
2085– —	**DISTILLED AND BLENDED LIQUORS**						
	Total	**(NA)**	**(X)**	**3 255.4**	**(NA)**	**(X)**	**3 187.8**
20851	Distilled liquor, except brandy	(NA)	(X)	643.6	(NA)	(X)	454.0
20851 15	Whiskey, raw (bourbon, rye, etc.) mil proof gal	10					
20851 31	Grain neutral spirits, including neutral citrus residue brandy mil proof gal	3	55.9	168.6	7	54.9	136.9
20851 43	Vodka (including original and continuous distillation and/ or processing operations) mil proof gal	5	26.4	104.5	6	23.1	84.2
20851 48	Other distilled liquors, including rum, gin, and cane neutral spirits mil proof gal	7	33.5	157.0	7	24.9	117.4
20851 65	Distillers' dried grains, dark and light, and dried solubles 1,000 s tons	14	1 900.8	212.5	12	1 474.8	114.0
20851 00	Distilled liquor, except brandy, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	1.5
20853	Bottled liquor, except brandy	(NA)	(X)	2 584.0	(NA)	(X)	2 664.8
	Whiskey:						
20853 11	Unprocessed whiskey mil wine gal	7	27.4	342.7	10	23.3	364.7
20853 13	Blends of whiskey mil wine gal	11	23.7	222.2	12	18.2	176.6
20853 16	Blends with neutral spirits mil wine gal	12	8.0	70.4	18	9.3	76.2
20853 18	Other whiskey mil wine gal	16	36.4	419.9	23	47.9	514.7
20853 22	Gin mil wine gal	16	33.9	182.5	26	25.8	155.2
20853 25	Cordials, liqueurs mil wine gal	17	39.8	407.5	23	38.5	429.5
20853 27	Cocktails and similar compounds mil wine gal	6	(D)	(D)	8	10.2	94.3
20853 31	Vodka mil wine gal	19	81.7	351.7	29	71.0	341.0
20853 35	Rum mil wine gal	17	*9.9	55.8	18	9.0	55.6
20853 41	Other bottled liquors (excluding bottled in bond) mil wine gal	17	11.8	113.5	20	13.5	119.3
20853 65	Bottled in bond mil wine gal	5	(D)	(D)	(NA)	(NA)	307.2
20853 00	Bottled liquor, except brandy, n.s.k.	(NA)	(X)	1.7	(NA)	(X)	[7]30.5
20850	Distilled and blended liquors, n.s.k.	(NA)	(X)	27.9	(NA)	(X)	69.0
20850 00	Distilled and blended liquors, n.s.k.[7]	(NA)	(X)	25.3	(NA)	(X)	56.8
20850 02	Distilled and blended liquors, n.s.k.[8]	(NA)	(X)	2.6	(NA)	(X)	12.2

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/ 11/ 95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 12
TSF:20H_92.DAT;4 4/ 11/ 95 11:34:25 UTF:20H_93.DAT;8 4/ 11/ 95 11:34:25 META:TIPS96-11340739.DAT;1 4/ 11/ 95 11:36:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2086– —	**BOTTLED AND CANNED SOFT DRINKS**						
	Total	**(NA)**	**(X)**	**23 774.3**	**(NA)**	**(X)**	**19 611.7**
20863	Bottled carbonated soft drinks	(NA)	(X)	7 456.6	(NA)	(X)	6 396.5
	Bottled carbonated soft drinks in refillable glass bottles:						
20863 10	Total ... mil cases, 192 oz case equiv	92	[9]189.0	599.0	199	[9]302.7	932.2
	Regular:						
20863 11	Drinks containing some real juice ... mil cases, 192 oz case equiv	(NA)	8.5	(X)	(NA)	8.6	(X)
20863 12	Drinks containing kola extract, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	94.7	(X)	(NA)	148.1	(X)
20863 13	Lemon, lime, and lemon/lime combinations, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	(D)	(X)	(NA)	24.0	(X)
20863 14	Other carbonated flavors, including club soda, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	(D)	(X)	(NA)	42.7	(X)
	Diet:						
20863 15	Drinks containing some real juice ... mil cases, 192 oz case equiv	(NA)	2.0	(X)	(NA)	5.3	(X)
20863 16	Drinks containing kola extract, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	29.8	(X)	(NA)	48.7	(X)
20863 17	Lemon, lime, and lemon/lime combinations, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	4.8	(X)	(NA)	6.7	(X)
20863 18	Other carbonated flavors, including carbonated waters and club soda, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	(D)	(X)	(NA)	12.6	(X)
	Bottled carbonated soft drinks in nonrefillable glass bottles:						
20863 20	Total ... mil cases, 192 oz case equiv	152	[9]600.6	2 145.1	207	[9]413.3	1 695.7
	Regular:						
20863 21	Drinks containing some real juice ... mil cases, 192 oz case equiv	(NA)	30.2	(X)	(NA)	24.1	(X)
20863 22	Drinks containing kola extract, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	(D)	(X)	(NA)	169.1	(X)
20863 23	Lemon, lime, and lemon/lime combinations, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	35.2	(X)	(NA)	30.3	(X)
20863 24	Other carbonated flavors, including club soda, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	153.4	(X)	(NA)	85.5	(X)
	Diet:						
20863 25	Drinks containing some real juice ... mil cases, 192 oz case equiv	(NA)	3.3	(X)	(NA)	7.1	(X)
20863 26	Drinks containing kola extract, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	58.7	(X)	(NA)	62.2	(X)
20863 27	Lemon, lime, and lemon/lime combinations, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	9.4	(X)	(NA)	8.0	(X)
20863 28	Other carbonated flavors, including carbonated waters and club soda, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	135.6	(X)	(NA)	18.9	(X)
	Bottled carbonated soft drinks in plastics bottles:						
20863 30	Total ... mil cases, 192 oz case equiv	184	[9]1 522.7	4 697.6	229	[9]1 130.9	3 768.6
	Regular:						
20863 31	Drinks containing some real juice ... mil cases, 192 oz case equiv	(NA)	62.0	(X)	(NA)	51.3	(X)
20863 32	Drinks containing kola extract, except those with some real juice ... mil cases, 192 oz case equiv	(NA)	(D)	(X)	(NA)	476.1	(X)

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/11/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 13
TSF:20H_92.DAT;4 4/11/95 11:34:25 UTF:20H_93.DAT;8 4/11/95 11:34:25 META:TIPS96-11340739.DAT;1 4/11/95 11:36:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2086– —	**BOTTLED AND CANNED SOFT DRINKS—** Con.						
20863	Bottled carbonated soft drinks—Con.						
	Bottled carbonated soft drinks in plastics bottles—Con.						
20863 30	Total—Con.						
	Regular—Con.						
20863 33	Lemon, lime, and lemon/lime combinations, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	(D)	(X)	(NA)	89.7	(X)
20863 34	Other carbonated flavors, including club soda, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	329.0	(X)	(NA)	214.0	(X)
	Diet:						
20863 35	Drinks containing some real juice ---- mil cases, 192 oz case equiv--	(NA)	24.2	(X)	(NA)	18.6	(X)
20863 36	Drinks containing kola extract, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	282.8	(X)	(NA)	181.5	(X)
20863 37	Lemon, lime, and lemon/lime combinations, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	35.5	(X)	(NA)	31.0	(X)
20863 38	Other carbonated flavors including carbonated waters and club soda, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	71.5	(X)	(NA)	38.8	(X)
20863 00	Bottled carbonated soft drinks, n.s.k. ----	(NA)	(X)	7.7	(NA)	(X)	–
20864	Canned carbonated soft drinks ----	(NA)	(X)	9 941.3	(NA)	(X)	7 030.1
20864 00	Total ---- mil cases, 192 oz case equiv--	(NA)	[9]2 789.4	9 941.3	182	(X)	7 030.1
	Regular:						
20864 11	Drinks containing some real juice ---- mil cases, 192 oz case equiv--	(NA)	104.5	(X)	(NA)	124.8	(X)
20864 12	Drinks containing kola extract, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	1 146.8	(X)	(NA)	793.8	(X)
20864 13	Lemon, lime, and lemon/lime combinations, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	218.9	(X)	(NA)	138.5	(X)
20864 14	Other carbonated flavors, including club soda, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	493.2	(X)	(NA)	340.4	(X)
	Diet:						
20864 15	Drinks containing some real juice ---- mil cases, 192 oz case equiv--	(NA)	58.4	(X)	(NA)	38.5	(X)
20864 16	Drinks containing kola extract, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	539.4	(X)	(NA)	386.1	(X)
20864 17	Lemon, lime, and lemon/lime combinations, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	75.2	(X)	(NA)	43.2	(X)
20864 18	Other carbonated flavors, including carbonated waters and club soda, except those with some real juice ---- mil cases, 192 oz case equiv--	(NA)	149.4	(X)	(NA)	82.7	(X)
20865	Soft drink flavoring syrup sold in bulk ----	(NA)	(X)	1 052.4	(NA)	(X)	879.4
20865 01	Postmix ---- mil gal--	103	354.4	830.7	175	311.1	648.8
20865 02	Premix ---- mil gal--	90	*57.5	143.6	148	*91.3	201.0
20865 00	Soft drink flavoring syrup sold in bulk, n.s.k. ----	(NA)	(X)	78.1	(NA)	(X)	[r]29.6
20866	Noncarbonated soft drinks ----	(NA)	(X)	3 899.4	(NA)	(X)	2 426.6
	Fruit drinks, cocktails, and ades containing some real juice:						
20866 01	16.9 oz (1/2 liter) container or less ---- mil gal--	84	275.6	585.5	83	**183.4	464.8
20866 02	Other size containers (cartons, bottles, cans, etc.)---- mil gal--	150	*954.4	1 912.7	122	673.9	1 247.7
20866 03	Concentrates ---- mil gal--	26	66.6	206.1	24	57.9	166.1
	Fruit drinks, cocktails, and ades, containing no real juice:						
20866 04	16.9 oz (1/2 liter) container or less ---- mil gal--	20	51.8	133.8	(NA)	69.1	289.0
20866 05	Other size containers (cartons, bottles, cans, etc.)---- mil gal--	23	64.8	211.6			
20866 06	Concentrates ---- mil gal--	6	**3.6	15.6	6	(S)	8.3
20866 07	Canned iced tea, with or without flavorings ---- mil gal--	33	46.7	100.0	21	*13.5	43.2
20866 08	All other noncarbonated soft drinks ---- mil gal--	23	132.0	479.9	(NA)	(NA)	[10]

See footnotes at end of table.

TIPS [UPF] BATCH_1221 [CASMR,V_HARLEY] MCD-SRB 4/11/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 14
TSF:20H_92.DAT;4 4/11/95 11:34:25 UTF:20H_93.DAT;8 4/11/95 11:34:25 META:TIPS96-11340739.DAT;1 4/11/95 11:36:38

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Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2086– —	**BOTTLED AND CANNED SOFT DRINKS—Con.**						
20866	Noncarbonated soft drinks—Con.						
20866 09	Bottled water, processed or pasteurized, except natural spring, artificially carbonated, mineral, distilled, and sterile ---- mil gal	38	**156.6	193.0	14	*111.5	173.5
20866 00	Noncarbonated soft drinks, n.s.k. ----	(NA)	(X)	61.2	(NA)	(X)	[10]34.0
20860	Bottled and canned soft drinks, n.s.k. ----	(NA)	(X)	1 424.6	(NA)	(X)	2 879.1
20860 00	Bottled and canned soft drinks, n.s.k.[11] ----	(NA)	(X)	1 358.6	(NA)	(X)	2 571.0
20860 02	Bottled and canned soft drinks, n.s.k.[12] ----	(NA)	(X)	66.0	(NA)	(X)	308.1
2087– —	**FLAVORING EXTRACTS AND SYRUPS, N.E.C.**						
	Total ----	**(NA)**	**(X)**	**6 784.4**	**(NA)**	**(X)**	**4 925.6**
20871	Flavoring extracts, emulsions, and other liquid flavors ----	(NA)	(X)	513.9	(NA)	(X)	479.3
	Natural or true:						
20871 11	In containers 8 oz or less ---- mil gal	19	**17.6	105.9	22	(S)	102.6
20871 15	In containers more than 8 oz ---- mil gal	46	54.7	202.8	61	68.8	198.2
20871 53	Imitation ---- mil gal	34	*24.1	162.3	36	25.5	158.1
20871 00	Flavoring extracts, emulsions, and other liquid flavors, n.s.k. ----	(NA)	(X)	43.0	(NA)	(X)	20.5
20872	Liquid beverage bases not for use by soft drink bottlers ----	(NA)	(X)	158.8	(NA)	(X)	73.4
20872 15	Cocktail mixes ---- mil gal	10	**9.2	46.1	17	*7.9	38.1
20872 21	Other liquid beverage bases ---- mil gal	15	16.0	90.7	17	4.6	27.7
20872 00	Liquid beverage bases not for use by soft drink bottlers, n.s.k. ----	(NA)	(X)	22.0	(NA)	(X)	7.6
20873	Liquid beverage bases for use by soft drink bottlers ----	(NA)	(X)	2 969.8	(NA)	(X)	2 186.3
	For sale to soft drink bottlers:						
20873 21	Concentrates with some juice content ---- mil cases, 192 oz case equiv	12	180.6	211.8	11	154.7	176.7
20873 23	Other concentrates ---- mil cases, 192 oz case equiv	13	(D)	(D)	15	3 072.2	1 785.7
20873 25	Syrups ---- mil cases, 192 oz case equiv	9	254.9	224.0	5	167.7	124.8
	For sale to trade or nonbottler distributors:						
20873 41	Concentrates with some juice content ---- mil cases, 192 oz case equiv	9	5.0	22.1	5	(S)	16.0
20873 43	Other concentrates ---- mil cases, 192 oz case equiv	8	(D)	(D)	4	(D)	(D)
20873 45	Syrups ---- mil cases, 192 oz case equiv	16	22.0	42.6	12	27.6	41.6
20873 00	Liquid beverage bases for use by soft drink bottlers, n.s.k. ----	(NA)	(X)	10.2	(NA)	(X)	(D)
20874	Other flavoring agents (except chocolate syrups) ----	(NA)	(X)	2 697.0	(NA)	(X)	1 813.7
	Flavoring powders, tablets, and pastes:						
20874 35	Soft drink (effervescent and noneffervescent) ---- mil lb	13	88.7	188.9	16	112.7	444.7
20874 37	Other flavoring powders, tablets, and paste, including dry mix cocktails ---- mil lb	38	285.6	958.3	25	177.7	376.9
20874 59	Flavoring syrups for fountain, ice cream, and home beverage use, excluding liquid beverage bases and soft drinks in bulk ---- mil gal	24	(D)	(D)	30	166.8	753.2
20874 61	Fruit, crushed or whole, for fountain and ice cream use ---- mil gal	15	23.6	161.3	18	16.9	112.9
20874 71	Food colorings, except synthetic ----	11	(X)	104.4	11	(X)	72.0
20874 81	Concentrated fruit juice products (not frozen, not hot pack), for fountain use ---- mil gal	8	29.5	60.7	10	12.3	27.0
20874 00	Other flavoring agents (except chocolate syrups), n.s.k. ----	(NA)	(X)	(D)	(NA)	(X)	27.0
20870	Flavoring extracts and syrups, n.e.c., n.s.k. ----	(NA)	(X)	445.0	(NA)	(X)	373.0
20870 00	Flavoring extracts and syrups, n.e.c., n.s.k.[7] ----	(NA)	(X)	421.2	(NA)	(X)	215.6
20870 02	Flavoring extracts and syrups, n.e.c., n.s.k.[8] ----	(NA)	(X)	23.8	(NA)	(X)	157.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 20 employees.
[6]Data for quantity represent production rather than shipments.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]Quantity total product codes 20863 10, 20863 20, 20863 30, and 20863 40 may not equal the summation of subsequent quantity totals 20863 11 to 20863 18, 20863 21 to 20863 28, 20863 31 to 20863 38, and 20864 11 to 20864 18, respectively, because of the small number of establishments providing only overall total quantity, not quantity by flavor.
[10]For 1987, data for product code 20866 08 were included with product code 20866 00.
[11]Typically for establishments with 15 employees or more.
[12]Typically for establishments with less than 15 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20821, CANNED BEER AND ALE CASE GOODS		
United States	**10 636.2**	**8 212.4**
Texas	1 283.3	1 233.6
Wisconsin	619.2	570.0
20822, BOTTLED BEER AND ALE CASE GOODS		
United States	**4 861.8**	**4 074.2**
New York	471.9	589.6
Pennsylvania	100.9	121.8
Washington	60.5	(NA)
Wisconsin	307.2	252.6
20823, BEER AND ALE IN BARRELS AND KEGS		
United States	**1 026.3**	**722.1**
New York	107.2	98.3
Oregon	9.1	(NA)
Pennsylvania	19.7	30.1
Washington	17.0	(NA)
20824, ALL OTHER MALT BEVERAGES AND BREWING PRODUCTS		
United States	**652.7**	**416.5**
Florida	31.7	(NA)
New York	15.3	2.8
Ohio	7.8	(NA)
Pennsylvania	45.9	(NA)
Texas	105.7	(NA)
20851, DISTILLED LIQUOR, EXCEPT BRANDY		
United States	**643.6**	**454.0**
Kentucky	109.0	55.4
20853, BOTTLED LIQUOR, EXCEPT BRANDY		
United States	**2 584.0**	**2 664.8**
Kentucky	976.7	745.5
Maryland	108.8	(NA)
Missouri	93.6	(NA)
New Jersey	30.7	137.9
20863, BOTTLED CARBONATED SOFT DRINKS		
United States	**7 456.6**	**6 396.5**
Alabama	215.7	179.8
Arizona	87.2	68.6
Arkansas	43.6	71.3
California	712.3	476.2
Colorado	73.3	67.8
Florida	422.8	268.3
Georgia	229.2	214.6
Illinois	304.7	258.9
Indiana	135.6	161.1
Iowa	118.1	101.0
Kansas	110.6	50.9
Kentucky	97.4	92.8
Louisiana	169.1	145.2
Maine	54.4	(NA)
Maryland	200.3	266.2
Massachusetts	163.8	153.1
Michigan	532.1	291.6
Minnesota	69.6	(NA)
Mississippi	88.0	72.3
Missouri	178.9	187.9
Nebraska	22.1	27.6
New Jersey	173.2	174.7
New York	623.0	529.8
North Carolina	284.3	237.3
Ohio	236.9	368.4
Oklahoma	82.8	116.6
Oregon	42.0	28.8
Pennsylvania	366.3	342.3
South Carolina	148.2	146.7
Tennessee	196.8	151.4
Texas	567.5	421.7
Utah	30.2	49.6
Virginia	349.4	235.7
Washington	71.2	127.6
Wisconsin	53.8	37.2
20864, CANNED CARBONATED SOFT DRINKS		
United States	**9 941.3**	**7 178.8**
Alabama	199.6	80.6
Arizona	225.0	211.3
California	1 272.2	1 131.1
Colorado	171.4	183.1
Florida	634.1	401.6
Georgia	383.5	203.1
Illinois	517.0	249.8
Indiana	476.4	260.1
Iowa	135.9	91.8
Kansas	209.0	106.3
Kentucky	54.1	43.8
Louisiana	179.5	114.3
Maryland	275.5	287.8
Massachusetts	132.7	120.3
Michigan	210.5	114.1
Minnesota	353.3	(NA)
Mississippi	53.2	8.0
Missouri	311.4	219.5
Nebraska	86.9	66.2
New Jersey	182.6	118.1
New York	401.2	271.2
North Carolina	103.9	67.5
Ohio	397.8	264.9
Oregon	112.9	41.2
Pennsylvania	207.1	195.6
South Carolina	177.0	165.1
Tennessee	269.6	124.0
Texas	928.3	612.8
Utah	51.3	96.5
Virginia	240.7	126.2
Washington	209.7	169.0
Wisconsin	203.9	(NA)
20865, SOFT DRINK FLAVORING SYRUP SOLD IN BULK		
United States	**1 052.4**	**879.4**
Alabama	14.6	27.5
Arizona	35.8	22.9
Arkansas	9.3	10.4
California	125.9	92.1
Colorado	4.3	26.7
Florida	41.0	59.2
Idaho	3.3	(NA)
Illinois	18.0	42.6
Iowa	20.6	14.3
Kansas	38.2	17.4
Kentucky	7.2	5.8
Louisiana	12.8	8.1
Maryland	19.8	12.5
Minnesota	16.3	(NA)
Mississippi	6.6	3.7
Missouri	37.4	36.7
New Jersey	50.9	(NA)
New York	23.7	31.3
North Carolina	33.0	16.8
Ohio	67.8	29.5
Oregon	25.7	11.6
Pennsylvania	18.0	28.6
South Carolina	16.1	16.1
Tennessee	38.8	10.8
Texas	106.5	73.4
Virginia	21.3	26.5
Washington	14.5	21.0
Wisconsin	16.0	5.2
20866, NONCARBONATED SOFT DRINKS		
United States	**3 899.4**	**2 426.6**
Alabama	6.7	8.0
Arizona	18.2	13.4
California	451.9	342.2
Colorado	4.1	(NA)
Connecticut	5.6	2.2
Florida	417.3	207.6
Georgia	59.2	22.1
Hawaii	28.2	16.1
Illinois	175.4	89.3
Indiana	106.9	103.4
Iowa	3.4	2.3
Kentucky	5.6	3.0
Louisiana	36.0	3.9
Maryland	30.0	7.8
Massachusetts	312.4	173.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20866, NONCARBONATED SOFT DRINKS—Con.		
Minnesota	4.7	(NA)
Mississippi	2.3	3.1
New Jersey	501.3	404.9
New York	207.0	69.7
North Carolina	27.3	51.3
Ohio	77.2	72.1
Oklahoma	5.1	2.5
Pennsylvania	357.2	89.5
South Carolina	4.1	3.7
Texas	224.0	180.7
Virginia	8.7	15.4
20871, FLAVORING EXTRACTS, EMULSIONS, AND OTHER LIQUID FLAVORS		
United States	**513.9**	**479.3**
California	51.4	45.7
Illinois	141.7	111.3
Louisiana	2.3	(NA)
Missouri	29.4	21.4
New Jersey	31.3	16.3
New York	13.2	37.3
Pennsylvania	49.4	(NA)
20872, LIQUID BEVERAGE BASES NOT FOR USE BY SOFT DRINK BOTTLERS		
United States	**158.8**	**73.4**
California	7.6	31.6
New Jersey	7.6	2.9
20873, LIQUID BEVERAGE BASES FOR USE BY SOFT DRINK BOTTLERS		
United States	**2 969.8**	**2 186.3**
California	295.2	275.8
Hawaii	20.4	(NA)
Louisiana	26.9	(NA)
New Jersey	15.7	35.2
20874, OTHER FLAVORING AGENTS (EXCEPT CHOCOLATE SYRUPS)		
United States	**2 697.0**	**1 813.7**
California	327.1	263.5
Florida	31.3	36.2
Illinois	538.2	460.5
Maryland	202.6	(NA)
Missouri	44.8	(NA)
New Jersey	168.4	95.4
New York	15.9	6.8
Ohio	336.1	143.7
Pennsylvania	31.4	14.6
Tennessee	20.3	(NA)
Wisconsin	34.1	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2082-	**Malt beverages**	**17 301.7**	**15 886.5**	**15 111.4**	**14 195.0**	**13 692.9**	**13 521.1**	**11 105.6**	**6 612.9**
20821	Canned beer and ale case goods	10 636.2	9 935.6	9 430.5	8 717.9	8 302.2	8 212.4	5 984.9	3 548.9
20822	Bottled beer and ale case goods	4 861.8	4 442.9	4 343.3	4 288.3	4 169.1	4 074.2	3 964.6	2 263.1
20823	Beer and ale in barrels and kegs	1 026.3	916.4	759.7	739.3	719.4	722.1	686.7	398.1
20824	All other malt beverages and brewing products	652.7	551.3	510.5	396.5	404.5	416.5	441.8	379.7
20820	Malt beverages, n.s.k.	124.7	40.4	67.5	52.9	97.8	95.9	27.6	23.1
2083-	**Malt**	**573.3**	**616.2**	**707.0**	**800.2**	**617.0**	**534.3**	**654.7**	**488.9**
20830	Malt and malt byproducts	573.3	616.2	707.0	800.2	617.0	534.3	654.7	488.9
2084-	**Wines, brandy, and brandy spirits**	**4 050.0**	**3 466.7**	**3 504.6**	**3 300.9**	**3 522.6**	**3 162.3**	**2 719.5**	**1 357.7**
20840	Wines, brandy, and brandy spirits	4 050.0	3 466.7	3 504.6	3 300.9	3 522.6	3 162.3	2 719.5	1 357.7
2085-	**Distilled and blended liquors**	**3 255.4**	**3 404.3**	**3 247.8**	**3 465.3**	**3 193.9**	**3 187.8**	**2 809.3**	**1 955.0**
20851	Distilled liquor, except brandy	643.6	606.0	439.2	453.8	439.6	454.0	345.4	205.7
20853	Bottled liquor, except brandy	2 584.0	2 743.2	2 769.1	2 975.5	2 660.4	2 664.8	2 411.3	1 703.3
20850	Distilled and blended liquors, n.s.k.	27.9	55.1	39.4	36.0	93.8	69.0	52.6	46.0
2086-	**Bottled and canned soft drinks**	**23 774.3**	**23 094.3**	**21 887.7**	**20 564.7**	**21 032.4**	**19 611.7**	**14 891.9**	**8 503.6**
20863	Bottled carbonated soft drinks	7 456.6	7 165.6	7 002.8	6 666.3	7 142.0	6 396.5	5 880.0	(NA)
20864	Canned carbonated soft drinks	9 941.3	10 026.7	9 439.7	8 649.9	7 973.5	7 030.1	4 515.2	(NA)
20865	Soft drink flavoring syrup sold in bulk	1 052.4	985.9	962.4	931.1	1 037.8	879.4	517.4	(NA)
20866	Noncarbonated soft drinks	3 899.4	3 332.2	3 049.3	2 618.0	2 636.0	2 426.6	1 085.0	(NA)
20860	Bottled and canned soft drinks, n.s.k.	1 424.6	1 583.8	1 433.5	1 699.3	2 243.0	2 879.1	2 894.3	(NA)
2087-	**Flavoring extracts and syrups, n.e.c.**	**6 784.4**	**5 712.1**	**5 558.3**	**5 161.3**	**5 212.6**	**4 925.6**	**4 455.8**	**2 620.7**
20871	Flavoring extracts, emulsions, and other liquid flavors	513.9	466.6	447.6	457.8	498.0	479.3	346.5	226.4
20872	Liquid beverage bases not for use by soft drink bottlers	158.8	137.4	122.5	106.6	84.0	73.4	177.9	213.0
20873	Liquid beverage bases for use by soft drink bottlers	2 969.8	2 261.2	2 302.4	2 204.0	2 385.2	2 186.3	1 850.5	919.6
20874	Other flavoring agents (except chocolate syrups)	2 697.0	2 542.0	2 388.3	2 110.1	1 861.8	1 813.7	1 758.3	1 062.7
20870	Flavoring extracts and syrups, n.e.c., n.s.k.	445.0	304.8	297.5	282.8	383.6	373.0	322.5	199.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2082, MALT BEVERAGES				
	Materials, ingredients, containers, and supplies	**(X)**	**6 864.3**	**(X)**	**6 025.0**
011913	Barley, mil bushels	15.5	69.3	(D)	(2)
011522	Corn, purchased as grain, mil bushels	(D)	(D)	13.5	50.3
204131	Corn grits, 1,000 cwt	7 043.6	66.2	(NA)	(2)
204132	Corn meal and flakes, 1,000 cwt	(D)	(D)	(NA)	(2)
208301	Malt, 1,000 cwt	50 252.1	721.1	40 612.7	553.4
	Sweeteners:				
204612	Dextrose and corn syrup, including corn syrup solids (in terms of dry weight), mil lb	605.4	68.5	(NA)	(2)
204604	High fructose corn syrup (HFCS)(in terms of solids), mil lb	(D)	(D)	(NA)	(2)
204611	Crystalline fructose (dry fructose), mil lb	–	–	(NA)	(2)
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	(D)	(D)	(D)	(2)
286932	Sugar substitutes (mannitol, sorbitol, etc.), 1,000 s tons	–	–	(NA)	(2)
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	563.5	(X)	433.6
322103	Glass containers, excluding those capitalized	(X)	1 470.0	(X)	1 285.1
341101	Metal cans, can lids and ends	(X)	2 815.1	(X)	2 772.3
970099	All other materials and components, parts, containers, and supplies	(X)	987.4	(X)	[2]883.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	55.3	(X)	47.1
	INDUSTRY 2083, MALT				
	Materials, ingredients, containers, and supplies	**(X)**	**345.5**	**(X)**	**328.7**
011913	Barley, mil bushels	128.9	326.9	123.3	314.4
970099	All other materials and components, parts, containers, and supplies	(X)	12.6	(X)	9.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	6.1	(X)	5.0
	INDUSTRY 2084, WINES, BRANDY, AND BRANDY SPIRITS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 207.3**	**(X)**	**1 758.1**
017211	Grapes, 1,000 s tons	3 031.0	778.8	2 612.2	493.9
	Purchased wines:				
208401	For blending, mil wine gal	239.0	352.4	226.1	299.7
208402	For other purposes, mil wine gal	(S)	13.2	1.7	5.1
322105	Glass containers used for wine and brandy, 1,000 gross	11 377.0	393.4	15 260.1	450.3
265021	Paperboard boxes and containers used for wine and brandy	(X)	36.7	(X)	26.7
970099	All other materials and components, parts, containers, and supplies	(X)	472.6	(X)	305.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	160.3	(X)	176.5
	INDUSTRY 2085, DISTILLED AND BLENDED LIQUORS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 196.1**	**(X)**	**[r]1 201.0**
	Materials used in grain distilling:				
011522	Corn, purchased as grain, mil bushels	*18.2	37.3	11.3	26.6
204131	Corn grits, 1,000 cwt	–	–	(NA)	(4)
204132	Corn meal and flakes, 1,000 cwt	–	–	(NA)	(4)
011001	Other grains (rye, barley, etc.), mil bushels	(D)	(5)	(NA)	(4)
208301	Malt, 1,000 cwt	494.3	8.0	**519.0	6.2
244950	Cooperage, millions	492.8	39.1	249.1	19.4
190017	All other materials, ingredients, and supplies consumed in distilling operations	(X)	[5]58.3	(X)	[4]6.2
	Materials used in the processing and bottling of distilled liquors:				
	Neutral spirits:				
208512	Used in the processing of whiskey, mil tax gal	14.7	11.0	19.7	15.4
208514	Used in the processing of vodka, mil tax gal	*78.7	86.3	68.9	82.3
208516	Used in the processing of gin, mil tax gal	31.4	24.6	30.0	23.1
208518	Used in the processing of other liquor, mil tax gal	23.9	106.2	27.4	117.1
208513	Aged whiskey, mil tax gal	44.4	154.4	61.0	189.2
265022	Paperboard boxes and containers for distilled liquor	(X)	23.5	(X)	15.0
308015	Plastics containers	(X)	26.5	(X)	(6)
322106	Glass containers used for distilled liquor	(X)	313.3	(X)	356.1
970099	All other materials and components, parts, containers, and supplies	(X)	291.9	(X)	[6]307.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	15.7	(X)	[r]36.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2086, BOTTLED AND CANNED SOFT DRINKS				
	Materials, ingredients, containers, and supplies	**(X)**	**14 351.9**	**(X)**	**r11 626.0**
	Sweeteners:				
206011	Sugar, cane and beet (in terms of sugar solids) — 1,000 s tons	(S)	26.3	*233.7	75.1
	High fructose corn syrup, in terms of solids:				
204605	Up to 50% fructose — mil lb	1 408.3	217.0	6 297.4	841.8
204606	50% or more fructose — mil lb	6 140.2	962.4		
200615	Other natural sweeteners (dextrose, honey, molasses, blends of corn sweeteners and sugar, etc.) in terms of solids — mil lb	234.5	45.0	*212.0	32.7
286934	Artificial sweeteners, in terms of solids — mil lb	*343.0	25.5	*172.8	13.5
	Liquid beverage bases, finished drink basis:				
208721	Concentrates with some juice content — mil cases, 192 oz case equiv	391.9	262.3	*389.9	318.3
208723	Other concentrates — mil cases, 192 oz case equiv	*5 224.1	3 399.9	2 939.9	2 163.4
208725	Syrups — mil cases, 192 oz case equiv	(S)	705.8	581.2	687.8
203348	Concentrated fruit juices — mil gal	**37.7	270.8	20.5	119.4
190050	Plastics wrappings, trays, carriers, etc., including preforms	(X)	273.6	(X)	182.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	361.2	(X)	174.3
308014	Plastics bottles and cans	(X)	1 153.1	(X)	1 074.4
322107	Refillable glass containers with or without paperboard wrapping	(X)	72.5	(X)	35.0
322108	Nonrefillable glass containers with or without paperboard wrapping or plastics shielding	(X)	717.6	(X)	626.4
341101	Metal cans, can lids and ends	(X)	3 342.6	(X)	2 560.9
970099	All other materials and components, parts, containers, and supplies	(X)	1 183.1	(X)	988.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 333.2	(X)	r1 734.8
	INDUSTRY 2087, FLAVORING EXTRACTS AND SYRUPS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 543.3**	**(X)**	**r1 309.8**
	Sweeteners:				
206011	Sugar, cane and beet (in terms of sugar solids) — 1,000 s tons	*146.3	72.6	104.0	54.6
	High fructose corn syrup, in terms of solids:				
204605	Up to 50% fructose — mil lb	208.9	32.3	1 481.2	210.8
204606	50% or more fructose — mil lb	(D)	(D)		
200615	Other natural sweeteners (dextrose, honey, molasses, blends of corn sweeteners and sugar, etc.) in terms of solids — mil lb	73.6	9.8	70.7	9.4
286934	Artificial sweeteners, in terms of solids — mil lb	2 027.7	128.1	1 842.0	117.6
	Liquid beverage bases, finished drink basis:				
208721	Concentrates with some juice content — mil cases, 192 oz case equiv	6.1	9.4	(S)	21.7
208723	Other concentrates — mil cases, 192 oz case equiv	3.1	117.2	(S)	73.0
208725	Syrups — mil cases, 192 oz case equiv	(D)	(D)	7.5	10.3
203348	Concentrated fruit juices — mil gal	4.2	34.9	3.3	28.7
190050	Plastics wrappings, trays, carriers, etc., including preforms	(X)	3.0	(X)	1.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	57.3	(X)	41.7
308014	Plastics bottles and cans	(X)	39.0	(X)	18.7
322107	Refillable glass containers with or without paperboard wrapping	(X)	1.2	(X)	5.9
322108	Nonrefillable glass containers with or without paperboard wrapping or plastics shielding	(X)	15.5	(X)	7.2
341101	Metal cans, can lids and ends	(X)	17.3	(X)	14.8
970099	All other materials and components, parts, containers, and supplies	(X)	664.7	(X)	535.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	151.9	(X)	r158.4

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data for material codes 011913, 204131, 204132, 204611, 204604, 204612, 206011, and 286932 were included with material code 970099.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, data for material codes 204131, 204132, and 011001 were included with material code 190017.
[5]For 1992, data for material code 011001 are included with material code 190017.
[6]For 1987, data for material code 308015 were included with material code 970099.

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Table 8. **Employees Engaged in Transportation: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting transportation employees			
				Total		Engaged in transportation	
		Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)
2082	Malt beverages	34.5	1 566.7	.8	25.3	.4	44.7
2086	Bottled and canned soft drinks	77.1	2 162.8	41.8	1 167.9	9.9	271.6

Note: Establishments in selected industries were instructed to report number of employees included in total employment that were engaged in delivery of products sold by that establishment and utilized as a separate work force.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
20489 41	20489 00
2048A 12	2048A 13
2048A 19	2048A 13
20511 21	20511 11
20511 22	20511 11
20511 27	20511 13
20511 29	20511 13
20511 31	20511 15
20511 33	20511 15
20511 35	20511 17
20511 37	20511 17
20511 41	20511 28
20511 42	20511 28
20512 30	20512 33
20512 31	20512 33
20512 43	20512 35
20512 44	20512 35
20512 50	20512 36
20512 51	20512 36
20512 60	20512 37
20512 61	20512 37
20512 70	20512 39
20512 71	20512 39
20512 80	20512 40
20512 81	20512 40
20512 90	20512 42
20512 91	20512 42
20522 16	20522 19
20522 17	20522 19
20522 18	20522 19
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20630 12	20630 07
20630 35	20630 89
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20630 76	20630 81
20630 91	20630 89
20752 97	20752 32
20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
20853 65	20853 63
20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
20922 19	20922 22
20923 21	20923 24
20923 21	20923 31
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20923 23	20923 25
20923 23	20923 35
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20952 00	20952 17
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20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
2099B 07	20997 41
2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
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2011B 99	2011B 59
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20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
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20321 98	20321 00
20323 73	20323 71
20323 74	20323 71
20324 61	20324 63
20324 62	20324 63
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20331 31	20331 59
20331 97	20331 59
20332 58	20332 98
20332 73	20332 98
20332 99	20332 98
20336 61	20336 67
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20336 65	20336 67
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20980 21	20980 02
20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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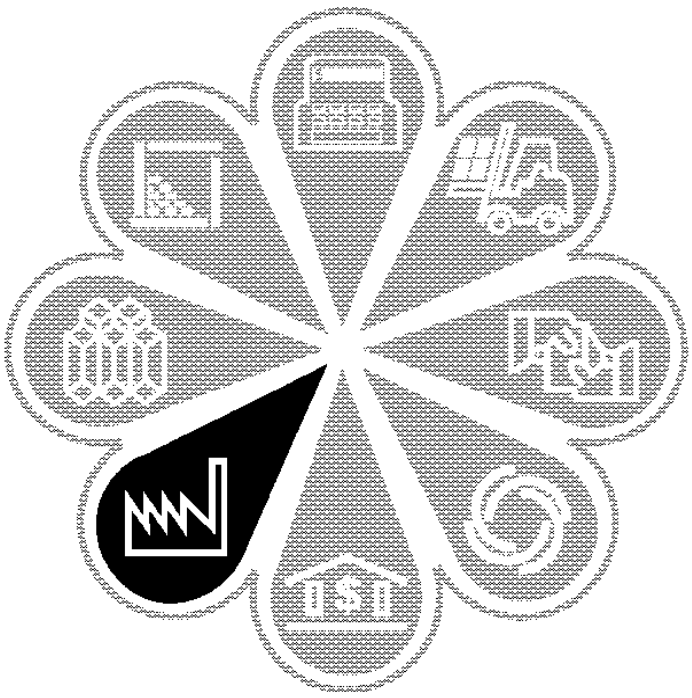
1992 Census of Manufactures

MC92-I-20I

INDUSTRY SERIES

Miscellaneous Food and Kindred Products

Industries 2091, 2092, 2095, 2096, 2097, 2098, and 2099



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2091	Canned and Cured Fish and Seafoods
2092	Fresh or Frozen Prepared Fish
2095	Roasted Coffee
2096	Potato Chips and Similar Snacks
2097	Manufactured Ice
2098	Macaroni and Spaghetti
2099	Food Preparations, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS

This industry is made up of establishments primarily engaged in cooking and canning fish, shrimp, crabs, and other seafoods. Also included in this industry are establishments primarily engaged in smoking, salting, drying, or otherwise curing fish and other seafoods. Establishments primarily engaged in shucking and packing fresh oysters in nonsealed containers or in preparing fresh fish are classified in industry 2092.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2091, Canned and Cured Fish and Seafoods, had employment of 7.0 thousand. The employment figure was 4 percent above the 6.7 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Alaska, Washington, and Maine, accounting for approximately 66 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $968.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2091 shipped $833.5 million of canned and cured fish and seafood products considered primary to the industry, $84.7 million of secondary products, and had $50.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 73 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 76 percent.

The products primary to industry 2091, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the canned and cured fish and seafood industry amounted to $606.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH

This industry is made up of establishments primarily engaged in preparing fresh or frozen fish. Also included in this industry are establishments primarily engaged in preparing surimi and surimi-based products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2092, Fresh or Frozen Prepared Fish, had employment of 41.3 thousand. The employment figure was 8 percent above the 38.2 thousand reported in 1987.

The leading States in employment in 1992 were Alaska, Washington, Mississippi, and Florida, accounting for approximately 53 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $7.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2092 shipped $6.3 billion of fresh or frozen prepared fish considered primary to the industry, $248.9 million of secondary products, and had $418.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2092, no matter in what industry they were produced, appear in table 6a and aggregate to $6.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fresh or frozen prepared fish industry amounted to $4.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2095, ROASTING COFFEE

This industry is made up of establishments primarily engaged in roasting coffee. Also included in this industry are establishments primarily engaged in manufacturing coffee concentrates and extracts in powdered, liquid, or frozen form, including freeze-dried. Coffee roasting by wholesale grocers is classified in wholesale trade, industry 5149.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2095, Roasted Coffee, had employment of 10.5 thousand. The employment figure was 2 percent below the 10.7 thousand reported in 1987.

The leading States in employment in 1992 were Texas, California, and New Jersey, accounting for approximately 38 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2095 shipped $4.7 billion of roasted coffee products considered primary to the industry, $397.3 million of secondary products, and had $219.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2095, no matter in what industry they were produced, appear in table 6a and aggregate to $4.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the roasted coffee industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS

This industry is made up of establishments primarily engaged in manufacturing potato chips, corn chips, and similar snacks. Establishments primarily engaged in manufacturing pretzels and crackers are classified in industry 2052. Establishments primarily engaged in manufacturing packaged unpopped popcorn are classified in industry 2099.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2096, Potato Chips and Similar Snacks, had employment of 34.9 thousand. The employment figure was 5 percent above the 33.1 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, California, and Texas, accounting for approximately 34 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 34 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2096 shipped $7.0 billion of potato chips and similar snacks considered primary to the industry, $108.5 million of secondary products, and had $261.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2096, no matter in what industry they were produced, appear in table 6a and aggregate to $7.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the potato chips and similar snacks industry amounted to $3.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2097, MANUFACTURED ICE

This industry is made up of establishments primarily engaged in manufacturing ice for sale. Establishments primarily engaged in manufacturing dry ice are classified in industry 2813.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2097, Manufactured Ice, had employment of 4.8 thousand. The employment figure was 2 percent above the 4.7 thousand reported in 1987. Compared with 1991, employment increased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, and Texas. These same States were the leaders in 1987 when they accounted for 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $358.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2097 shipped $341.8 million of manufactured ice products considered primary to the industry, less than $.1 million of

secondary products, and had $17.7 million of miscellaneous receipts, resales, and contract work. The ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 100 percent (specialization ratio). In 1987, the specialization ratio also was 100 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2097, no matter in what industry they were produced, appear in table 6a and aggregate to $345.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the manufactured ice industry amounted to $103.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 23 percent of the total value of shipments.

INDUSTRY 2098, MACARONI AND SPAGHETTI

This industry is made up of establishments primarily engaged in manufacturing dry macaroni, spaghetti, vermicelli, and noodles. Establishments primarily engaged in manufacturing canned macaroni and spaghetti are classified in industry 2032, and those manufacturing fried noodles such as chinese noodles are classified in industry 2099.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2098, Macaroni and Spaghetti, had employment of 5.9 thousand. The employment figure was 11 percent below the 6.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, New Jersey, and Missouri, accounting for approximately 31 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Illinois, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $1.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2098 shipped $1.3 billion of macaroni and spaghetti products considered primary to the industry, $75.4 million of secondary products, and had $44.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2098, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the macaroni and spaghetti industry amounted to $565.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing prepared foods and miscellaneous food specialties, not elsewhere classified, such as baking powder, yeast, peanut butter, packaged tea, and vinegar and cider. Establishments primarily engaged in manufacturing flour mixes are classified in industry group 204.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2099, Food Preparations, N.E.C., had employment of 61.4 thousand. The employment figure was 6 percent above the 58.0 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Texas, and New York, accounting for approximately 40 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $12.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2099 shipped $11.1 billion of food preparations, n.e.c.,

considered primary to the industry, $684.2 million of secondary products, and had $400.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 2099, no matter in what industry they were produced, appear in table 6a and aggregate to $14.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the food preparations, n.e.c., industry amounted to $6.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS															
1992 Census	143	158	61	7.0	132.7	5.5	10.3	87.8	362.0	606.5	968.4	20.1	164.9	91	73
1991 ASM	(NA)	(NA)	(NA)	6.9	134.2	5.4	10.5	84.3	350.4	678.2	1 029.2	26.5	165.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.1	122.8	5.7	10.3	80.5	303.2	695.2	998.2	33.1	220.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.4	108.5	5.2	9.7	74.3	241.2	594.1	837.8	16.8	210.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.6	101.3	5.4	9.2	67.5	313.1	533.7	844.1	13.1	152.7	(NA)	(NA)
1987 Census	153	175	81	6.7	100.9	5.4	9.2	70.9	283.3	482.4	767.0	14.4	142.4	88	76
1986 ASM	(NA)	(NA)	(NA)	4.4	71.4	3.7	6.5	49.5	186.1	354.2	539.7	14.8	118.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.8	84.5	5.0	9.1	59.6	227.4	471.6	697.0	11.6	159.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.4	183.9	9.8	20.9	136.6	479.9	1 028.9	1 506.9	11.0	418.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.6	199.2	10.7	19.5	151.3	620.7	1 211.5	1 836.8	20.6	411.5	(NA)	(NA)
1982 Census	170	204	107	13.9	194.9	12.1	21.1	150.6	613.4	1 235.3	1 849.1	20.5	495.6	(D)	91
1981 ASM	(NA)	(NA)	(NA)	15.3	206.7	13.6	24.2	165.5	752.2	1 620.1	2 587.7	37.6	570.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.6	198.7	14.1	25.3	164.3	425.5	1 540.1	1 958.8	26.3	505.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.1	178.9	14.3	25.1	144.9	479.4	1 320.9	1 800.3	35.8	393.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.6	173.2	14.7	27.7	136.2	393.8	1 250.7	1 643.5	36.4	347.9	(NA)	(NA)
1977 Census	215	255	118	16.0	147.0	13.8	25.0	113.4	441.0	1 000.4	1 440.6	28.1	311.1	81	96
INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH															
1992 Census	599	684	366	41.3	761.1	34.2	67.0	520.5	2 325.1	4 671.4	6 995.7	149.6	827.3	96	98
1991 ASM	(NA)	(NA)	(NA)	39.9	672.4	33.6	64.0	454.7	1 932.2	4 166.9	6 079.1	112.0	762.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	40.5	651.4	34.2	65.7	445.8	1 776.9	4 306.4	6 087.7	217.1	708.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	37.6	588.2	31.5	58.2	413.4	1 614.2	3 952.0	5 552.1	138.5	710.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	39.4	571.7	32.9	58.3	402.7	1 557.4	4 413.7	5 969.9	75.3	793.0	(NA)	(NA)
1987 Census	579	645	359	38.2	534.0	32.6	58.4	384.3	1 549.0	4 233.8	5 783.0	105.0	792.3	96	97
1986 ASM	(NA)	(NA)	(NA)	36.6	461.0	30.6	53.3	330.3	1 252.8	3 236.4	4 490.2	58.4	602.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	36.0	410.7	30.6	53.7	287.5	1 070.1	2 866.1	3 946.9	58.9	539.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	34.1	396.8	28.8	49.4	278.3	962.6	2 802.7	3 773.9	56.1	587.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	34.3	398.4	29.5	51.5	284.0	936.5	2 846.5	3 789.5	42.2	598.7	(NA)	(NA)
1982 Census	697	783	433	37.5	408.6	32.5	55.5	303.8	966.7	3 040.0	4 009.1	62.2	587.3	97	97
1981 ASM	(NA)	(NA)	(NA)	36.7	360.6	31.9	55.2	270.8	1 021.0	2 365.7	3 409.3	48.9	459.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.6	333.1	30.7	51.8	245.2	962.1	2 406.2	3 370.2	(S)	531.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	36.1	318.6	31.1	54.4	232.3	954.8	2 408.2	3 355.9	58.3	541.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	35.5	282.3	30.9	52.1	209.2	872.8	2 176.1	3 041.6	46.5	441.3	(NA)	(NA)
1977 Census	908	990	406	34.3	260.8	29.6	49.7	188.9	700.9	1 962.9	2 664.9	56.8	376.7	97	97
INDUSTRY 2095, ROASTED COFFEE															
1992 Census	134	172	90	10.5	340.0	6.6	14.0	192.6	2 752.5	2 530.0	5 292.8	149.1	302.1	92	99
1991 ASM	(NA)	(NA)	(NA)	10.6	324.4	6.8	14.2	188.9	2 868.4	3 035.2	5 919.9	126.6	322.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.2	326.7	6.9	14.4	180.5	3 581.8	3 004.9	6 622.7	114.6	402.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.5	303.1	6.5	13.5	172.3	2 658.1	3 491.6	6 167.2	120.9	459.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.7	315.6	6.7	12.6	173.4	2 795.8	3 526.8	6 332.4	123.2	494.1	(NA)	(NA)
1987 Census	110	141	82	10.7	303.0	6.6	13.6	170.5	2 589.8	3 775.2	6 400.6	155.2	524.6	94	99
1986 ASM	(NA)	(NA)	(NA)	11.5	307.1	7.4	15.2	179.5	2 444.7	5 140.2	7 544.0	147.3	575.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.4	294.5	7.5	15.0	178.1	2 445.8	4 211.2	6 677.1	138.9	498.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.1	279.2	7.2	14.5	171.7	2 220.2	4 178.3	6 378.4	134.1	492.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.1	265.1	6.9	13.8	155.4	2 115.0	3 710.8	5 808.5	96.1	446.9	(NA)	(NA)
1982 Census	118	152	85	11.8	265.7	7.4	15.0	157.1	2 070.3	3 749.0	5 826.9	80.5	413.5	94	99
1981 ASM	(NA)	(NA)	(NA)	11.8	243.4	7.2	14.3	139.7	1 915.5	3 791.4	5 717.1	103.8	361.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.1	224.3	7.7	14.7	132.7	1 902.1	4 459.9	6 341.5	76.2	435.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.4	198.9	7.2	14.8	117.6	1 748.3	4 222.5	5 944.8	60.4	379.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.8	178.0	7.2	14.0	104.0	1 652.1	4 342.0	6 011.0	45.8	359.9	(NA)	(NA)
1977 Census	133	167	89	10.9	164.8	7.2	15.0	103.2	988.0	4 643.4	5 616.4	41.9	405.3	96	98
INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS															
1992 Census	334	409	215	34.9	828.8	24.1	45.7	473.2	3 912.8	3 409.2	7 324.7	259.1	196.1	98	92
1991 ASM	(NA)	(NA)	(NA)	34.0	767.0	22.9	42.5	428.5	3 108.3	3 537.5	6 646.4	189.2	187.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.3	696.5	21.4	42.0	381.3	2 906.3	3 156.2	6 062.1	161.7	182.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.0	640.5	23.8	39.4	364.2	2 608.1	3 187.1	5 788.8	125.9	195.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	34.1	653.0	24.0	39.8	387.4	3 474.4	1 905.5	5 384.9	102.6	176.4	(NA)	(NA)
1987 Census	277	344	183	33.1	622.3	23.2	38.6	375.1	3 306.8	1 750.2	5 040.8	181.3	190.0	98	94
INDUSTRY 2097, MANUFACTURED ICE															
1992 Census	513	562	59	4.8	93.3	2.9	6.1	48.4	255.1	103.6	358.8	13.8	18.5	100	99
1991 ASM	(NA)	(NA)	(NA)	4.1	77.2	2.9	6.1	46.2	241.1	81.9	324.0	21.0	9.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.4	78.1	3.0	6.1	47.2	238.0	89.2	326.7	29.8	14.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.0	94.7	3.2	6.1	59.3	261.8	96.4	355.4	18.0	21.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.7	83.1	2.7	5.9	43.7	209.0	71.6	280.7	9.9	13.0	(NA)	(NA)
1987 Census	503	549	65	4.7	77.0	2.8	5.9	41.8	202.9	86.7	289.6	14.0	12.7	100	98
1986 ASM	(NA)	(NA)	(NA)	4.6	65.9	2.6	4.3	36.6	148.5	75.0	223.6	19.8	5.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.6	69.4	2.2	3.8	35.2	151.1	79.7	230.9	32.1	6.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.6	69.1	2.4	3.6	34.7	144.2	71.6	217.1	26.3	7.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.1	66.7	2.7	4.9	37.6	172.3	82.5	252.0	8.7	16.4	(NA)	(NA)
1982 Census	530	596	64	5.0	65.1	3.0	5.5	35.9	152.6	79.0	229.5	13.4	9.4	100	98
1981 ASM	(NA)	(NA)	(NA)	5.3	64.5	3.1	7.0	37.2	147.2	53.2	200.4	17.9	7.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	56.8	3.1	7.3	34.0	120.2	50.5	169.6	(S)	8.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.6	53.4	3.7	8.4	30.0	118.4	39.5	157.2	10.6	7.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.2	45.8	3.7	6.7	21.3	97.2	52.8	149.2	23.5	5.8	(NA)	(NA)
1977 Census	543	678	63	5.3	47.8	3.5	6.7	25.5	106.1	43.6	149.4	16.9	4.4	99	99

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 2098, MACARONI AND SPAGHETTI														
1992 Census	182	199	41	5.9	146.8	4.6	10.2	104.6	830.8	565.1	1 389.5	74.7	97.2	94	99
1991 ASM	(NA)	(NA)	(NA)	6.4	149.2	4.9	10.3	103.9	749.3	527.0	1 276.8	96.5	88.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.2	142.4	4.8	10.0	100.7	728.7	507.6	1 229.6	46.8	81.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.0	132.0	4.6	9.7	92.2	642.3	512.6	1 154.0	44.5	73.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.3	135.1	4.8	9.6	91.8	639.0	480.1	1 119.5	35.5	72.3	(NA)	(NA)
1987 Census	196	218	48	6.6	140.0	5.0	9.8	90.8	614.0	435.1	1 048.1	32.2	77.5	96	99
	INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.														
1992 Census	1 644	1 800	637	61.4	1 412.4	43.7	86.4	796.2	5 883.5	6 313.4	12 170.2	332.3	1 163.0	94	78
1991 ASM	(NA)	(NA)	(NA)	54.7	1 193.2	37.5	74.9	678.1	5 665.7	5 728.7	11 322.4	296.0	1 096.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	55.7	1 190.0	38.1	78.1	658.7	5 458.3	5 590.8	11 047.6	251.7	1 001.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	55.9	1 085.8	39.4	75.7	630.3	5 049.2	5 077.4	10 083.6	202.9	883.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	57.0	1 129.6	40.3	73.9	648.6	5 333.8	4 832.5	10 166.9	204.5	866.1	(NA)	(NA)
1987 Census	1 510	1 658	633	58.0	1 109.8	40.8	77.5	651.5	5 126.4	4 702.6	9 787.3	247.5	868.7	91	80

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS								
1992 Census	18 957	79	1 873	8.52	63	76	51 714	37	35.15
1991 ASM	19 449	78	1 944	8.03	66	79	50 783	38	33.37
1990 ASM	17 296	80	1 807	7.82	70	82	42 704	41	29.44
1989 ASM	16 953	81	1 865	7.66	71	84	37 688	45	24.87
1988 ASM	15 348	82	1 704	7.34	63	75	47 439	32	34.03
1987 Census	15 060	81	1 704	7.71	63	76	42 284	36	30.79
1986 ASM	16 227	84	1 757	7.62	66	79	42 295	38	28.63
1985 ASM	14 569	86	1 820	6.55	68	80	39 207	37	24.99
1984 ASM	16 132	86	2 133	6.54	68	80	42 096	38	22.96
1983 ASM	15 810	85	1 822	7.76	66	77	49 262	32	31.83
1982 Census	14 022	87	1 744	7.14	67	77	44 129	32	29.07
1981 ASM	13 510	89	1 779	6.84	63	71	49 163	27	31.08
1980 ASM	12 737	90	1 794	6.49	79	89	27 276	47	16.82
1979 ASM	11 112	89	1 755	5.77	73	83	29 776	37	19.10
1978 ASM	10 434	89	1 884	4.92	76	87	23 723	44	14.22
1977 Census	9 188	86	1 812	4.54	69	80	27 563	33	17.64
	INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH								
1992 Census	18 429	83	1 959	7.77	67	78	56 298	33	34.70
1991 ASM	16 852	84	1 905	7.10	69	80	48 426	35	30.19
1990 ASM	16 084	84	1 921	6.79	71	81	43 874	37	27.05
1989 ASM	15 644	84	1 848	7.10	71	82	42 931	36	27.74
1988 ASM	14 510	84	1 772	6.91	74	84	39 528	37	26.71
1987 Census	13 979	85	1 791	6.58	73	82	40 550	34	26.52
1986 ASM	12 596	84	1 742	6.20	72	82	34 230	37	23.50
1985 ASM	11 408	85	1 755	5.35	73	83	29 725	38	19.93
1984 ASM	11 636	84	1 715	5.63	74	85	28 229	41	19.49
1983 ASM	11 615	86	1 746	5.51	75	86	27 303	43	18.18
1982 Census	10 896	87	1 708	5.47	76	86	25 779	42	17.42
1981 ASM	9 826	87	1 730	4.91	69	80	27 820	35	18.50
1980 ASM	9 357	86	1 687	4.73	71	81	27 025	35	18.57
1979 ASM	8 825	86	1 749	4.27	72	81	26 449	33	17.55
1978 ASM	7 952	87	1 686	4.02	72	81	24 586	32	16.75
1977 Census	7 603	86	1 679	3.80	74	83	20 434	37	14.10

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2095, ROASTED COFFEE								
1992 Census	32 381	63	2 121	13.76	48	54	262 143	12	196.61
1991 ASM	30 604	64	2 088	13.30	51	57	270 604	11	202.00
1990 ASM	29 170	62	2 087	12.53	45	50	319 804	9	248.74
1989 ASM	28 867	62	2 077	12.76	57	62	253 152	11	196.90
1988 ASM	29 495	63	1 881	13.76	56	61	261 290	11	221.89
1987 Census	28 318	62	2 061	12.54	59	64	242 037	12	190.43
1986 ASM	26 704	64	2 054	11.81	68	72	212 583	13	160.84
1985 ASM	25 833	66	2 000	11.87	63	67	214 544	12	163.05
1984 ASM	25 153	65	2 014	11.84	66	70	200 018	13	153.12
1983 ASM	23 883	62	2 000	11.26	64	68	190 541	13	153.26
1982 Census	22 517	63	2 027	10.47	64	69	175 449	13	138.02
1981 ASM	20 627	61	1 986	9.77	66	71	162 331	13	133.95
1980 ASM	18 537	64	1 909	9.03	70	74	157 198	12	129.39
1979 ASM	17 447	63	2 056	7.95	71	74	153 360	11	118.13
1978 ASM	15 085	61	1 944	7.43	72	75	140 008	11	118.01
1977 Census	15 119	66	2 083	6.88	83	86	90 642	17	65.87
	INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS								
1992 Census	23 748	69	1 896	10.35	47	58	112 115	21	85.62
1991 ASM	22 559	67	1 856	10.08	53	65	91 421	25	73.14
1990 ASM	21 563	66	1 963	9.08	52	64	89 978	24	69.20
1989 ASM	18 838	70	1 655	9.24	55	66	76 709	25	66.20
1988 ASM	19 150	70	1 658	9.73	35	48	101 889	19	87.30
1987 Census	18 801	70	1 664	9.72	35	47	99 903	19	85.67
	INDUSTRY 2097, MANUFACTURED ICE								
1992 Census	19 438	60	2 103	7.93	29	55	53 146	37	41.82
1991 ASM	18 829	71	2 103	7.57	25	49	58 805	32	39.52
1990 ASM	17 750	68	2 033	7.74	27	51	54 091	33	39.02
1989 ASM	18 940	64	1 906	9.72	27	54	52 360	36	42.92
1988 ASM	17 681	57	2 185	7.41	26	55	44 468	40	35.42
1987 Census	16 383	60	2 107	7.08	30	57	43 170	38	34.39
1986 ASM	14 326	57	1 654	8.51	34	63	32 283	44	34.53
1985 ASM	15 087	48	1 727	9.26	35	65	32 848	46	39.76
1984 ASM	15 022	52	1 500	9.64	33	65	31 348	48	40.06
1983 ASM	13 078	53	1 815	7.67	33	59	33 784	39	35.16
1982 Census	13 020	60	1 833	6.53	34	63	30 520	43	27.75
1981 ASM	12 170	58	2 258	5.31	27	59	27 774	44	21.03
1980 ASM	11 137	61	2 355	4.66	30	63	23 569	47	16.47
1979 ASM	9 536	66	2 270	3.57	25	59	21 143	45	14.10
1978 ASM	8 808	71	1 811	3.18	35	66	18 692	47	14.51
1977 Census	9 019	66	1 914	3.81	29	61	20 019	45	15.84
	INDUSTRY 2098, MACARONI AND SPAGHETTI								
1992 Census	24 881	78	2 217	10.25	41	51	140 814	18	81.45
1991 ASM	23 313	77	2 102	10.09	41	53	117 078	20	72.75
1990 ASM	22 968	77	2 083	10.07	41	53	117 532	20	72.87
1989 ASM	22 000	77	2 109	9.51	44	56	107 050	21	66.22
1988 ASM	21 444	76	2 000	9.56	43	55	101 429	21	66.56
1987 Census	21 212	76	1 960	9.27	42	55	93 030	23	62.65
	INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.								
1992 Census	23 003	71	1 977	9.22	52	63	95 822	24	68.10
1991 ASM	21 814	69	1 997	9.05	51	61	103 578	21	75.64
1990 ASM	21 364	68	2 050	8.43	51	61	97 995	22	69.89
1989 ASM	19 424	70	1 921	8.33	50	61	90 326	22	66.70
1988 ASM	19 818	71	1 834	8.78	48	59	93 575	21	72.18
1987 Census	19 134	70	1 900	8.41	48	59	88 386	22	66.15

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992											1987	
		All establishments		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS														
United States	–	**158**	**61**	**7.0**	**132.7**	**5.5**	**10.3**	**87.8**	**362.0**	**606.5**	**968.4**	**20.1**	**6.7**	**283.3**
Alaska	–	21	11	1.0	21.9	.7	2.0	15.6	65.1	129.8	194.9	2.6	.9	58.0
California	–	17	7	1.7	36.3	1.5	2.9	29.1	94.3	158.7	253.0	4.2	G	(D)
Delaware	E1	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Louisiana	E2	8	2	.1	2.1	.1	.2	1.3	8.1	15.5	23.6	(D)	E	(D)
Maine	–	16	8	.9	10.0	.8	1.2	7.8	25.1	23.0	48.1	.9	1.0	30.7
New Jersey	–	8	5	.7	12.2	.5	.8	6.9	39.5	49.5	89.0	4.6	.5	25.7
New York	–	5	3	.3	7.8	.2	.4	4.1	27.3	50.7	77.8	.5	E	(D)
Washington	E1	29	11	1.0	17.8	.6	1.1	9.9	34.7	63.8	98.5	(D)	.8	36.1
INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH														
United States	**E1**	**684**	**366**	**41.3**	**761.1**	**34.2**	**67.0**	**520.5**	**2 325.1**	**4 671.4**	**6 995.7**	**149.6**	**38.2**	**1 549.0**
Alabama	–	17	10	1.6	18.7	1.4	2.3	13.2	48.2	123.1	171.4	4.0	1.5	25.9
Alaska	–	84	59	8.0	167.9	6.9	14.0	134.7	455.7	753.1	1 210.4	53.4	H	(D)
Arkansas	E2	5	3	.3	4.1	.3	.6	3.3	22.5	23.7	46.1	.6	(NA)	(NA)
California	E2	52	34	3.0	52.8	2.5	4.4	33.2	138.3	300.3	436.8	6.9	3.1	110.8
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	56	25	3.1	51.0	2.5	5.4	32.4	177.6	334.4	511.7	4.2	4.9	144.7
Georgia	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Hawaii	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Louisiana	E1	57	23	1.6	17.9	1.3	2.2	12.5	46.4	121.1	167.5	5.7	1.1	34.5
Maine	E3	14	2	.1	2.5	.1	.2	1.1	6.0	11.9	17.9	(D)	F	(D)
Maryland	–	30	9	1.0	16.7	.8	1.5	11.0	38.1	139.2	177.3	4.9	1.1	16.7
Massachusetts	–	42	21	2.2	72.0	1.5	3.2	34.2	268.1	695.6	967.4	4.9	H	(D)
Minnesota	–	7	4	.6	11.2	.5	1.1	6.2	47.5	49.9	97.3	2.3	.3	4.6
Mississippi	–	27	19	3.7	49.9	3.2	6.9	32.3	112.2	250.2	362.3	7.4	H	(D)
New Hampshire	E3	10	4	.5	10.6	.4	.9	8.3	26.6	80.4	107.0	3.1	(NA)	(NA)
New Jersey	–	9	4	.5	10.5	.4	1.0	7.5	23.1	61.8	84.5	1.6	F	(D)
North Carolina	E4	31	19	1.0	10.8	.8	1.2	7.2	19.8	40.6	60.3	.7	.9	20.7
Oregon	E1	22	14	1.3	20.5	1.1	2.0	15.6	58.9	106.1	164.9	3.1	1.4	56.8
Pennsylvania	–	4	4	1.0	26.7	.8	1.5	16.7	134.3	240.9	373.2	3.5	1.2	159.4
Rhode Island	–	5	2	.2	3.3	.1	.3	2.1	7.6	14.2	21.8	(D)	.3	10.2
Texas	E2	25	12	1.1	14.2	.9	1.5	9.5	29.8	85.2	114.9	6.6	F	(D)
Virginia	E1	50	19	1.3	16.2	1.1	1.6	11.6	47.4	65.8	113.2	6.5	G	(D)
Washington	E1	87	64	7.2	146.1	6.2	12.4	108.3	489.6	958.9	1 447.3	22.0	3.7	172.5
INDUSTRY 2095, ROASTED COFFEE														
United States	–	**172**	**90**	**10.5**	**340.0**	**6.6**	**14.0**	**192.6**	**2 752.5**	**2 530.0**	**5 292.8**	**149.1**	**10.7**	**2 589.8**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	31	16	1.4	51.5	1.0	2.0	31.0	512.8	440.6	956.1	16.5	1.3	390.7
Colorado	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	14	6	.7	22.7	.4	1.0	11.7	277.2	244.8	522.7	(D)	F	(D)
Hawaii	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E4	9	5	.5	14.4	.3	.7	8.6	45.9	108.1	154.1	2.0	E	(D)
Indiana	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	8	5	.8	23.4	.6	1.3	17.1	438.2	284.2	727.0	(D)	F	(D)
Maryland	E2	3	1	.1	2.4	.1	.3	1.9	27.2	28.7	55.6	1.1	(NA)	(NA)
Massachusetts	E1	3	3	.3	10.0	.1	.2	2.0	21.4	51.0	72.4	(D)	E	(D)
Missouri	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.7	E	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	9	8	1.2	36.2	.8	1.5	23.6	151.2	227.5	385.3	16.0	2.2	416.9
New York	E2	15	9	.6	17.7	.3	.6	7.0	81.5	80.6	162.5	2.9	.5	60.1
North Carolina	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	8	3	.4	12.1	.3	.5	7.2	66.3	97.4	163.8	(D)	E	(D)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
South Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Tennessee	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Texas	–	7	4	1.4	59.5	1.1	2.5	44.1	499.8	469.9	971.7	(D)	1.3	440.5
Virginia	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/13/95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 4
TSF:20I_92.DAT;2 3/13/95 14:02:33 UTF:20I_93.DAT;2 3/13/95 14:02:34 META:TIPS96-14022109.DAT;1 3/13/95 14:03:38

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS														
United States	–	**409**	**215**	**34.9**	**828.8**	**24.1**	**45.7**	**473.2**	**3 912.8**	**3 409.2**	**7 324.7**	**259.1**	**33.1**	**3 306.8**
Alabama	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	E1	10	5	.6	13.4	.4	.8	8.6	83.9	38.9	122.8	(D)	(NA)	(NA)
Arkansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	54	26	3.6	93.5	2.4	4.3	48.5	366.7	367.1	732.9	11.9	3.0	310.8
Colorado	E1	11	5	.4	10.9	.3	.6	5.7	42.4	45.7	88.6	(D)	.5	37.7
Connecticut	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	10	6	.8	20.0	.6	1.2	12.3	86.3	94.8	181.2	(D)	F	(D)
Georgia	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Hawaii	E2	5	1	.2	8.2	.1	.2	2.1	11.2	4.6	15.7	(D)	.3	15.9
Illinois	–	22	11	1.1	20.8	.7	1.7	12.8	78.9	81.6	160.5	10.6	G	(D)
Indiana	–	12	7	2.0	48.8	1.6	3.0	34.2	317.4	242.2	559.4	(D)	G	(D)
Iowa	–	9	4	.4	8.9	.2	.4	3.3	45.8	16.5	62.6	(D)	E	(D)
Kansas	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	6	5	.8	19.6	.6	1.3	11.3	77.3	69.2	146.4	6.4	F	(D)
Maine	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	10	6	.6	14.5	.3	.6	5.8	37.2	30.8	67.9	1.1	F	(D)
Michigan	–	14	7	.9	25.1	.6	1.2	15.7	88.1	84.1	171.9	6.6	.9	95.2
Minnesota	–	5	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nebraska	–	4	3	.2	2.8	.1	.2	1.6	14.3	12.1	26.7	(D)	E	(D)
New Mexico	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	14	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.6	F	(D)
North Carolina	–	8	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	27	17	1.6	37.5	1.0	2.0	20.1	144.5	157.0	301.5	7.4	G	(D)
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	4	3	.5	11.8	.3	.5	4.7	35.0	37.0	72.0	(D)	E	(D)
Pennsylvania	–	36	26	5.2	117.5	3.5	6.6	64.1	459.6	353.5	814.4	25.5	4.9	319.9
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Tennessee	–	9	6	1.3	31.8	.9	1.7	18.7	195.2	208.2	403.1	(D)	1.3	143.4
Texas	–	56	19	3.1	73.8	2.4	4.4	49.2	494.3	395.5	890.4	(D)	3.3	417.8
Utah	E2	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	12	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2097, MANUFACTURED ICE														
United States	**E2**	**562**	**59**	**4.8**	**93.3**	**2.9**	**6.1**	**48.4**	**255.1**	**103.6**	**358.8**	**13.8**	**4.7**	**202.9**
Arizona	E2	12	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.8
California	E4	37	9	.5	12.3	.4	.7	6.9	29.1	14.9	44.0	1.9	F	(D)
Florida	E1	37	6	.3	6.5	.2	.5	3.4	19.1	8.2	27.3	(D)	.3	11.7
Georgia	E1	17	–	.1	2.2	.1	.2	1.4	8.3	3.3	11.7	.4	C	(D)
Indiana	E4	18	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	C	(D)
Louisiana	E3	24	1	.1	2.1	.1	.2	1.2	6.4	2.9	9.3	.2	E	(D)
Minnesota	–	9	1	.2	1.7	.1	.1	.5	5.7	1.3	7.0	.4	(NA)	(NA)
Missouri	–	17	2	.2	3.2	.1	.2	1.7	7.6	2.5	10.1	(D)	(NA)	(NA)
New York	E1	22	2	.1	3.7	.1	.2	1.6	10.5	2.8	13.2	.5	(NA)	(NA)
North Carolina	–	16	3	.2	4.0	.1	.2	1.5	7.4	5.5	13.0	.2	C	(D)
Ohio	E7	19	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	26	2	.1	2.6	.1	.2	1.2	10.0	3.0	13.1	.2	(NA)	(NA)
Texas	E1	65	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	F	(D)
Virginia	E3	14	1	.1	1.9	.1	.1	1.0	4.1	1.6	5.8	.3	(NA)	(NA)
INDUSTRY 2098, MACARONI AND SPAGHETTI														
United States	–	**199**	**41**	**5.9**	**146.8**	**4.6**	**10.2**	**104.6**	**830.8**	**565.1**	**1 389.5**	**74.7**	**6.6**	**614.0**
Alabama	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	38	3	.4	10.3	.3	.8	7.5	52.2	28.4	81.4	7.0	F	(D)
Illinois	E1	9	2	.3	6.2	.2	.5	4.1	20.0	17.6	37.6	.9	E	(D)
Iowa	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E2	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Massachusetts	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Minnesota	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Nebraska	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	E	(D)
New Jersey	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	37	4	.7	16.3	.5	1.3	13.1	75.3	50.3	125.8	1.3	.8	80.6
North Dakota	E1	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Ohio	E1	6	2	.1	3.0	.1	.2	1.9	10.2	7.5	17.6	.6	C	(D)
Pennsylvania	–	13	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/13/95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 5
TSF:20I_92.DAT;2 3/13/95 14:02:33 UTF:20I_93.DAT;2 3/13/95 14:02:34 META:TIPS96-14022109.DAT;1 3/13/95 14:03:38

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.														
United States	**E1**	**1 800**	**637**	**61.4**	**1 412.4**	**43.7**	**86.4**	**796.2**	**5 883.5**	**6 313.4**	**12 170.2**	**332.3**	**58.0**	**5 126.4**
Alabama	E3	16	7	.7	15.2	.4	.8	6.2	36.1	71.8	108.1	6.2	.8	34.1
Arizona	E5	30	10	.9	13.4	.6	1.2	7.0	37.5	41.4	78.9	3.6	.6	22.5
Arkansas	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	95.2
California	E1	337	137	12.4	246.0	8.9	17.6	145.3	1 052.1	894.6	1 932.3	44.3	11.8	865.0
Colorado	E1	37	17	1.5	29.8	1.1	1.9	14.0	98.5	86.8	184.7	5.4	.8	54.2
Connecticut	E1	15	4	.3	8.9	.2	.4	3.8	16.1	13.2	29.2	2.0	E	(D)
Delaware	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	E1	51	10	.7	13.6	.4	.9	7.9	64.9	55.7	121.3	2.2	F	(D)
Georgia	–	37	15	1.6	39.0	1.1	2.2	22.7	163.7	360.9	526.2	7.3	1.9	163.5
Hawaii	E4	42	8	.6	11.2	.4	.7	5.4	32.0	29.3	60.7	1.0	.6	25.3
Idaho	E2	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	97	40	5.2	138.1	3.5	7.2	70.7	531.6	502.4	1 032.1	32.1	H	(D)
Indiana	E1	27	12	1.7	39.5	1.3	2.6	23.5	217.2	147.3	368.7	7.7	2.8	403.9
Iowa	–	16	8	1.0	25.5	.7	1.4	13.6	92.5	184.6	271.2	6.0	.8	64.8
Kansas	–	19	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	13	9	.8	25.1	.6	1.3	14.1	150.7	311.0	456.4	9.1	.6	100.4
Louisiana	E4	28	14	1.0	20.4	.7	1.5	12.2	91.9	84.7	176.5	(D)	.6	49.0
Maryland	–	32	11	2.1	88.2	1.3	2.3	38.7	339.6	417.2	746.6	21.0	2.3	340.3
Massachusetts	E4	37	12	.7	17.6	.5	1.0	10.1	78.8	57.4	136.8	5.9	F	(D)
Michigan	E2	55	18	1.3	23.8	1.0	1.8	13.2	96.3	89.7	186.2	3.6	1.2	65.4
Minnesota	E1	42	15	1.2	34.1	1.0	2.0	18.6	121.2	93.2	219.5	(D)	1.2	89.3
Mississippi	–	8	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E1	24	7	.5	11.3	.4	.8	7.5	43.3	171.7	212.3	(D)	.5	37.3
Nebraska	E7	13	4	.2	4.6	.1	.2	2.3	9.8	29.5	39.4	(D)	.2	10.2
Nevada	E3	10	2	.2	3.4	.1	.2	2.5	13.2	13.1	26.4	.8	E	(D)
New Jersey	E1	54	20	1.7	45.1	1.2	2.4	24.8	113.2	187.8	296.9	10.7	2.0	123.8
New Mexico	E1	21	5	.4	6.3	.3	.5	3.3	29.0	19.3	39.1	1.2	E	(D)
New York	E3	111	30	2.7	62.9	1.7	3.6	30.7	197.5	202.8	399.1	8.5	3.6	245.2
North Carolina	–	27	13	1.6	30.1	1.2	2.2	20.6	62.8	85.0	147.5	11.6	F	(D)
North Dakota	–	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	53	22	2.1	49.6	1.4	2.9	25.3	264.0	201.1	472.4	7.0	1.7	153.6
Oklahoma	E3	17	5	.4	10.3	.3	.5	4.6	14.6	44.3	58.9	1.0	.3	8.2
Oregon	E1	35	6	.7	14.7	.5	1.0	8.3	65.3	53.7	118.9	2.9	.5	38.7
Pennsylvania	E1	66	25	1.8	39.8	1.2	2.3	22.0	167.0	189.8	360.7	7.0	2.1	223.2
South Carolina	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	30	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.6	.8	57.3
Texas	E2	174	51	4.3	72.4	3.1	6.5	43.3	229.9	249.3	489.6	14.6	4.1	254.3
Utah	E1	9	3	.2	3.9	.1	.1	.9	9.1	11.1	20.4	.8	E	(D)
Vermont	E4	16	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	E1	20	13	1.7	47.6	1.3	3.0	34.5	367.2	277.7	642.2	18.3	1.2	287.8
Washington	E2	55	17	1.4	32.8	.9	1.7	16.7	103.2	107.3	209.6	7.6	1.1	69.6
Wisconsin	E1	54	22	1.8	47.1	1.3	2.5	27.3	217.6	205.8	421.6	(D)	1.2	131.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Canned and cured fish and seafoods (SIC 2091)	Fresh or frozen prepared fish (SIC 2092)	Roasted coffee (SIC 2095)	Potato chips and similar snacks (SIC 2096)	Manufactured ice (SIC 2097)	Macaroni and spaghetti (SIC 2098)	Food preparations, n.e.c. (SIC 2099)
Companies	number	143	599	134	334	513	182	1 644
All establishments	number	158	684	172	409	562	199	1 800
With 1 to 19 employees	number	97	318	82	194	503	158	1 163
With 20 to 99 employees	number	40	244	58	124	55	22	479
With 100 employees or more	number	21	122	32	91	4	19	158
Employment and labor costs:								
Employees	1,000	7.0	41.3	10.5	34.9	4.8	5.9	61.4
Compensation, total	mil dol	165.2	925.1	433.5	1 059.7	114.9	188.1	1 744.2
Annual payroll	mil dol	132.7	761.1	340.0	828.8	93.3	146.8	1 412.4
Fringe benefits	mil dol	32.5	164.0	93.5	230.9	21.6	41.3	331.8
Social Security and other legally required payments	mil dol	18.4	93.5	33.1	100.0	10.8	19.2	144.6
Employer voluntary payments	mil dol	14.2	70.5	60.4	130.9	10.8	22.1	187.2

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned and cured fish and seafoods (SIC 2091)	Fresh or frozen prepared fish (SIC 2092)	Roasted coffee (SIC 2095)	Potato chips and similar snacks (SIC 2096)	Manufactured ice (SIC 2097)	Macaroni and spaghetti (SIC 2098)	Food preparations, n.e.c. (SIC 2099)
Production workers:							
Average for year ---- 1,000	5.5	34.2	6.6	24.1	2.9	4.6	43.7
March ---- 1,000	4.6	34.3	6.7	23.8	2.5	4.7	43.2
May ---- 1,000	5.1	33.6	6.4	24.3	3.1	4.6	43.6
August ---- 1,000	7.5	38.3	6.5	24.7	3.8	4.6	44.2
November ---- 1,000	4.7	30.6	6.6	23.7	2.3	4.6	44.1
Hours ---- millions	10.3	67.0	14.0	45.7	6.1	10.2	86.4
Wages ---- mil dol	87.8	520.5	192.6	473.2	48.4	104.6	796.2
Cost of materials[1] ---- mil dol	606.5	4 671.4	2 530.0	3 409.2	103.6	565.1	6 313.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	556.1	4 165.0	2 319.1	3 144.6	75.0	506.4	5 809.5
Resales ---- mil dol	28.3	363.9	144.3	164.9	12.2	32.7	290.6
Fuels ---- mil dol	9.2	45.9	24.5	52.1	2.3	6.9	55.8
Purchased electricity ---- mil dol	8.1	57.5	31.8	37.8	12.9	16.7	113.4
Contract work ---- mil dol	4.8	39.0	10.4	9.8	1.2	2.6	44.1
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	109.5	854.2	530.0	669.5	200.6	254.1	1 898.9
Generated less sold ---- mil kWh	(D)	(D)	–	(D)	–	(D)	(D)
Total value of shipments ---- mil dol	968.4	6 995.7	5 292.8	7 324.7	358.8	1 389.5	12 170.2
Value added ---- mil dol	362.0	2 325.1	2 752.5	3 912.8	255.1	830.8	5 883.5
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	163.6	796.0	324.5	203.6	19.1	86.1	1 136.7
Finished goods ---- mil dol	113.9	515.6	131.4	65.9	8.3	52.2	453.1
Work in process ---- mil dol	6.1	40.8	25.6	6.3	.8	1.4	82.4
Materials and supplies ---- mil dol	43.5	239.6	167.5	131.4	10.0	32.6	601.2
End of 1992 ---- mil dol	164.9	827.3	302.1	196.1	18.5	97.2	1 163.0
Finished goods ---- mil dol	120.5	574.5	120.7	63.5	8.2	58.3	466.1
Work in process ---- mil dol	6.2	41.6	26.1	6.0	.8	1.7	96.0
Materials and supplies ---- mil dol	38.2	211.3	155.4	126.5	9.5	37.2	600.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned and cured fish and seafoods (SIC 2091)	Fresh or frozen prepared fish (SIC 2092)	Roasted coffee (SIC 2095)	Potato chips and similar snacks (SIC 2096)	Manufactured ice (SIC 2097)	Macaroni and spaghetti (SIC 2098)	Food preparations, n.e.c. (SIC 2099)
Gross book value of depreciable assets:							
Total:							
Beginning of year	236.2	1 671.6	1 221.2	2 194.1	271.1	596.2	3 093.6
New capital expenditures[1]	20.1	149.6	149.1	259.1	13.8	74.7	332.3
Used capital expenditures	1.3	16.7	11.6	9.0	4.6	4.2	24.9
Retirements	9.8	38.9	32.3	62.0	6.3	21.2	117.3
End of year	247.8	1 799.0	1 349.6	2 400.2	283.2	654.0	3 333.5
Buildings and other structures:							
Beginning of year	73.9	544.9	212.2	678.2	71.0	141.6	799.0
New capital expenditures	4.6	27.4	12.6	46.8	1.3	6.3	43.6
Used capital expenditures	.3	4.1	(D)	(D)	(D)	(D)	14.0
Retirements	3.6	7.6	(D)	(D)	(D)	(D)	19.8
End of year	75.1	568.9	225.1	720.6	71.9	146.6	836.8
Machinery and equipment:							
Beginning of year	162.3	1 126.6	1 009.0	1 515.8	200.1	454.6	2 294.5
New capital expenditures[1]	15.6	122.1	136.5	212.4	12.5	68.5	288.8
Used capital expenditures	1.0	12.6	(D)	(D)	(D)	(D)	10.9
Retirements	6.3	31.2	(D)	(D)	(D)	(D)	97.5
End of year	172.6	1 230.1	1 124.5	1 679.6	211.3	507.3	2 496.7
Depreciation charges during 1992:							
Total	15.9	111.9	97.7	149.8	19.7	34.2	200.9
Buildings and other structures	3.2	23.3	9.7	26.8	3.3	4.7	36.6
Machinery and equipment	12.7	88.6	88.1	122.9	16.5	29.4	164.3
Rental payments:							
Total	8.8	47.9	23.9	32.0	7.2	4.9	77.8
Buildings and other structures	4.6	24.6	14.4	18.1	3.2	2.6	44.5
Machinery and equipment	4.1	23.3	9.4	13.9	4.0	2.3	33.3

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Canned and cured fish and seafoods (SIC 2091)		Fresh or frozen prepared fish (SIC 2092)		Roasted coffee (SIC 2095)		Potato chips and similar snacks (SIC 2096)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	1.9	(X)	7.5	(X)	3.0	(X)	7.0	(X)
Response coverage ratio (percent)[2]	60.9	(X)	51.0	(X)	58.8	(X)	83.1	(X)
Machinery	6.8	(X)	54.7	(X)	18.2	(X)	34.9	(X)
Response coverage ratio (percent)[2]	60.9	(X)	52.0	(X)	61.0	(X)	83.7	(X)
Other purchased services:								
Communications	(S)	(X)	5.7	(X)	4.6	(X)	4.5	(X)
Response coverage ratio (percent)[2]	(S)	(X)	51.4	(X)	54.1	(X)	83.2	(X)
Legal	1.1	(X)	5.9	(X)	.7	(X)	4.1	(X)
Response coverage ratio (percent)[2]	60.9	(X)	51.7	(X)	57.5	(X)	83.3	(X)
Accounting and bookkeeping	.7	(X)	3.5	(X)	1.5	(X)	1.0	(X)
Response coverage ratio (percent)[2]	59.1	(X)	51.8	(X)	61.0	(X)	81.1	(X)
Advertising	1.5	(X)	9.8	(X)	6.5	(X)	21.8	(X)
Response coverage ratio (percent)[2]	56.4	(X)	51.6	(X)	61.0	(X)	82.7	(X)
Software and other data processing	.3	(X)	1.6	(X)	40.2	(X)	.5	(X)
Response coverage ratio (percent)[2]	58.1	(X)	51.4	(X)	58.8	(X)	80.9	(X)
Refuse removal, including hazardous waste	1.6	(X)	5.2	(X)	1.6	(X)	12.5	(X)
Response coverage ratio (percent)[2]	58.1	(X)	51.6	(X)	59.1	(X)	82.7	(X)
New machinery and equipment expenditures	15.6	(X)	122.1	(X)	136.5	(X)	212.4	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	(S)	(X)	1.6	6	(S)	(X)
Computers and peripheral data processing equipment	(S)	(X)	(S)	(X)	3.0	2	(S)	(X)
All other	(S)	(X)	(S)	(X)	131.9	1	(S)	(X)
Adjustment ratio[3]	(S)	(X)	(S)	(X)	1.3	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	556.1	(X)	4 165.0	(X)	2 319.1	(X)	3 144.6	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	(S)	(X)	1 544.6	2	2.7	8
Materials purchased or transferred from domestic sources	(S)	(X)	(S)	(X)	774.5	3	3 141.9	1
Adjustment ratio[3]	(S)	(X)	(S)	(X)	1.1	(X)	1.3	(X)

Item	Manufactured ice (SIC 2097)		Macaroni and spaghetti (SIC 2098)		Food preparations, n.e.c. (SIC 2099)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	(S)	(X)	2.0	(X)	14.7	(X)
Response coverage ratio (percent)[2]	(S)	(X)	61.9	(X)	67.7	(X)
Machinery	(S)	(X)	12.9	(X)	65.7	(X)
Response coverage ratio (percent)[2]	(S)	(X)	61.9	(X)	70.4	(X)
Other purchased services:						
Communications	(S)	(X)	(D)	(X)	13.4	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(D)	(X)	68.5	(X)
Legal	(S)	(X)	(D)	(X)	8.8	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(D)	(X)	68.0	(X)
Accounting and bookkeeping	(S)	(X)	–	(X)	6.7	(X)
Response coverage ratio (percent)[2]	(S)	(X)	59.8	(X)	67.2	(X)
Advertising	(S)	(X)	(D)	(X)	81.6	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(D)	(X)	68.8	(X)
Software and other data processing	(S)	(X)	(D)	(X)	4.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(D)	(X)	67.5	(X)
Refuse removal, including hazardous waste	(S)	(X)	(D)	(X)	11.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(D)	(X)	68.2	(X)
New machinery and equipment expenditures	12.5	(X)	68.5	(X)	288.8	(X)
Automobiles, trucks, etc., for highway use	8.7	27	.3	15	9.0	27
Computers and peripheral data processing equipment	(Z)	(X)	.9	2	15.4	9
All other	3.8	60	67.3	1	264.4	2
Adjustment ratio[3]	1.6	(X)	1.2	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	75.0	(X)	506.4	(X)	5 809.5	(X)
Materials purchased or transferred from foreign sources[4]	–	(X)	.8	42	700.2	13
Materials purchased or transferred from domestic sources	(S)	(X)	505.6	1	5 109.3	3
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS												
Total	**–**	**158**	**7.0**	**132.7**	**5.5**	**10.3**	**87.8**	**362.0**	**606.5**	**968.4**	**20.1**	**164.9**
Establishments with an average of—												
1 to 4 employees	E7	58	.1	2.1	.1	.2	1.4	5.0	10.9	15.9	.6	3.4
5 to 9 employees	E7	17	.1	2.0	.1	.2	1.2	4.3	9.2	13.5	.5	2.9
10 to 19 employees	E3	22	.3	4.7	.2	.4	2.9	10.9	19.4	30.2	.8	6.5
20 to 49 employees	–	18	.6	11.5	.4	1.0	6.4	40.2	49.0	89.2	1.1	14.3
50 to 99 employees	–	22	1.5	30.2	1.2	2.4	18.4	82.7	159.1	241.8	3.4	39.9
100 to 249 employees	–	18	2.7	51.0	2.0	3.6	32.0	136.5	255.4	391.8	13.8	64.4
250 to 499 employees	–	2	1.6	31.2	1.4	2.6	25.5	82.5	103.4	185.9	(D)	33.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	63	.2	2.4	.1	.2	1.7	5.9	13.1	19.0	.8	4.2
INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH												
Total	**E1**	**684**	**41.3**	**761.1**	**34.2**	**67.0**	**520.5**	**2 325.1**	**4 671.4**	**6 995.7**	**149.6**	**827.3**
Establishments with an average of—												
1 to 4 employees	E9	152	.3	4.9	.2	.4	3.3	13.2	33.3	46.4	1.8	5.9
5 to 9 employees	E5	84	.6	10.8	.5	.9	6.9	28.9	77.9	105.9	3.6	13.2
10 to 19 employees	E3	82	1.2	22.1	.9	1.7	13.6	53.5	149.1	202.6	5.8	15.4
20 to 49 employees	E3	140	4.5	72.7	3.6	6.4	47.2	175.1	453.9	627.1	13.0	71.1
50 to 99 employees	E2	104	7.1	122.1	5.9	10.8	85.2	360.3	721.9	1 082.2	24.0	115.5
100 to 249 employees	E1	91	13.3	246.6	11.1	22.0	180.1	678.1	1 438.2	2 120.7	41.6	303.3
250 to 499 employees	–	21	7.5	157.1	6.4	13.2	110.0	582.6	1 012.9	1 593.1	41.3	201.4
500 to 999 employees	–	9	6.9	124.9	5.6	11.6	74.3	433.4	784.1	1 217.7	18.4	101.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	166	.5	6.6	.4	.7	4.5	16.7	43.7	60.4	2.4	7.8
INDUSTRY 2095, ROASTED COFFEE												
Total	**–**	**172**	**10.5**	**340.0**	**6.6**	**14.0**	**192.6**	**2 752.5**	**2 530.0**	**5 292.8**	**149.1**	**302.1**
Establishments with an average of—												
1 to 4 employees	E8	33	.1	1.4	(Z)	.1	.8	14.4	11.3	25.7	.4	1.6
5 to 9 employees	E8	21	.1	3.1	.1	.2	1.6	26.3	22.2	48.7	.9	3.2
10 to 19 employees	E6	28	.4	9.1	.2	.5	5.2	64.7	61.9	126.5	2.1	9.7
20 to 49 employees	E3	39	1.2	32.2	.7	1.3	13.5	171.8	186.1	360.5	7.1	27.7
50 to 99 employees	–	19	1.4	39.5	.8	1.7	19.2	181.0	210.1	390.9	14.0	34.9
100 to 249 employees	–	20	3.1	94.7	2.0	4.0	52.3	662.4	753.9	1 425.7	40.9	118.9
250 to 499 employees	–	11	4.2	160.0	2.8	6.3	99.9	1 631.9	1 284.3	2 914.9	83.8	106.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	19	(Z)	.4	(Z)	(Z)	.2	4.5	3.3	7.9	.1	.5
INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS												
Total	**–**	**409**	**34.9**	**828.8**	**24.1**	**45.7**	**473.2**	**3 912.8**	**3 409.2**	**7 324.7**	**259.1**	**196.1**
Establishments with an average of—												
1 to 4 employees	E8	99	.2	3.7	.1	.3	2.1	15.2	17.7	32.9	1.0	1.2
5 to 9 employees	E7	52	.4	5.6	.2	.4	3.2	20.3	23.3	43.7	.8	1.7
10 to 19 employees	E4	43	.6	11.1	.4	.6	5.2	34.5	37.8	72.2	3.9	2.7
20 to 49 employees	E2	79	2.5	46.5	1.7	3.2	24.0	150.2	138.2	288.0	7.1	16.1
50 to 99 employees	E1	45	3.2	73.1	2.2	4.2	40.6	334.8	241.7	577.9	16.4	32.7
100 to 249 employees	–	49	8.3	178.3	5.6	11.2	96.6	743.5	601.3	1 343.6	60.4	41.8
250 to 499 employees	–	27	9.3	240.4	6.6	12.4	141.9	1 256.7	1 130.3	2 388.1	65.3	43.5
500 to 999 employees	–	13	10.5	270.1	7.2	13.5	159.7	1 357.7	1 219.0	2 578.2	104.4	56.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	131	.5	6.8	.3	.6	3.8	25.6	28.7	54.3	1.2	1.5
INDUSTRY 2097, MANUFACTURED ICE												
Total	**E2**	**562**	**4.8**	**93.3**	**2.9**	**6.1**	**48.4**	**255.1**	**103.6**	**358.8**	**13.8**	**18.5**
Establishments with an average of—												
1 to 4 employees	E6	292	.5	9.7	.4	.7	5.9	29.4	13.5	42.9	1.2	3.0
5 to 9 employees	E1	115	.8	14.5	.5	1.1	8.5	42.4	18.1	60.4	2.5	5.7
10 to 19 employees	E1	96	1.3	26.7	.8	1.7	14.9	62.2	29.2	91.4	4.0	4.0
20 to 49 employees	E1	51	1.5	31.1	.7	1.6	13.2	92.8	32.2	125.2	4.8	5.0
50 to 99 employees	–	4	.3	5.4	.2	.4	2.7	16.1	6.1	22.1	.6	.3
100 to 249 employees	E3	4	.5	5.9	.3	.5	3.2	12.2	4.4	16.8	.7	.6
Covered by administrative records[2]	E9	269	.6	8.9	.5	.8	5.4	25.3	9.3	34.6	.9	3.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2098, MACARONI AND SPAGHETTI												
Total	**–**	**199**	**5.9**	**146.8**	**4.6**	**10.2**	**104.6**	**830.8**	**565.1**	**1 389.5**	**74.7**	**97.2**
Establishments with an average of—												
1 to 4 employees	E8	90	.2	3.1	.1	.3	2.2	15.3	10.2	25.5	.9	1.6
5 to 9 employees	E6	40	.3	3.8	.2	.4	2.7	17.9	12.2	30.1	1.0	2.1
10 to 19 employees	E3	28	.4	7.1	.3	.6	4.1	24.5	17.8	42.1	1.0	3.3
20 to 49 employees	E3	12	.4	8.5	.3	.6	5.2	23.3	17.3	40.5	1.5	2.8
50 to 99 employees	–	10	.8	21.7	.6	1.5	15.1	111.2	55.4	168.1	4.5	14.2
100 to 249 employees	–	14	3.9	102.6	3.1	6.8	75.3	638.6	452.2	1 083.2	65.9	73.3
250 to 499 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	105	.3	4.2	.2	.5	3.0	22.8	14.1	36.9	1.5	2.3
INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.												
Total	**E1**	**1 800**	**61.4**	**1 412.4**	**43.7**	**86.4**	**796.2**	**5 883.5**	**6 313.4**	**12 170.2**	**332.3**	**1 163.0**
Establishments with an average of—												
1 to 4 employees	E8	638	.9	18.0	.6	1.1	10.3	82.5	92.0	174.1	4.2	20.1
5 to 9 employees	E5	262	1.8	34.7	1.3	2.4	20.4	154.0	177.7	329.6	8.7	31.9
10 to 19 employees	E2	263	3.5	66.9	2.4	4.4	37.2	246.3	256.8	500.3	18.5	67.3
20 to 49 employees	E2	332	10.4	220.0	7.1	13.4	114.2	714.6	798.9	1 516.1	42.6	147.7
50 to 99 employees	E2	147	10.4	216.7	7.1	13.9	115.7	839.7	1 055.2	1 873.9	42.8	210.7
100 to 249 employees	–	125	18.9	438.7	13.4	27.0	247.5	1 860.4	2 356.6	4 217.6	96.0	377.1
250 to 499 employees	–	27	9.9	249.3	7.4	15.9	147.3	1 187.3	973.1	2 161.9	66.7	206.2
500 to 999 employees	–	4	5.6	168.1	4.4	8.3	103.6	798.5	603.1	1 396.8	52.8	102.2
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	648	1.5	23.4	1.1	1.9	13.2	105.7	102.0	207.6	4.6	19.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2091	**Canned and cured fish and seafoods:**										
	All establishments in industry	158	7.0	132.7	5.5	10.3	87.8	362.0	606.5	968.4	20.1
2092	**Fresh or frozen prepared fish:**										
	All establishments in industry	684	41.3	761.1	34.2	67.0	520.5	2 325.1	4 671.4	6 995.7	149.6
	Establishments with this product class primary:										
20922	Prepared fresh fish and other fresh seafood	147	7.8	118.2	6.4	10.7	77.4	363.6	568.9	929.1	17.4
20923	Frozen fish	101	16.1	331.2	13.2	26.8	221.9	1 015.0	2 346.2	3 364.1	62.4
20925	Frozen shellfish	80	9.1	162.0	7.7	15.5	112.8	527.8	1 043.2	1 570.9	35.9
20926	Other frozen seafoods	29	3.5	75.7	3.1	6.7	59.1	241.9	285.8	527.7	14.3
2095	**Roasted coffee:**										
	All establishments in industry	172	10.5	340.0	6.6	14.0	192.6	2 752.5	2 530.0	5 292.8	149.1
	Establishments with this product class primary:										
20951	Roasted coffee	90	8.7	282.8	5.2	11.2	152.9	2 493.8	2 204.9	4 708.0	134.0
20952	Concentrated coffee	15	1.3	43.8	1.0	2.1	32.8	190.6	267.5	459.3	(D)
2096	**Potato chips and similar snacks:**										
	All establishments in industry	409	34.9	828.8	24.1	45.7	473.2	3 912.8	3 409.2	7 324.7	259.1
	Establishments with this product class primary:										
20961	Potato chips and sticks, plain and flavored	100	17.4	422.8	10.8	20.8	215.1	1 814.6	1 518.6	3 334.9	115.5
20962	Corn chips and related products	78	13.4	323.5	10.4	19.3	207.5	1 670.4	1 549.1	3 220.8	109.6
20963	Other chips, sticks, etc.	40	2.6	60.0	2.0	4.0	38.3	344.2	245.0	588.9	27.4
2097	**Manufactured ice:**										
	All establishments in industry	562	4.8	93.3	2.9	6.1	48.4	255.1	103.6	358.8	13.8
2098	**Macaroni and spaghetti:**										
	All establishments in industry	199	5.9	146.8	4.6	10.2	104.6	830.8	565.1	1 389.5	74.7

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2099	**Food preparations, n.e.c.:**										
	All establishments in industry	1 800	61.4	1 412.4	43.7	86.4	796.2	5 883.5	6 313.4	12 170.2	332.3
	Establishments with this product class primary:										
20991	Desserts (ready-to-mix)	13	1.8	59.1	1.5	2.7	45.3	536.3	256.9	793.7	11.8
20993	Sweetening syrups and molasses	20	1.4	27.4	.8	1.4	13.3	78.6	138.9	219.1	9.5
20994	Baking powder and yeast	22	1.3	47.1	.9	2.0	28.4	170.2	144.7	314.3	17.3
20996	Vinegar and cider	39	.7	17.3	.5	1.0	10.1	83.1	84.4	164.9	5.5
20999	Perishable prepared foods sold in bulk or packages, not frozen or canned	336	24.2	448.2	17.5	34.9	258.1	1 219.5	1 395.7	2 613.9	78.9
2099A	Macaroni and noodle products packaged with other ingredients, not canned or frozen	27	1.4	27.2	1.0	2.1	15.4	64.9	116.9	182.9	14.7
2099B	Dry mix preparations, except macaroni and noodles	81	5.9	176.8	3.7	7.5	80.7	737.9	924.6	1 646.0	48.7
2099D	Tea in consumer packages	28	3.2	96.7	2.5	5.0	65.7	596.2	429.8	1 027.1	19.9
2099E	Spices	47	4.1	145.8	2.7	4.9	71.0	656.7	705.0	1 355.9	21.2
2099F	Peanut butter	17	1.3	39.0	1.0	2.1	25.5	328.6	725.0	1 047.0	12.5
2099G	Other food preparations, n.e.c.	105	6.5	151.6	4.8	10.0	84.6	643.3	667.6	1 314.5	58.3

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS			
Total value of shipments	968.4	767.0	1 849.1
Primary products value of shipments	833.5	652.1	1 152.2
Secondary products value of shipments	84.7	92.4	(D)
Total miscellaneous receipts	50.2	22.6	(D)
Value of resales	38.7	19.5	(D)
Contract receipts	11.0	2.8	7.7
Other miscellaneous receipts	.5	.2	1.3
Primary products specialization ratio	91	88	(D)
Value of primary products shipments made in all industries	1 138.7	862.2	1 267.1
Value of primary products shipments made in this industry	833.5	652.1	1 152.2
Value of primary products shipments made in other industries	305.1	210.1	114.9
Coverage ratio	73	76	91
INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH			
Total value of shipments	6 995.7	5 783.0	4 009.1
Primary products value of shipments	6 328.2	4 969.0	3 589.9
Secondary products value of shipments	248.9	204.5	122.4
Total miscellaneous receipts	418.6	609.5	296.8
Value of resales	390.3	584.2	256.3
Contract receipts	20.8	18.2	25.6
Other miscellaneous receipts	7.5	7.1	14.9
Primary products specialization ratio	96	96	97
Value of primary products shipments made in all industries	6 449.0	5 103.7	3 714.0
Value of primary products shipments made in this industry	6 328.2	4 969.0	3 589.9
Value of primary products shipments made in other industries	120.8	134.7	124.1
Coverage ratio	98	97	97
INDUSTRY 2095, ROASTED COFFEE			
Total value of shipments	5 292.8	6 400.6	5 826.9
Primary products value of shipments	4 676.0	5 425.4	5 080.2
Secondary products value of shipments	397.3	334.7	296.0
Total miscellaneous receipts	219.5	640.4	450.7
Value of resales	207.6	624.8	447.8
Contract receipts	11.8	6.2	2.8
Other miscellaneous receipts	.1	9.4	.1
Primary products specialization ratio	92	94	94
Value of primary products shipments made in all industries	4 701.5	5 466.6	5 122.7
Value of primary products shipments made in this industry	4 676.0	5 425.4	5 080.2
Value of primary products shipments made in other industries	25.5	41.1	42.4
Coverage ratio	99	99	99

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS			
Total value of shipments	7 324.7	5 040.8	(NA)
Primary products value of shipments	6 955.1	4 730.0	(NA)
Secondary products value of shipments	108.5	73.6	(NA)
Total miscellaneous receipts	261.1	237.2	(NA)
Value of resales	254.3	235.5	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	98	98	(NA)
Value of primary products shipments made in all industries	7 543.0	5 005.8	(NA)
Value of primary products shipments made in this industry	6 955.1	4 730.0	(NA)
Value of primary products shipments made in other industries	587.9	275.8	(NA)
Coverage ratio	92	94	(NA)
INDUSTRY 2097, MANUFACTURED ICE			
Total value of shipments	358.8	289.6	229.5
Primary products value of shipments	341.8	277.2	222.2
Secondary products value of shipments	(Z)	–	–
Total miscellaneous receipts	17.7	12.4	7.4
Value of resales	15.2	9.0	3.4
Ice sold wholesale	2.6	(NA)	(NA)
Ice sold retail	.3	(NA)	(NA)
Other products	7.5	(NA)	(NA)
Sales of products bought and sold without further manufacture, processing, or assembly	–	(NA)	(NA)
Sales of products bought and sold without further manufacture, processing, or assembly, n.s.k.	4.9	(NA)	(NA)
Contract receipts	(D)	1.7	.7
Other miscellaneous receipts	(D)	1.8	3.3
Primary products specialization ratio	100	100	100
Value of primary products shipments made in all industries	345.2	282.7	227.4
Value of primary products shipments made in this industry	341.8	277.2	222.2
Value of primary products shipments made in other industries	3.4	5.5	5.3
Coverage ratio	99	98	98
INDUSTRY 2098, MACARONI AND SPAGHETTI			
Total value of shipments	1 389.5	1 048.1	(NA)
Primary products value of shipments	1 270.1	963.6	(NA)
Secondary products value of shipments	75.4	44.5	(NA)
Total miscellaneous receipts	44.0	40.0	(NA)
Value of resales	43.4	39.4	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	94	96	(NA)
Value of primary products shipments made in all industries	1 279.9	974.4	(NA)
Value of primary products shipments made in this industry	1 270.1	963.6	(NA)
Value of primary products shipments made in other industries	9.8	10.8	(NA)
Coverage ratio	99	99	(NA)
INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.			
Total value of shipments	12 170.2	9 787.3	(NA)
Primary products value of shipments	11 085.2	8 515.1	(NA)
Secondary products value of shipments	684.2	852.6	(NA)
Total miscellaneous receipts	400.8	419.6	(NA)
Value of resales	355.0	361.8	(NA)
Contract receipts	25.4	51.3	(NA)
Other miscellaneous receipts	20.3	6.4	(NA)
Primary products specialization ratio	94	91	(NA)
Value of primary products shipments made in all industries	14 183.0	10 670.7	(NA)
Value of primary products shipments made in this industry	11 085.2	8 515.1	(NA)
Value of primary products shipments made in other industries	3 097.8	2 155.6	(NA)
Coverage ratio	78	80	(NA)

Note: For qualifications of data, see footnotes on table 1a.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/13/95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 12
TSF:20I_92.DAT;2 3/13/95 14:02:33 UTF:20I_93.DAT;2 3/13/95 14:02:34 META:TIPS96-14022109.DAT;1 3/13/95 14:03:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2091– —	**CANNED AND CURED FISH AND SEAFOODS**						
	Total	**(NA)**	**(X)**	**1 138.7**	**(NA)**	**(X)**	**862.2**
20910	Canned and cured fish and other seafoods, including soup (except frozen seafoods and soup)[3]	(NA)	(X)	1 138.7	(NA)	(X)	862.2
	Canned fish and other seafood (except soups, stews, and chowders):						
20910 12	Tuna, mil lb	4	73.5	163.9	1	(D)	(D)
20910 13	Salmon, mil lb	15	*163.2	352.3	18	96.1	207.8
20910 14	Sardines, mil lb	6	(D)	(D)	7	(D)	(D)
20910 15	Clams, mil lb	9	*73.6	87.6	9	79.4	80.4
20910 16	Shrimp, mil lb	4	13.1	30.7	6	10.9	21.4
20910 19	Other canned fish and other seafood (including gefilte fish, fish roe, fishcakes, surimi-based products, etc.)	24	(X)	70.6	18	(X)	62.1
20910 31	Canned seafood soups, stews, and chowders (clam chowder, oyster stew, turtle soup, etc.), mil lb	13	301.9	148.9	14	221.4	124.5
	Cured seafood:						
20910 51	Smoked salmon, mil lb	21	13.2	81.1	13	7.8	56.7
20910 71	Other smoked fish (herring, whitefish, chub, cisco, etc.)	18	(X)	60.8	13	(X)	54.4
20910 82	Salted and pickled fish (including sun-dried), mil lb	8	16.2	31.3	16	19.0	33.5
20910 89	Other cured seafood, except fish	6	(X)	(D)	4	(X)	(D)
20910 00	Canned and cured fish and other seafoods, n.s.k.[4]	(NA)	(X)	34.8	(NA)	(X)	29.4
20910 02	Canned and cured fish and other seafoods, n.s.k.[5]	(NA)	(X)	22.1	(NA)	(X)	78.4
2092– —	**FRESH OR FROZEN PREPARED FISH AND SEAFOODS**						
	Total	**(NA)**	**(X)**	**6 449.0**	**(NA)**	**(X)**	**5 103.7**
20922	Prepared fresh fish and other fresh seafood[3]	(NA)	(X)	983.6	(NA)	(X)	790.0
20922 13	Prepared fresh fish, mil lb	57	*190.2	409.4	51	176.7	383.7
	Prepared fresh shellfish:						
	Crab meat:						
20922 15	Blue	39	(X)	52.7	44	(X)	56.5
20922 17	Rock	2	(X)	(D)			
20922 18	Snow	2	(X)	(D)	11	(X)	17.3
20922 19	Other	9	(X)	14.0			
20922 23	Shrimp, mil lb	18	*21.9	87.1	16	18.6	73.4
20922 24	Oysters	28	(X)	74.9	34	(X)	63.6
20922 25	Clams, mil lb	11	15.2	23.3	13	28.0	37.6
20922 26	Other prepared fresh shellfish (except surimi and surimi-based products), mil lb	16	20.4	49.8	14	20.4	60.0
20922 27	Surimi, mil lb	3	19.9	28.9	2	(D)	(D)
20922 28	Surimi-based products, mil lb	4	(D)	(D)	3	(D)	(D)
20922 31	Other prepared fresh seafood (roe, squid, etc.)	31	(X)	139.4	18	(X)	59.3
20922 00	Prepared fresh fish and other fresh seafood, n.s.k.	(NA)	(X)	25.8	(NA)	(X)	14.4
20923	Frozen fish[3]	(NA)	(X)	2 732.4	(NA)	(X)	2 048.3
	Groundfish (cod, cusk, haddock, hake, perch, pollock, and whiting):						
	Fillets and steaks:						
20923 11	Breaded or battered, mil lb	13	281.1	440.0	19	207.7	370.2
20923 13	Plain, mil lb	26	71.5	146.7	20	29.6	61.3
	Sticks and portions:						
20923 15	Breaded or battered, mil lb	15	395.5	579.3	13	375.7	505.9
20923 17	Plain, mil lb	6	14.0	23.9	6	18.5	35.9
20923 19	Other, mil lb	29	61.5	89.1	15	34.1	49.2
	Flounder, halibut, sole:						
20923 21	Fillets and steaks, mil lb	19	18.2	50.7	(NA)	(6)	(6)
20923 23	Other, mil lb	30	50.9	104.4	(NA)	(6)	(6)
	All other species:						
	Fillets and steaks:						
20923 26	Breaded or battered, mil lb	12	27.4	75.8	(NA)	(6)	(6)
20923 27	Plain, mil lb	36	230.7	514.8	(NA)	(6)	(6)
20923 29	Other, mil lb	62	351.7	675.8	(NA)	6461.1	6975.2
20923 00	Frozen fish, n.s.k.	(NA)	(X)	31.9	(NA)	(X)	50.6
20925	Frozen shellfish[3]	(NA)	(X)	1 549.8	(NA)	(X)	1 339.6
	Shrimp:						
20925 21	Headless, raw, mil lb	24	37.5	142.3	29	35.4	152.6
20925 22	Peeled, raw, mil lb	22	37.9	145.0	31	44.2	187.5
20925 23	Peeled, cooked, mil lb	24	*32.3	146.3	31	35.9	174.2
20925 24	Breaded, mil lb	24	112.7	414.6	24	101.6	385.8
20925 25	Other 100 percent shrimp products	7	(X)	18.3	10	(X)	56.4
20925 26	Lobster tails	3	(X)	(7)	7	(X)	20.4
	Crabs:						
20925 27	Blue meat	13	(X)	22.1	14	(X)	26.5
20925 28	Rock meat	(NA)	(X)	–			
20925 29	Snow meat	6	(X)	61.3	(NA)	(X)	(8)
20925 30	Dungeness meat	10	(X)	13.9	12	(X)	12.4
	King:						
20925 33	Cooked meat, mil lb	6	3.6	18.0	5	(S)	15.2
20925 34	Sections, mil lb	12	18.0	77.0	10	12.7	50.5
20925 35	Other crabs and parts of crabs not listed above, mil lb	17	91.5	244.2	14	42.3	8116.3
20925 36	Other frozen shellfish (including oysters, clams, and parts of lobsters not listed above)	23	(NA)	7216.8	28	(X)	123.1
20925 00	Frozen shellfish, n.s.k.	(NA)	(X)	30.1	(NA)	(X)	18.5

See footnotes at end of table.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/13/95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 13
TSF:20I_92.DAT;2 3/13/95 14:02:33 UTF:20I_93.DAT;2 3/13/95 14:02:34 META:TIPS96-14022109.DAT;1 3/13/95 14:03:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2092– —	**FRESH OR FROZEN PREPARED FISH AND SEAFOODS**—Con.						
20926	Other frozen seafoods[3]	(NA)	(X)	596.9	(NA)	(X)	196.5
20926 11	Surimi, mil lb	11	161.3	177.2	3	18.2	25.1
20926 13	Surimi-based products, mil lb	7	71.7	121.2	4	9.9	18.9
20926 98	Other frozen seafoods (soups, stews, chowders, dinners, pies, fishcakes, crabcakes, shrimpcakes, etc.), except surimi, mil lb	30	109.2	236.4	32	85.6	152.5
20926 00	Other frozen seafoods, n.s.k.	(NA)	(X)	62.0	(NA)	(X)	–
20920	Fresh or frozen prepared fish and other seafood, n.s.k.	(NA)	(X)	586.3	(NA)	(X)	729.3
20920 00	Fresh or frozen prepared fish and other seafood, n.s.k.[9]	(NA)	(X)	525.9	(NA)	(X)	590.9
20920 02	Fresh or frozen prepared fish and other seafood, n.s.k.[10]	(NA)	(X)	60.4	(NA)	(X)	138.5
2095– —	**ROASTED COFFEE**						
	Total	**(NA)**	**(X)**	**4 701.5**	**(NA)**	**(X)**	**5 466.6**
20951	Roasted coffee	(NA)	(X)	3 763.4	(NA)	(X)	4 312.9
20951 11	Whole bean, mil lb	45	*208.1	470.4	39	184.0	417.3
20951 15	Ground (including extended yield), mil lb	61	1 447.0	3 270.3	65	1 632.0	3 863.0
20951 21	Ground coffee mixtures (with grain, chicory, etc.), mil lb	4	6.5	13.9	6	10.7	22.4
20951 00	Roasted coffee, n.s.k.	(NA)	(X)	8.8	(NA)	(X)	10.2
20952	Concentrated coffee	(NA)	(X)	819.7	(NA)	(X)	1 052.1
20952 00	Coffee, concentrated (freeze-dried, spray-dried, frozen or liquid concentrated or extracts, mixtures, etc.), mil lb	22	*118.0	819.7	(NA)	142.1	1 052.1
20950	Roasted coffee, n.s.k.	(NA)	(X)	118.5	(NA)	(X)	101.6
20950 00	Roasted coffee, n.s.k.[11]	(NA)	(X)	99.3	(NA)	(X)	53.4
20950 02	Roasted coffee, n.s.k.[12]	(NA)	(X)	19.1	(NA)	(X)	48.3
2096– —	**POTATO CHIPS AND SIMILAR PRODUCTS**						
	Total	**(NA)**	**(X)**	**7 543.0**	**(NA)**	**(X)**	**5 005.8**
20961	Potato chips and sticks, plain and flavored	(NA)	(X)	3 263.2	(NA)	(X)	2 401.0
20961 00	Potato chips and sticks, plain and flavored, mil lb	70	1 542.9	3 263.2	86	1 259.8	2 401.0
20962	Corn chips and related products	(NA)	(X)	3 024.1	(NA)	(X)	1 864.1
20962 21	Chips, mil lb	90	1 243.5	2 293.3	61	*859.7	1 615.5
20962 29	Curls and related products, mil lb	48	382.9	729.3	38	*177.7	248.7
20962 00	Corn chips and related products, n.s.k.	(NA)	(X)	1.5	(NA)	(X)	–
20963	Other chips, sticks, etc.	(NA)	(X)	1 071.0	(NA)	(X)	559.1
20963 00	Other chips, sticks, etc. (bacon rinds, popcorn except candied, etc.), excluding crackers, pretzels, and nuts, mil lb	75	486.3	1 071.0	57	319.1	559.1
20960	Potato chips and similar products, n.s.k.	(NA)	(X)	184.7	(NA)	(X)	181.5
20960 00	Potato chips and similar products, n.s.k.[9]	(NA)	(X)	130.4	(NA)	(X)	100.8
20960 02	Potato chips and similar products, n.s.k.[10]	(NA)	(X)	54.3	(NA)	(X)	80.7
2097– —	**MANUFACTURED ICE**						
	Total	**(NA)**	**(X)**	**345.2**	**(NA)**	**(X)**	**282.7**
20970	Manufactured ice	(NA)	(X)	345.2	(NA)	(X)	282.7
20970 11	Can or block ice, 1,000 s tons	48	(S)	50.0	54	(S)	29.3
20970 51	Cubed, crushed, or other processed ice, 1,000 s tons	154	(S)	188.9	152	(S)	168.4
20970 00	Manufactured ice, n.s.k.[4]	(NA)	(X)	71.6	(NA)	(X)	55.5
20970 02	Manufactured ice, n.s.k.[5]	(NA)	(X)	34.6	(NA)	(X)	29.5
2098– —	**MACARONI AND SPAGHETTI**						
	Total	**(NA)**	**(X)**	**1 279.9**	**(NA)**	**(X)**	**974.4**
20980	Macaroni, spaghetti, and egg noodle products except canned and frozen, not packaged with other ingredients	(NA)	(X)	1 279.9	(NA)	(X)	974.4
	Macaroni, spaghetti, vermicilli, and other pasta products, except noodles:						
20980 01	Dry (water content less than 14 percent), mil lb	34	2 027.5	996.4	38	1 558.0	758.1
20980 03	Refrigerated, mil lb	5	(D)	(D)			
	Noodle products of all shapes, sizes, and types, except chinese noodles:						
20980 04	Dry (water content less than 14 percent), mil lb	15	**260.3	165.7	22	275.9	144.7
20980 05	Wet (water content 14 percent or more), except refrigerated, mil lb	2	(D)	(D)			
20980 06	Refrigerated, mil lb	2	(D)	(D)			
20980 00	Macaroni and spaghetti, n.s.k.[4]	(NA)	(X)	42.9	(NA)	(X)	11.3
20980 02	Macaroni and spaghetti, n.s.k.[5]	(NA)	(X)	38.3	(NA)	(X)	60.3

See footnotes at end of table.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/13/95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 14
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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2099– ––	**FOOD PREPARATIONS, N.E.C.**						
	Total	**(NA)**	**(X)**	**14 183.0**	**(NA)**	**(X)**	**10 670.7**
20991	Desserts (ready-to-mix)	(NA)	(X)	707.8	(NA)	(X)	664.0
	Cornstarch base:						
20991 13	Consumer sizes (less than 1 lb) mil lb	8	226.4	204.9	8	*194.0	251.2
20991 15	Commercial sizes (1 lb or more) mil lb	5	28.3	28.3	10	21.6	17.6
	Gelatin base:						
20991 53	Consumer sizes (less than 1 lb) mil lb	11	264.4	324.0	12	*260.6	258.4
20991 55	Commercial sizes (1 lb or more) mil lb	10	*6.3	7.0	10	*12.6	15.5
20991 59	Other base mil lb	6	*36.4	43.2	7	*38.0	40.8
20991 00	Desserts (ready-to-mix), n.s.k.	(NA)	(X)	100.4	(NA)	(X)	80.5
20993	Sweetening syrups and molasses	(NA)	(X)	607.5	(NA)	(X)	399.3
20993 25	Containing corn syrup mil lb	47	*871.3	527.8	49	611.9	338.6
20993 27	Not containing corn syrup mil lb	16	118.5	57.8	20	*72.4	39.2
20993 00	Sweetening syrups and molasses, n.s.k.	(NA)	(X)	21.9	(NA)	(X)	21.5
20994	Baking powder and yeast	(NA)	(X)	316.0	(NA)	(X)	339.3
20994 13	Baking powder mil lb	6	41.8	60.8	8	(S)	71.4
20994 23	Compressed yeast mil lb	5	431.8	165.4	5	593.6	205.8
20994 34	Active dry yeast mil lb (dry basis)	4	(D)	(D)			
20994 55	Other yeast products (brewers', primary grown yeast, including torule, extracts, and other yeast products) mil lb (dry basis)	10	129.7	29.9	(NA)	(S)	55.6
20994 00	Baking powder and yeast, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	6.5
20996	Vinegar and cider	(NA)	(X)	228.5	(NA)	(X)	164.7
20996 11	Cider mil gal	10	23.2	48.5	14	14.2	26.3
20996 51	Vinegar, fermented (basis equivalent to 40 grain) mil gal	12	53.5	41.5	11	33.4	24.7
20996 57	Vinegar, distilled (basis equivalent to 100 grain) mil gal	21	156.4	126.1	26	153.6	100.8
20996 00	Vinegar and cider, n.s.k.	(NA)	(X)	12.4	(NA)	(X)	12.9
20999	Perishable prepared foods sold in bulk or packages, not frozen or canned	(NA)	(X)	2 361.6	(NA)	(X)	1 347.3
20999 21	Salads	72	(X)	515.7	70	(X)	359.1
20999 31	Sandwiches, made from bread	40	(X)	257.5	40	(X)	102.4
20999 35	Vegetables and potatoes, peeled or cut for the trade	20	(X)	120.1	21	(X)	78.1
20999 43	Tortillas	105	(X)	639.3	119	(X)	505.1
20999 45	Tamales and other Mexican food specialties	45	(X)	249.5			
20999 53	Prepared meals, including meat and poultry pies	20	(X)	95.4	11	(X)	94.4
20999 55	Tofu (bean curd) mil lb	24	*37.2	70.6	15	(S)	38.0
20999 58	Pizza mil lb	19	38.9	110.9	57	(X)	141.4
20999 59	Other perishable prepared foods	64	(X)	222.0			
20999 00	Perishable prepared foods sold in bulk or packages, not frozen or canned, n.s.k.	(NA)	(X)	80.7	(NA)	(X)	28.8
2099A	Macaroni and noodle products packaged with other ingredients, not canned or frozen	(NA)	(X)	1 122.3	(NA)	(X)	536.1
	Macaroni, spaghetti, vermicilli, and other macaroni products:						
2099A 01	Dry, less than 14 percent moisture mil lb	23	470.9	611.5			
2099A 02	Wet, 14 percent or more moisture, except refrigerated mil lb	4	(D)	(D)	18	(S)	406.4
2099A 03	Refrigerated mil lb	19	*74.8	69.1			
	Noodle products of all shapes, sizes, and types; except chinese noodles:						
2099A 04	Dry, less than 14 percent moisture mil lb	12	*142.9	161.8			
2099A 05	Wet, 14 percent or more moisture, except refrigerated mil lb	2	(D)	(D)	13	95.8	129.7
2099A 06	Refrigerated mil lb	5	(S)	12.6			
2099A 00	Macaroni and noodle products packaged with other ingredients, not canned or frozen, n.s.k.	(NA)	(X)	16.2	(NA)	(X)	–
2099B	Dry mix preparations, except macaroni and noodles	(NA)	(X)	2 198.8	(NA)	(X)	1 721.7
2099B 01	Dip mixes mil lb	6	(S)	16.4	6	(S)	14.1
2099B 03	Salad dressing mixes mil lb	8	(D)	(D)	8	(D)	(D)
2099B 05	Gravy and sauce mixes mil lb	29	161.2	306.6	24	135.8	194.1
2099B 07	Seasoning mixes mil lb	58	*717.6	692.8	42	*664.4	550.1
2099B 09	Frosting mixes mil lb	6	(D)	(D)	12	217.1	202.8
2099B 11	Dried and dehydrated potatoes, packaged with other ingredients mil lb	7	102.5	127.4	6	(D)	(D)
2099B 13	Head rice packaged with other ingredients mil lb	15	464.1	395.6	11	262.8	225.4
2099B 19	Other dry preparations, including bouillon, etc., but excluding imitation dairy mixes mil lb	34	*246.1	269.7	35	*201.0	215.4
2099B 00	Dry mix preparations, except macaroni and noodles, n.s.k.	(NA)	(X)	–	(NA)	(X)	35.3
2099D	Tea in consumer packages	(NA)	(X)	1 106.1	(NA)	(X)	936.3
2099D 82	Packed in tea bags mil lb	31	150.7	732.1	32	124.1	569.1
2099D 83	Instant soluble tea, with or without added flavoring and/ or sweetener mil lb	9	175.4	348.7	6	178.1	348.6
2099D 86	Other mil lb	11	*13.2	21.6	5	8.8	16.4
2099D 00	Tea in consumer packages, n.s.k.	(NA)	(X)	3.7	(NA)	(X)	2.2
2099E	Spices	(NA)	(X)	1 122.3	(NA)	(X)	888.8
	Pepper, white and black:						
2099E 31	Consumer sizes (less than 1 lb) mil lb	15	117.2	156.1	19	(S)	143.8
2099E 33	Commercial sizes (1 lb or more) mil lb	20	**35.9	71.6	18	24.7	68.5
	Other spices:						
2099E 38	Consumer sizes (less than 1 lb) mil lb	29	*224.9	528.5	29	163.6	419.3
2099E 39	Commercial sizes (1 lb or more) mil lb	43	*184.3	354.2	37	*166.5	246.7
2099E 00	Spices, n.s.k.	(NA)	(X)	11.9	(NA)	(X)	10.5

See footnotes at end of table.

TIPS [UPF] BATCH_41 [CASMR,J_SMITH] CASMR 3/ 13/ 95 2:03 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 15
TSF:20I_92.DAT;2 3/ 13/ 95 14:02:33 UTF:20I_93.DAT;2 3/ 13/ 95 14:02:34 META:TIPS96-14022109.DAT;1 3/ 13/ 95 14:03:38

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2099– ––	**FOOD PREPARATIONS, N.E.C.**—Con.						
2099F	Peanut butter	(NA)	(X)	1 269.7	(NA)	(X)	847.7
2099F 44	Consumer sizes mil lb	25	838.2	1 160.5	24	533.9	719.2
2099F 46	Commercial sizes and bulk mil lb	17	116.6	104.6	22	128.0	127.0
2099F 00	Peanut butter, n.s.k.	(NA)	(X)	4.6	(NA)	(X)	1.4
2099G	Other food preparations, n.e.c.	(NA)	(X)	1 661.3	(NA)	(X)	1 300.4
2099G 11	Coconut, sweetened, creamed, and toasted mil lb	7	31.5	42.6	6	(D)	(D)
2099G 25	Blended honey, including churned mil lb	21	**159.4	148.3	12	**89.9	79.4
2099G 41	Chinese noodles, except canned and frozen mil lb	36	**144.5	102.0	32	**137.0	75.8
2099G 51	Pectin (100 grade, dry basis) mil lb	5	7.5	22.9	5	(D)	(D)
2099G 85	Unpopped popcorn, in consumer packages mil lb	15	*1 934.6	679.5	16	1 048.7	401.0
2099G 91	Cracker sandwiches, made from purchased crackers mil lb	3	(D)	(D)	3	(D)	(D)
2099G 98	Food preparations not elsewhere classified	65	(X)	640.0	81	(X)	644.1
2099G 00	Other food preparations, n.e.c., n.s.k.	(NA)	(X)	(D)	(NA)	(X)	10.4
20990	Food preparations, n.e.c., n.s.k.	(NA)	(X)	1 480.8	(NA)	(X)	1 525.2
20990 00	Food preparations, n.e.c., n.s.k.[4]	(NA)	(X)	1 273.7	(NA)	(X)	1 157.9
20990 02	Food preparations, n.e.c., n.s.k.[5]	(NA)	(X)	207.1	(NA)	(X)	367.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Data for this product class represent value of production rather than value of shipments.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1987, data were not collected seperately but were included in product code 20923 29.
[7]For 1992, data for product code 20925 26 are included with product code 20925 36 to avoid disclosing data for individual companies.
[8]For 1987, data for product code 20925 29 were included with product code 20925 35.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]Typically for establishments with 15 employees or more.
[12]Typically for establishments with less than 15 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20922, PREPARED FRESH FISH AND OTHER FRESH SEAFOOD		
United States	**983.6**	**790.0**
Alabama	29.0	25.2
Alaska	114.3	31.2
California	109.0	101.8
Florida	37.3	36.1
Georgia	3.5	(NA)
Louisiana	34.6	16.6
Maryland	16.7	18.1
Massachusetts	87.7	111.0
Mississippi	133.8	100.3
North Carolina	28.8	20.7
Oregon	59.3	99.5
Texas	17.5	(NA)
Virginia	37.1	48.5
Washington	81.4	69.7
20923, FROZEN FISH		
United States	**2 732.4**	**2 048.3**
Alaska	604.4	413.3
California	53.4	89.5
Florida	5.3	5.5
Massachusetts	605.4	538.7
Mississippi	164.3	161.3
Oregon	7.0	25.3
Pennsylvania	299.1	308.4
Washington	658.3	253.0
20925, FROZEN SHELLFISH		
United States	**1 549.8**	**1 339.6**
Alabama	73.0	79.9
Alaska	238.2	99.3
California	142.9	118.3
Florida	359.9	394.0
Louisiana	73.0	39.0
Mississippi	37.5	101.5
Oregon	39.8	38.6
Texas	73.5	(NA)
Virginia	37.1	31.4
Washington	212.1	(NA)
20926, OTHER FROZEN SEAFOODS		
United States	**596.9**	**196.5**
Alaska	148.5	20.9
California	69.2	61.7
Florida	16.6	(NA)
Washington	224.6	(NA)
20951, ROASTED COFFEE		
United States	**3 763.4**	**4 312.9**
California	612.5	738.7
Illinois	112.3	138.0
Louisiana	566.5	539.4
Maryland	55.6	(NA)
Massachusetts	70.3	64.0
New Jersey	236.5	631.2
New York	139.7	210.4

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
20951, ROASTED COFFEE—Con.		
Ohio	61.9	(NA)
Texas	548.5	483.2
20952, CONCENTRATED COFFEE		
United States	**819.7**	**1 052.1**
California	111.8	(NA)
20961, POTATO CHIPS AND STICKS, PLAIN AND FLAVORED		
United States	**3 263.2**	**2 401.0**
Colorado	48.0	31.5
Florida	92.7	91.8
Indiana	233.5	143.6
Kentucky	65.1	49.3
Massachusetts	20.6	36.1
Michigan	74.9	66.4
North Carolina	203.8	183.1
Ohio	146.8	106.9
Pennsylvania	465.2	353.5
20962, CORN CHIPS AND RELATED PRODUCTS		
United States	**3 024.1**	**1 864.1**
Arizona	67.1	(NA)
Arkansas	30.7	(NA)
California	438.3	181.8
Colorado	44.9	29.0
Illinois	23.2	29.4
Kentucky	68.2	(NA)
Missouri	61.9	20.3
Ohio	128.5	91.7
Pennsylvania	215.9	107.0
Tennessee	86.7	(NA)
Texas	402.1	292.7
20963, OTHER CHIPS, STICKS, ETC.		
United States	**1 071.0**	**559.1**
California	93.1	100.6
Florida	14.7	7.2
Georgia	111.2	(NA)
Illinois	160.1	39.0
Massachusetts	15.2	(NA)
Minnesota	8.1	(NA)
Ohio	75.5	29.9
Pennsylvania	84.6	53.7
20991, DESSERTS (READY-TO-MIX)		
United States	**707.8**	**664.0**
Illinois	13.1	19.4
20993, SWEETENING SYRUPS AND MOLASSES		
United States	**607.5**	**399.3**
California	19.1	32.6
Florida	6.1	(NA)
Illinois	283.0	142.4
New York	23.2	8.9
Ohio	21.9	14.4
Pennsylvania	83.2	(NA)
Texas	5.6	(NA)
20994, BAKING POWDER AND YEAST		
United States	**316.0**	**339.3**
California	40.1	58.6
20996, VINEGAR AND CIDER		
United States	**228.5**	**164.7**
California	32.7	25.2
Michigan	41.7	13.1
New York	23.4	14.6
20999, PERISHABLE PREPARED FOODS SOLD IN BULK OR PACKAGES, NOT FROZEN OR CANNED		
United States	**2 361.6**	**1 347.3**
Arizona	36.7	18.3
California	663.7	320.4
Colorado	34.3	26.2
Florida	12.9	14.2
Georgia	15.5	22.2
Hawaii	13.0	16.2
Illinois	171.0	85.1
Indiana	45.5	18.1
Kansas	46.9	23.8
Louisiana	17.8	(NA)
Maryland	18.2	(NA)
Massachusetts	20.8	15.0
Michigan	30.1	18.5
Minnesota	15.5	13.1
Nebraska	11.5	8.7
New Jersey	66.2	49.3
New Mexico	14.3	6.1
New York	141.0	108.2
North Carolina	63.8	25.6
Ohio	98.2	57.3
Oklahoma	14.9	(NA)
Oregon	27.0	4.4
Pennsylvania	41.9	40.7
Tennessee	36.7	60.1
Texas	194.3	152.4
Utah	15.4	17.6
Virginia	111.9	(NA)
Washington	52.9	11.7
Wisconsin	93.6	74.6
2099A, MACARONI AND NOODLE PRODUCTS PACKAGED WITH OTHER INGREDIENTS, NOT CANNED OR FROZEN		
United States	**1 122.3**	**536.1**
California	50.3	(NA)
Florida	2.7	(NA)
Michigan	7.3	(NA)
New York	19.8	(NA)
Washington	13.9	(NA)
2099B, DRY MIX PREPARATIONS, EXCEPT MACARONI AND NOODLES		
United States	**2 198.8**	**1 721.7**
California	222.9	(NA)
Colorado	13.5	(NA)
Florida	30.8	(NA)
Georgia	140.1	(NA)
Illinois	535.1	(NA)
Indiana	11.6	(NA)
Massachusetts	30.4	(NA)
Nevada	8.7	(NA)
New Jersey	36.8	(NA)
Ohio	130.1	(NA)
Texas	186.9	(NA)
Wisconsin	102.9	(NA)
2099D, TEA IN CONSUMER PACKAGES		
United States	**1 106.1**	**936.3**
New Jersey	71.7	55.3
New York	146.9	100.3
Texas	11.6	(NA)
2099E, SPICES		
United States	**1 122.3**	**888.8**
California	204.1	155.8
Florida	19.2	30.9
Illinois	93.2	53.7
Nevada	15.6	(NA)
Wisconsin	32.7	34.4
2099F, PEANUT BUTTER		
United States	**1 269.7**	**847.7**
Georgia	244.2	153.4

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2099G, OTHER FOOD PREPARATIONS, N.E.C.			**2099G, OTHER FOOD PREPARATIONS, N.E.C.—Con.**		
United States	**1 661.3**	**1 300.4**	Massachusetts	52.9	(NA)
			Michigan	39.9	(NA)
California	95.6	155.0	Nebraska	16.7	23.5
Georgia	42.7	(NA)	New Jersey	12.4	28.4
Hawaii	5.8	5.8	New York	14.1	93.3
Illinois	104.7	96.0	Ohio	60.9	23.0
Iowa	257.2	142.3	Pennsylvania	105.6	64.8
Kansas	66.1	11.9	Washington	55.1	12.8

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2091-	**Canned and cured fish and seafoods**	**1 138.7**	**1 107.4**	**1 065.1**	**937.0**	**1 012.6**	**862.2**	**1 267.1**	**1 025.5**
20910	Canned and cured fish and other seafoods, including soup (except frozen seafoods and soup)	1 138.7	1 107.4	1 065.1	937.0	1 012.6	862.2	1 267.1	1 025.5
2092-	**Fresh or frozen prepared fish and seafoods**	**6 449.0**	**5 735.3**	**5 662.9**	**5 038.6**	**5 270.1**	**5 103.7**	**3 714.0**	**2 459.2**
20922	Prepared fresh fish and other fresh seafood	983.6	988.9	1 010.7	750.5	861.0	790.0	578.3	460.5
20923	Frozen fish	2 732.4	2 288.4	2 278.8	2 034.7	2 058.4	2 048.3	1 033.9	744.4
20925	Frozen shellfish	1 549.8	1 529.6	1 583.6	1 237.9	1 428.2	1 339.6	1 304.2	(NA)
20926	Other frozen seafoods	596.9	570.0	365.0	397.0	209.7	196.5	93.3	(NA)
20920	Fresh or frozen prepared fish and other seafood, n.s.k.	586.3	358.4	424.8	618.5	712.9	729.3	704.3	366.8
2095-	**Roasted coffee**	**4 701.5**	**4 825.4**	**5 557.6**	**5 256.0**	**5 430.8**	**5 466.6**	**5 122.7**	**5 217.8**
20951	Roasted coffee	3 763.4	3 714.1	4 412.3	4 276.8	4 355.0	4 312.9	3 773.3	3 674.5
20952	Concentrated coffee	819.7	920.4	958.7	839.7	975.1	1 052.1	1 250.2	1 387.8
20950	Roasted coffee, n.s.k.	118.5	190.9	186.6	139.5	100.8	101.6	99.1	155.5
2096-	**Potato chips and similar products**	**7 543.0**	**6 727.1**	**6 152.8**	**5 742.9**	**5 342.8**	**5 005.8**	**3 321.7**	**1 797.4**
20961	Potato chips and sticks, plain and flavored	3 263.2	2 874.6	2 671.8	2 584.1	2 575.7	2 401.0	1 545.4	962.2
20962	Corn chips and related products	3 024.1	2 986.1	2 618.6	2 353.9	1 981.2	1 864.1	1 087.1	655.2
20963	Other chips, sticks, etc.	1 071.0	716.8	711.9	608.9	582.2	559.1	598.0	147.0
20960	Potato chips and similar products, n.s.k.	184.7	149.7	150.4	196.1	203.7	181.5	91.3	33.0
2097-	**Manufactured ice**	**345.2**	**315.9**	**321.6**	**344.5**	**272.5**	**282.7**	**227.4**	**140.6**
20970	Manufactured ice	345.2	315.9	321.6	344.5	272.5	282.7	227.4	140.6
2098-	**Macaroni and spaghetti**	**1 279.9**	**1 221.8**	**1 211.2**	**1 121.2**	**1 067.9**	**974.4**	**1 192.8**	**751.7**
20980	Macaroni, spaghetti, and egg noodle products except canned and frozen, not packaged with other ingredients	1 279.9	1 221.8	1 211.2	1 121.2	1 067.9	974.4	1 192.8	751.7
2099-	**Food preparations, n.e.c.**	**14 183.0**	**12 349.6**	**11 959.5**	**10 965.1**	**10 909.4**	**10 670.7**	**8 159.7**	**(NA)**
20991	Desserts (ready-to-mix)	707.8	727.7	710.4	546.9	760.5	664.0	401.6	412.9
20993	Sweetening syrups and molasses	607.5	558.3	564.4	502.5	402.5	399.3	360.9	296.8
20994	Baking powder and yeast	316.0	332.0	322.5	288.8	325.6	339.3	273.2	170.2
20996	Vinegar and cider	228.5	410.3	435.7	368.4	188.1	164.7	187.8	122.8
20999	Perishable prepared foods sold in bulk or packages, not frozen or canned	2 361.6	2 190.1	2 105.1	1 788.3	1 355.9	1 347.3	769.1	515.5
2099A	Macaroni and noodle products packaged with other ingredients, not canned or frozen	1 122.3	2 635.7	2 415.8	2 068.0	2 349.6	536.1	1 213.3	(NA)
2099B	Dry mix preparations, except macaroni and noodles	2 198.8					1 721.7		(NA)
2099D	Tea in consumer packages	1 106.1	940.9	948.1	932.5	961.1	936.3	747.6	(NA)
2099E	Spices	1 122.3	1 159.9	1 070.1	982.3	896.3	888.8	585.9	450.3
2099F	Peanut butter	1 269.7	1 018.3	933.6	915.8	905.1	847.7	796.7	429.7
2099G	Other food preparations, n.e.c.	1 661.3	1 668.2	1 639.1	1 216.0	1 118.4	1 300.4	1 220.6	(NA)
20990	Food preparations, n.e.c., n.s.k.	1 480.8	708.3	814.7	1 355.4	1 646.3	1 525.2	1 603.0	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2091, CANNED AND CURED FISH AND SEAFOODS				
	Materials, ingredients, containers, and supplies	**(X)**	**556.1**	**(X)**	**449.9**
	Fin fish:				
091210	Alaska pollock, 1,000 s tons	–	–	(NA)	(2)
091212	Tuna, 1,000 s tons	(D)	(D)	(NA)	(2)
091213	Salmon, 1,000 s tons	*119.1	156.0	100.9	120.1
091214	Sardines, 1,000 s tons	*31.4	5.2	(NA)	(2)
091215	Ground fish (cod, cusk, haddock, hake, Atlantic Ocean perch, Atlantic pollock, and whiting), 1,000 s tons	8.4	4.9	(NA)	(2)
091216	Flounder	(X)	(D)	(X)	(2)
091217	Other fin fish	(X)	43.5	(X)	2108.9
	Shellfish:				
091312	Shrimp	(X)	(D)	(X)	15.7
091313	Crabs	(X)	.1	(X)	(3)
091314	Oysters	(X)	(D)	(X)	(3)
091315	Clams	(X)	45.4	(X)	34.4
091316	Other shellfish	(X)	(D)	(X)	38.0
209221	Surimi, 1,000 s tons	–	–	(NA)	(4)
209231	Frozen fish blocks, 1,000 s tons	3.4	23.3	(NA)	(4)
207006	Fats and oils, all types (purchased as such), mil lb	(S)	7.5	20.7	6.0
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	9.5	(X)	(4)
267101	Packaging paper and plastics film, coated and laminated	(X)	3.0	(X)	(4)
341101	Metal cans, can lids and ends	(X)	54.4	(X)	(4)
970099	All other materials and components, parts, containers, and supplies	(X)	60.1	(X)	473.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	50.1	(X)	83.0
	INDUSTRY 2092, FRESH OR FROZEN PREPARED FISH				
	Materials, ingredients, containers, and supplies	**(X)**	**4 165.0**	**(X)**	**r3 642.0**
	Fin fish:				
091210	Alaska pollock, 1,000 s tons	79.0	71.7	44.5	32.8
091212	Tuna, 1,000 s tons	*3.5	13.3	2.4	8.7
091213	Salmon, 1,000 s tons	241.2	623.9	161.9	348.0
091214	Sardines, 1,000 s tons	(D)	(D)	(NA)	(6)
091215	Ground fish (cod, cusk, haddock, hake, Atlantic Ocean perch, Atlantic pollock, and whiting), 1,000 s tons	223.5	280.6	173.3	276.0
091216	Flounder	(X)	28.2	(X)	27.1
091217	Other fin fish	(X)	377.4	(X)	6309.3
	Shellfish:				
091312	Shrimp	(X)	569.0	(X)	763.3
091313	Crabs	(X)	280.1	(X)	191.8
091314	Oysters	(X)	34.7	(X)	50.0
091315	Clams	(X)	32.1	(X)	45.8
091316	Other shellfish	(X)	131.5	(X)	120.9
209221	Surimi, 1,000 s tons	35.1	105.8	12.9	27.8
209231	Frozen fish blocks, 1,000 s tons	241.6	570.8	205.4	514.7
207006	Fats and oils, all types (purchased as such), mil lb	(D)	(D)	76.2	20.8
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	91.3	(X)	(7)
267101	Packaging paper and plastics film, coated and laminated	(X)	31.0	(X)	(7)
341101	Metal cans, can lids and ends	(X)	26.6	(X)	(7)
970099	All other materials and components, parts, containers, and supplies	(X)	352.7	(X)	7362.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	503.1	(X)	r542.2
	INDUSTRY 2095, ROASTED COFFEE				
	Materials, ingredients, containers, and supplies	**(X)**	**2 319.1**	**(X)**	**3 347.4**
017921	Green coffee, 1,000 cwt	**17 261.7	1 698.4	21 443.0	2 641.8
267101	Packaging paper and plastics film, coated and laminated	(X)	47.6	(X)	(8)
267301	Bags; plastics, foil, and coated paper	(X)	56.6	(X)	(8)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	60.3	(X)	65.8
308941	Plastics containers and plastics can and jar lids	(X)	38.5	(X)	(8)
322101	Glass containers	(X)	29.4	(X)	56.1
341101	Metal cans, can lids and ends	(X)	166.2	(X)	(8)
970099	All other materials and components, parts, containers, and supplies	(X)	165.3	(X)	8497.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	56.9	(X)	86.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2096, POTATO CHIPS AND SIMILAR SNACKS				
	Materials, ingredients, containers, and supplies	**(X)**	**3 144.6**	**(X)**	**r1 495.9**
013923	Shelled peanuts, mil lb	29.3	10.0	(NA)	(9)
190041	Sweetcorn, fresh or frozen, 1,000 s tons	(D)	(D)	(NA)	51.1
011503	Field corn, whole grain, mil lb	529.6	85.9		
013411	White potatoes, 1,000 s tons	4 366.0	658.5	2 313.9	338.7
016191	Other fresh vegetables, 1,000 s tons	–	–	(NA)	(9)
203417	Dried vegetables, except potatoes and corn, 1,000 s tons	(D)	(D)	(NA)	(9)
011991	Popcorn, whole grain, mil lb	135.1	17.6	(NA)	(9)
204130	Corn grits, meal, and flakes, 1,000 cwt	(D)	(D)	(NA)	(9)
204136	Corn flour, 1,000 cwt	744.2	128.7	(NA)	(9)
204110	Wheat flour, 1,000 cwt	*712.8	10.3	(S)	3.4
013901	Spices, raw, mil lb	*14.3	12.9	(NA)	(9)
204602	Corn syrup, mil lb	(D)	(D)	(NA)	(9)
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	3.0	1.7	(NA)	(9)
207006	Fats and oils, all types (purchased as such), mil lb	958.6	279.0	819.9	200.2
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	173.8	(X)	131.8
267101	Packaging paper and plastics film, coated and laminated	(X)	370.3	(X)	(9)
267301	Bags; plastics, foil, and coated paper	(X)	54.7	(X)	(9)
267401	Bags; uncoated paper and multiwall	(X)	(D)	(X)	(9)
322101	Glass containers	(X)	.2	(X)	(9)
341101	Metal cans, can lids and ends	(X)	28.4	(X)	(9)
970099	All other materials and components, parts, containers, and supplies	(X)	840.2	(X)	9651.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	111.4	(X)	r119.1
	INDUSTRY 2097, MANUFACTURED ICE				
	(Material data were not collected for this industry.)				
	INDUSTRY 2098, MACARONI AND SPAGHETTI				
	Materials, ingredients, containers, and supplies	**(X)**	**506.4**	**(X)**	**388.1**
	Wheat flour:				
204115	Semolina and durum flour, 1,000 cwt	18 205.2	257.9	*15 310.0	186.2
204119	Other wheat flour (including farina), 1,000 cwt	**458.1	5.2	1 619.8	13.2
267101	Packaging paper and plastics film, coated and laminated	(X)	31.4	(X)	(10)
267301	Bags; plastics, foil, and coated paper	(X)	2.6	(X)	(10)
322101	Glass containers	(X)	(11)	(X)	(10)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	75.9	(X)	72.1
970099	All other materials and components, parts, containers, and supplies	(X)	11104.7	(X)	1057.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	28.8	(X)	58.7
	INDUSTRY 2099, FOOD PREPARATIONS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**5 809.5**	**(X)**	**4 268.2**
013923	Shelled peanuts, mil lb	635.6	449.4	477.8	294.8
190041	Sweetcorn, fresh or frozen, 1,000 s tons	(D)	(D)	(S)	18.5
013411	White potatoes, 1,000 s tons	**180.2	29.9	**164.3	20.9
016191	Other fresh vegetables, 1,000 s tons	**427.4	137.6	(S)	54.3
203417	Dried vegetables, except potatoes and corn, 1,000 s tons	*89.9	84.0	80.1	61.5
011991	Popcorn, whole grain, mil lb	476.9	76.3	(NA)	(12)
011503	Field corn, whole grain, mil lb	(S)	24.0	(NA)	(12)
204130	Corn grits, meal, and flakes, 1,000 cwt	(S)	63.8	(NA)	(12)
204136	Corn flour, 1,000 cwt	**149.3	29.0	(NA)	(12)
204110	Wheat flour, 1,000 cwt	*7 465.8	159.2	*6 593.5	84.8
013901	Spices, raw, mil lb	*386.5	414.3	(NA)	(12)
017921	Green coffee, 1,000 cwt	(D)	(D)	(D)	(D)
017931	Raw tea, mil lb	133.2	119.7	135.7	103.0
204602	Corn syrup, mil lb	201.5	22.6	(S)	18.7
206011	Sugar, cane and beet (in terms of sugar solids), 1,000 s tons	394.0	204.4	339.8	142.9
206601	Chocolate (compounds, cocoa, chocolate liquor, coatings, chocolate flavoring, etc.), mil lb	26.4	18.1	(D)	(D)
207006	Fats and oils, all types (purchased as such), mil lb	*203.8	98.9	157.5	53.2
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	281.3	(X)	238.4
267101	Packaging paper and plastics film, coated and laminated	(X)	147.3	(X)	(12)
267301	Bags; plastics, foil, and coated paper	(X)	50.0	(X)	(12)
267401	Bags; uncoated paper and multiwall	(X)	14.8	(X)	(12)
322101	Glass containers	(X)	72.9	(X)	92.6
341101	Metal cans, can lids and ends	(X)	33.1	(X)	34.0
970099	All other materials and components, parts, containers, and supplies	(X)	2 287.2	(X)	121 949.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	966.2	(X)	872.3

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data for material codes 091210, 091212, 091214, 091215, and 091216 were included with material code 091217.
[3]For 1987, data for material codes 091313 and 091314 were included with material code 091316.
[4]For 1987, data for material codes 209221, 209231, 265001, 267101, and 341101 were included with material code 970099.
[5]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[6]For 1987, data for material code 091214 were included with material code 091217.
[7]For 1987, data for material codes 265001, 267101, and 341101 were included with material code 970099.
[8]For 1987, data for material codes 267101, 267301, 308941, and 341101 were included with material code 970099.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[9]For 1987, data were included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.
[10]For 1987, data were included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.
[11]For 1992, data for material code 322101 are included with material code 970099 to avoid disclosing data for individual companies.
[12]For 1987, data were included with Material Code 970099, All Other Materials and Components, Parts, Containers, and Supplies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2011B 17	2011B 99
2011B 59	2011B 99
20137	20135
20137 41	20135 13
20137 41	20135 17
2013B 17	2013B 19
2013B 18	2013B 19
20223 01	20223 00
20223 02	20223 00
20224 11	20224 21
20224 13	20224 21
20238 01	20238 11
20238 03	20238 11
20238 05	20238 11
20238 07	20238 11
20238 19	20238 11
20321 00	20321 11
20321 00	20321 21
20321 00	20321 31
20321 00	20321 51
20321 00	20321 71
20321 00	20321 98
20323 71	20323 73
20323 71	20323 74
20324 63	20324 61
20324 63	20324 62
20331 59	20331 18
20331 59	20331 31
20331 59	20331 97
20332 98	20332 58
20332 98	20332 73
20332 98	20332 99
20336 67	20336 61
20336 67	20336 63
20336 67	20336 65
20338 12	20338 15
20338 13	20338 15
20343 25	20343 18
20343 25	20343 23
20343 32	20343 29
20343 32	20343 31
20343 39	20343 38
20343 39	20343 41
20352 21	20352 34
20352 33	20352 34
20352 35	20352 34
20352 39	20352 34
20372 63	20372 98
20372 69	20372 98
20382 11	20382 23
20382 13	20382 23
20382 15	20382 23
20382 19	20382 23
20382 21	20382 26
20382 23	20382 26
20382 37	20382 53
20382 38	20382 53
20382 39	20382 53
20382 43	20382 51
20382 45	20382 51
20382 47	20382 51
20382 49	20382 51
20382 49	20382 53
20382 49	20382 55
20382 49	20382 57
20415 11	20415 51
20415 11	20415 52
20415 13	20415 53
20415 13	20415 54
20415 15	20415 56
20415 15	20415 57
20415 17	20415 60
20415 19	20415 63
20415 21	20415 66
20415 21	20415 67
20415 25	20415 72
20415 25	20415 74
20415 86	20415 87
20415 88	20415 87
20415 89	20415 87
20415 92	20415 93
20415 95	20415 93
20416 13	20416 11
20416 13	20416 23
20431	20430
20431 01	20430 11
20431 03	20430 11
20431 05	20430 12
20431 07	20430 12
20431 09	20430 15
20431 11	20430 15
20431 13	20430 17
20431 16	20430 17
20431 18	20430 21
20431 19	20430 21
20432	20430
20432 01	20430 23
20432 03	20430 63
20432 05	20430 55
20432 07	20430 57
20432 09	20430 61
20440 93	20440 99
20440 98	20440 99
20450 11	20450 51
20450 11	20450 52
20450 13	20450 53
20450 13	20450 54
20450 15	20450 56
20450 15	20450 57
20450 17	20450 60
20450 19	20450 63
20450 21	20450 66
20450 21	20450 67
20450 25	20450 72
20450 25	20450 74
20450 86	20450 87
20450 88	20450 87
20450 89	20450 87
20450 92	20450 93
20450 95	20450 93
20461 18	20461 17
20461 18	20462 49
20461 23	20461 19
20461 25	20461 31
20461 29	20461 19
20461 29	20461 34
20461 29	20461 37
20462 11	20462 41
20462 11	20462 47
20462 13	20462 41
20462 13	20462 47
20462 15	20462 43
20462 15	20462 47
20462 17	20462 43
20462 17	20462 47
20489 41	20489 00
2048A 12	2048A 13
2048A 19	2048A 13
20511 21	20511 11
20511 22	20511 11
20511 27	20511 13
20511 29	20511 13
20511 31	20511 15
20511 33	20511 15
20511 35	20511 17
20511 37	20511 17
20511 41	20511 28
20511 42	20511 28
20512 30	20512 33
20512 31	20512 33
20512 43	20512 35
20512 44	20512 35
20512 50	20512 36
20512 51	20512 36
20512 60	20512 37
20512 61	20512 37
20512 70	20512 39
20512 71	20512 39
20512 80	20512 40
20512 81	20512 40
20512 90	20512 42
20512 91	20512 42
20522 16	20522 19
20522 17	20522 19
20522 18	20522 19
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20630 12	20630 07
20630 35	20630 89
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20630 76	20630 81
20630 91	20630 89
20752 97	20752 32
20752 97	20752 98
20791 83	20791 81
20791 85	20791 81
20824 11	20824 00
20840 10	20840 00
20851 15	20851 13
20851 15	20851 19
20853 65	20853 63
20853 65	20853 81
20864 00	20864 10
20922 15	20922 21
20922 17	20922 21
20922 18	20922 22
20922 19	20922 22
20923 21	20923 24
20923 21	20923 31
20923 21	20923 33
20923 23	20923 25
20923 23	20923 35
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20923 29	20923 35
20925 27	20925 31
20925 28	20925 31
20925 29	20925 35
20925 30	20925 32
20952 00	20952 11
20952 00	20952 14
20952 00	20952 17
20952 00	20952 19
20980 01	20980 21
20980 02	20980 21
20980 03	20980 21
20980 04	20980 31
20980 05	20980 31
20980 06	20980 31
20999 43	20999 41
20999 45	20999 41
20999 58	20999 98
20999 59	20999 98
2099A	20997
2099A 01	20997 81
2099A 02	20997 81
2099A 03	20997 81
2099A 04	20997 85
2099A 05	20997 85
2099A 06	20997 85
2099B	20997
2099B 01	20997 13
2099B 03	20997 21
2099B 05	20997 31
2099B 07	20997 41
2099B 09	20997 51
2099B 11	20997 61
2099B 13	20997 71
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
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2011B 99	2011B 59
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20135 13	20137 41
20135 17	20137 41
2013B 19	2013B 17
2013B 19	2013B 18
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20224 21	20224 13
20238 11	20238 01
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20980 21	20980 01
20980 21	20980 02
20980 21	20980 03
20980 31	20980 04
20980 31	20980 05
20980 31	20980 06
20997	2099A
20997	2099B
20997 13	2099B 01
20997 21	2099B 03
20997 31	2099B 05
20997 41	2099B 07
20997 51	2099B 09
20997 61	2099B 11
20997 71	2099B 13
20997 81	2099A 01
20997 81	2099A 02
20997 81	2099A 03
20997 85	2099A 04
20997 85	2099A 05
20997 85	2099A 06
20997 98	2099B 19
20999 41	20999 43
20999 41	20999 45
20999 98	20999 58
20999 98	20999 59

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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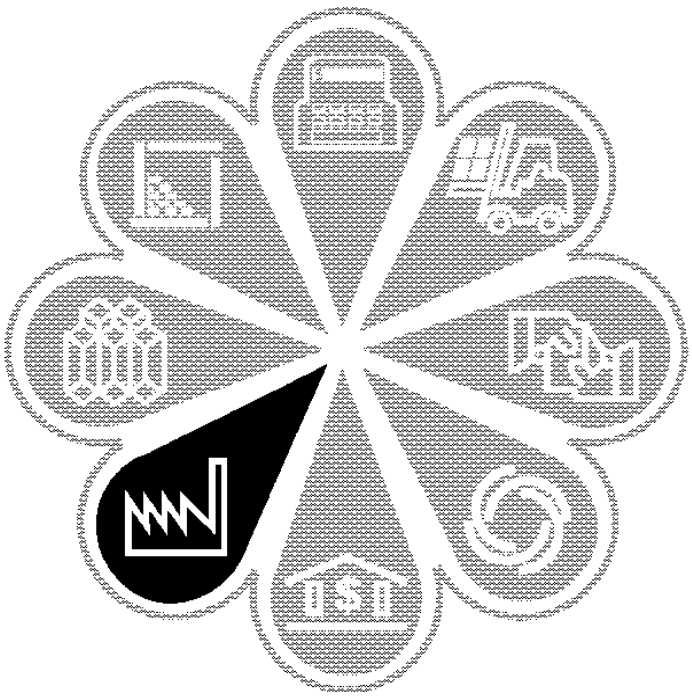
1992 Census of Manufactures

MC92-I-21A

INDUSTRY SERIES

Tobacco Products

Industries 2111, 2121, 2131, and 2141



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2111	Cigarettes
2121	Cigars
2131	Chewing and Smoking Tobacco
2141	Tobacco Stemming and Redrying

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. Comparability for the product classes and product codes that changed between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2111, CIGARETTES

This industry is made up of establishments primarily engaged in the manufacturing of cigarettes. Establishments primarily engaged in manufacturing cigars are classified in industry 2121.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2111, Cigarettes, had employment of 25.4 thousand. The employment figure was 21 percent below the 32.0 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Virginia, North Carolina, and Kentucky. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $29.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2111, no matter in which industry they were produced, appear in table 6a and aggregate to $28.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cigarettes industry amounted to $5.0 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments, data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2121, CIGARS

This industry is made up of establishments primarily engaged in the manufacturing of cigars. Establishments primarily engaged in manufacturing cigarettes are classified in industry 2111.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2121, Cigars, had employment of 2.6 thousand. The employment figure was 4 percent above the 2.5 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Florida, Pennsylvania, and Alabama. This represents a shift from 1987 when Alabama and Florida were the leading States.

The total value of shipments for establishments classified in this industry was $286.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2121, no matter in which industry they were produced, appear in table 6a and aggregate to $264.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cigars industry amounted to $96.6 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments, data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2131, CHEWING AND SMOKING TOBACCO

This industry is made up of establishments primarily engaged in the manufacturing of chewing and smoking tobacco and snuff.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2131, Chewing and Smoking Tobacco, had employment of 3.2 thousand. The employment figure was 3 percent below the 3.3 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Kentucky, Tennessee, and North Carolina. This represents a shift from 1987 when Kentucky and Tennessee were the leading States.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2131, no matter in which industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the chewing and smoking tobacco industry amounted to $398.0 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments, data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2141, TOBACCO STEMMING AND REDRYING

This industry is made up of establishments primarily engaged in the stemming and redrying of tobacco. Establishments primarily engaged in selling leaf tobacco as merchant wholesalers, agents, or brokers and which also may be engaged in stemming tobacco are classified in major group 51. Leaf tobacco warehouses which may be engaged in stemming tobacco are classified in major group 42.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2141, Tobacco Stemming and Redrying, had employment of 6.8 thousand. The employment figure was 1 percent below the 6.9 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina and Virginia. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2141, no matter in which industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the tobacco stemming and redrying industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments, data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2111, CIGARETTES															
1992 Census	8	11	10	25.4	1 205.0	18.1	33.0	811.0	24 801.9	4 965.6	[9]29 746.1	322.5	5 837.0	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	26.9	1 224.0	19.5	35.1	828.4	22 209.6	4 902.4	[9]27 111.0	341.9	5 734.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.8	1 229.7	20.2	38.8	847.5	20 628.3	4 874.1	[9]25 522.4	236.7	5 352.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.6	1 212.4	22.1	39.1	832.0	17 240.1	4 583.6	[9]21 825.1	288.4	5 166.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.9	1 238.6	23.9	41.9	855.4	15 624.0	4 471.1	[9]20 078.3	365.7	4 902.5	(NA)	(NA)
1987 Census	9	12	12	32.0	1 233.7	23.6	42.9	860.3	12 970.7	4 396.6	[9]17 372.0	410.2	4 950.4	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	32.7	1 101.4	24.0	43.8	758.1	11 501.1	4 205.2	[9]15 699.1	601.6	4 956.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	35.5	1 130.7	26.6	47.9	799.7	10 540.7	4 362.1	[9]14 896.8	622.2	5 183.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	36.8	1 123.0	27.0	50.2	786.1	9 538.0	4 403.3	[9]13 938.4	624.8	5 520.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	38.6	1 112.1	29.2	52.3	800.6	8 624.0	3 986.0	[9]12 610.5	570.0	5 697.8	(NA)	(NA)
1982 Census	8	14	13	41.5	1 093.7	32.2	58.5	801.0	8 098.3	4 052.3	[9]12 126.8	570.9	5 682.7	97	(D)
1981 ASM	(NA)	(NA)	(NA)	42.3	994.2	33.9	62.9	736.7	6 536.3	4 025.6	[9]10 559.4	578.9	3 359.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	39.3	842.2	31.4	59.9	628.7	5 386.9	3 673.2	[9]9 055.9	326.0	2 778.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.7	708.5	31.4	59.3	533.5	4 670.6	3 051.9	[9]7 720.8	194.2	2 658.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	37.8	620.1	31.3	58.8	476.2	3 946.8	3 076.7	[9]7 017.4	166.9	2 719.5	(NA)	(NA)
1977 Census	8	14	13	39.0	567.7	32.5	58.9	442.0	3 803.1	2 573.5	[9]6 377.4	118.0	2 652.2	97	99
INDUSTRY 2121, CIGARS															
1992 Census	25	27	19	2.6	53.3	2.0	3.9	35.0	190.1	96.6	[9]286.8	3.0	61.8	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	2.7	51.3	2.1	3.9	32.9	200.8	110.0	[9]311.5	3.9	62.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.3	38.6	1.8	3.6	27.1	137.0	92.6	[9]229.8	3.9	43.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.3	34.5	1.8	3.4	24.2	116.8	87.8	[9]205.8	3.1	40.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.4	33.7	2.0	3.8	24.0	115.4	86.0	[9]201.6	4.8	39.7	(NA)	(NA)
1987 Census	16	20	18	2.5	35.7	2.0	4.0	26.2	106.3	85.5	[9]191.5	5.0	47.3	(D)	89
1986 ASM	(NA)	(NA)	(NA)	3.7	55.4	3.0	5.7	38.1	147.2	104.9	[9]252.1	7.1	64.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.0	50.1	3.4	6.3	35.4	136.8	107.8	[9]243.8	5.2	63.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.2	50.7	3.6	6.4	37.0	135.6	112.2	[9]248.3	4.5	56.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.0	58.4	4.3	8.1	42.8	156.7	133.4	[9]288.9	5.5	54.0	(NA)	(NA)
1982 Census	54	60	30	5.1	58.5	4.5	8.5	45.4	133.3	120.5	[9]253.7	7.4	48.5	99	92
1981 ASM	(NA)	(NA)	(NA)	5.7	56.5	5.1	9.8	44.7	149.9	126.2	[9]275.9	4.9	48.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.1	54.9	5.5	10.1	43.4	135.2	120.7	[9]255.7	2.0	42.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.8	53.3	6.2	11.3	42.8	133.1	117.6	[9]251.1	4.3	45.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.6	56.1	7.0	12.7	45.4	148.9	123.7	[9]272.7	3.6	53.8	(NA)	(NA)
1977 Census	94	101	34	7.7	54.9	7.0	12.7	44.0	125.6	117.8	[9]242.7	3.3	57.8	(D)	92
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO															
1992 Census	23	30	19	3.2	91.8	2.1	4.1	50.6	1 212.5	398.0	[9]1 608.4	15.1	219.0	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	3.2	88.0	2.1	4.0	48.7	1 202.8	394.5	[9]1 601.7	14.3	180.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.2	84.4	2.1	4.1	46.4	1 105.9	371.1	[9]1 473.8	16.2	190.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	3.3	86.3	2.3	4.5	48.9	952.2	359.0	[9]1 310.1	18.4	159.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.4	83.8	2.3	4.5	49.8	873.0	312.1	[9]1 185.0	12.6	118.0	(NA)	(NA)
1987 Census	23	29	19	3.3	77.2	2.2	4.3	46.2	791.9	321.5	[9]1 114.3	8.9	167.7	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	3.3	78.3	2.2	4.3	46.9	730.4	327.7	[9]1 062.4	10.1	159.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.0	61.7	2.1	3.7	36.5	641.1	306.0	[9]946.6	13.1	170.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.6	52.4	1.9	3.6	35.0	544.6	262.7	[9]805.0	12.9	137.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.0	53.9	2.4	4.5	37.9	449.6	247.7	[9]697.9	12.1	143.1	(NA)	(NA)
1982 Census	22	29	18	3.1	51.6	2.4	4.4	37.4	420.5	246.8	[9]665.4	8.3	143.9	(D)	84
1981 ASM	(NA)	(NA)	(NA)	3.6	51.1	2.7	5.2	35.8	406.5	208.9	[9]610.9	(S)	136.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	3.6	43.7	2.8	5.1	30.4	342.1	201.6	[9]544.4	(S)	124.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	3.4	40.1	2.7	5.0	28.1	280.2	220.1	[9]499.6	5.7	113.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	3.1	35.1	2.4	4.7	24.8	233.0	195.7	[9]426.7	8.2	114.7	(NA)	(NA)
1977 Census	28	35	19	3.2	32.1	2.5	4.4	22.0	188.9	166.4	[9]354.3	7.3	99.8	97	75
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING															
1992 Census	33	47	32	6.8	174.2	4.8	10.3	99.4	1 002.3	2 555.8	[9]3 557.1	48.6	753.0	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	7.1	156.6	5.0	10.4	86.1	871.1	2 144.5	[9]3 007.5	45.2	515.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.6	163.7	5.4	10.9	93.6	690.0	2 006.3	[9]2 696.5	21.0	532.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.0	161.7	5.8	10.8	93.9	613.3	1 845.6	[9]2 462.0	89.4	339.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.0	145.1	5.0	10.0	79.1	542.8	1 821.4	[9]2 366.7	26.6	414.5	(NA)	(NA)
1987 Census	62	76	34	6.9	139.0	4.8	10.2	77.7	394.9	1 687.0	[9]2 079.2	40.2	396.6	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	6.4	125.3	4.5	9.2	69.3	345.9	1 703.5	[9]2 059.4	40.3	745.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.7	126.9	4.8	9.9	69.3	575.0	1 849.8	[9]2 419.6	28.0	813.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.1	127.8	6.1	12.5	75.1	568.4	1 904.8	[9]2 448.0	28.0	1 151.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.2	130.6	6.0	12.6	76.7	461.8	2 173.7	[9]2 654.7	61.0	1 287.9	(NA)	(NA)
1982 Census	34	60	46	8.3	119.8	6.2	12.3	73.3	312.6	2 680.2	[9]3 015.4	110.7	1 311.0	(D)	(D)
1981 ASM	(NA)	(NA)	(NA)	9.5	117.4	7.3	13.6	74.2	209.2	2 330.1	[9]2 556.0	84.1	1 075.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.1	104.0	6.9	12.9	65.0	283.3	2 095.4	[9]2 338.6	26.4	919.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.7	104.1	7.4	14.5	63.5	258.8	1 850.5	[9]2 129.8	33.0	823.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.6	101.2	8.3	16.0	65.4	278.0	1 978.6	[9]2 233.9	75.2	906.2	(NA)	(NA)
1977 Census	39	78	57	10.7	96.1	8.4	16.6	62.6	216.5	1 872.1	[9]2 076.2	52.8	902.2	(D)	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Data represent value of production rather than value of shipments. Consequently, the formula for computing value added by manufacture was modified to exclude any change in finished products between beginning- and end-of-year inventories.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2111, CIGARETTES								
1992 Census	47 441	71	1 823	24.58	17	21	976 453	5	751.57
1991 ASM	45 502	72	1 800	23.60	18	23	825 636	6	632.75
1990 ASM	44 234	73	1 921	21.84	19	24	742 025	6	531.66
1989 ASM	40 959	75	1 769	21.28	21	27	582 436	7	440.92
1988 ASM	38 828	75	1 753	20.42	22	28	489 781	8	372.89
1987 Census	38 553	74	1 818	20.05	25	32	405 334	10	302.35
1986 ASM	33 682	73	1 825	17.31	27	34	351 716	10	262.58
1985 ASM	31 851	75	1 801	16.70	29	37	296 921	11	220.06
1984 ASM	30 516	73	1 859	15.66	32	40	259 185	12	190.00
1983 ASM	28 811	76	1 791	15.31	32	40	223 420	13	164.89
1982 Census	26 354	78	1 817	13.69	33	42	195 140	14	138.43
1981 ASM	23 504	80	1 855	11.71	38	48	154 522	15	103.92
1980 ASM	21 430	80	1 908	10.50	41	50	137 071	16	89.93
1979 ASM	18 307	81	1 889	9.00	40	49	120 687	15	78.76
1978 ASM	16 405	83	1 879	8.10	44	53	104 413	16	67.12
1977 Census	14 556	83	1 812	7.50	40	49	97 515	15	64.57
	INDUSTRY 2121, CIGARS								
1992 Census	20 500	77	1 950	8.97	34	52	73 115	28	48.74
1991 ASM	19 000	78	1 857	8.44	35	52	74 370	26	51.49
1990 ASM	16 783	78	2 000	7.53	40	57	59 565	28	38.06
1989 ASM	15 000	78	1 889	7.12	43	59	50 783	30	34.35
1988 ASM	14 042	83	1 900	6.32	43	59	48 083	29	30.37
1987 Census	14 280	80	2 000	6.55	45	63	42 520	34	26.58
1986 ASM	14 973	81	1 900	6.68	42	64	39 784	38	25.82
1985 ASM	12 525	85	1 853	5.62	44	65	34 200	37	21.71
1984 ASM	12 071	86	1 778	5.78	45	66	32 286	37	21.19
1983 ASM	11 680	86	1 884	5.28	46	66	31 340	37	19.35
1982 Census	11 471	88	1 889	5.34	47	71	26 137	44	15.68
1981 ASM	9 912	89	1 922	4.56	46	66	26 298	38	15.30
1980 ASM	9 000	90	1 836	4.30	47	69	22 164	41	13.39
1979 ASM	7 838	91	1 823	3.79	47	68	19 574	40	11.78
1978 ASM	7 382	92	1 814	3.57	45	66	19 592	38	11.72
1977 Census	7 130	91	1 814	3.46	49	71	16 312	44	9.89
	INDUSTRY 2131, CHEWING AND SMOKING TOBACCO								
1992 Census	28 688	66	1 952	12.34	25	30	378 906	8	295.73
1991 ASM	27 500	66	1 905	12.18	25	30	375 875	7	300.70
1990 ASM	26 375	66	1 952	11.32	25	31	345 594	8	269.73
1989 ASM	26 152	70	1 957	10.87	27	34	288 545	9	211.60
1988 ASM	24 647	68	1 957	11.07	26	33	256 765	10	194.00
1987 Census	23 394	67	1 955	10.74	29	36	239 970	10	184.16
1986 ASM	23 727	67	1 955	10.91	31	38	221 333	11	169.86
1985 ASM	20 567	70	1 762	9.86	32	39	213 700	10	173.27
1984 ASM	20 154	73	1 895	9.72	33	39	209 462	10	151.28
1983 ASM	17 967	80	1 875	8.42	35	43	149 867	12	99.91
1982 Census	16 645	77	1 833	8.50	37	45	135 645	12	95.57
1981 ASM	14 194	75	1 926	6.88	34	43	112 917	13	78.17
1980 ASM	12 139	78	1 821	5.96	37	45	95 028	13	67.08
1979 ASM	11 794	79	1 852	5.62	44	52	82 412	14	56.04
1978 ASM	11 323	77	1 958	5.28	46	54	75 161	15	49.57
1977 Census	10 031	78	1 760	5.00	47	56	59 031	17	42.93
	INDUSTRY 2141, TOBACCO STEMMING AND REDRYING								
1992 Census	25 618	71	2 146	9.65	72	77	147 397	17	97.31
1991 ASM	22 056	70	2 080	8.28	71	77	122 690	18	83.76
1990 ASM	21 539	71	2 019	8.59	74	80	90 789	24	63.30
1989 ASM	20 213	73	1 862	8.69	75	82	76 663	26	56.79
1988 ASM	20 729	71	2 000	7.91	77	83	77 543	27	54.28
1987 Census	20 145	70	2 125	7.62	81	88	57 232	35	38.72
1986 ASM	19 578	70	2 044	7.53	83	89	54 047	36	37.60
1985 ASM	18 940	72	2 062	7.00	76	82	85 821	22	58.08
1984 ASM	15 778	75	2 049	6.01	78	83	70 173	22	45.47
1983 ASM	15 927	73	2 100	6.09	82	87	56 317	28	36.65
1982 Census	14 434	75	1 984	5.96	89	93	37 663	38	25.41
1981 ASM	12 358	77	1 863	5.46	91	96	22 021	56	15.38
1980 ASM	11 429	76	1 870	5.04	90	94	31 132	37	21.96
1979 ASM	10 732	76	1 959	4.38	87	92	26 680	40	17.85
1978 ASM	9 547	78	1 928	4.09	89	93	26 226	36	17.37
1977 Census	8 981	79	1 976	3.77	90	95	20 234	44	13.04

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2111, CIGARETTES														
United States	–	**11**	**10**	**25.4**	**1 205.0**	**18.1**	**33.0**	**811.0**	**24 801.9**	**4 965.6**	**29 746.1**	**322.5**	**32.0**	**12 970.7**
Georgia	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	2	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
North Carolina	–	6	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Virginia	–	1	1	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
INDUSTRY 2121, CIGARS														
United States	–	**27**	**19**	**2.6**	**53.3**	**2.0**	**3.9**	**35.0**	**190.1**	**96.6**	**286.8**	**3.0**	**2.5**	**106.3**
Alabama	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	12	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	6	5	.6	11.3	.5	.9	7.8	26.5	17.4	43.8	(D)	E	(D)
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO														
United States	–	**30**	**19**	**3.2**	**91.8**	**2.1**	**4.1**	**50.6**	**1 212.5**	**398.0**	**1 608.4**	**15.1**	**3.3**	**791.9**
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	6	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING														
United States	–	**47**	**32**	**6.8**	**174.2**	**4.8**	**10.3**	**99.4**	**1 002.3**	**2 555.8**	**3 557.1**	**48.6**	**6.9**	**394.9**
Kentucky	E1	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	13	13	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Pennsylvania	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	10.7
South Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Tennessee	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	8	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Companies	number	8	25	23	33
All establishments	number	11	27	30	47
With 1 to 19 employees	number	1	8	11	15
With 20 to 99 employees	number	1	10	8	14
With 100 employees or more	number	9	9	11	18
Employment and labor costs:					
Employees	1,000	25.4	2.6	3.2	6.8
Compensation, total	mil dol	1 707.8	68.2	122.7	228.6
Annual payroll	mil dol	1 205.0	53.3	91.8	174.2
Fringe benefits	mil dol	502.8	14.9	30.8	54.3
Social Security and other legally required payments	mil dol	98.2	5.5	9.1	18.6
Employer voluntary payments	mil dol	404.6	9.4	21.7	35.8

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Production workers:				
Average for year ---- 1,000	18.1	2.0	2.1	4.8
March ---- 1,000	18.5	2.1	2.0	5.3
May ---- 1,000	18.0	2.0	2.1	3.2
August ---- 1,000	18.1	1.9	2.1	6.0
November ---- 1,000	18.0	1.9	2.1	4.7
Hours ---- millions	33.0	3.9	4.1	10.3
Wages ---- mil dol	811.0	35.0	50.6	99.4
Cost of materials[1] ---- mil dol	4 965.6	96.6	398.0	2 555.8
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 589.1	78.9	313.2	2 256.7
Resales ---- mil dol	299.2	14.5	74.5	246.0
Fuels ---- mil dol	27.1	.7	2.4	17.3
Purchased electricity ---- mil dol	48.9	2.4	4.0	21.7
Contract work ---- mil dol	1.4	.1	3.9	14.1
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	1 054.4	35.1	76.4	346.3
Generated less sold ---- mil kWh	(D)	–	–	(D)
Total value of shipments ---- mil dol	29 746.1	286.8	1 608.4	3 557.1
Value added ---- mil dol	24 801.9	190.1	1 212.5	1 002.3
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	5 269.9	67.8	161.8	1 004.4
Finished goods ---- mil dol	614.1	30.1	31.5	388.5
Work in process ---- mil dol	66.2	3.1	14.3	12.9
Materials and supplies ---- mil dol	4 589.6	34.6	115.9	603.0
End of 1992 ---- mil dol	5 837.0	61.8	219.0	753.0
Finished goods ---- mil dol	701.7	25.3	45.6	408.6
Work in process ---- mil dol	87.6	3.0	16.4	13.8
Materials and supplies ---- mil dol	5 047.6	33.5	157.0	330.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Gross book value of depreciable assets:				
Total:				
Beginning of year	5 030.9	55.9	206.1	1 077.6
New capital expenditures[1]	322.5	3.0	15.1	48.6
Used capital expenditures	(D)	(D)	(D)	1.4
Retirements	(D)	(D)	(D)	27.7
End of year	5 254.7	59.9	218.4	1 099.9
Buildings and other structures:				
Beginning of year	1 038.8	17.2	70.1	222.0
New capital expenditures	(D)	.8	2.1	7.7
Used capital expenditures	–	(D)	(D)	(D)
Retirements	(D)	(D)	(D)	(D)
End of year	1 086.4	19.5	72.1	228.4
Machinery and equipment:				
Beginning of year	3 992.1	38.7	136.0	855.6
New capital expenditures[1]	(D)	2.3	13.0	40.9
Used capital expenditures	(D)	(D)	(D)	(D)
Retirements	(D)	(D)	(D)	(D)
End of year	4 168.3	40.4	146.3	871.5
Depreciation charges during 1992:				
Total	279.1	3.9	13.0	55.2
Buildings and other structures	29.8	1.2	3.1	8.7
Machinery and equipment	249.3	2.6	9.9	46.5
Rental payments:				
Total	20.6	1.8	4.1	5.8
Buildings and other structures	6.2	1.1	1.9	3.3
Machinery and equipment	14.5	.7	2.2	2.5

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)		Cigars (SIC 2121)		Chewing and smoking tobacco (SIC 2131)		Tobacco stemming and redrying (SIC 2141)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	22.8	(X)	3.3	(X)	1.1	(X)	1.5	(X)
Response coverage ratio (percent)[2]	96.8	(X)	85.4	(X)	76.8	(X)	82.7	(X)
Machinery	187.4	(X)	5.0	(X)	2.5	(X)	17.2	(X)
Response coverage ratio (percent)[2]	96.8	(X)	85.4	(X)	76.8	(X)	88.8	(X)
Other purchased services:								
Communications	21.1	(X)	.8	(X)	1.0	(X)	1.9	(X)
Response coverage ratio (percent)[2]	96.8	(X)	85.4	(X)	76.8	(X)	88.8	(X)
Legal	(Z)	(X)	.6	(X)	.1	(X)	1.0	(X)
Response coverage ratio (percent)[2]	96.8	(X)	73.3	(X)	70.7	(X)	88.8	(X)
Accounting and bookkeeping	–	(X)	.3	(X)	–	(X)	.7	(X)
Response coverage ratio (percent)[2]	96.8	(X)	73.3	(X)	70.7	(X)	86.2	(X)
Advertising	121.3	(X)	6.0	(X)	5.0	(X)	13.4	(X)
Response coverage ratio (percent)[2]	96.8	(X)	73.3	(X)	70.7	(X)	86.2	(X)
Software and other data processing	14.9	(X)	.8	(X)	.6	(X)	1.5	(X)
Response coverage ratio (percent)[2]	96.8	(X)	73.3	(X)	70.7	(X)	88.8	(X)
Refuse removal, including hazardous waste	3.7	(X)	.2	(X)	.2	(X)	1.5	(X)
Response coverage ratio (percent)[2]	96.8	(X)	85.4	(X)	76.8	(X)	88.8	(X)
New machinery and equipment expenditures	(D)	(X)	2.3	(X)	13.0	(X)	40.9	(X)
Automobiles, trucks, etc., for highway use	(D)	(X)	.1	36	.4	43	.9	10
Computers and peripheral data processing equipment	(D)	(X)	.1	29	1.7	4	1.9	6
All other	243.7	1	2.1	1	10.9	1	38.2	1
Adjustment ratio[3]	1.0	(X)	.9	(X)	1.1	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	4 589.1	(X)	78.9	(X)	313.2	(X)	2 256.7	(X)
Materials purchased or transferred from foreign sources[4]	287.0	1	23.8	11	24.3	7	170.6	4
Materials purchased or transferred from domestic sources	4 302.1	1	55.1	5	288.9	1	2 086.1	1
Adjustment ratio[3]	1.1	(X)	1.8	(X)	1.3	(X)	1.2	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2111, CIGARETTES												
Total	**–**	**11**	**25.4**	**1 205.0**	**18.1**	**33.0**	**811.0**	**24 801.9**	**4 965.6**	**29 746.1**	**322.5**	**5 837.0**
Establishments with an average of–												
5 to 9 employees	–	1	25.4	1 205.0	18.1	33.0	811.0	24 801.9	4 965.6	29 746.1	322.5	5 837.0
20 to 49 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2121, CIGARS												
Total	**–**	**27**	**2.6**	**53.3**	**2.0**	**3.9**	**35.0**	**190.1**	**96.6**	**286.8**	**3.0**	**61.8**
Establishments with an average of–												
1 to 4 employees	E2	5	(Z)	.1	(Z)	(Z)	.1	.3	.2	.4	.1	(Z)
5 to 9 employees	–	2	.2	2.2	.1	.2	1.9	5.8	4.8	10.6	(D)	1.0
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E2	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	6	.4	8.6	.3	.6	4.8	14.5	14.5	29.1	.3	5.1
100 to 249 employees	–	5	2.0	42.5	1.5	3.0	28.3	169.6	77.1	246.8	2.6	55.6
250 to 499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO												
Total	**–**	**30**	**3.2**	**91.8**	**2.1**	**4.1**	**50.6**	**1 212.5**	**398.0**	**1 608.4**	**15.1**	**219.0**
Establishments with an average of—												
1 to 4 employees	E2	9	(Z)	.2	(Z)	(Z)	.1	1.9	1.4	3.3	.1	.6
5 to 9 employees	–	1	.1	2.8	.1	.1	1.2	4.8	19.6	24.4	(D)	1.9
10 to 19 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	(D)
50 to 99 employees	–	5	.4	7.7	.3	.6	5.4	32.5	46.7	79.2	(D)	34.6
100 to 249 employees	–	8	2.7	81.1	1.7	3.3	43.9	1 173.4	330.2	1 501.5	13.6	181.9
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING												
Total	**–**	**47**	**6.8**	**174.2**	**4.8**	**10.3**	**99.4**	**1 002.3**	**2 555.8**	**3 557.1**	**48.6**	**753.0**
Establishments with an average of—												
1 to 4 employees	E5	12	(Z)	.4	(Z)	(Z)	.3	1.0	2.3	3.4	13.9	.9
5 to 9 employees	E9	2	.3	5.8	.2	.4	3.5	13.3	40.0	53.2	(D)	15.8
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E1	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	E1	7	.6	14.5	.4	.8	8.7	72.0	270.5	342.5	(D)	38.6
100 to 249 employees	–	8	1.3	27.9	.9	1.8	16.2	63.4	167.3	230.9	(D)	32.7
250 to 499 employees	–	7	2.8	57.6	2.0	4.6	28.0	391.4	1 499.7	1 891.1	6.3	290.8
500 to 999 employees	–	3	1.9	68.0	1.3	2.7	42.8	461.1	575.9	1 036.0	28.4	374.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2111	**Cigarettes:**										
	All establishments in industry	11	25.4	1 205.0	18.1	33.0	811.0	24 801.9	4 965.6	29 746.1	322.5
2121	**Cigars:**										
	All establishments in industry	27	2.6	53.3	2.0	3.9	35.0	190.1	96.6	286.8	3.0
2131	**Chewing and smoking tobacco:**										
	All establishments in industry	30	3.2	91.8	2.1	4.1	50.6	1 212.5	398.0	1 608.4	15.1
2141	**Tobacco stemming and redrying:**										
	All establishments in industry	47	6.8	174.2	4.8	10.3	99.4	1 002.3	2 555.8	3 557.1	48.6
	Establishments with this product class primary:										
21411	Unstemmed leaf tobacco redried before packing	4	.3	3.2	.2	.4	1.9	25.7	48.3	74.1	(D)
21412	Tobacco, stemmed	21	4.5	99.4	3.1	7.2	50.3	534.3	2 391.7	2 929.9	33.4
21413	Reconstituted tobacco	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2111, CIGARETTES			
Total value of shipments	29 746.1	17 372.0	12 126.8
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	1.1
Primary products specialization ratio	(D)	(D)	97
Value of primary products shipments made in all industries	28 839.4	16 746.2	11 433.5
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)
INDUSTRY 2121, CIGARS			
Total value of shipments	286.8	191.5	253.7
Primary products value of shipments	(D)	182.4	241.9
Secondary products value of shipments	(D)	(D)	.1
Total miscellaneous receipts	(D)	(D)	11.7
Value of resales	(D)	(D)	.6
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	.8	(D)	11.1
Primary products specialization ratio	(D)	(D)	99
Value of primary products shipments made in all industries	264.6	204.1	262.0
Value of primary products shipments made in this industry	(D)	182.4	241.9
Value of primary products shipments made in other industries	(D)	21.7	20.0
Coverage ratio	(D)	89	92
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO			
Total value of shipments	1 608.4	1 114.3	665.4
Primary products value of shipments	(D)	(D)	613.7
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	1.9
Primary products specialization ratio	(D)	(D)	(D)
Value of primary products shipments made in all industries	1 532.7	1 031.8	731.1
Value of primary products shipments made in this industry	(D)	(D)	613.7
Value of primary products shipments made in other industries	(D)	(D)	117.4
Coverage ratio	(D)	(D)	84
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING			
Total value of shipments	3 557.1	2 079.2	3 015.4
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	367.6	248.5	326.8
Value of resales	295.7	190.2	190.5
Contract receipts	53.0	22.8	126.5
Packing leaf, redried and not redried	(D)	(NA)	(NA)
Stemming leaf, aged and not aged	33.3	(NA)	(NA)
Receipts for work done for others on their materials	(D)	(NA)	(NA)
Receipts for work done for others on their materials, n.s.k.	–	(NA)	(NA)
Other miscellaneous receipts	18.9	35.5	9.8
Unstemmed leaf tobacco not redried before packing	(D)	(NA)	(NA)
Sales of scrap and refuse	(D)	(NA)	(NA)
Receipts from public warehousing and storage conducted at this establishment	2.9	(NA)	(NA)
Other miscellaneous receipts	9.3	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	(D)	(D)	(D)
Value of primary products shipments made in all industries	3 749.1	2 170.5	2 946.0
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2111– —	**CIGARETTES, INCLUDING NONTOBACCO CIGARETTES**						
	Total	**(NA)**	**(X)**	**28 839.4**	**(NA)**	**(X)**	**16 746.2**
21110	Cigarettes, including nontobacco cigarettes[3]	(NA)	(X)	28 839.4	(NA)	(X)	16 746.2
	Filter tips:						
21110 13	80 millimeters long or less—billions	3	(D)	(D)	5	70.9	1 760.5
21110 16	85 millimeters long—billions	7	368.0	14 395.1	7	284.5	7 216.2
21110 18	100 millimeters or more long—billions	8	(D)	(D)	7	250.9	6 977.3
21110 55	Nonfilter tips—billions	7	18.3	755.8	7	29.9	792.2
21110 00	Cigarettes, including nontobacco cigarettes, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
21110 02	Cigarettes, including nontobacco cigarettes, n.s.k.[4]	(NA)	(X)	–	(NA)	(X)	–
2121– —	**CIGARS**						
	Total	**(NA)**	**(X)**	**264.6**	**(NA)**	**(X)**	**204.1**
21210	Cigars[3]	(NA)	(X)	264.6	(NA)	(X)	204.1
21210 13	Little cigars, cigarette-size, weighing less than 3 lb per 1,000 cigars—mil	6	1 272.0	23.7	5	661.9	12.3
21210 21	Cigarillos weighing 3 to 10 lb per 1,000 cigars—mil	7	537.4	61.6	6	478.9	32.7
21210 31	Cigars weighing more than 10 lb per 1,000 cigars—mil	20	1 444.4	179.3	14	1 579.5	154.6
21210 00	Cigars, n.s.k.	(NA)	(X)	–	(NA)	(X)	4.5
21210 02	Cigars, n.s.k.[4]	(NA)	(X)	–	(NA)	(X)	–
2131– —	**CHEWING AND SMOKING TOBACCO**						
	Total	**(NA)**	**(X)**	**1 532.7**	**(NA)**	**(X)**	**1 031.8**
21310	Chewing and smoking tobacco[3]	(NA)	(X)	1 532.7	(NA)	(X)	1 031.8
21310 08	Smoking tobacco—mil lb	13	29.4	154.6	10	28.5	135.5
21310 13	Loose leaf chewing tobacco—mil lb	9	(D)	(D)	7	79.1	252.0
21310 15	Snuff, dry and moist—mil lb	5	(D)	(D)			
21310 19	All other chewing tobacco, including fine cut chewing, twist chewing, plug chewing, etc.—mil lb	5	20.2	185.4	6	95.5	638.5
21310 00	Chewing and smoking tobacco, n.s.k.[5]	(NA)	(X)	3.3			
21310 02	Chewing and smoking tobacco, n.s.k.[6]	(NA)	(X)	–	(NA)	(X)	5.8
2141– —	**TOBACCO STEMMING AND REDRYING**						
	Total	**(NA)**	**(X)**	**3 749.1**	**(NA)**	**(X)**	**2 170.5**
21411	Unstemmed leaf tobacco redried before packing[3]	(NA)	(X)	(D)	(NA)	(X)	103.2
21411 00	Unstemmed leaf tobacco redried before packing, including interplant transfers—mil lb	9	(D)	(D)	9	49.8	103.2
21412	Tobacco, stemmed[3]	(NA)	(X)	3 067.9	(NA)	(X)	1 889.1
	Packaged for sale as such:						
21412 11	Aged leaf—mil lb	8	225.3	371.6	5	128.2	233.4
21412 15	Leaf, not aged—mil lb	12	820.2	2 164.6	10	428.7	920.8
21412 27	Packed for use in own manufacturing (interplant transfers), including both aged and not aged leaf—mil lb	3	219.6	531.7	13	338.8	734.9
21412 00	Tobacco, stemmed, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
21413	Reconstituted tobacco[3]	(NA)	(X)	(D)	(NA)	(X)	153.2
21413 00	Reconstituted tobacco (processed sheet and homogenized)—mil lb	8	(D)	(D)	5	*187.0	153.2
21410	Tobacco stemming and redrying, n.s.k.[3]	(NA)	(X)	12.7	(NA)	(X)	25.0
21410 00	Tobacco stemming and redrying, n.s.k.[5]	(NA)	(X)	12.7	(NA)	(X)	7.0
21410 02	Tobacco stemming and redrying, n.s.k.[6]	(NA)	(X)	–	(NA)	(X)	18.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Data for this product represent quantity produced and value of production rather than quantity of shipments and value of shipments.
[4]There were no administrative-record cases for this industry.
[5]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 5 employees or more.
[6]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 5 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
21411, UNSTEMMED LEAF TOBACCO REDRIED BEFORE PACKING			**21412, TOBACCO, STEMMED**		
			United States	**3 067.9**	**1 889.1**
United States	**(D)**	**103.2**	Kentucky	74.5	33.5
			North Carolina	2 086.3	1 227.4
			Virginia	847.2	529.7
			21413, RECONSTITUTED TOBACCO		
Tennessee	21.9	(NA)	**United States**	**(D)**	**153.2**

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2111-	**Cigarettes, including nontobacco cigarettes**	**28 839.4**	**26 504.8**	**24 888.6**	**21 237.5**	**19 515.9**	**16 746.2**	**11 433.5**	**6 098.2**
21110	Cigarettes, including nontobacco cigarettes	28 839.4	26 504.8	24 888.6	21 237.5	19 515.9	16 746.2	11 433.5	6 098.2
2121-	**Cigars**	**264.6**	**302.8**	**239.6**	**215.2**	**210.4**	**204.1**	**290.0**	**256.2**
21210	Cigars	264.6	302.8	239.6	215.2	210.4	204.1	290.0	256.2
2131-	**Chewing and smoking tobacco**	**1 532.7**	**1 493.7**	**1 393.1**	**1 213.1**	**1 089.4**	**1 031.8**	**731.1**	**401.4**
21310	Chewing and smoking tobacco	1 532.7	1 493.7	1 393.1	1 213.1	1 089.4	1 031.8	731.1	401.4
2141-	**Tobacco stemming and redrying**	**3 749.1**	**2 834.5**	**2 686.6**	**2 563.4**	**2 433.2**	**2 170.5**	**2 946.0**	**1 769.1**
21411	Unstemmed leaf tobacco redried before packing	(D)	29.9	111.4	113.3	95.9	103.2	98.4	170.7
21412	Tobacco, stemmed	3 067.9	2 596.3	2 384.0	2 220.7	2 147.0	1 889.1	2 733.0	1 531.7
21413	Reconstituted tobacco	(D)	187.3	178.9	169.5	165.3	153.2	111.4	50.8
21410	Tobacco stemming and redrying, n.s.k.	12.7	21.0	12.3	59.9	25.0	25.0	3.2	15.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2111, CIGARETTES				
	Materials, ingredients, containers, and supplies	**(X)**	**4 589.1**	**(X)**	**4 036.1**
013211	Unstemmed leaf tobacco including green tobacco not packed, mil lb	(D)	(D)	–	–
214111	Unstemmed leaf tobacco, redried and packed, mil lb	(D)	(D)	(D)	(D)
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco, mil lb	1 013.0	2 157.2	1 115.4	2 480.0
214124	Reconstituted tobacco, processed sheet and homogenized, mil lb	297.9	183.6	265.0	225.3
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	294.9	(X)	(2)
282014	Manmade fiber staple and tow	(X)	305.3	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	1 120.3	(X)	[2]1 163.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	–	(X)	(D)
	INDUSTRY 2121, CIGARS				
	Materials, ingredients, containers, and supplies	**(X)**	**78.9**	**(X)**	**80.6**
013211	Unstemmed leaf tobacco including green tobacco not packed, mil lb	(D)	(D)	(D)	(D)
214111	Unstemmed leaf tobacco, redried and packed, mil lb	9.6	10.2	4.9	10.2
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco, mil lb	18.0	26.1	24.7	36.6
214124	Reconstituted tobacco, processed sheet and homogenized, mil lb	4.3	11.1	3.0	7.8
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	12.3	(X)	(2)
282014	Manmade fiber staple and tow	(X)	(D)	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	11.8	(X)	[2]19.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	.1	(X)	(D)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2131, CHEWING AND SMOKING TOBACCO				
	Materials, ingredients, containers, and supplies	**(X)**	**313.2**	**(X)**	**269.4**
013211	Unstemmed leaf tobacco including green tobacco not packed—mil lb	22.1	37.8		
214111	Unstemmed leaf tobacco, redried and packed—mil lb	15.8	20.7	113.3	160.6
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco—mil lb	70.4	110.3		
214124	Reconstituted tobacco, processed sheet and homogenized—mil lb	(D)	(D)	(NA)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	22.2	(X)	(2)
282014	Manmade fiber staple and tow	(X)	(D)	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	86.4	(X)	[2]107.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1.3	(X)	1.5
	INDUSTRY 2141, TOBACCO STEMMING AND REDRYING				
	Materials, ingredients, containers, and supplies	**(X)**	**2 256.7**	**(X)**	**1 461.7**
013211	Unstemmed leaf tobacco including green tobacco not packed—mil lb	772.3	1 623.6	464.5	835.6
214111	Unstemmed leaf tobacco, redried and packed—mil lb	29.7	37.1	103.1	172.9
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco—mil lb	457.3	554.0	244.4	387.3
214124	Reconstituted tobacco, processed sheet and homogenized—mil lb	(D)	(D)	(NA)	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	6.0	(X)	(2)
282014	Manmade fiber staple and tow	(X)	–	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	18.0	(X)	[2]34.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	(D)	(X)	31.2

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Data are included with Material Code 970099, All Other Materials, Components, Parts, Containers, and Supplies.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
21310 15	21310 98
21310 19	21310 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
21310 98	21310 15
21310 98	21310 19

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:08 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08081450.DAT;1 1/ 6/ 95 08:08:22 UTF:TIPS93-08081450.DAT;1 1/ 6/ 95 08:08:22 META:TIPS96-08081450.DAT;1 1/ 6/ 95 08:08:46

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-22A

INDUSTRY SERIES

Weaving and Floor Covering Mills

Industries 2211, 2221, 2231, 2241, and 2273

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 3 OUTPUT: Tue Apr 4 13:32:13 1995 / pssw02/ disk2/ economic/ mc92i/ 22a/ 01cvr

1992 Census of Manufactures

MC92-I-22A

INDUSTRY SERIES

Weaving and Floor Covering Mills

Industries 2211, 2221, 2231, 2241, and 2273

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Robert Reinard**, Section Chief, with primary staff assistance by **Keith Featherstone.**

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The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2211	Broadwoven Fabrics Mills, Cotton
2221	Broadwoven Fabrics Mills, Manmade Fiber and Silk
2231	Broadwoven Fabrics Mills, Wool
2241	Narrow Fabrics Mills
2273	Carpets and Rugs

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON

This industry is made up of establishments primarily engaged in weaving fabrics more than 12 inches (30.48 centimeters) in width, wholly or chiefly by weight of cotton. Establishments primarily engaged in weaving or tufting carpet and rugs are classified in industry 2273; those making tire cord and fabrics are classified in industry 2296; and those engaged in finishing cotton broadwoven fabrics are classified in industry 2261.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2211, Broadwoven Fabrics Mills, Cotton, had employment of 55.9 thousand. The employment figure was 23 percent below the 72.3 thousand reported in 1987. Compared with 1991, employment decreased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, South Carolina, Georgia, and Alabama, accounting for approximately 87 percent of the industry's employment. This represents a shift from 1987 when North Carolina, South Carolina, Georgia, and Virginia, accounted for approximately 82 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2211 shipped $5.2 billion of products considered primary to the industry, $602.8 million of secondary products, and had $24.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2211, no matter in what industry they were produced, appear in table 6a and aggregate to $5.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the broadwoven fabrics mills, cotton, industry amounted to $3.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK

This industry is made up of establishments primarily engaged in weaving fabrics more than 12 inches (30.48 centimeters) in width, wholly or chiefly by weight of silk and manmade fibers including glass. Establishments primarily engaged in weaving or tufting carpets and rugs from these fibers are classified in industry 2273; those manufacturing tire cord and fabrics are classified in industry 2296; and those engaged in finishing manmade fiber and silk broadwoven goods are classified in industry 2262.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2221, Broadwoven Fabrics Mills, Manmade and Silk, had employment of 87.4 thousand. The employment figure was 1 percent below the 88.3 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were South Carolina, North Carolina, Georgia, and Virginia, accounting for approximately 79 percent of the industry's employment. This represents a shift from 1987 when South Carolina, North Carolina, Georgia, and Alabama accounted for approximately 80 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $8.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2221 shipped $7.8 billion of products considered primary to the industry, $921.6 million of secondary products, and had $60.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2221, no matter in what industry they were produced, appear in table 6a and aggregate to $8.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the broadwoven fabrics mills, manmade fiber and silk industry amounted to $4.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL

This industry is made up of establishments primarily engaged in weaving fabrics more than 12 inches (30.48 centimeters) in width, wholly or chiefly by weight of wool, mohair, or similar animal fibers; dyeing and finishing all woven wool fabrics or dyeing wool, tops, or yarn; and those shrinking and sponging wool goods for the trade. Establishments primarily engaged in weaving or tufting wool carpets and rugs are classified in industry 2273.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2231, Broadwoven Fabrics Mills, Wool, had employment of 13.7 thousand. The employment figure was 2 percent below the 14.0 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Virginia, Georgia, Maine, and North Carolina, accounting for approximately 69 percent of the industry's employment. This

represents a shift from 1987 when Georgia, North Carolina, New Hampshire, and Virginia accounted for approximately 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2231, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the broadwoven fabrics mills, wool, industry amounted to $947.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2241, NARROW FABRICS MILLS

This industry is made up of establishments primarily engaged in weaving or braiding narrow fabrics of cotton, wool, silk, and manmade fibers, including glass fibers. These fibers are generally 12 inches (30.48 centimeters) or less in their final form but may be made initially in wider width than are specially constructed for cutting to narrow widths. Also included in this industry are establishments primarily engaged in producing fabric-covered elastic yarn or thread.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2241, Narrow Fabrics Mills, had employment of 16.8 thousand. The employment figure was 9 percent below the 18.5 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Pennsylvania, Rhode Island, and South Carolina, accounting for approximately 52 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 57 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2241 shipped $1.2 billion of products considered primary to the industry, $78.1 million of secondary products, and had $12.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2241, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the narrow fabrics mills industry amounted to $605.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2273, CARPETS AND RUGS

This industry is made up of establishments primarily engaged in manufacturing woven, tufted, and other carpets and rugs, such as art squares, floor mattings, needle punch carpeting, and door mats and mattings, from textile materials or from twisted paper, grasses, reeds, coir, sisal, jute, or rags.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2273, Carpets and Rugs, had employment of 49.4 thousand. The employment figure was 7 percent below the 53.3 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading State in employment in 1992 was Georgia, accounting for approximately 64 percent of the industry's employment. This same State was the leader in 1987 when it accounted for 62 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2273 shipped $9.5 billion of products considered primary to the industry, $145.8 million of secondary products, and had $197.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2273, no matter in what industry they were produced, appear in table 6a and aggregate to $9.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the carpets and rugs industry amounted to $6.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON															
1992 Census	281	323	117	55.9	1 146.8	50.2	105.9	944.2	2 505.0	3 291.9	5 814.0	168.1	802.7	90	91
1991 ASM	(NA)	(NA)	(NA)	65.9	1 246.4	58.8	122.8	1 025.1	2 480.1	3 191.5	5 694.6	160.9	872.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	62.5	1 137.1	55.6	114.5	938.1	2 457.0	2 891.0	5 324.5	199.1	850.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	67.2	1 221.4	60.3	125.3	1 023.4	2 605.7	2 894.3	5 456.6	215.4	854.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	72.3	1 228.0	64.8	129.8	1 026.6	2 838.8	2 882.5	5 664.4	239.8	830.3	(NA)	(NA)
1987 Census	246	301	151	72.3	1 260.0	64.9	137.9	1 072.1	2 610.2	2 915.9	5 508.3	198.9	770.0	87	88
1986 ASM	(NA)	(NA)	(NA)	58.3	932.8	52.5	104.4	798.1	2 115.6	1 980.3	4 155.1	113.9	606.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	62.1	924.2	56.2	108.5	791.5	1 767.4	2 177.0	4 025.2	191.6	704.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	69.6	999.6	63.0	118.3	844.1	1 928.5	2 533.0	4 347.2	175.7	819.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	71.6	1 020.9	65.2	128.6	882.9	1 870.6	2 540.1	4 391.6	212.8	709.6	(NA)	(NA)
1982 Census	209	269	143	76.9	964.6	69.2	127.0	818.2	1 637.5	2 293.7	3 972.0	297.9	699.2	84	90
1981 ASM	(NA)	(NA)	(NA)	100.4	1 220.4	90.3	177.8	1 042.5	2 248.8	3 059.0	5 284.8	289.3	797.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	107.7	1 249.6	97.2	197.1	1 073.8	2 360.5	2 989.1	5 245.3	217.5	824.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	111.0	1 191.5	100.6	206.5	1 034.5	2 213.3	2 647.6	4 864.8	185.3	689.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	109.5	1 065.3	100.0	199.0	916.6	1 851.5	2 305.4	4 153.0	167.4	659.0	(NA)	(NA)
1977 Census	211	314	192	117.2	1 046.8	107.2	214.3	902.0	1 944.5	2 579.8	4 431.2	187.2	657.8	84	(NA)
INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK															
1992 Census	321	422	255	87.4	1 860.0	76.9	158.4	1 459.0	4 031.6	4 824.4	8 793.5	357.3	1 181.9	89	92
1991 ASM	(NA)	(NA)	(NA)	78.3	1 600.0	68.5	141.6	1 229.5	3 550.5	4 755.9	8 315.2	331.9	1 085.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	85.3	1 688.4	74.6	154.0	1 316.2	3 619.3	4 961.3	8 577.9	440.0	1 123.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	88.4	1 705.2	77.6	159.0	1 343.1	3 706.1	5 025.0	8 690.0	393.2	1 125.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	90.4	1 671.8	78.8	163.4	1 323.2	3 753.7	4 775.9	8 462.6	378.8	1 066.3	(NA)	(NA)
1987 Census	316	436	270	88.3	1 595.7	77.0	163.2	1 272.7	3 595.9	4 504.0	8 048.9	314.3	966.1	88	91
1986 ASM	(NA)	(NA)	(NA)	109.7	1 881.7	95.5	196.1	1 497.0	3 776.8	4 847.1	8 665.5	350.6	1 091.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	115.0	1 832.3	99.9	197.2	1 454.2	3 542.1	4 791.4	8 401.9	484.4	1 127.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	130.6	2 005.3	115.0	229.4	1 614.2	4 011.5	5 296.2	9 273.9	471.8	1 220.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	137.2	2 023.6	120.4	243.0	1 641.1	3 940.6	5 391.3	9 285.0	380.4	1 248.0	(NA)	(NA)
1982 Census	342	523	363	140.8	1 815.2	123.0	230.5	1 446.6	3 488.6	4 647.1	8 191.2	385.3	1 142.1	89	92
1981 ASM	(NA)	(NA)	(NA)	141.5	1 877.6	125.0	252.5	1 522.9	3 607.6	5 149.7	8 725.7	408.7	1 151.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	142.7	1 730.1	125.7	254.3	1 414.5	3 574.9	4 383.2	7 851.0	372.2	1 114.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	145.1	1 630.2	128.9	265.3	1 340.7	3 310.2	4 006.6	7 291.5	264.6	937.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	143.4	1 492.0	127.6	264.2	1 226.7	2 929.0	3 613.6	6 523.3	257.2	869.3	(NA)	(NA)
1977 Census	267	449	351	151.0	1 428.7	134.6	275.4	1 168.7	2 790.9	3 563.5	6 325.9	260.2	871.0	86	(NA)
INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL															
1992 Census	87	99	54	13.7	279.4	11.8	25.3	214.0	690.5	947.0	1 612.4	32.7	298.1	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	15.3	295.7	13.2	28.3	227.2	704.9	1 093.3	1 804.4	30.2	293.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	15.7	291.1	13.5	27.6	223.4	674.6	1 116.0	1 798.3	34.5	298.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.2	317.6	14.8	30.1	246.4	657.8	1 404.5	2 068.3	39.6	314.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.9	297.9	14.6	29.9	229.6	686.2	1 274.8	1 928.3	57.6	323.4	(NA)	(NA)
1987 Census	106	118	68	14.0	235.8	12.2	24.5	183.8	498.0	589.1	1 050.7	40.1	198.6	90	82
1986 ASM	(NA)	(NA)	(NA)	12.3	194.8	10.6	21.6	149.2	371.6	432.5	815.0	24.2	153.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.1	203.8	11.2	22.8	154.8	461.5	475.8	932.5	33.9	171.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.7	211.2	11.9	25.0	162.1	461.5	564.3	1 015.7	33.4	170.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.6	197.8	11.8	24.8	153.3	402.7	477.2	879.3	20.4	162.9	(NA)	(NA)
1982 Census	115	131	71	13.1	175.8	11.3	22.8	136.5	349.4	394.2	762.8	27.7	150.6	88	75
1981 ASM	(NA)	(NA)	(NA)	14.4	189.7	12.3	24.8	141.6	437.9	429.1	844.2	18.2	180.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	14.5	172.6	12.4	24.3	130.2	369.2	337.7	698.5	22.5	156.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.4	166.9	13.2	27.0	127.1	344.9	330.0	662.6	21.8	135.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.4	156.2	13.0	26.9	116.6	317.8	317.5	626.1	17.4	117.6	(NA)	(NA)
1977 Census	154	165	84	14.6	136.6	12.6	25.9	105.8	312.9	283.7	583.3	14.9	111.0	83	80
INDUSTRY 2241, NARROW FABRICS MILLS															
1992 Census	224	258	131	16.8	324.8	14.3	29.0	235.4	718.8	605.2	1 313.9	50.3	209.6	94	97
1991 ASM	(NA)	(NA)	(NA)	16.1	290.8	13.9	28.2	212.4	697.9	558.5	1 247.6	28.3	198.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.0	306.7	14.7	30.2	221.2	671.4	588.9	1 259.7	34.0	185.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.0	304.5	15.5	30.5	220.7	667.6	578.9	1 247.7	28.8	198.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.4	330.8	16.6	34.2	237.1	731.4	617.5	1 342.2	35.0	217.6	(NA)	(NA)
1987 Census	247	272	166	18.5	295.5	15.7	31.6	210.7	580.1	557.7	1 135.7	32.5	193.4	96	92
1986 ASM	(NA)	(NA)	(NA)	17.2	259.7	14.7	27.5	182.4	594.5	452.6	1 040.0	32.4	171.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.9	242.3	14.4	27.2	173.5	550.0	415.3	962.3	28.9	157.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.1	240.1	15.6	29.6	176.6	555.2	409.6	954.6	55.9	148.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.9	227.3	14.5	28.6	170.1	509.0	414.8	918.9	18.8	158.2	(NA)	(NA)
1982 Census	241	281	161	17.5	215.5	15.2	28.5	158.9	464.7	388.3	851.8	22.3	137.2	95	97
1981 ASM	(NA)	(NA)	(NA)	21.1	245.2	18.1	35.4	181.3	478.4	481.2	941.5	25.9	155.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.7	224.5	17.8	34.6	165.4	426.1	398.8	824.7	22.0	129.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	21.3	209.2	18.7	36.6	162.3	397.3	390.2	787.4	29.9	127.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.4	191.8	17.8	35.6	147.3	360.4	345.1	701.4	25.5	108.0	(NA)	(NA)
1977 Census	291	335	182	20.8	171.6	18.1	35.7	130.9	350.8	333.9	682.9	16.2	109.3	96	97
INDUSTRY 2273, CARPETS AND RUGS															
1992 Census	383	447	210	49.4	1 088.0	38.9	81.7	721.8	3 480.5	6 360.2	9 831.0	144.6	1 160.2	98	99
1991 ASM	(NA)	(NA)	(NA)	48.5	1 027.9	37.8	82.4	680.4	2 846.0	6 072.5	8 988.1	179.6	1 160.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	51.8	1 059.0	41.0	89.2	709.4	2 917.3	7 026.1	10 038.4	201.7	1 285.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	54.5	1 104.6	43.4	94.0	748.9	3 225.7	7 072.5	10 220.0	210.1	1 316.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	54.6	1 078.1	42.6	91.9	720.4	3 145.7	7 148.7	10 256.0	151.1	1 312.8	(NA)	(NA)
1987 Census	419	475	245	53.3	1 039.2	40.6	85.2	691.5	3 060.0	6 815.8	9 795.0	222.8	1 288.7	97	99
1986 ASM	(NA)	(NA)	(NA)	49.8	856.9	37.2	79.6	587.0	2 382.8	6 064.9	8 432.7	134.8	1 088.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	46.2	789.3	36.5	75.3	536.8	2 195.1	5 640.4	7 868.4	153.4	1 039.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.2	749.2	36.8	76.6	520.5	2 257.3	5 624.9	7 804.7	167.0	1 068.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	42.7	672.1	33.9	69.6	455.7	2 144.6	4 862.9	6 879.7	83.8	968.4	(NA)	(NA)
1982 Census	(NA)	505	243	41.8	603.1	32.9	65.0	396.4	1 711.7	4 089.2	5 807.8	83.9	799.1	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	47.4	642.9	37.1	74.4	423.3	1 693.1	4 245.3	5 909.2	119.3	844.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	51.6	640.4	40.4	81.1	425.4	1 604.7	4 109.9	5 764.0	109.6	789.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	56.2	661.4	44.6	92.8	452.0	1 744.6	4 230.8	5 940.8	116.3	843.7	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 2273, CARPETS AND RUGS—Con.														
1978 ASM	(NA)	(NA)	(NA)	56.3	612.1	44.8	94.6	421.0	1 602.0	3 631.1	5 174.7	107.0	814.9	(NA)	(NA)
1977 Census	(NA)	592	285	55.8	556.6	44.3	91.4	379.7	1 530.1	3 280.0	4 774.6	82.4	753.6	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON								
1992 Census	20 515	90	2 110	8.92	57	76	44 812	46	23.65
1991 ASM	18 914	89	2 088	8.35	56	78	37 634	50	20.20
1990 ASM	18 194	89	2 059	8.19	54	76	39 312	46	21.46
1989 ASM	18 176	90	2 078	8.17	53	75	38 775	47	20.80
1988 ASM	16 985	90	2 003	7.91	51	73	39 264	43	21.87
1987 Census	17 427	90	2 125	7.77	53	76	36 102	48	18.93
1986 ASM	16 000	90	1 989	7.64	48	70	36 288	44	20.26
1985 ASM	14 882	90	1 931	7.29	54	77	28 461	52	16.29
1984 ASM	14 362	91	1 878	7.14	58	81	27 708	52	16.30
1983 ASM	14 258	91	1 972	6.87	58	81	26 126	55	14.55
1982 Census	12 544	90	1 835	6.44	58	82	21 294	59	12.89
1981 ASM	12 155	90	1 969	5.86	58	81	22 398	54	12.65
1980 ASM	11 603	90	2 028	5.45	57	81	21 917	53	11.98
1979 ASM	10 734	91	2 053	5.01	54	79	19 940	54	10.72
1978 ASM	9 729	91	1 990	4.61	56	81	16 909	58	9.30
1977 Census	8 932	91	1 999	4.21	58	82	16 591	54	9.07
	INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK								
1992 Census	21 281	88	2 060	9.21	55	76	46 128	46	25.45
1991 ASM	20 434	87	2 067	8.68	57	76	45 345	45	25.07
1990 ASM	19 794	87	2 064	8.55	58	78	42 430	47	23.50
1989 ASM	19 290	88	2 049	8.45	58	77	41 924	46	23.31
1988 ASM	18 493	87	2 074	8.10	56	76	41 523	45	22.97
1987 Census	18 071	87	2 119	7.80	56	76	40 724	44	22.03
1986 ASM	17 153	87	2 053	7.63	56	78	34 428	50	19.26
1985 ASM	15 933	87	1 974	7.37	57	79	30 801	52	17.96
1984 ASM	15 355	88	1 995	7.04	57	79	30 716	50	17.49
1983 ASM	14 749	88	2 018	6.75	58	80	28 722	51	16.22
1982 Census	12 892	87	1 874	6.28	57	79	24 777	52	15.13
1981 ASM	13 269	88	2 020	6.03	59	81	25 495	52	14.29
1980 ASM	12 124	88	2 023	5.56	56	78	25 052	48	14.06
1979 ASM	11 235	89	2 058	5.05	55	77	22 813	49	12.48
1978 ASM	10 404	89	2 071	4.64	55	78	20 425	51	11.09
1977 Census	9 462	89	2 046	4.24	56	79	18 483	51	10.13
	INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL								
1992 Census	20 394	86	2 144	8.46	59	76	50 401	40	27.29
1991 ASM	19 327	86	2 144	8.03	61	77	46 072	42	24.91
1990 ASM	18 541	86	2 044	8.09	62	78	42 968	43	24.44
1989 ASM	18 465	86	2 034	8.19	68	83	38 244	48	21.85
1988 ASM	17 627	86	2 048	7.68	66	82	40 604	43	22.95
1987 Census	16 843	87	2 008	7.50	56	79	35 571	47	20.33
1986 ASM	15 837	86	2 038	6.91	53	77	30 211	52	17.20
1985 ASM	15 557	85	2 036	6.79	51	73	35 229	44	20.24
1984 ASM	15 416	87	2 101	6.48	56	76	33 686	46	18.46
1983 ASM	14 544	87	2 102	6.18	54	77	29 610	49	16.24
1982 Census	13 420	86	2 018	5.99	52	75	26 672	50	15.32
1981 ASM	13 174	85	2 016	5.71	51	73	30 410	43	17.66
1980 ASM	11 903	86	1 960	5.36	48	73	25 462	47	15.19
1979 ASM	10 838	86	2 045	4.71	50	75	22 396	48	12.77
1978 ASM	10 143	84	2 069	4.33	51	76	20 636	49	11.81
1977 Census	9 356	86	2 056	4.08	49	72	21 432	44	12.08

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2241, NARROW FABRICS MILLS								
1992 Census	19 333	85	2 028	8.12	46	71	42 786	45	24.79
1991 ASM	18 062	86	2 029	7.53	45	68	43 348	42	24.75
1990 ASM	18 041	86	2 054	7.32	47	71	39 494	46	22.23
1989 ASM	16 917	86	1 968	7.24	46	71	37 089	46	21.89
1988 ASM	17 052	86	2 060	6.93	46	71	37 701	45	21.39
1987 Census	15 973	85	2 013	6.67	49	75	31 357	51	18.36
1986 ASM	15 099	85	1 871	6.63	44	68	34 564	44	21.62
1985 ASM	14 337	85	1 889	6.38	43	68	32 544	44	20.22
1984 ASM	13 265	86	1 897	5.97	43	68	30 674	43	18.76
1983 ASM	13 450	86	1 972	5.95	45	70	30 118	45	17.80
1982 Census	12 314	87	1 875	5.58	46	71	26 554	46	16.31
1981 ASM	11 621	86	1 956	5.12	51	77	22 673	51	13.51
1980 ASM	10 845	86	1 944	4.78	48	76	20 585	53	12.32
1979 ASM	9 822	88	1 957	4.43	50	76	18 653	53	10.86
1978 ASM	9 402	87	2 000	4.14	49	77	17 667	53	10.12
1977 Census	8 250	87	1 972	3.67	49	74	16 865	49	9.83
	INDUSTRY 2273, CARPETS AND RUGS								
1992 Census	22 024	79	2 100	8.83	65	76	70 455	31	42.60
1991 ASM	21 194	78	2 180	8.26	68	79	58 680	36	34.54
1990 ASM	20 444	79	2 176	7.95	70	81	56 319	36	32.71
1989 ASM	20 268	80	2 166	7.97	69	80	59 187	34	34.32
1988 ASM	19 745	78	2 157	7.84	70	80	57 614	34	34.23
1987 Census	19 497	76	2 099	8.12	70	80	57 411	34	35.92
1986 ASM	17 207	75	2 140	7.37	72	82	47 847	36	29.93
1985 ASM	17 084	79	2 063	7.13	72	82	47 513	36	29.15
1984 ASM	16 216	80	2 082	6.80	72	82	48 859	33	29.47
1983 ASM	15 740	79	2 053	6.55	71	80	50 225	31	30.81
1982 Census	14 428	79	1 976	6.10	70	81	40 950	35	26.33
1981 ASM	13 563	78	2 005	5.69	72	83	35 719	38	22.76
1980 ASM	12 411	78	2 007	5.25	71	82	31 099	40	19.79
1979 ASM	11 769	79	2 081	4.87	71	82	31 043	38	18.80
1978 ASM	10 872	80	2 112	4.45	70	82	28 455	38	16.93
1977 Census	9 975	79	2 063	4.15	69	80	27 421	36	16.74

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON														
United States	**–**	**323**	**117**	**55.9**	**1 146.8**	**50.2**	**105.9**	**944.2**	**2 505.0**	**3 291.9**	**5 814.0**	**168.1**	**72.3**	**2 610.2**
Alabama	–	7	7	4.1	80.6	3.8	7.6	71.7	232.8	200.5	434.7	21.7	6.4	231.3
California	E5	35	3	.2	3.9	.2	.4	2.6	8.3	8.0	16.3	.3	E	(D)
Connecticut	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Georgia	–	31	23	14.0	284.1	12.3	26.7	230.3	662.8	716.8	1 375.0	44.1	13.9	571.5
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E4	17	4	.2	4.4	.2	.3	3.1	7.7	8.1	15.4	.4	E	(D)
New York	E2	25	2	.2	3.1	.1	.3	2.3	5.3	7.8	13.4	.1	C	(D)
North Carolina	–	39	24	18.6	392.4	16.5	35.3	313.5	700.6	1 279.0	1 978.4	49.5	23.8	966.9
Pennsylvania	E2	13	4	.4	8.8	.3	.7	6.7	15.3	15.0	30.1	(D)	.6	20.7
South Carolina	–	41	34	11.9	234.1	11.0	22.4	200.5	530.6	753.7	1 313.0	29.7	13.6	454.9
Tennessee	–	7	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	63.4
Texas	–	19	6	2.1	42.1	1.8	3.9	35.5	108.4	92.9	198.5	(D)	G	(D)
Virginia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.1	141.3

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK														
United States	–	**422**	**255**	**87.4**	**1 860.0**	**76.9**	**158.4**	**1 459.0**	**4 031.6**	**4 824.4**	**8 793.5**	**357.3**	**88.3**	**3 595.9**
Alabama	–	19	14	6.3	132.0	5.6	11.2	106.2	308.5	288.1	595.4	19.5	5.8	246.7
California	E4	29	5	.3	5.3	.2	.5	3.7	10.3	11.3	20.8	.6	E	(D)
Georgia	–	31	25	9.8	215.5	8.1	17.2	154.5	499.2	658.8	1 152.5	45.1	9.1	432.5
Maine	–	7	5	1.2	27.3	1.0	2.1	20.0	51.7	56.0	106.1	(D)	G	(D)
Maryland	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Massachusetts	–	12	9	3.2	77.6	2.7	5.7	53.4	189.3	194.1	381.4	11.2	H	(D)
Minnesota	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	8	4	.4	12.5	.3	.7	7.5	24.1	35.0	59.0	1.9	E	(D)
New York	–	20	6	.7	19.2	.6	1.1	12.8	31.4	26.1	56.7	1.8	E	(D)
North Carolina	–	67	49	19.2	393.5	17.1	34.2	312.8	797.3	1 073.6	1 858.7	79.1	19.2	753.5
Pennsylvania	E1	30	23	3.3	71.8	2.8	5.8	52.6	142.0	180.5	325.6	12.9	3.4	138.7
Rhode Island	–	8	6	.5	10.8	.4	1.0	8.7	21.8	20.7	42.7	1.6	.3	18.0
South Carolina	–	88	80	31.0	642.0	28.1	58.2	531.0	1 398.0	1 607.4	2 972.5	144.2	36.3	1 414.7
Tennessee	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	G	(D)
Texas	–	13	3	.3	6.8	.3	.6	5.6	22.1	16.7	38.4	.1	G	(D)
Virginia	–	15	12	9.1	195.9	8.0	17.0	157.9	427.6	553.8	973.2	28.4	4.4	215.6
Wisconsin	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL														
United States	–	**99**	**54**	**13.7**	**279.4**	**11.8**	**25.3**	**214.0**	**690.5**	**947.0**	**1 612.4**	**32.7**	**14.0**	**498.0**
Connecticut	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	11	8	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Maine	E2	8	5	1.6	30.6	1.3	2.8	23.4	62.4	57.5	122.8	4.8	2.1	69.1
Massachusetts	–	10	5	.5	11.0	.4	.9	8.1	26.8	11.9	38.7	.6	F	(D)
Minnesota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Hampshire	–	5	3	.7	15.3	.6	1.3	11.8	33.0	36.5	68.4	2.6	G	(D)
New York	E3	8	2	.1	2.0	.1	.2	1.7	3.6	3.5	7.1	.1	(NA)	(NA)
North Carolina	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Oregon	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.0
Pennsylvania	–	7	4	.8	15.3	.6	1.1	9.3	20.7	5.6	25.4	(D)	.2	6.6
Rhode Island	–	6	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	35.6
Virginia	–	5	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2241, NARROW FABRICS MILLS														
United States	–	**258**	**131**	**16.8**	**324.8**	**14.3**	**29.0**	**235.4**	**718.8**	**605.2**	**1 313.9**	**50.3**	**18.5**	**580.1**
Alabama	E1	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
California	–	14	4	.5	10.2	.4	.9	7.3	25.5	20.0	45.0	4.2	E	(D)
Connecticut	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	10	6	.4	6.5	.3	.6	4.3	11.4	8.4	19.9	1.3	E	(D)
Georgia	E7	13	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	E5	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maryland	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E4	15	7	.5	11.4	.4	.8	7.2	22.2	18.5	40.4	.7	G	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	47.3
New Jersey	E2	20	9	.8	19.5	.7	1.4	13.9	32.0	26.2	57.8	5.1	F	(D)
New York	E1	20	4	.3	5.0	.2	.5	3.4	7.1	6.7	13.7	.4	E	(D)
North Carolina	–	35	23	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.3	H	(D)
Ohio	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Pennsylvania	–	33	17	2.1	43.2	1.8	3.7	30.4	80.3	51.0	130.9	3.4	2.3	65.3
Rhode Island	–	18	11	1.7	31.2	1.5	2.8	22.2	69.0	55.1	123.0	.9	2.3	62.9
South Carolina	–	13	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	E1	6	5	.3	6.7	.3	.6	4.9	16.3	14.0	30.3	.6	E	(D)
Virginia	–	5	4	1.1	18.3	1.0	2.0	14.1	34.3	22.6	56.2	1.6	F	(D)
West Virginia	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2273, CARPETS AND RUGS														
United States	–	**447**	**210**	**49.4**	**1 088.0**	**38.9**	**81.7**	**721.8**	**3 480.5**	**6 360.2**	**9 831.0**	**144.6**	**53.3**	**3 060.0**
Alabama	–	6	4	.9	18.7	.7	1.6	13.7	57.2	71.9	130.1	3.1	G	(D)
Arkansas	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	38	21	3.2	85.9	2.3	5.0	49.9	202.7	354.2	556.6	11.1	3.7	241.7
Georgia	–	238	133	31.6	700.2	24.7	52.1	456.3	2 444.7	4 725.7	7 165.6	95.8	32.9	1 966.0
Indiana	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E3	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	8	1	.2	3.9	.2	.3	3.6	7.7	11.9	19.6	.1	C	(D)
North Carolina	–	29	10	2.9	56.7	2.5	5.2	40.3	174.3	331.3	506.5	(D)	3.1	165.9
Oklahoma	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	10	6	2.3	55.8	1.6	3.6	38.1	111.1	219.0	329.4	1.8	2.8	85.5
Rhode Island	–	7	4	.4	6.0	.3	.6	4.8	10.4	12.5	22.2	(D)	E	(D)
South Carolina	–	16	11	2.7	52.6	2.3	4.4	35.9	137.7	281.7	417.4	9.2	3.2	162.7
Tennessee	–	11	5	.7	11.0	.6	1.1	8.7	46.1	73.9	120.0	(D)	1.3	49.1
Virginia	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Broadwoven fabrics mills, cotton (SIC 2211)	Broadwoven fabrics mills, manmade fiber and silk (SIC 2221)	Broadwoven fabrics mills, wool (SIC 2231)			Narrow fabrics mills (SIC 2241)	Carpets and rugs (SIC 2273)
			Total	Manufacturers (SIC 2231-11)	Commission mills (SIC 2231-51)		
Companies ---- number	281	321	87	60	27	224	383
All establishments ---- number	323	422	99	72	27	258	447
With 1 to 19 employees ---- number	206	167	45	25	20	127	237
With 20 to 99 employees ---- number	26	59	31	25	6	73	95
With 100 employees or more ---- number	91	196	23	22	1	58	115
Employment and labor costs:							
Employees ---- 1,000	55.9	87.4	13.7	12.8	1.0	16.8	49.4
Compensation, total ---- mil dol	1 390.1	2 275.0	346.1	322.5	23.6	393.6	1 303.7
Annual payroll ---- mil dol	1 146.8	1 860.0	279.4	260.0	19.4	324.8	1 088.0
Fringe benefits ---- mil dol	243.3	415.0	66.7	62.5	4.2	68.8	215.7
Social Security and other legally required payments ---- mil dol	112.7	187.6	29.3	27.4	1.9	30.4	111.3
Employer voluntary payments ---- mil dol	130.6	227.4	37.4	35.1	2.3	38.4	104.3
Production workers:							
Average for year ---- 1,000	50.2	76.9	11.8	11.1	.7	14.3	38.9
March ---- 1,000	50.4	76.9	11.8	11.1	.7	14.3	38.8
May ---- 1,000	50.2	76.7	11.9	11.2	.7	14.3	39.0
August ---- 1,000	50.0	77.2	11.9	11.2	.7	14.4	39.0
November ---- 1,000	50.1	76.8	11.6	10.9	.7	14.3	38.9
Hours ---- millions	105.9	158.4	25.3	23.7	1.5	29.0	81.7
Wages ---- mil dol	944.2	1 459.0	214.0	202.1	11.9	235.4	721.8
Cost of materials[1] ---- mil dol	3 291.9	4 824.4	947.0	939.2	7.8	605.2	6 360.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	2 982.0	4 381.5	887.3	881.2	6.1	564.5	6 043.1
Resales ---- mil dol	8.0	26.1	3.3	3.3	–	6.1	47.0
Fuels ---- mil dol	42.8	45.0	11.7	11.2	.5	6.9	68.0
Purchased electricity ---- mil dol	180.5	298.7	26.3	25.2	1.1	23.9	79.7
Contract work ---- mil dol	78.5	73.1	18.4	18.3	.1	3.7	122.4
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	4 088.1	6 844.8	466.2	450.6	15.6	398.9	1 444.2
Generated less sold ---- mil kWh	83.8	(D)	(D)	(D)	–	(D)	(D)
Total value of shipments ---- mil dol	5 814.0	8 793.5	1 612.4	1 572.6	39.8	1 313.9	9 831.0
Value added ---- mil dol	2 505.0	4 031.6	690.5	657.6	32.9	718.8	3 480.5

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Broadwoven fabrics mills, cotton (SIC 2211)	Broadwoven fabrics mills, manmade fiber and silk (SIC 2221)	Broadwoven fabrics mills, wool (SIC 2231)			Narrow fabrics mills (SIC 2241)	Carpets and rugs (SIC 2273)
			Total	Manufacturers (SIC 2231-11)	Commission mills (SIC 2231-51)		
Inventories by stage of fabrication:							
Beginning of 1992 ---mil dol---	826.2	1 126.6	274.4	245.3	29.1	200.8	1 156.2
Finished goods ---mil dol---	423.7	393.1	89.0	66.0	23.0	76.0	511.5
Work in process ---mil dol---	252.0	412.1	124.0	122.8	1.2	54.8	245.4
Materials and supplies ---mil dol---	150.6	321.4	61.4	56.5	4.9	69.9	399.3
End of 1992 ---mil dol---	802.7	1 181.9	298.1	268.3	29.7	209.6	1 160.2
Finished goods ---mil dol---	417.6	457.1	93.2	69.5	23.8	79.1	526.0
Work in process ---mil dol---	241.0	410.7	144.9	143.6	1.3	61.7	240.6
Materials and supplies ---mil dol---	144.2	314.2	59.9	55.3	4.6	68.8	393.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Broadwoven fabrics mills, cotton (SIC 2211)	Broadwoven fabrics mills, manmade fiber and silk (SIC 2221)	Broadwoven fabrics mills, wool (SIC 2231)	Narrow fabrics mills (SIC 2241)	Carpets and rugs (SIC 2273)
Gross book value of depreciable assets:					
Total:					
Beginning of year	2 801.7	5 304.7	534.5	435.4	1 888.1
New capital expenditures[1]	168.1	357.3	32.7	50.3	144.6
Used capital expenditures	15.6	21.8	4.6	4.0	20.0
Retirements	74.3	226.0	5.3	10.3	43.7
End of year	2 911.1	5 457.8	566.6	479.4	2 009.0
Buildings and other structures:					
Beginning of year	515.2	889.0	139.5	97.4	429.7
New capital expenditures	20.6	35.3	5.2	10.5	35.1
Used capital expenditures	.7	5.4	1.7	1.0	2.6
Retirements	5.6	26.5	1.3	1.2	3.2
End of year	530.9	903.1	145.0	107.7	464.3
Machinery and equipment:					
Beginning of year	2 286.5	4 415.7	395.0	337.9	1 458.4
New capital expenditures[1]	147.6	322.0	27.5	39.9	109.5
Used capital expenditures	14.9	16.4	3.0	3.0	17.4
Retirements	68.7	199.5	4.0	9.1	40.5
End of year	2 380.2	4 554.6	421.5	371.7	1 544.8
Depreciation charges during 1992:					
Total	185.9	312.5	32.3	34.2	133.2
Buildings and other structures	22.0	33.7	5.8	4.9	20.0
Machinery and equipment	163.9	278.8	26.5	29.3	113.3
Rental payments:					
Total	13.3	35.8	5.1	8.2	45.5
Buildings and other structures	4.1	12.9	3.0	4.6	27.8
Machinery and equipment	9.1	22.9	2.1	3.6	17.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Broadwoven fabrics mills, cotton (SIC 2211)		Broadwoven fabrics mills, manmade fiber and silk (SIC 2221)		Broadwoven fabrics mills, wool (SIC 2231)		Narrow fabrics mills (SIC 2241)		Carpets and rugs (SIC 2273)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	12.3	(X)	25.4	(X)	2.7	(X)	1.1	(X)	7.5	(X)
Response coverage ratio (percent)[2]	76.5	(X)	81.5	(X)	83.8	(X)	64.9	(X)	72.9	(X)
Machinery	83.4	(X)	108.0	(X)	7.6	(X)	8.9	(X)	58.3	(X)
Response coverage ratio (percent)[2]	79.9	(X)	82.4	(X)	83.8	(X)	68.2	(X)	74.1	(X)
Other purchased services:										
Communications	4.6	(X)	10.2	(X)	1.6	(X)	2.2	(X)	12.1	(X)
Response coverage ratio (percent)[2]	72.3	(X)	81.8	(X)	85.9	(X)	63.9	(X)	58.8	(X)
Legal	1.7	(X)	4.5	(X)	.8	(X)	2.1	(X)	3.9	(X)
Response coverage ratio (percent)[2]	75.5	(X)	78.5	(X)	88.5	(X)	69.6	(X)	60.1	(X)
Accounting and bookkeeping	1.7	(X)	2.6	(X)	.6	(X)	.9	(X)	3.3	(X)
Response coverage ratio (percent)[2]	74.2	(X)	74.3	(X)	86.2	(X)	64.0	(X)	61.2	(X)
Advertising	2.1	(X)	5.2	(X)	.7	(X)	1.4	(X)	13.5	(X)
Response coverage ratio (percent)[2]	74.8	(X)	79.0	(X)	88.5	(X)	68.0	(X)	60.8	(X)
Software and other data processing	1.5	(X)	7.9	(X)	1.2	(X)	.5	(X)	4.2	(X)
Response coverage ratio (percent)[2]	89.1	(X)	79.6	(X)	88.5	(X)	69.6	(X)	65.7	(X)
Refuse removal, including hazardous waste	2.2	(X)	4.9	(X)	.6	(X)	.6	(X)	5.3	(X)
Response coverage ratio (percent)[2]	91.2	(X)	77.2	(X)	86.6	(X)	67.3	(X)	68.7	(X)
New machinery and equipment expenditures	147.6	(X)	322.0	(X)	27.5	(X)	39.9	(X)	109.5	(X)
Automobiles, trucks, etc., for highway use	.6	1	2.9	4	(D)	(X)	.1	13	2.4	8
Computers and peripheral data processing equipment	4.1	1	12.3	3	(D)	(X)	1.8	8	5.4	9
All other	142.8	1	306.8	1	24.3	8	37.9	1	101.7	1
Adjustment ratio[3]	1.1	(X)	1.0	(X)	.9	(X)	1.8	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	2 982.0	(X)	4 381.5	(X)	887.3	(X)	564.5	(X)	6 043.1	(X)
Materials purchased or transferred from foreign sources[4]	15.5	1	107.5	5	432.3	1	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	2 966.5	1	4 274.0	1	455.0	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.8	(X)	1.1	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON												
Total	**–**	**323**	**55.9**	**1 146.8**	**50.2**	**105.9**	**944.2**	**2 505.0**	**3 291.9**	**5 814.0**	**168.1**	**802.7**
Establishments with an average of–												
1 to 4 employees	E9	152	.3	4.4	.3	.5	3.7	7.9	9.0	17.0	.5	2.2
5 to 9 employees	E6	29	.2	2.6	.2	.3	2.2	6.4	7.1	13.4	.3	1.5
10 to 19 employees	E6	25	.3	5.3	.3	.5	4.3	9.8	10.2	19.7	.4	2.7
20 to 49 employees	E1	14	.5	8.5	.4	.8	5.5	20.5	21.4	42.1	.6	4.0
50 to 99 employees	E1	12	.8	15.2	.6	1.3	11.3	28.9	31.7	60.4	1.0	8.6
100 to 249 employees	–	17	3.0	56.8	2.7	5.4	48.1	105.9	179.7	293.0	14.6	29.3
250 to 499 employees	–	33	11.3	236.5	10.4	22.4	196.2	538.1	663.9	1 208.9	35.3	166.4
500 to 999 employees	–	27	17.1	358.2	15.4	32.2	300.4	819.6	907.0	1 715.7	51.4	204.1
1,000 to 2,499 employees	–	13	22.5	459.4	19.9	42.5	372.5	967.9	1 462.0	2 443.9	64.1	384.0
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	180	.5	7.6	.5	1.0	6.5	14.7	16.6	31.2	.8	3.8

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK												
Total	**–**	**422**	**87.4**	**1 860.0**	**76.9**	**158.4**	**1 459.0**	**4 031.6**	**4 824.4**	**8 793.5**	**357.3**	**1 181.9**
Establishments with an average of—												
1 to 4 employees	E9	99	.2	3.0	.1	.3	2.3	5.5	7.3	12.8	.5	1.6
5 to 9 employees	E9	47	.3	5.5	.3	.5	4.2	9.2	11.8	21.1	.8	2.8
10 to 19 employees	E5	21	.3	5.0	.2	.5	3.8	8.1	12.2	20.2	.7	2.5
20 to 49 employees	E1	32	1.0	21.2	.9	1.7	15.4	49.4	62.3	110.9	2.4	14.2
50 to 99 employees	–	27	2.0	47.3	1.7	3.5	34.4	85.5	144.1	227.9	4.9	39.7
100 to 249 employees	–	75	12.7	296.7	10.8	22.7	217.4	804.4	1 116.5	1 899.6	61.4	248.7
250 to 499 employees	–	70	26.5	564.9	23.6	48.4	448.4	1 338.6	1 401.2	2 729.5	119.5	375.8
500 to 999 employees	–	40	26.4	538.8	23.8	48.6	441.9	1 034.2	1 335.8	2 351.1	95.0	262.5
1,000 to 2,499 employees	–	10	17.9	377.6	15.5	32.1	291.2	696.7	733.2	1 420.4	72.1	234.1
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	150	.6	10.0	.5	1.1	7.8	16.7	21.6	38.3	1.6	4.7
INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL												
Total	**–**	**99**	**13.7**	**279.4**	**11.8**	**25.3**	**214.0**	**690.5**	**947.0**	**1 612.4**	**32.7**	**298.1**
Establishments with an average of—												
1 to 4 employees	E6	14	(Z)	.4	(Z)	(Z)	.3	1.2	1.5	2.7	.1	.8
5 to 9 employees	E7	16	.1	2.0	.1	.2	1.5	4.2	3.1	7.2	.2	2.2
10 to 19 employees	E5	15	.2	3.9	.2	.3	2.9	9.3	7.1	16.3	.4	4.3
20 to 49 employees	E1	22	.7	13.8	.6	1.2	9.6	29.5	24.3	54.0	1.1	7.6
50 to 99 employees	E2	9	.7	15.6	.5	1.1	10.8	36.5	35.6	71.9	4.3	18.7
100 to 249 employees	–	9	1.6	34.5	1.3	2.8	25.6	76.5	69.2	145.5	5.2	46.2
250 to 499 employees	E2	5	10.5	209.3	9.1	19.6	163.3	533.2	806.2	1 314.7	4.0	218.3
500 to 999 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	17.4	(D)
1,000 to 2,499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	30	.2	3.1	.1	.3	2.3	6.8	4.4	11.2	.3	3.7
INDUSTRY 2241, NARROW FABRICS MILLS												
Total	**–**	**258**	**16.8**	**324.8**	**14.3**	**29.0**	**235.4**	**718.8**	**605.2**	**1 313.9**	**50.3**	**209.6**
Establishments with an average of—												
1 to 4 employees	E8	54	.1	1.8	.1	.2	1.2	3.6	3.8	7.4	.3	1.0
5 to 9 employees	E6	32	.2	3.9	.2	.4	2.7	10.5	8.2	18.6	.9	2.3
10 to 19 employees	E5	41	.6	11.1	.5	1.0	7.6	23.5	23.7	47.4	1.2	7.2
20 to 49 employees	E2	36	1.2	21.5	1.0	1.9	14.9	43.6	33.5	75.7	1.4	11.6
50 to 99 employees	–	37	2.5	45.0	2.1	4.3	31.9	82.8	61.2	143.2	4.5	22.0
100 to 249 employees	–	45	7.1	141.5	6.2	12.7	103.8	287.5	267.5	551.9	24.1	86.1
250 to 499 employees	–	9	2.7	54.2	2.3	4.5	38.3	118.2	113.6	229.3	18.0	39.3
500 to 999 employees	–	4	2.3	46.0	2.0	4.1	34.8	149.1	93.8	240.3	(D)	40.2
Covered by administrative records[2]	E9	74	.3	5.2	.3	.6	3.8	10.4	8.7	19.1	.9	2.7
INDUSTRY 2273, CARPETS AND RUGS												
Total	**–**	**447**	**49.4**	**1 088.0**	**38.9**	**81.7**	**721.8**	**3 480.5**	**6 360.2**	**9 831.0**	**144.6**	**1 160.2**
Establishments with an average of—												
1 to 4 employees	E7	141	.2	4.9	.2	.4	3.5	13.7	27.6	41.3	.8	4.9
5 to 9 employees	E4	53	.4	6.3	.3	.6	4.3	20.5	35.8	56.3	1.0	6.7
10 to 19 employees	E3	43	.6	11.0	.4	.9	7.0	31.9	39.8	71.8	1.1	11.9
20 to 49 employees	–	54	1.6	31.3	1.3	2.8	22.2	71.0	115.4	186.3	2.5	20.4
50 to 99 employees	–	41	3.0	65.0	2.3	4.9	41.0	159.5	245.4	404.5	8.1	54.8
100 to 249 employees	–	46	7.0	146.6	5.8	12.0	104.9	392.2	899.9	1 298.4	26.7	151.0
250 to 499 employees	–	42	14.6	299.5	11.8	24.1	204.0	1 075.4	1 971.3	3 046.6	57.8	315.5
500 to 999 employees	–	22	14.7	348.3	11.4	24.1	225.1	1 200.0	2 184.6	3 377.4	34.6	376.9
1,000 to 2,499 employees	–	5	7.3	175.1	5.5	11.9	109.9	516.3	840.5	1 348.3	11.9	218.0
Covered by administrative records[2]	E9	158	.4	7.1	.3	.7	5.0	18.1	33.9	52.0	1.1	6.9

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2211	**Broadwoven fabrics mills, cotton:**										
	All establishments in industry	323	55.9	1 146.8	50.2	105.9	944.2	2 505.0	3 291.9	5 814.0	168.1
	Establishments with this product class primary:										
2211B	Plain weave fabrics, except pile (gray goods)	27	9.2	187.4	8.5	17.1	159.1	392.0	415.9	804.6	37.7
2211C	Twill weave fabrics, except pile (gray goods)	26	13.6	297.2	12.4	27.4	255.2	688.2	898.3	1 602.4	31.6
2211D	All other weaves, except pile (gray goods)	10	4.2	86.7	3.7	7.2	71.4	137.7	256.3	394.9	9.4
2211E	Pile fabrics (gray goods)	9	2.6	52.8	2.4	5.2	46.0	137.3	195.7	327.6	5.9
2211F	Finished cotton broadwoven fabrics (finished in weaving mills)	21	10.1	226.0	8.8	19.0	174.7	534.3	594.1	1 129.4	58.4
2211G	Cotton towels and washcloths (made in weaving mills)	7	10.9	202.4	9.7	20.4	165.3	376.3	574.6	951.3	16.5
2211H	Fabricated cotton textile products, except towels and washcloths (made in weaving mills)	15	4.1	76.9	3.7	7.7	57.9	206.6	319.1	533.0	6.9
2221	**Broadwoven fabrics mills, manmade fiber and silk:**										
	All establishments in industry	422	87.4	1 860.0	76.9	158.4	1 459.0	4 031.6	4 824.4	8 793.5	357.3
	Establishments with this product class primary:										
2221B	85 percent or more filament rayon and/or acetate fabrics, including blends chiefly rayon and/or acetate (gray goods)	21	4.6	106.0	4.2	9.2	88.2	240.1	391.3	626.4	29.5
2221C	85 percent or more filament fabrics, except rayon or acetate (gray goods)	67	18.5	420.3	15.4	32.1	307.9	1 020.0	1 363.4	2 368.6	103.6
2221D	85 percent or more spun yarn plain weave fabrics, except wool blends (gray goods)	58	27.8	558.3	25.7	51.2	469.1	1 097.1	1 175.7	2 258.0	82.4
2221E	85 percent or more spun yarn twill weave fabrics, except pile, excluding wool blends (gray goods)	8	2.6	52.0	2.4	5.1	45.6	135.6	139.3	273.7	8.9
2221F	Other 85 percent or more spun yarn fabrics, except pile, excluding wool blends (gray goods)	13	3.6	77.5	3.1	6.7	59.1	130.1	132.7	255.4	11.4
2221G	Combinations of spun yarn and filament fabrics, except wool blends, each less than 85% of total fiber content (gray)	28	10.6	221.6	9.3	18.9	173.0	512.2	557.7	1 060.3	63.0
2221H	Other manmade fiber fabrics and silk fabrics (gray goods)	9	1.6	33.6	1.4	2.8	25.5	42.5	97.9	140.1	4.1
2221J	Finished manmade fiber and silk broadwoven fabrics (finished in weaving mills)	38	11.5	253.6	9.6	20.1	185.1	584.8	745.4	1 323.2	39.5
2221M	Fabricated manmade fiber and silk textile products, except sheets and pillowcases (made in weaving mills)	7	5.5	116.8	4.8	10.3	89.6	233.0	179.7	410.8	11.7
2231	**Broadwoven fabrics mills, wool:**										
	All establishments in industry	99	13.7	279.4	11.8	25.3	214.0	690.5	947.0	1 612.4	32.7
	Establishments with this product class primary:										
22311	Finished wool yarns, tops, or raw stock, not combed or spun at the same establishment	9	.3	5.5	.2	.4	3.4	15.2	15.3	30.7	.7
22312	Wool broadwoven fabrics (gray goods)	19	4.8	98.9	4.2	8.8	79.5	162.1	324.7	483.8	15.8
22316	Finished broadwoven wool fabrics and felts	20	8.1	162.4	6.9	15.1	122.4	484.4	587.4	1 049.4	14.9
22317	Receipts for commission finishing or sponging of wool fabrics	25	.3	7.2	.3	.6	4.7	15.9	6.0	22.0	.3
22319	Fabricated textile products, 36 percent or more wool (made in weaving mills)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2241	**Narrow fabrics mills:**										
	All establishments in industry	258	16.8	324.8	14.3	29.0	235.4	718.8	605.2	1 313.9	50.3
	Establishments with this product class primary:										
22411	Woven narrow fabrics (12 inches or less in width)	104	10.9	212.7	9.2	18.7	151.9	472.6	359.8	827.7	30.9
22414	Braided narrow fabrics (12 inches or less in width)	38	3.3	61.6	2.8	5.7	43.5	141.6	89.9	230.7	4.7
22415	Covered rubber thread	13	1.6	33.8	1.5	3.0	28.3	71.9	130.9	198.6	12.1
2273	**Carpets and rugs:**										
	All establishments in industry	447	49.4	1 088.0	38.9	81.7	721.8	3 480.5	6 360.2	9 831.0	144.6
	Establishments with this product class primary:										
22731	Woven carpets and rugs	16	2.5	55.9	2.1	4.3	40.0	146.9	136.0	279.2	9.4
22732	Tufted carpets and rugs	189	42.2	943.1	32.9	69.0	617.4	3 121.4	5 988.0	9 103.9	123.9
22733	Carpets and rugs, n.e.c.	25	2.6	48.2	2.1	4.4	33.6	109.5	118.9	228.6	6.6

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON			
Total value of shipments	5 814.0	5 508.3	3 972.0
Primary products value of shipments	5 186.6	4 751.2	3 270.0
Secondary products value of shipments	602.8	731.4	643.7
Total miscellaneous receipts	24.6	25.7	58.4
Value of resales	9.4	4.2	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	6.6
Primary products specialization ratio	90	87	84
Value of primary products shipments made in all industries	5 711.6	5 405.6	3 635.0
Value of primary products shipments made in this industry	5 186.6	4 751.2	3 270.0
Value of primary products shipments made in other industries	525.0	654.4	365.0
Coverage ratio	91	88	90
INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK			
Total value of shipments	8 793.5	8 048.9	8 191.2
Primary products value of shipments	7 811.0	7 059.8	7 201.1
Secondary products value of shipments	921.6	955.6	932.4
Total miscellaneous receipts	60.9	33.6	57.7
Value of resales	33.4	14.4	21.8
Contract receipts	14.7	12.2	25.2
Receipts for commission spinning of yarn	(D)	(NA)	(NA)
Weaving broadwoven fabrics	5.2	(NA)	(NA)
Receipts for work done for others on their materials	6.0	(NA)	(NA)
Receipts for work done for others on their materials, n.s.k.	(D)	(NA)	(NA)
Other miscellaneous receipts	12.7	6.9	10.7
Primary products specialization ratio	89	88	89
Value of primary products shipments made in all industries	8 470.8	7 772.0	7 820.3
Value of primary products shipments made in this industry	7 811.0	7 059.8	7 201.1
Value of primary products shipments made in other industries	659.7	712.2	619.2
Coverage ratio	92	91	92
INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL			
Total value of shipments	1 612.4	1 050.7	762.8
Primary products value of shipments	(D)	938.0	628.4
Secondary products value of shipments	(D)	101.5	85.8
Total miscellaneous receipts	18.9	11.3	48.6
Value of resales	(D)	7.7	(D)
Contract receipts	7.4	(D)	24.6
Receipts for commission spinning of yarn	2.8	(NA)	(NA)
Weaving broadwoven fabrics	3.2	(NA)	(NA)
Receipts for work done for others on their materials	(D)	(NA)	(NA)
Receipts for work done for others on their materials, n.s.k.	(D)	(NA)	(NA)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	90	88
Value of primary products shipments made in all industries	1 388.2	1 146.7	834.0
Value of primary products shipments made in this industry	(D)	938.0	628.4
Value of primary products shipments made in other industries	(D)	208.7	205.5
Coverage ratio	(D)	82	75
INDUSTRY 2241, NARROW FABRICS MILLS			
Total value of shipments	1 313.9	1 135.7	851.8
Primary products value of shipments	1 223.8	1 071.9	798.0
Secondary products value of shipments	78.1	47.5	40.5
Total miscellaneous receipts	12.0	16.3	13.3
Value of resales	7.7	10.7	3.7
Contract receipts	3.8	5.6	8.0
Other miscellaneous receipts	.5	.1	1.7
Primary products specialization ratio	94	96	95
Value of primary products shipments made in all industries	1 263.7	1 170.6	826.1
Value of primary products shipments made in this industry	1 223.8	1 071.9	798.0
Value of primary products shipments made in other industries	40.0	98.8	28.1
Coverage ratio	97	92	97
INDUSTRY 2273, CARPETS AND RUGS			
Total value of shipments	9 831.0	9 795.0	5 807.8
Primary products value of shipments	9 487.5	9 221.3	(NA)
Secondary products value of shipments	145.8	277.8	(NA)
Total miscellaneous receipts	197.7	295.9	(NA)
Value of resales	61.6	132.1	(NA)
Contract receipts	130.0	158.0	(NA)
Other miscellaneous receipts	6.1	5.8	(NA)
Primary products specialization ratio	98	97	(NA)
Value of primary products shipments made in all industries	9 514.2	9 291.3	(NA)
Value of primary products shipments made in this industry	9 487.5	9 221.3	(NA)
Value of primary products shipments made in other industries	26.7	70.0	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2273, CARPETS AND RUGS—Con.			
Coverage ratio	99	99	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2211– —	**BROADWOVEN FABRICS MILLS, COTTON**								
	Total	**(NA)**	**(X)**	**(X)**	**5 711.6**	**(NA)**	**(X)**	**(X)**	**5 405.6**
2211B	Plain weave fabrics, except pile (gray goods)	(NA)	(X)	(X)	941.4	(NA)	(X)	(X)	2 014.9
2211B 00	Plain weave fabrics, except pile (gray goods) mil sq yd	45	2 239.9	1 152.0	941.4	55	2 854.9	2 490.5	2 014.9
2211C	Twill weave fabrics, except pile (gray goods)	(NA)	(X)	(X)	1 381.7	(NA)	(X)	(X)	675.5
2211C 00	Twill weave fabrics, except pile (gray goods) mil sq yd	28	1 460.2	1 036.5	1 381.7	24	631.1	561.5	675.5
2211D	All other weaves, except pile (gray goods)	(NA)	(X)	(X)	535.1	(NA)	(X)	(X)	223.6
2211D 00	All other weaves, except pile (gray goods) mil sq yd	34	469.1	386.9	535.1	27	289.1	192.3	223.6
2211E	Pile fabrics (gray goods)	(NA)	(X)	(X)	300.9	(NA)	(X)	(X)	369.3
2211E 00	Pile fabrics (gray goods) mil sq yd	14	474.0	335.5	300.9	9	460.3	333.0	369.3
2211F	Finished cotton broadwoven fabrics (finished in weaving mills)[3]	(NA)	(X)	(X)	1 253.6	(NA)	(X)	(X)	809.9
	Plain weave, except pile:								
2211F 01	Print cloth (finished) mil sq yd	6	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 03	Poplin and broadcloth (finished) mil sq yd	1	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 05	Sheeting, including bedsheeting and osnaburgs (finished) mil sq yd	4	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 07	Tobacco, cheese, and bandage cloth (finished) mil sq yd	1	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 09	Duck (finished) mil sq yd	(NA)	–	–	–	(NA)	(4)	(4)	(4)
2211F 11	Other, including lawns, voiles, and batistes (finished) mil sq yd	–	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 13	Twill weave, except pile (finished) mil sq yd	9	493.6	490.1	752.9	(NA)	(4)	(4)	(4)
	Other weaves, except pile:								
2211F 15	Sateens (finished) mil sq yd	1	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2211F 19	Other, including oxfords, table damask, jacquard, dobby shirting, and birdseye diaper cloth (finished) mil sq yd	8	102.3	100.3	142.2	(NA)	(4)	(4)	(4)
2211F 23	Pile fabrics (velvets, plushes, corduroy, terry toweling, terry cloth, and others) mil sq yd	6	(D)	(D)	(D)	27	4631.7	4475.4	4809.9
2211F 00	Finished cotton broadwoven fabrics (finished in weaving mills), n.s.k.	(NA)	(X)	(X)	2.6	(NA)	(X)	(X)	(4)
2211G	Cotton towels and washcloths (made in weaving mills)[3]	(NA)	(X)	(X)	731.6	(NA)	(X)	(X)	783.7
2211G 10	Terry, including pile	6	(X)	(X)	(D)	9	(X)	(X)	(D)
2211G 30	Huck and crash towels	1	(X)	(X)	(D)	2	(X)	(X)	(D)
2211G 00	Cotton towels and washcloths (made in weaving mills), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
2211H	Fabricated cotton textile products, except towels and washcloths (made in weaving mills)	(NA)	(X)	(X)	497.6	(NA)	(X)	(X)	396.5
2211H 01	Quilted	4	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
2211H 03	Nonquilted (except sheets and pillowcases)	9	(X)	(X)	103.5	(NA)	(X)	(X)	(D)
2211H 25	Sheets and pillowcases[5]	5	(X)	(X)	(D)	6	(X)	(X)	209.4
2211H 00	Fabricated cotton textile products, except towels and washcloths (made in weaving mills), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
22110	Broadwoven fabrics mills, cotton, n.s.k.	(NA)	(X)	(X)	69.6	(NA)	(X)	(X)	132.3
22110 00	Broadwoven fabrics mills, cotton, n.s.k.[6]	(NA)	(X)	(X)	41.0	(NA)	(X)	(X)	73.7
22110 02	Broadwoven fabrics mills, cotton, n.s.k.[7]	(NA)	(X)	(X)	28.6	(NA)	(X)	(X)	58.6

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2221– –	**BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK**								
	Total	**(NA)**	**(X)**	**(X)**	**8 470.8**	**(NA)**	**(X)**	**(X)**	**7 772.0**
2221B	85 percent or more filament rayon and/or acetate fabrics, including blends chiefly rayon and/or acetate (gray goods)	(NA)	(X)	(X)	639.7	(NA)	(X)	(X)	559.3
2221B 00	85 percent or more filament rayon and/or acetate fabrics, including blends chiefly rayon and/or acetate (gray goods)—mil sq yd	29	799.9	710.9	639.7	33	625.3	603.7	559.3
2221C	85 percent or more filament fabrics, except rayon or acetate (gray goods)	(NA)	(X)	(X)	2 222.9	(NA)	(X)	(X)	1 452.6
2221C 00	85 percent or more filament fabrics, except rayon and/or acetate (gray goods)—mil sq yd	71	4 955.7	4 053.7	2 222.9	52	2 244.2	2 127.3	1 452.6
2221D	85 percent or more spun yarn plain weave fabrics, except wool blends (gray goods)	(NA)	(X)	(X)	1 952.7	(NA)	(X)	(X)	2 035.9
2221D 00	85 percent or more spun yarn plain weave fabrics, except pile, excluding wool blends (gray goods)—mil sq yd	48	3 394.5	3 038.1	1 952.7	48	4 086.9	3 833.6	2 035.9
2221E	85 percent or more spun yarn twill weave fabrics, except pile, excluding wool blends (gray goods)	(NA)	(X)	(X)	301.7	(NA)	(X)	(X)	240.2
2221E 00	85 percent or more spun yarn twill weave fabrics, except pile, excluding wool blends (gray goods)—mil sq yd	21	454.3	305.2	301.7	20	291.2	276.3	240.2
2221F	Other 85 percent or more spun yarn fabrics, except pile, excluding wool blends (gray goods)	(NA)	(X)	(X)	359.3	(NA)	(X)	(X)	210.7
2221F 00	Other 85 percent or more spun yarn fabrics, except pile, excluding wool blends (gray goods)—mil sq yd	36	350.9	328.1	359.3	26	203.6	196.7	210.7
2221G	Combinations of spun yarn and filament fabrics, except wool blends, each less than 85% of total fiber content (gray)	(NA)	(X)	(X)	983.6	(NA)	(X)	(X)	952.6
2221G 00	Combinations of spun yarn and filament fabrics, except wool blends, each less than 85% of total fiber content (gray)—mil sq yd	35	1 285.4	1 253.7	983.6	39	1 410.9	1 308.1	952.6
2221H	Other manmade fiber fabrics and silk fabrics (gray goods)	(NA)	(X)	(X)	236.8	(NA)	(X)	(X)	666.9
2221H 10	Pile fabrics (gray goods)—mil sq yd	8	51.5	40.2	142.2	7	87.9	45.7	185.3
2221H 20	Other chiefly manmade fiber fabrics, including chiefly manmade fiber blends with wool, and silk fabrics (gray goods)—mil sq yd	7	54.7	54.1	94.6	29	733.4	650.6	479.9
2221H 00	Other manmade fiber fabrics and silk fabrics (gray goods), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	1.7
2221J	Finished manmade fiber and silk broadwoven fabrics (finished in weaving mills)[3]	(NA)	(X)	(X)	1 291.0	(NA)	(X)	(X)	1 036.4
	85 percent or more spun yarn fabrics:								
	Plain weave, except pile:								
2221J 01	Print cloth (finished)—mil sq yd	4	46.5	*16.5	37.8	(NA)	[8]	[8]	[8]
2221J 03	Poplin and broadcloth (finished)—mil sq yd	5	(D)	(D)	(D)	(NA)	[8]	[8]	[8]
2221J 05	Sheeting, including bedsheeting and osnaburgs (finished)—mil sq yd	2	(D)	(D)	(D)	(NA)	[8]	[8]	[8]
2221J 07	Lawns, voiles, and batistes (finished)—mil sq yd	(NA)	–	–	–	(NA)	[8]	[8]	[8]
2221J 11	Other types (finished)—mil sq yd	4	34.0	17.2	40.5	(NA)	[8]	[8]	[8]
2221J 13	Twill weave, except pile (finished)—mil sq yd	8	150.8	149.2	322.7	(NA)	[8]	[8]	[8]
	Other weaves, except pile:								
2221J 15	Sateens (finished)—mil sq yd	2	(D)	(D)	(D)	(NA)	[8]	[8]	[8]
2221J 19	Other, including oxfords, table damask, jacquard, and dobby shirting (finished)—mil sq yd	4	134.5	133.7	180.9	(NA)	[8]	[8]	[8]
2221J 23	Pile fabrics (velvets, plushes, corduroy, and others) (finished)—mil sq yd	5	19.9	19.9	49.2	(NA)	[8]	[8]	[8]
	85 percent or more filament yarn fabrics:								
2221J 25	Chiefly rayon and/or acetate (finished)—mil sq yd	3	(D)	(D)	(D)	(NA)	[8]	[8]	[8]
2221J 27	Chiefly polyester (finished)—mil sq yd	13	72.3	74.2	145.9	(NA)	[8]	[8]	[8]
2221J 29	Other (finished)—mil sq yd	7	150.3	149.4	197.6	(NA)	[8]	[8]	[8]
2221J 31	Other fabrics, including combinations of spun yarn and filament, blends with wool, silk, and blends with silk (finished)—mil sq yd	7	(D)	(D)	(D)	36	[8]597.1	[8]557.3	[8]1 036.4
2221J 00	Finished manmade fiber and silk broadwoven fabrics (finished in weaving mills), n.s.k.	(NA)	(X)	(X)	4.3	(NA)	(X)	(X)	[8]
2221K	Sheets and pillowcases, wholly or chiefly manmade fibers and silk (made in weaving mills)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
2221K 00	Sheets and pillowcases, wholly or chiefly manmade fibers and silk (made in weaving mills)[5]	3	(X)	(X)	(D)	4	(X)	(X)	(D)
2221M	Fabricated manmade fiber and silk textile products, except sheets and pillowcases (made in weaving mills)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
2221M 01	Quilted	2	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
2221M 03	Nonquilted	12	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
2221M 00	Fabricated manmade fiber and silk textile products, except sheets and pillowcases (made in weaving mills), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
22210	Broadwoven fabrics mills, manmade fiber and silk, n.s.k.	(NA)	(X)	(X)	70.8	(NA)	(X)	(X)	186.3
22210 00	Broadwoven fabrics mills, manmade fiber and silk, n.s.k.[9]	(NA)	(X)	(X)	33.7	(NA)	(X)	(X)	103.2
22210 02	Broadwoven fabrics mills, manmade fiber and silk, n.s.k.[10]	(NA)	(X)	(X)	37.1	(NA)	(X)	(X)	83.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2231– —	**BROADWOVEN FABRICS MILLS, WOOL**								
	Total	**(NA)**	**(X)**	**(X)**	**1 388.2**	**(NA)**	**(X)**	**(X)**	**1 146.7**
22311	Finished wool yarns, tops, or raw stock, not combed or spun at the same establishment	(NA)	(X)	(X)	63.4	(NA)	(X)	(X)	83.8
22311 00	Finished wool yarns, tops, or raw stock, not combed or spun at the same establishment — mil lb	12	(S)	(S)	63.4	11	41.5	*41.5	83.8
22312	Wool broadwoven fabrics (gray goods)	(NA)	(X)	(X)	393.4	(NA)	(X)	(X)	393.4
22312 00	Wool broadwoven fabrics (gray goods) — mil sq yd	19	186.1	121.3	393.4	18	180.8	132.3	393.4
22316	Finished broadwoven wool fabrics and felts	(NA)	(X)	(X)	887.0	(NA)	(X)	(X)	599.6
22316 00	Finished broadwoven wool fabrics and felts — mil sq yd	18	166.2	165.9	887.0	(NA)	81.3	*79.8	599.6
22317	Receipts for commission finishing or sponging of wool fabrics	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	20.9
22317 91	Shrinking, sponging, mending, etc., of wool broadwoven fabrics	4	(X)	(X)	(D)	6	(X)	(X)	8.1
22317 92	Job or commission finishing of wool broadwoven fabrics	4	(X)	(X)	3.1	2	(X)	(X)	(D)
22317 93	Finishing wool textiles, except broadwoven fabrics	3	(X)	(X)	3.1	6	(X)	(X)	10.0
22317 00	Receipts for commission finishing or sponging of wool fabrics, n.s.k.	(NA)	(X)	(X)	5.8	(NA)	(X)	(X)	(D)
22319	Fabricated textile products, 36 percent or more wool (made in weaving mills)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	13.8
22319 01	Quilted	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
22319 03	Nonquilted	2	(X)	(X)	.6	(NA)	(X)	(X)	(D)
22319 00	Fabricated textile products, 36 percent or more wool (made in weaving mills), n.s.k.	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	2.1
22310	Broadwoven fabrics mills, wool, n.s.k.	(NA)	(X)	(X)	19.7	(NA)	(X)	(X)	35.1
22310 00	Broadwoven fabrics mills, wool, n.s.k.[11]	(NA)	(X)	(X)	11.6	(NA)	(X)	(X)	21.5
22310 02	Broadwoven fabrics mills, wool, n.s.k.[12]	(NA)	(X)	(X)	8.1	(NA)	(X)	(X)	13.6

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2241– —	**NARROW FABRICS MILLS**						
	Total	**(NA)**	**(X)**	**1 263.7**	**(NA)**	**(X)**	**1 170.6**
22411	Woven narrow fabrics (12 inches or less in width)	(NA)	(X)	810.7	(NA)	(X)	770.6
	Woven elastic narrow fabrics:						
22411 03	Corset — mil lin yd	1	(D)	(D)	(NA)	(NA)	(13)
22411 05	Underwear and other apparel — mil lin yd	12	*918.3	159.3	(NA)	(NA)	(13)
22411 07	Other uses — mil lin yd	13	*110.5	25.5	41	(NA)	13250.7
	Woven nonelastic narrow fabrics:						
22411 11	Labels — mil labels	18	**5 406.7	142.0	(NA)	(NA)	(14)
22411 13	Ribbons, woven edge — mil lin yd	14	**1 308.2	117.8	(NA)	(NA)	(14)
22411 14	Zipper tape — mil lin yd	2	(D)	(D)	(NA)	(NA)	(14)
22411 15	Apparel tape, except zipper — mil lin yd	8	(S)	8.1	(NA)	(NA)	(14)
22411 16	All other tape — mil lin yd	10	(D)	(D)	(NA)	(NA)	(14)
22411 19	All other, including webbing — mil lin yd	36	890.0	195.4	79	(NA)	14518.2
22411 00	Woven narrow fabrics (12 inches or less in width), n.s.k.	(NA)	(X)	78.5	(NA)	(X)	1.7
22414	Braided narrow fabrics (12 inches or less in width)	(NA)	(X)	201.4	(NA)	(X)	165.3
22414 01	Elastic braids (flat, round, and tubular) — mil lin yd	16	644.7	47.1	(NA)	(NA)	(15)
	Nonelastic braids:						
22414 03	Shoe and corset laces — mil lin yd	8	*479.9	35.0	(NA)	(NA)	(15)
22414 05	Other nonelastic braids — mil lb	20	**29.5	109.8	(NA)	(NA)	15165.3
22414 00	Braided narrow fabrics (12 inches or less in width), n.s.k.	(NA)	(X)	9.5	(NA)	(X)	(15)
22415	Covered rubber thread	(NA)	(X)	197.8	(NA)	(X)	175.1
22415 00	Covered rubber thread — mil lb	15	*26.8	197.8	14	*26.0	175.1
22410	Narrow fabrics mills, n.s.k.	(NA)	(X)	53.9	(NA)	(X)	59.7
22410 00	Narrow fabrics mills, n.s.k.[16]	(NA)	(X)	35.5	(NA)	(X)	22.0
22410 02	Narrow fabrics mills, n.s.k.[17]	(NA)	(X)	18.3	(NA)	(X)	37.7

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2273– –	**CARPETS AND RUGS**						
	Total	**(NA)**	**(X)**	**9 514.2**	**(NA)**	**(X)**	**9 291.3**
22731	Woven carpets and rugs	(NA)	(X)	285.1	(NA)	(X)	269.7
22731 00	Woven carpets and rugs[18] mil sq yd	19	18.8	285.1	25	*20.0	269.7
22732	Tufted carpets and rugs	(NA)	(X)	8 801.6	(NA)	(X)	8 547.1
22732 20	Tufted only or tufted and finished in the same establishment[18] mil sq yd	128	1 321.3	8 094.7	111	1 237.3	7 170.6
22732 40	Finished only mil sq yd	25	158.7	706.9	32	377.8	1 363.7
22732 00	Tufted carpets and rugs, n.s.k.	(NA)	(X)	–	(NA)	(X)	39.8
22733	Carpets and rugs, n.e.c.	(NA)	(X)	331.2	(NA)	(X)	330.2
22733 00	Carpets, rugs, and mats, n.e.c. (knitted, braided, hooked, needlepunched, woven paper yarn, coconut fiber, etc.)[18] mil sq yd	30	89.3	331.2	(NA)	(S)	330.2
22730	Carpets and rugs, n.s.k.	(NA)	(X)	96.3	(NA)	(X)	144.3
22730 00	Carpets and rugs, n.s.k.[11]	(NA)	(X)	24.2	(NA)	(X)	–
22730 02	Carpets and rugs, n.s.k.[12]	(NA)	(X)	72.1	(NA)	(X)	144.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]This product class is primary to more than one industry.
[4]For 1987, data for these products were not collected separately, but are included with product code 2211F 23. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabric Production.
[5]This product code is primary to more than one industry.
[6]Typically for establishments with 5 employees or more.
[7]Typically for establishments with less than 5 employees.
[8]For 1987, data for these products were not collected separately, but are included with product code 2221J 31. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabric Production.
[9]Typically for establishments with 15 employees or more.
[10]Typically for establishments with less than 15 employees.
[11]Typically for establishments with 20 employees or more.
[12]Typically for establishments with less than 20 employees.
[13]For 1987, data for these products were not collected separately, but are included with product code 22411 07. Detailed data for 1987 were published in the Current Industrial Report Series MA22G, Narrow Fabrics.
[14]For 1987, data for these products were not collected separately, but are included with product code 22411 19. Detailed data for 1987 were published in the Current Industrial Report Series MA22G, Narrow Fabrics.
[15]For 1987, data for these products were not collected separately, but are included with product code 22414 05. Detailed data for 1987 were published in the Current Industrial Report Series MA22G, Narrow Fabrics.
[16]Typically for establishments with 10 employees or more.
[17]Typically for establishments with less than 10 employees.
[18]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
	Finished cotton broadwoven fabrics	(NA)	(X)	(X)	3 120.4	(NA)	(X)	(X)	1 759.0
2211F	Finished in weaving mills	(NA)	(X)	(X)	1 253.6	(NA)	(X)	(X)	809.9
22617	Finished in other industries	(NA)	(X)	(X)	1 866.8	(NA)	(X)	(X)	949.1
	Plain weave print cloth mil sq yd	(NA)	410.3	384.0	416.3	(NA)	(3)	(3)	(3)
2211F 01	Finished in weaving mills mil sq yd	6	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 01	Finished in other industries mil sq yd	23	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave poplin and broadcloth mil sq yd	(NA)	96.1	95.1	80.0	(NA)	(3)	(3)	(3)
2211F 03	Finished in weaving mills mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 03	Finished in other industries mil sq yd	7	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave sheeting, including bedsheeting and osnaburgs mil sq yd	(NA)	1 136.0	1 130.8	831.5	(NA)	(3)	(3)	(3)
2211F 05	Finished in weaving mills mil sq yd	4	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 05	Finished in other industries mil sq yd	18	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave tobacco, cheese, and bandage cloth mil sq yd	(NA)	53.4	53.1	55.3	(NA)	(3)	(3)	(3)
2211F 07	Finished in weaving mills mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 07	Finished in other industries mil sq yd	3	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave duck mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
2211F 09	Finished in weaving mills mil sq yd	–	–	–	–	(NA)	(3)	(3)	(3)
22617 09	Finished in other industries mil sq yd	7	(D)	(D)	(D)	(NA)	(3)	(3)	(3)

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
	Finished cotton broadwoven fabrics—Con.								
	Other plain weave fabrics, including lawns, voiles, and batistes — mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
2211F 11	Finished in weaving mills — mil sq yd	–	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 11	Finished in other industries — mil sq yd	4	15.1	13.4	17.3	(NA)	(3)	(3)	(3)
	Twill weave, except pile — mil sq yd	(NA)	764.2	748.6	1 034.3	(NA)	(3)	(3)	(3)
2211F 13	Finished in weaving mills — mil sq yd	9	493.6	490.1	752.9	(NA)	(3)	(3)	(3)
22617 13	Finished in other industries — mil sq yd	10	270.6	258.5	281.4	(NA)	(3)	(3)	(3)
	Sateens — mil sq yd	(NA)	8.3	7.1	16.0	(NA)	(3)	(3)	(3)
2211F 15	Finished in weaving mills — mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 15	Finished in other industries — mil sq yd	6	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Other weave fabrics, including oxfords, table damask, jacquard, dobby shirting, and birdseye diaper cloth — mil sq yd	(NA)	190.5	185.9	266.3	(NA)	(3)	(3)	(3)
2211F 19	Finished in weaving mills — mil sq yd	8	102.3	100.3	142.2	(NA)	(3)	(3)	(3)
22617 19	Finished in other industries — mil sq yd	8	88.2	85.7	124.1	(NA)	(3)	(3)	(3)
	Pile fabrics (velvets, plushes, corduroy, terry toweling, terry cloth, etc.) — mil sq yd	(NA)	136.4	136.3	249.1	(NA)	3 1 519.1	3 1 320.7	3 1 759.0
2211F 23	Finished in weaving mills — mil sq yd	6	(D)	(D)	(D)	27	3 631.7	3 475.4	3 809.9
22617 23	Finished in other industries — mil sq yd	3	(D)	(D)	(D)	68	3 887.4	3 845.3	3 949.1
	Finished cotton broadwoven fabrics, n.s.k.	(NA)	(X)	(X)	19.9	(NA)	(X)	(X)	(3)
2211F 00	Finished in weaving mills	(NA)	(X)	(X)	2.6	(NA)	(X)	(X)	(3)
22617 00	Finished in other industries	(NA)	(X)	(X)	17.3	(NA)	(X)	(X)	(3)
	Towels and washcloths	(NA)	(X)	(X)	1 343.1	(NA)	(X)	(X)	1 284.3
2211G	Made in weaving mills	(NA)	(X)	(X)	731.6	(NA)	(X)	(X)	783.7
23923	Made in other industries	(NA)	(X)	(X)	611.4	(NA)	(X)	(X)	500.6
	Terry towels and washcloths, including pile	(NA)	(X)	(X)	1 283.5	(NA)	(X)	(X)	(D)
2211G 10	Made in weaving mills	6	(X)	(X)	(D)	9	(X)	(X)	(D)
23923 10	Made in other industries	20	(X)	(X)	(D)	19	(X)	(X)	480.8
	Other towels, including huck and crash	(NA)	(X)	(X)	14.3	(NA)	(X)	(X)	(D)
2211G 30	Made in weaving mills	1	(X)	(X)	(D)	2	(X)	(X)	(D)
23923 13	Made in other industries	5	(X)	(X)	(D)	4	(X)	(X)	19.8
	Towels and washcloths, n.s.k.	(NA)	(X)	(X)	45.2	(NA)	(X)	(X)	(D)
2211G 00	Made in weaving mills	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
23923 00	Made in other industries	(NA)	(X)	(X)	45.2	(NA)	(X)	(X)	–
	Sheets and pillowcases	(NA)	(X)	(X)	1 560.8	(NA)	(X)	(X)	(D)
	Made in weaving mills	(NA)	(X)	(X)	559.0	(NA)	(X)	(X)	(D)
2211H 25	Wholly or chiefly cotton fabrics	5	(X)	(X)	(D)	6	(X)	(X)	209.4
2221K 00	Wholly or chiefly manmade fibers and silk	3	(X)	(X)	(D)	4	(X)	(X)	(D)
23922 00	Made in other industries	43	(X)	(X)	1 001.8	45	(X)	(X)	717.8
	Finished manmade fiber and silk broadwoven fabrics	(NA)	(X)	(X)	3 258.0	(NA)	(X)	(X)	3 737.0
2221J	Finished in weaving mills	(NA)	(X)	(X)	1 291.0	(NA)	(X)	(X)	1 036.4
22628	Finished in other industries	(NA)	(X)	(X)	1 967.0	(NA)	(X)	(X)	2 700.6
	Plain weave print cloth — mil sq yd	(NA)	265.3	235.2	227.0	(NA)	(4)	(4)	(4)
2221J 01	Finished in weaving mills — mil sq yd	4	46.5	*16.5	37.8	(NA)	(4)	(4)	(4)
22628 01	Finished in other industries — mil sq yd	16	218.8	218.8	189.2	(NA)	(4)	(4)	(4)
	Plain weave poplin and broadcloth — mil sq yd	(NA)	*242.1	*241.0	283.2	(NA)	(4)	(4)	(4)
2221J 03	Finished in weaving mills — mil sq yd	5	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 03	Finished in other industries — mil sq yd	7	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Plain weave sheeting, including bedsheeting and osnaburgs — mil sq yd	(NA)	100.8	83.1	111.8	(NA)	(4)	(4)	(4)
2221J 05	Finished in weaving mills — mil sq yd	2	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 05	Finished in other industries — mil sq yd	5	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Plain weave lawns, voiles, and batistes — mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2221J 07	Finished in weaving mills — mil sq yd	–	–	–	–	(NA)	(4)	(4)	(4)
22628 07	Finished in other industries — mil sq yd	1	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Other plain weave fabrics — mil sq yd	(NA)	112.7	94.7	101.5	(NA)	(4)	(4)	(4)
2221J 11	Finished in weaving mills — mil sq yd	4	34.0	17.2	40.5	(NA)	(4)	(4)	(4)
22628 11	Finished in other industries — mil sq yd	6	78.7	77.5	61.0	(NA)	(4)	(4)	(4)
	Twill weave, except pile — mil sq yd	(NA)	377.4	364.5	522.3	(NA)	(4)	(4)	(4)
2221J 13	Finished in weaving mills — mil sq yd	8	150.8	149.2	322.7	(NA)	(4)	(4)	(4)
22628 13	Finished in other industries — mil sq yd	6	226.7	215.3	199.6	(NA)	(4)	(4)	(4)
	Sateens — mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2221J 15	Finished in weaving mills — mil sq yd	2	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 15	Finished in other industries — mil sq yd	4	22.0	22.0	27.4	(NA)	(4)	(4)	(4)
	Other weave fabrics, including oxfords, table damask, jacquard, and dobby shirting — mil sq yd	(NA)	356.1	350.9	514.5	(NA)	(4)	(4)	(4)
2221J 19	Finished in weaving mills — mil sq yd	4	134.5	133.7	180.9	(NA)	(4)	(4)	(4)
22628 19	Finished in other industries — mil sq yd	9	221.6	217.2	333.6	(NA)	(4)	(4)	(4)
	Pile fabrics — mil sq yd	(NA)	77.3	77.3	124.7	(NA)	(4)	(4)	(4)
2221J 23	Finished in weaving mills — mil sq yd	5	19.9	19.9	49.2	(NA)	(4)	(4)	(4)
22628 23	Finished in other industries — mil sq yd	4	57.4	57.4	75.5	(NA)	(4)	(4)	(4)
	85 percent or more chiefly rayon and/or acetate — mil sq yd	(NA)	*137.6	98.1	164.6	(NA)	(4)	(4)	(4)
2221J 25	Finished in weaving mills — mil sq yd	3	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 25	Finished in other industries — mil sq yd	9	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	85 or more chiefly polyester — mil sq yd	(NA)	348.7	341.1	496.8	(NA)	(4)	(4)	(4)
2221J 27	Finished in weaving mills — mil sq yd	13	72.3	74.2	145.9	(NA)	(4)	(4)	(4)
22628 27	Finished in other industries — mil sq yd	13	276.4	266.9	350.9	(NA)	(4)	(4)	(4)
	Other 85 percent or more filament yarn fabrics — mil sq yd	(NA)	272.1	268.4	349.8	(NA)	(4)	(4)	(4)
2221J 29	Finished in weaving mills — mil sq yd	7	150.3	149.4	197.6	(NA)	(4)	(4)	(4)
22628 29	Finished in other industries — mil sq yd	8	121.7	119.0	152.2	(NA)	(4)	(4)	(4)
	Other fabrics, including combinations of spun yarn and filament, blends with wool, silk, and blends with silk — mil sq yd	(NA)	143.5	143.5	302.5	(NA)	4 2 390.2	4 2 305.4	4 3 737.0
2221J 31	Finished in weaving mills — mil sq yd	7	(D)	(D)	(D)	36	4 597.1	4 557.3	4 1 036.4
22628 31	Finished in other industries — mil sq yd	6	(D)	(D)	(D)	61	4 1 793.1	4 1 748.1	4 2 700.6
	Finished manmade fiber and silk broadwoven fabrics, n.s.k.	(NA)	(X)	(X)	24.8	(NA)	(X)	(X)	(4)
2221J 00	Finished in weaving mills	(NA)	(X)	(X)	4.3	(NA)	(X)	(X)	(4)
22628 00	Finished in other industries	(NA)	(X)	(X)	20.5	(NA)	(X)	(X)	(4)

Note: For qualifications of data, see footnotes on table 6a–1.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for these products were not collected separately, but were included with either 2211F 23 or 22617 23.
[4]For 1987, data for these products were not collected separately, but were included with either 2221J 31 or 22628 31.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2211B, PLAIN WEAVE FABRICS, EXCEPT PILE (GRAY GOODS)		
United States	**941.4**	**2 014.9**
Alabama	94.4	114.9
Georgia	248.1	364.1
North Carolina	96.9	618.3
South Carolina	410.9	786.6
2211C, TWILL WEAVE FABRICS, EXCEPT PILE (GRAY GOODS)		
United States	**1 381.7**	**675.5**
Georgia	290.8	181.2
North Carolina	551.1	178.5
South Carolina	407.8	199.0
2211D, ALL OTHER WEAVES, EXCEPT PILE (GRAY GOODS)		
United States	**535.1**	**223.6**
Georgia	77.0	17.4
North Carolina	188.8	93.4
Pennsylvania	28.6	34.7
South Carolina	88.2	43.8
2211E, PILE FABRICS (GRAY GOODS)		
United States	**300.9**	**369.3**
Georgia	22.0	(NA)
2211F, FINISHED COTTON BROADWOVEN FABRICS (FINISHED IN WEAVING MILLS)		
United States	**1 253.6**	**809.9**
Georgia	409.8	301.7
North Carolina	448.7	308.2
South Carolina	44.3	64.1
Texas	167.5	94.5
2211G, COTTON TOWELS AND WASHCLOTHS (MADE IN WEAVING MILLS)		
United States	**731.6**	**783.7**
2211H, FABRICATED COTTON TEXTILE PRODUCTS, EXCEPT TOWELS AND WASHCLOTHS (MADE IN WEAVING MILLS)		
United States	**497.6**	**396.5**
North Carolina	84.0	101.4
2221B, 85 PERCENT OR MORE FILAMENT RAYON AND/OR ACETATE FABRICS, INCLUDING BLENDS CHIEFLY RAYON AND/OR ACETATE (GRAY GOODS)		
United States	**639.7**	**559.3**
North Carolina	91.0	133.8
Pennsylvania	21.3	78.9
Rhode Island	29.3	(NA)
South Carolina	135.6	55.4
Virginia	239.4	182.1
2221C, 85 PERCENT OR MORE FILAMENT FABRICS, EXCEPT RAYON OR ACETATE (GRAY GOODS)		
United States	**2 222.9**	**1 452.6**
Georgia	611.0	347.3
Massachusetts	33.8	(NA)
New York	35.6	(NA)
North Carolina	384.2	268.1
Pennsylvania	107.1	82.0
South Carolina	618.6	337.8
Virginia	251.3	(NA)
2221D, 85 PERCENT OR MORE SPUN YARN PLAIN WEAVE FABRICS, EXCEPT WOOL BLENDS (GRAY GOODS)		
United States	**1 952.7**	**2 035.9**
Alabama	235.7	183.8
Georgia	158.6	215.6
North Carolina	334.0	248.9
South Carolina	1 178.4	1 285.2
2221E, 85 PERCENT OR MORE SPUN YARN TWILL WEAVE FABRICS, EXCEPT PILE, EXCLUDING WOOL BLENDS (GRAY GOODS)		
United States	**301.7**	**240.2**
North Carolina	29.3	39.8
South Carolina	232.0	132.3
2221F, OTHER 85 PERCENT OR MORE SPUN YARN FABRICS, EXCEPT PILE, EXCLUDING WOOL BLENDS (GRAY GOODS)		
United States	**359.3**	**210.7**
Georgia	23.3	13.3
North Carolina	136.3	67.5
Pennsylvania	18.8	7.2
South Carolina	137.0	79.6
2221G, COMBINATIONS OF SPUN YARN AND FILAMENT FABRICS, EXCEPT WOOL BLENDS, EACH LESS THAN 85% OF TOTAL FIBER CONTENT (GRAY)		
United States	**983.6**	**952.6**
Alabama	112.2	90.0
North Carolina	359.0	447.2
Pennsylvania	56.4	49.5
South Carolina	242.1	320.2
2221H, OTHER MANMADE FIBER FABRICS AND SILK FABRICS (GRAY GOODS)		
United States	**236.8**	**666.9**
North Carolina	143.3	140.7
South Carolina	15.2	(NA)
2221J, FINISHED MANMADE FIBER AND SILK BROADWOVEN FABRICS (FINISHED IN WEAVING MILLS)		
United States	**1 291.0**	**1 036.4**
Georgia	133.4	89.8
North Carolina	308.2	318.3
Pennsylvania	53.4	(NA)
Rhode Island	17.9	(NA)
South Carolina	220.9	262.7
Virginia	215.2	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2221K, SHEETS AND PILLOWCASES, WHOLLY OR CHIEFLY MANMADE FIBERS AND SILK (MADE IN WEAVING MILLS)		
United States	**(D)**	**(D)**
2221M, FABRICATED MANMADE FIBER AND SILK TEXTILE PRODUCTS, EXCEPT SHEETS AND PILLOWCASES (MADE IN WEAVING MILLS)		
United States	**(D)**	**(D)**
22311, FINISHED WOOL YARNS, TOPS, OR RAW STOCK, NOT COMBED OR SPUN AT THE SAME ESTABLISHMENT		
United States	**63.4**	**83.8**
Georgia	6.3	(NA)
22312, WOOL BROADWOVEN FABRICS (GRAY GOODS)		
United States	**393.4**	**393.4**
Pennsylvania	7.1	(NA)
22316, FINISHED BROADWOVEN WOOL FABRICS AND FELTS		
United States	**887.0**	**599.6**
Maine	88.9	119.6
New Hampshire	59.2	(NA)
22317, RECEIPTS FOR COMMISSION FINISHING OR SPONGING OF WOOL FABRICS		
United States	**(D)**	**20.9**
Massachusetts	9.0	6.0
New York	2.2	(NA)
22319, FABRICATED TEXTILE PRODUCTS, 36 PERCENT OR MORE WOOL (MADE IN WEAVING MILLS)		
United States	**(D)**	**13.8**
22411, WOVEN NARROW FABRICS (12 INCHES OR LESS IN WIDTH)		
United States	**810.7**	**770.6**
Alabama	42.5	37.8
California	39.1	(NA)
Florida	11.6	(NA)
Georgia	19.6	9.6
Massachusetts	30.3	40.4
New Jersey	44.9	41.7
New York	4.2	24.0
North Carolina	76.5	128.2
Pennsylvania	65.7	68.9
Rhode Island	66.8	71.0
South Carolina	133.1	105.8
Tennessee	10.3	8.3
Virginia	43.2	(NA)
22414, BRAIDED NARROW FABRICS (12 INCHES OR LESS IN WIDTH)		
United States	**201.4**	**165.3**
Massachusetts	11.0	16.1
North Carolina	22.0	(NA)
Pennsylvania	45.6	23.9
Rhode Island	42.8	48.1
22415, COVERED RUBBER THREAD		
United States	**197.8**	**175.1**
North Carolina	185.2	159.0
22731, WOVEN CARPETS AND RUGS		
United States	**285.1**	**269.7**
Georgia	84.9	53.2
Pennsylvania	25.3	23.8
South Carolina	82.7	(NA)
22732, TUFTED CARPETS AND RUGS		
United States	**8 801.6**	**8 546.4**
Alabama	129.7	194.9
California	523.4	616.9
Georgia	6 776.9	6 332.0
South Carolina	282.1	323.3
Tennessee	122.6	153.2
22733, CARPETS AND RUGS, N.E.C.		
United States	**331.2**	**330.2**
Georgia	70.6	41.5
Rhode Island	10.8	19.2
South Carolina	32.3	13.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2211-	**Broadwoven fabrics mills, cotton**	**5 711.6**	**5 497.7**	**5 286.4**	**5 336.9**	**5 349.8**	**5 405.6**	**3 635.0**	**4 132.0**
2211B	Plain weave fabrics, except pile (gray goods)	941.4	1 916.9	1 882.6	1 911.8	1 971.4	2 014.9		
2211C	Twill weave fabrics, except pile (gray goods)	1 381.7	769.8	658.3	645.7	667.6	675.5	2 066.2	2 615.1
2211D	All other weaves, except pile (gray goods)	535.1	368.3	325.2	257.4	206.0	223.6		
2211E	Pile fabrics (gray goods)	300.9	320.3	330.2	320.6	336.8	369.3		
2211F	Finished cotton broadwoven fabrics (finished in weaving mills)	1 253.6	918.7	832.9	809.0	878.6	809.9	724.7	928.1
2211G	Cotton towels and washcloths (made in weaving mills)	731.6	727.2	794.5	932.9	788.3	783.7	608.1	416.4
2211H	Fabricated cotton textile products, except towels and washcloths (made in weaving mills)	497.6	380.4	350.6	344.7	357.3	396.5	99.8	108.2
22110	Broadwoven fabrics mills, cotton, n.s.k.	69.6	96.1	111.9	114.9	143.9	132.3	136.2	64.2

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2221-	**Broadwoven fabrics mills, manmade fiber and silk**	**8 470.8**	**7 898.2**	**8 133.4**	**8 434.2**	**8 332.3**	**7 772.0**	**7 820.3**	**5 981.5**
2221B	85 percent or more filament rayon and/or acetate fabrics, including blends chiefly rayon and/or acetate (gray goods)	639.7	720.0	726.6	703.2	661.1	559.3		
2221C	85 percent or more filament fabrics, except rayon or acetate (gray goods)	2 222.9	1 975.1	1 908.0	1 950.8	1 682.1	1 452.6		
2221D	85 percent or more spun yarn plain weave fabrics, except wool blends (gray goods)	1 952.7	1 848.4	1 755.8	1 792.1	1 844.0	2 035.9		
2221E	85 percent or more spun yarn twill weave fabrics, except pile, excluding wool blends (gray goods)	301.7	248.6	214.7	242.4	235.6	240.2	5 820.2	4 300.8
2221F	Other 85 percent or more spun yarn fabrics, except pile, excluding wool blends (gray goods)	359.3	190.5	160.2	196.5	234.7	210.7		
2221G	Combinations of spun yarn and filament fabrics, except wool blends, each less than 85% of total fiber content (gray)	983.6	972.7	992.9	1 006.6	1 036.5	952.6		
2221H	Other manmade fiber fabrics and silk fabrics (gray goods)	236.8	671.1	758.9	758.5	737.2	666.9		
2221J	Finished manmade fiber and silk broadwoven fabrics (finished in weaving mills)	1 291.0	718.0	811.7	880.5	1 050.1	1 036.4	1 109.8	1 127.0
2221K	Sheets and pillowcases, wholly or chiefly manmade fibers and silk (made in weaving mills)	(D)	(D)	(D)	(D)	(D)	(D)	462.9	426.8
2221M	Fabricated manmade fiber and silk textile products, except sheets and pillowcases (made in weaving mills)	(D)	(D)	(D)	(D)	(D)	(D)	86.2	126.9
22210	Broadwoven fabrics mills, manmade fiber and silk, n.s.k.	70.8	134.2	140.1	188.6	219.3	186.3	341.2	
2231-	**Broadwoven fabrics mills, wool**	**1 388.2**	**1 491.7**	**1 442.6**	**1 658.0**	**1 625.9**	**1 146.7**	**834.0**	**581.3**
22311	Finished wool yarns, tops, or raw stock, not combed or spun at the same establishment	63.4	(D)	(D)	(D)	97.2	83.8	(D)	39.5
22312	Wool broadwoven fabrics (gray goods)	393.4	419.1	418.1	471.0	481.0	393.4	137.8	97.3
22316	Finished broadwoven wool fabrics and felts	887.0	939.3	866.1	1 017.1	967.5	599.6	570.1	382.5
22317	Receipts for commission finishing or sponging of wool fabrics	(D)	(D)	(D)	(D)	26.3	20.9	(D)	26.8
22319	Fabricated textile products, 36 percent or more wool (made in weaving mills)	(D)	(D)	(D)	(D)	18.7	13.8	24.5	9.2
22310	Broadwoven fabrics mills, wool, n.s.k.	19.7	27.9	31.1	30.4	35.2	35.1	44.3	26.0
2241-	**Narrow fabrics mills**	**1 263.7**	**1 164.7**	**1 197.6**	**1 254.6**	**1 320.3**	**1 170.6**	**826.1**	**645.0**
22411	Woven narrow fabrics (12 inches or less in width)	810.7	764.7	827.1	806.7	873.8	770.6	568.2	413.5
22414	Braided narrow fabrics (12 inches or less in width)	201.4	156.5	145.1	170.0	170.3	165.3	135.7	133.4
22415	Covered rubber thread	197.8	170.2	154.5	212.6	210.3	175.1	86.8	56.1
22410	Narrow fabrics mills, n.s.k.	53.9	73.3	71.0	65.2	65.9	59.7	35.4	42.0
2273-	**Carpets and rugs**	**9 514.2**	**8 555.2**	**9 610.5**	**9 825.8**	**9 759.0**	**9 291.3**	**5 592.4**	**4 433.1**
22731	Woven carpets and rugs	285.1	306.1	320.2	296.3	270.6	269.7	217.8	167.9
22732	Tufted carpets and rugs	8 801.6	7 763.2	8 821.8	9 100.3	9 089.2	8 547.1	5 152.4	4 172.2
22733	Carpets and rugs, n.e.c.	331.2	301.0	269.2	253.3	242.3	330.2	148.2	93.0
22730	Carpets and rugs, n.s.k.	96.3	185.0	199.3	175.9	156.9	144.3	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2211, BROADWOVEN FABRICS MILLS, COTTON				
	Materials, ingredients, containers, and supplies	**(X)**	**2 982.0**	**(X)**	**2 487.7**
	Raw fibers:				
013101	Raw cotton 1,000 bales	3 332.3	1 068.8	2 993.3	898.2
020001	Raw wool, mohair, and other animal fibers (scoured weight) mil lb	–	–	(NA)	(2)
229963	Wool tops mil lb	–	–	(NA)	(2)
	Staple and tow:				
282305	Rayon and acetate mil lb	**11.3	12.2	4.1	3.7
282413	Nylon mil lb	(D)	(D)	(D)	(D)
282425	Polyester mil lb	131.9	98.3	197.0	116.3
282428	All other manmade fiber staple and tow (except glass) mil lb	2.0	1.4	1.3	.9
010014	All other fibers (silk, jute, reused wool, waste, etc.) mil lb	(D)	(D)	(D)	(D)
	Filament yarns:				
282301	Rayon and acetate mil lb	18.6	41.9	(D)	(D)
282411	Nylon mil lb	(D)	(D)	.3	.9
282423	Polyester mil lb	70.0	62.0	42.5	35.0
282407	All other filament yarn, except glass mil lb	3.4	6.3	5.2	4.0
322935	Glass filament yarn and roving mil lb	(D)	(D)	(D)	(D)
228101	Spun yarn, all fibers mil lb	*489.4	583.2	336.7	406.4
220211	Broadwoven fabrics mil sq yd	712.7	461.8	*292.0	377.1
280031	Dyes, lakes, and toners	(X)	112.1	(X)	83.9
970099	All other materials and components, parts, containers, and supplies	(X)	504.1	(X)	[2]521.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	26.2	(X)	25.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 2221, BROADWOVEN FABRICS MILLS, MANMADE FIBER AND SILK				
	Materials, ingredients, containers, and supplies	**(X)**	**4 381.5**	**(X)**	**4 041.9**
	Raw fibers:				
013101	Raw cotton, 1,000 bales	980.0	342.2	813.3	285.0
020001	Raw wool, mohair, and other animal fibers (scoured weight), mil lb	(D)	(D)	(D)	(D)
229963	Wool tops, mil lb	(D)	(D)	(D)	(D)
	Staple and tow:				
282305	Rayon and acetate, mil lb	175.1	204.9	*96.7	72.1
282413	Nylon, mil lb	**19.7	36.6	6.0	9.4
282425	Polyester, mil lb	504.3	370.4	469.9	317.3
282428	All other manmade fiber staple and tow (except glass), mil lb	192.2	90.1	(S)	21.2
010014	All other fibers (silk, jute, reused wool, waste, etc.), mil lb	(S)	12.2	(S)	16.7
	Filament yarns:				
282301	Rayon and acetate, mil lb	152.6	235.0	139.9	204.7
282411	Nylon, mil lb	173.4	252.2	84.2	163.5
282423	Polyester, mil lb	342.6	504.5	377.4	513.2
282407	All other filament yarn, except glass, mil lb	157.7	278.4	*79.2	156.6
322935	Glass filament yarn and roving, mil lb	148.2	252.3	137.3	235.5
228101	Spun yarn, all fibers, mil lb	*546.6	939.5	*520.4	862.1
220211	Broadwoven fabrics, mil sq yd	107.8	103.5	*240.3	342.2
280031	Dyes, lakes, and toners	(X)	41.5	(X)	44.3
970099	All other materials and components, parts, containers, and supplies	(X)	666.0	(X)	749.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	39.1	(X)	46.1
	INDUSTRY 2231, BROADWOVEN FABRICS MILLS, WOOL				
	Materials, ingredients, containers, and supplies	**(X)**	**887.3**	**(X)**	**524.6**
	Raw fibers:				
013101	Raw cotton, 1,000 bales	(D)	(D)	(D)	(D)
020001	Raw wool, mohair, and other animal fibers (scoured weight), mil lb	**97.0	196.4	100.5	174.8
229963	Wool tops, mil lb	**26.9	90.0	52.0	150.1
	Staple and tow:				
282305	Rayon and acetate, mil lb	(D)	(D)	(D)	(D)
282413	Nylon, mil lb	(S)	8.0	3.9	4.8
282425	Polyester, mil lb	(D)	(D)	(D)	(D)
282428	All other manmade fiber staple and tow (except glass), mil lb	(D)	(D)	(D)	(D)
010014	All other fibers (silk, jute, reused wool, waste, etc.), mil lb	(D)	(D)	(D)	(D)
	Filament yarns:				
282301	Rayon and acetate, mil lb	(D)	(D)	(NA)	(2)
282411	Nylon, mil lb	(D)	(D)	(D)	(D)
282423	Polyester, mil lb	(D)	(D)	(D)	(D)
282407	All other filament yarn, except glass, mil lb	(D)	(D)	(NA)	(2)
322935	Glass filament yarn and roving, mil lb	–	–	(NA)	(2)
228101	Spun yarn, all fibers, mil lb	50.5	205.8	*13.4	27.8
220211	Broadwoven fabrics, mil sq yd	(D)	(D)	(D)	(D)
280031	Dyes, lakes, and toners	(X)	33.2	(X)	19.7
970099	All other materials and components, parts, containers, and supplies	(X)	53.4	(X)	[2]98.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	7.3	(X)	7.3

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2241, NARROW FABRICS MILLS		
	Materials, ingredients, containers, and supplies	**564.5**	**[2]515.0**
228102	Cotton yarns	38.9	(2)
282423	Polyester yarns	102.4	(2)
282411	Filament nylon yarns	116.8	(2)
282412	Filament rayon and acetate yarns	6.6	(2)
228011	All other yarns	88.7	(2)
3069E1	Bare rubber thread	51.5	(2)
970099	All other materials and components, parts, containers, and supplies	103.7	[2]515.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	55.9	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2273, CARPETS AND RUGS				
	Materials, ingredients, containers, and supplies	**(X)**	**6 043.1**	**(X)**	**6 446.0**
	Yarns:				
	Spun:				
228301	Wool and chiefly wool yarns, mil lb	11.1	29.5	(S)	44.5
228141	Nylon, mil lb	*802.7	1 559.9	*952.2	1 830.2
228143	Polyester, mil lb	*123.4	153.7	*183.4	183.6
228146	Polypropylene, mil lb	**104.2	121.1	19.3	19.9
228147	All other, mil lb	*20.3	35.8	61.7	107.6
	Filament:				
282411	Nylon filament yarns, mil lb	*480.8	1 006.7	630.0	1 269.1
282423	Polyester filament yarn, mil lb	*4.6	6.8	(S)	14.0
282436	Polypropylene, mil lb	188.3	232.0	**129.1	177.9
282409	All other, mil lb	*26.2	38.7	56.3	99.5
	Staple and tow:				
282305	Rayon and acetate, mil lb	–	–	(NA)	(2)
282413	Nylon stable and tow, mil lb	(D)	(D)	(NA)	(2)
282414	Polypropylene, mil lb	*44.7	36.1	(NA)	(2)
282425	Polyester stable and tow, mil lb	27.0	16.0	(NA)	(2)
282428	All other manmade fiber staple and tow (except glass), mil lb	*2.7	2.9	(NA)	(2)
010014	All other fibers (silk, jute, reused wool, waste, etc.), mil lb	(D)	(D)	(NA)	(2)
	Primary backing:				
	Manmade fiber fabrics:				
220301	Polypropylene, mil sq yd	**659.6	190.5	(S)	279.0
220303	All other manmade fiber fabrics, mil sq yd	*106.8	73.3	(S)	57.1
220305	All other fabrics (except manmade), mil sq yd	4.1	5.1	(S)	4.7
	Secondary backing:				
229961	Jute, mil sq yd	(S)	80.0	**284.9	56.0
308602	Foam or high density rubber cushion backing, mil sq yd	30.2	13.7	(S)	23.8
308603	Other cushion backings (including vinyl, polyurethane, etc.), mil sq yd	(S)	95.9	(S)	72.1
220307	Woven and nonwoven manmade fiber fabrics, mil sq yd	*399.1	107.3	(S)	107.3
220308	All other (including scrim, solid vinyl, etc.), mil sq yd	**94.1	47.4	(S)	31.1
280031	Dyes, lakes, and toners	(X)	185.5	(X)	159.0
970099	All other materials and components, parts, containers, and supplies	(X)	781.2	(X)	[2]1 778.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	93.8	(X)	130.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, these materials were included with material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2211F 01	2211F 00
2211F 03	2211F 00
2211F 05	2211F 00
2211F 07	2211F 00
2211F 09	2211F 00
2211F 11	2211F 00
2211F 13	2211F 00
2211F 15	2211F 00
2211F 19	2211F 00
2211F 23	2211F 00
2211H 01	2211H 42
2211H 01	2211H 73
2211H 01	2211H 75
2211H 03	2211H 37
2211H 03	2211H 43
2211H 03	2211H 44
2211H 03	2211H 46
2211H 03	2211H 62
2211H 03	2211H 65
2211H 03	2211H 67
2211H 03	2211H 69
2221J 01	2221J 00
2221J 03	2221J 00
2221J 05	2221J 00
2221J 07	2221J 00
2221J 11	2221J 00
2221J 13	2221J 00
2221J 15	2221J 00
2221J 19	2221J 00
2221J 23	2221J 00
2221J 25	2221J 00
2221J 27	2221J 00
2221J 29	2221J 00
2221J 31	2221J 00
2221M 01	2221M 21
2221M 01	2221M 71
2221M 01	2221M 77
2221M 03	2221M 23
2221M 03	2221M 25
2221M 03	2221M 27
2221M 03	2221M 33
2221M 03	2221M 41
2221M 03	2221M 42
2221M 03	2221M 43
2221M 03	2221M 47
22316	22313
22316	22314
22316 00	22313 00
22316 00	22314 00
22317	22315
22317 91	22315 91
22317 92	22315 92
22317 93	22315 93
22319 01	22319 25
22319 01	22319 27
22319 01	22319 29
22319 01	22319 31
22319 03	22319 25
22319 03	22319 27
22319 03	22319 29
22319 03	22319 31
22411 03	22411 01
22411 05	22411 01
22411 07	22411 01
22411 11	22411 31
22411 13	22411 31
22411 14	22411 31
22411 15	22411 31
22411 16	22411 31
22411 19	22411 31
22414 01	22414 00
22414 03	22414 00
22414 05	22414 00
22514 13	22514 21
22514 13	22514 37
22514 13	22514 39
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22514 15	22514 37
22514 15	22514 39
22514 15	22514 45
22514 19	22514 21
22514 19	22514 37
22514 19	22514 39
22514 19	22514 45
22514 23	22514 21
22514 23	22514 37
22514 23	22514 39
22514 23	22514 45
22516 15	22516 18
22516 17	22516 18
22525 01	22525 11
22525 01	22525 15
22525 01	22525 17
22525 03	22525 11
22525 03	22525 15
22525 03	22525 17
22525 13	22525 11
22525 13	22525 17
2253D 01	2253D 11
2253D 01	2253D 13
2253D 01	2253D 15
2253D 01	2253D 16
2253D 01	2253D 19
2253D 05	2253D 33
2253D 05	2253D 38
2253D 09	2253D 62
22544	22542
22544	22543
22544 11	22542 00
22544 13	22543 00
22617 01	22617 00
22617 03	22617 00
22617 05	22617 00
22617 07	22617 00
22617 09	22617 00
22617 11	22617 00
22617 13	22617 00
22617 15	22617 00
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22629 29	22629 00
22629 31	22629 00
22812 15	22812 51
22812 15	22812 61
22812 15	22812 71
22952	22951
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22953 11	22951 15
22953 11	22951 19
22953 17	22953 22
22953 17	22953 24
22953 17	22953 26
22972 41	22972 43
22972 41	22972 45
22972 41	22972 48
22981 11	22981 18
22981 11	22981 29
22982 14	22982 15
22982 19	22982 15
22991 11	22991 12
22991 11	22991 13
22991 11	22991 15
22991 11	22991 17
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22991 11	22991 23
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22994 11	22994 35
22994 13	22994 22
22994 13	22994 39

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2211F 00	2211F 01
2211F 00	2211F 03
2211F 00	2211F 05
2211F 00	2211F 07
2211F 00	2211F 09
2211F 00	2211F 11
2211F 00	2211F 13
2211F 00	2211F 15
2211F 00	2211F 19
2211F 00	2211F 23
2211H 37	2211H 03
2211H 42	2211H 01
2211H 43	2211H 03
2211H 44	2211H 03
2211H 46	2211H 03
2211H 62	2211H 03
2211H 65	2211H 03
2211H 67	2211H 03
2211H 69	2211H 03
2211H 73	2211H 01
2211H 75	2211H 01
2221J 00	2221J 01
2221J 00	2221J 03
2221J 00	2221J 05
2221J 00	2221J 07
2221J 00	2221J 11
2221J 00	2221J 13
2221J 00	2221J 15
2221J 00	2221J 19
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2221M 33	2221M 03
2221M 41	2221M 03
2221M 42	2221M 03
2221M 43	2221M 03
2221M 47	2221M 03
2221M 71	2221M 01
2221M 77	2221M 01
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22314	22316
22314 00	22316 00
22315	22317
22315 91	22317 91
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22315 93	22317 93
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22319 25	22319 03
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22525 15	22525 01
22525 15	22525 03
22525 15	22525 15
22525 17	22525 01
22525 17	22525 03
22525 17	22525 13
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2253D 15	2253D 01
2253D 16	2253D 01
2253D 19	2253D 01
2253D 33	2253D 05
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22991 12	22991 11
22991 13	22991 11
22991 15	22991 11
22991 17	22991 11
22991 21	22991 11
22991 23	22991 11
22994 22	22994 13
22994 31	22994 11
22994 35	22994 11
22994 39	22994 13

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
2273100	MA22Q, Carpets and Rugs
2273220	MA22Q, Carpets and Rugs
2273300	MA22Q, Carpets and Rugs

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:10 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08090297.DAT;1 1/ 6/ 95 08:09:10 UTF:TIPS93-08090297.DAT;1 1/ 6/ 95 08:09:11 META:TIPS96-08090297.DAT;1 1/ 6/ 95 08:09:53

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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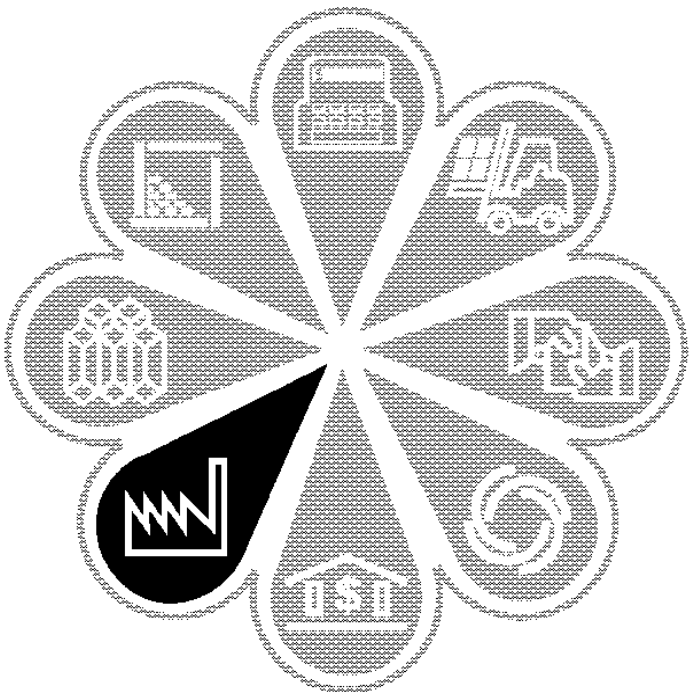
1992
Census of Manufactures

MC92-I-22B

INDUSTRY SERIES

Knitting Mills

Industries 2251, 2252, 2253, 2254, 2257, 2258, and 2259



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2251	Women's Hosiery, Except Socks
2252	Hosiery, N.E.C.
2253	Knit Outerwear Mills
2254	Knit Underwear Mills
2257	Weft Knit Fabrics Mills
2258	Lace and Warp Knit Fabrics Mills
2259	Knitting Mills, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS

This industry is made up of establishments primarily engaged in knitting, dyeing, or finishing women's and misses' full-length and knee-length hosiery (except socks) both seamless and full-fashion, and panty hose. Establishments primarily engaged in knitting, dyeing, or finishing women's and misses' knee-length socks and anklets are classified in industry 2252. Establishments primarily engaged in manufacturing elastic (orthopedic) hosiery are classified in industry 3842.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2251, Women's Hosiery, Except Socks, had employment of 25.3 thousand. The employment figure was 14 percent below the 29.3 thousand reported in 1987.

The leading State in employment in 1992 was North Carolina, accounting for approximately 66 percent of the industry's employment. The same State was the leader in 1987 when it accounted for 68 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2251 shipped $1.8 billion of women's hosiery, except socks, considered primary to the industry, $29.8 million of secondary products, and had $26.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 2651, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's hosiery, except socks, industry amounted to $893.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2252, HOSIERY, N.E.C.

This industry is made up of establishments primarily engaged in knitting, dyeing, or finishing hosiery, not elsewhere classified. Establishments primarily engaged in manufacturing women's full-length and knee-length hosiery (except socks) are classified in industry 2251. Establishments primarily engaged in manufacturing elastic (orthopedic) hosiery are classified in industry 3842.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2252, Hosiery, N.E.C., had employment of 38.1 thousand. The employment figure was 4 percent above the 36.5 thousand reported in 1987.

The leading State in employment in 1992 was North Carolina, accounting for approximately 63 percent of the industry's employment. The same State was the leader in 1987 when it accounted for 66 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2252 shipped $2.4 billion of hosiery, not elsewhere classified, considered primary to the industry, $67.8 million of secondary products, and had $86.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2252, no matter in what industry they were produced, appear in table 6a and aggregate to $2.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hosiery, not elsewhere classified, industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2253, KNIT OUTERWEAR MILLS

This industry is made up of establishments primarily engaged in knitting outerwear from yarn or in manufacturing outerwear from knit fabrics produced in the same establishment. Establishments primarily engaged in hand knitting outerwear for the trade are included in this industry. Establishments primarily engaged in knitting gloves and mittens are classified in industry 2259, and those manufacturing outerwear from purchased knit fabrics are classified in major group 23. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2253, Knit Outerwear Mills, had employment of 53.0 thousand. The employment figure was 10 percent below the 59.0 thousand reported in 1987.

The leading States in employment in 1992 were Kentucky, Louisiana, New York, and North Carolina, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when New York, North Carolina, Virginia, and Pennsylvania accounted for approximately 65 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2253 shipped $3.4 billion of knit outerwear mills products considered primary to the industry, $695.8 million of secondary products, and had $51.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2253, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the knit outerwear mills industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2254, KNIT UNDERWEAR MILLS

This industry is made up of establishments primarily engaged in knitting underwear and nightwear from yarn or in manufacturing underwear and nightwear from knit fabrics produced in the same establishment. Establishments primarily engaged in manufacturing underwear and nightwear from purchased knit fabrics are classified in major group 23. Establishments primarily engaged in knitting robes are classified in industry 2253. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2254, Knit Underwear Mills, had employment of 12.0 thousand. The employment figure was 38 percent below the 19.3 thousand reported in 1987. Compared with 1991, employment decreased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, North Carolina, Pennsylvania, and Texas, accounting for approximately 73 percent of the industry's employment. This represents a shift from 1987 when North Carolina, Kentucky, Tennessee, and Louisiana were the leading States.

The total value of shipments for establishments classified in this industry was $89.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2254 shipped $777.9 million of knit underwear mills products considered primary to the industry, $102.3 million of secondary products, and had $10.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 72 percent.

Establishments in this industry also accounted for 68 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2254, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the knit underwear mills industry amounted to $403.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2257, WEFT KNIT FABRICS MILLS

This industry is made up of establishments primarily engaged in knitting weft (circular) knit fabrics or in dyeing or finishing weft (circular) knit fabrics.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2257, Weft Knit Fabrics Mills, had employment of 41.7 thousand. The employment figure was 19 percent above the 34.9 thousand reported in 1987. Compared with 1991, employment increased 35 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading State in employment in 1992 was North Carolina, accounting for approximately 49 percent of the industry's employment. The same State was the leader in 1987 when it accounted for 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2257 shipped $4.5 billion of products considered primary to the industry, $359.5 million of secondary products, and had $15.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2257, no matter in what industry they were produced, appear in table 6a and aggregate to $5.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the weft knit fabrics mills industry amounted to $3.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS

This industry is made up of establishments primarily engaged in knitting, dyeing, or finishing warp (flat) knit fabrics, or in manufacturing, dyeing, or finishing lace goods.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2258, Lace and Warp Knit Fabrics Mills, had employment of 20.0 thousand. The employment figure was 2 percent below the 20.5 thousand reported in 1987. Compared with 1991, employment decreased 11 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, New Jersey, New York, and Pennsylvania, accounting for approximately 67 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2258 shipped $2.2 billion of products considered primary to the industry, $103.1 million of secondary products, and had $15.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2258, no matter in what industry they were produced, appear in table 6a and aggregate to $2.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lace and warp knit fabrics mills industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2259, KNITTING MILLS, N.E.C.

This industry is made up of establishments primarily engaged in knitting gloves and other articles, not elsewhere classified. Establishments primarily engaged in manufacturing woven or knit fabrics gloves and mittens from purchased fabrics are classified in industry 2381.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2259, Knitting Mills, N.E.C., had employment of 3.2 thousand. The employment figure was 16 percent below the 3.8 thousand reported in 1987. Compared with 1991, employment decreased 18 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading State in employment in 1992 was North Carolina, accounting for approximately 34 percent of the industry's employment. The leading States in 1987 were North Carolina, New York, and Wisconsin.

The total value of shipments for establishments classified in this industry was $235.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2259 shipped $211.9 million of products considered primary to the industry, $10.0 million of secondary products, and had $13.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 79 percent.

The products primary to industry 2259, no matter in what industry they were produced, appear in table 6a and aggregate to $236.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the knitting mills, not elsewhere classified, industry amounted to $112.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 26 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS															
1992 Census	127	151	88	25.3	398.0	22.8	45.8	321.7	977.5	893.7	1 843.0	65.0	244.2	98	96
1991 ASM	(NA)	(NA)	(NA)	22.3	344.7	20.1	40.6	279.3	896.0	749.4	1 644.6	42.5	215.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.4	349.5	21.1	42.4	282.3	911.2	713.9	1 620.7	42.4	228.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.2	343.4	21.9	40.9	275.1	881.4	649.2	1 517.0	19.7	213.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.5	375.8	25.3	51.1	315.7	868.2	682.3	1 541.1	37.7	189.5	(NA)	(NA)
1987 Census	139	161	93	29.3	385.9	25.9	53.7	321.1	769.5	715.6	1 497.5	32.3	182.1	98	96
1986 ASM	(NA)	(NA)	(NA)	30.7	403.6	27.3	56.5	309.6	953.3	740.1	1 682.3	28.5	207.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	30.8	383.2	27.4	55.5	290.9	914.0	655.2	1 568.2	36.2	184.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	31.2	372.1	27.5	52.6	287.8	969.2	686.7	1 654.4	27.4	185.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	30.8	354.5	27.5	53.2	278.8	903.0	677.3	1 566.9	26.2	181.5	(NA)	(NA)
1982 Census	180	206	117	30.2	311.1	26.7	49.6	241.5	777.4	636.8	1 411.3	26.0	159.9	95	91
1981 ASM	(NA)	(NA)	(NA)	29.6	289.5	25.4	49.4	224.3	708.9	605.7	1 304.5	22.6	187.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.1	277.8	26.3	50.1	221.1	654.6	570.1	1 218.6	27.8	175.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.2	266.5	27.4	52.2	213.1	638.7	534.2	1 162.2	26.6	168.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.0	224.2	24.7	45.0	178.7	520.9	476.9	995.7	23.3	133.4	(NA)	(NA)
1977 Census	176	200	119	26.6	191.3	23.8	44.1	156.6	457.0	415.5	871.2	16.6	122.9	91	95
INDUSTRY 2252, HOSIERY, N.E.C.															
1992 Census	403	448	277	38.1	596.0	33.1	63.6	465.5	1 261.5	1 345.3	2 582.5	66.4	359.0	97	99
1991 ASM	(NA)	(NA)	(NA)	35.5	533.0	32.7	65.3	447.5	1 026.2	1 304.0	2 295.9	67.3	377.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	38.6	556.5	35.8	72.1	467.8	1 062.0	1 255.1	2 277.9	75.3	328.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	36.8	512.3	34.0	65.5	429.4	1 052.8	1 117.6	2 122.1	47.9	301.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	39.1	511.3	34.9	66.5	412.8	1 024.3	1 099.1	2 112.5	51.5	292.1	(NA)	(NA)
1987 Census	375	426	276	36.5	467.8	32.5	59.6	372.0	960.1	1 008.9	1 952.1	64.6	273.3	98	98
1986 ASM	(NA)	(NA)	(NA)	32.9	414.7	28.9	52.9	322.4	736.7	890.4	1 618.9	29.4	224.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.7	386.4	27.9	51.0	297.4	698.1	854.5	1 551.0	31.0	213.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.3	376.5	28.6	53.7	293.0	707.7	900.1	1 604.3	35.4	208.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	33.6	374.5	30.4	56.0	298.0	771.6	876.8	1 616.5	26.5	251.4	(NA)	(NA)
1982 Census	376	420	263	32.6	326.5	28.8	51.2	258.1	617.3	832.2	1 443.4	31.4	199.2	92	95
1981 ASM	(NA)	(NA)	(NA)	30.9	303.6	27.0	51.7	235.1	537.4	771.2	1 294.4	32.7	168.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.3	290.4	28.1	53.4	226.8	495.1	708.9	1 192.9	22.1	161.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.3	260.8	27.5	52.7	207.9	436.4	625.4	1 061.3	15.5	147.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.9	245.8	29.7	55.6	201.9	470.1	581.1	1 031.2	15.2	150.2	(NA)	(NA)
1977 Census	382	415	257	32.2	218.7	29.0	52.6	179.4	401.5	525.1	921.3	14.8	127.3	96	96
INDUSTRY 2253, KNIT OUTERWEAR MILLS															
1992 Census	646	679	334	53.0	875.8	47.2	92.5	703.1	2 300.0	1 928.9	4 182.3	117.5	555.0	83	98
1991 ASM	(NA)	(NA)	(NA)	52.2	798.9	45.7	92.4	613.5	1 902.3	1 715.9	3 610.6	72.2	467.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	63.6	927.3	56.4	106.4	733.9	1 783.2	1 715.6	3 456.4	111.4	564.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	62.5	910.1	54.9	102.3	709.4	1 761.0	1 794.6	3 548.0	96.8	513.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	55.1	786.3	44.5	84.9	582.8	1 488.0	1 550.8	3 036.8	86.4	514.3	(NA)	(NA)
1987 Census	806	824	440	59.0	838.4	50.6	96.9	619.1	1 687.5	1 614.4	3 264.9	94.0	545.8	94	90
1986 ASM	(NA)	(NA)	(NA)	60.4	824.9	51.4	95.2	601.6	1 695.3	1 741.5	3 447.2	85.6	571.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	62.7	830.2	52.9	97.2	603.8	1 675.4	1 894.5	3 604.3	86.5	626.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	67.8	835.0	57.2	109.2	609.6	1 906.4	1 754.5	3 607.1	116.6	672.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	74.5	862.3	63.4	114.5	636.2	1 842.6	1 609.7	3 410.0	63.8	600.6	(NA)	(NA)
1982 Census	896	923	482	66.8	741.4	55.9	102.0	539.8	1 704.8	1 476.8	3 182.4	53.5	533.4	95	94
1981 ASM	(NA)	(NA)	(NA)	64.7	682.3	55.3	100.9	509.4	1 440.7	1 376.4	2 807.8	50.0	396.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	67.1	637.4	57.9	104.0	479.6	1 339.1	1 263.3	2 571.7	48.5	371.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	61.9	548.1	53.4	95.6	405.2	1 096.0	1 125.1	2 220.8	35.5	345.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.1	608.5	62.8	112.5	454.1	1 202.8	1 153.5	2 333.3	44.2	423.8	(NA)	(NA)
1977 Census	903	953	551	73.0	582.0	62.7	114.0	422.0	1 159.5	1 207.1	2 335.9	49.9	393.4	90	95
INDUSTRY 2254, KNIT UNDERWEAR MILLS															
1992 Census	57	69	50	12.0	190.2	10.8	20.5	156.3	498.8	403.9	891.1	35.5	134.7	88	68
1991 ASM	(NA)	(NA)	(NA)	13.9	214.5	12.6	24.1	182.0	694.4	587.2	1 250.6	39.9	218.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	15.4	226.3	14.1	26.3	191.7	596.5	537.1	1 105.0	50.0	189.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.0	250.0	15.3	28.4	206.3	527.6	506.0	1 050.9	30.2	179.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.3	276.1	16.8	31.5	235.0	502.9	607.1	1 064.0	41.6	217.9	(NA)	(NA)
1987 Census	58	63	44	19.3	275.7	17.4	33.1	231.3	516.5	548.3	1 058.1	27.7	174.2	72	92
1986 ASM	(NA)	(NA)	(NA)	22.3	301.1	20.5	37.4	251.8	559.8	705.4	1 277.6	33.5	216.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.0	301.8	21.6	39.2	250.2	491.7	671.7	1 136.2	22.7	230.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.0	302.2	22.1	41.3	248.0	492.8	513.9	1 010.7	24.1	221.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	20.6	226.4	18.2	33.4	187.5	449.9	383.1	824.3	11.6	179.4	(NA)	(NA)
1982 Census	72	84	61	22.3	232.3	20.0	35.3	191.7	446.2	369.7	829.9	9.3	167.4	88	93
1981 ASM	(NA)	(NA)	(NA)	25.0	247.3	22.5	40.0	205.9	385.1	363.6	841.2	17.2	218.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.9	245.0	23.6	43.1	204.7	392.2	458.0	863.5	21.4	197.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.2	228.3	25.3	45.4	186.5	405.0	412.5	802.2	32.7	189.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	27.5	209.4	24.9	46.2	177.5	409.8	381.1	747.6	21.9	170.4	(NA)	(NA)
1977 Census	80	92	74	25.2	175.2	23.4	42.7	151.8	305.7	353.1	648.9	14.5	131.3	80	86
INDUSTRY 2257, WEFT KNIT FABRICS MILLS															
1992 Census	344	387	234	41.7	805.6	35.3	72.3	593.6	1 888.1	3 018.5	4 924.1	159.8	409.6	93	92
1991 ASM	(NA)	(NA)	(NA)	30.8	623.5	26.0	58.0	472.9	1 500.4	2 401.2	3 900.3	120.0	441.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.7	596.2	26.0	56.6	458.2	1 370.0	2 231.6	3 588.7	110.0	407.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.0	658.1	29.1	62.5	510.9	1 677.5	2 414.8	4 057.5	162.9	391.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	34.8	598.3	29.6	59.5	460.4	1 220.7	2 079.2	3 306.9	107.8	322.4	(NA)	(NA)
1987 Census	304	334	210	34.9	577.7	29.2	57.3	424.6	1 425.6	2 183.0	3 578.5	95.8	295.8	94	95
1986 ASM	(NA)	(NA)	(NA)	26.8	444.0	22.3	43.9	323.5	927.4	1 642.2	2 562.2	70.6	206.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	25.7	418.6	21.1	41.4	299.6	744.7	1 430.2	2 174.3	66.5	190.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	29.7	420.3	24.7	46.2	306.3	772.1	1 534.7	2 319.1	68.8	193.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	31.2	432.1	25.7	53.0	316.1	876.7	1 715.6	2 570.6	53.2	271.4	(NA)	(NA)
1982 Census	384	422	222	31.1	420.9	25.7	50.9	309.1	850.4	1 669.0	2 538.8	68.8	254.8	92	93
1981 ASM	(NA)	(NA)	(NA)	40.7	503.2	34.5	68.0	370.5	967.4	1 892.1	2 874.5	106.5	284.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	44.4	524.4	37.8	75.2	393.5	1 054.8	2 003.1	3 049.4	129.3	322.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	47.9	523.8	40.6	79.9	392.3	1 073.6	1 993.5	3 071.7	85.6	316.7	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:50 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 1
TSF:22B_92.DAT;1 5/ 9/95 14:47:43 UTF:22B_93.DAT;2 5/10/95 13:42:37 META:TIPS96-13495511.DAT;1 5/10/95 13:50:35

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2257, WEFT KNIT FABRICS MILLS—Con.															
1978 ASM	(NA)	(NA)	(NA)	49.2	496.4	42.0	81.8	378.5	991.0	1 980.1	2 975.4	86.1	323.2	(NA)	(NA)
1977 Census	462	530	310	51.8	493.0	44.0	88.2	371.2	1 033.5	2 141.1	3 169.4	91.6	316.2	90	88
INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS															
1992 Census	252	278	163	20.0	417.6	16.5	34.2	302.9	998.6	1 312.4	2 309.6	75.8	275.0	96	89
1991 ASM	(NA)	(NA)	(NA)	22.4	442.2	18.8	40.3	321.2	1 087.3	1 424.9	2 499.0	85.5	259.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.3	440.0	18.7	39.5	319.4	931.6	1 348.7	2 298.3	85.7	246.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.0	434.0	18.7	38.8	321.4	989.8	1 520.2	2 518.0	84.9	260.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.8	380.6	15.3	33.6	270.8	724.5	1 237.5	1 939.3	65.5	255.7	(NA)	(NA)
1987 Census	216	240	158	20.5	387.9	16.8	35.5	286.3	812.2	1 181.0	1 991.9	67.3	220.9	97	92
1986 ASM	(NA)	(NA)	(NA)	16.1	289.3	13.3	26.8	208.0	588.6	944.1	1 533.9	55.2	189.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.6	308.4	14.3	29.1	217.3	712.5	983.5	1 705.7	74.7	187.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.8	307.6	15.4	32.9	222.1	745.9	995.0	1 728.8	74.2	200.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.0	350.7	18.5	38.6	256.6	740.2	1 121.6	1 839.8	40.4	229.1	(NA)	(NA)
1982 Census	124	272	152	21.1	286.4	17.0	33.0	207.3	580.4	929.5	1 538.0	44.9	196.1	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	23.7	309.5	20.3	41.1	235.3	687.8	1 145.9	1 835.2	68.0	238.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.0	300.8	21.3	42.9	228.3	676.2	1 198.7	1 850.8	42.3	246.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	26.6	284.4	22.6	46.3	217.6	595.4	1 210.9	1 806.8	42.3	240.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.1	255.7	21.3	43.5	196.5	563.2	1 140.1	1 683.7	35.4	239.0	(NA)	(NA)
1977 Census	283	306	177	25.9	244.6	21.9	45.5	183.8	472.1	982.4	1 453.1	57.3	221.6	(NA)	(NA)
INDUSTRY 2259, KNITTING MILLS, N.E.C.															
1992 Census	82	84	27	3.2	60.7	2.7	5.5	44.3	123.0	112.8	235.8	5.8	41.7	95	90
1991 ASM	(NA)	(NA)	(NA)	3.9	65.5	3.3	6.0	47.3	137.3	116.3	247.8	7.7	56.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.9	63.6	3.3	6.0	47.0	136.5	111.2	249.3	8.4	48.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	3.2	50.8	2.7	4.8	36.9	111.9	93.6	205.4	3.9	44.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.8	57.8	3.1	5.8	40.9	117.1	110.5	222.9	3.2	46.9	(NA)	(NA)
1987 Census	79	79	35	3.8	54.7	3.2	5.8	38.3	97.9	93.1	187.6	6.6	36.7	98	79
1986 ASM	(NA)	(NA)	(NA)	2.7	42.4	2.4	4.6	33.2	79.1	79.7	157.1	3.5	22.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.4	34.3	2.1	3.1	26.2	62.0	61.5	124.4	1.9	18.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.6	31.6	2.3	4.2	24.6	62.6	59.1	121.2	2.4	20.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.0	38.1	2.9	5.2	29.5	65.9	67.5	133.2	3.0	29.4	(NA)	(NA)
1982 Census	71	72	29	2.9	33.8	2.5	4.7	25.7	55.4	57.5	114.5	1.5	27.3	97	81
1981 ASM	(NA)	(NA)	(NA)	3.2	29.6	3.0	6.6	24.2	32.2	57.0	100.5	1.6	19.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	3.6	30.7	3.3	6.9	25.8	44.9	56.0	115.1	2.6	19.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	4.2	32.4	3.9	8.0	26.6	55.3	61.3	116.2	3.3	21.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	4.0	30.9	3.7	7.5	24.5	51.1	57.5	105.5	2.2	22.9	(NA)	(NA)
1977 Census	191	192	47	3.4	24.1	3.1	6.0	19.0	40.9	54.8	95.7	1.5	15.2	97	81

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS									
1992 Census	15 731	90	2 009	7.02	48	70	38 636	41	21.34
1991 ASM	15 457	90	2 020	6.88	46	67	40 179	38	22.07
1990 ASM	14 936	90	2 009	6.66	44	66	38 940	38	21.49
1989 ASM	14 190	90	1 868	6.73	43	65	36 421	39	21.55
1988 ASM	13 665	92	2 020	6.18	44	69	31 571	43	16.99
1987 Census	13 171	88	2 073	5.98	48	74	26 263	50	14.33
1986 ASM	13 147	89	2 070	5.48	44	68	31 052	42	16.87
1985 ASM	12 442	89	2 026	5.24	42	66	29 675	42	16.47
1984 ASM	11 926	88	1 913	5.47	42	64	31 064	38	18.43
1983 ASM	11 510	89	1 935	5.24	43	66	29 318	39	16.97
1982 Census	10 301	88	1 858	4.87	45	67	25 742	40	15.67
1981 ASM	9 780	86	1 945	4.54	46	69	23 949	41	14.35
1980 ASM	9 229	87	1 905	4.41	47	70	21 748	42	13.07
1979 ASM	8 542	88	1 905	4.08	46	69	20 471	42	12.24
1978 ASM	8 007	88	1 822	3.97	48	70	18 604	43	11.58
1977 Census	7 192	89	1 853	3.55	48	70	17 180	42	10.36

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TSF:22B_92.DAT;1 5/ 9/95 14:47:43 UTF:22B_93.DAT;2 5/10/95 13:42:37 META:TIPS96-13495511.DAT;1 5/10/95 13:50:35

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2252, HOSIERY, N.E.C.									
1992 Census	15 643	87	1 921	7.32	52	75	33 110	47	19.83
1991 ASM	15 014	92	1 997	6.85	57	80	28 907	52	15.72
1990 ASM	14 417	93	2 014	6.49	55	80	27 513	52	14.73
1989 ASM	13 921	92	1 926	6.56	53	77	28 609	49	16.07
1988 ASM	13 077	89	1 905	6.21	52	76	26 197	50	15.40
1987 Census	12 816	89	1 834	6.24	52	76	26 304	49	16.11
1986 ASM	12 605	88	1 830	6.09	55	81	22 392	56	13.93
1985 ASM	12 189	88	1 828	5.83	55	80	22 022	55	13.69
1984 ASM	11 306	86	1 878	5.46	56	80	21 252	53	13.18
1983 ASM	11 146	90	1 842	5.32	54	77	22 964	49	13.78
1982 Census	10 015	88	1 778	5.04	58	80	18 936	53	12.06
1981 ASM	9 825	87	1 915	4.55	60	83	17 392	56	10.39
1980 ASM	8 991	87	1 900	4.25	59	84	15 328	59	9.27
1979 ASM	8 332	88	1 916	3.94	59	84	13 942	60	8.28
1978 ASM	7 471	90	1 872	3.63	56	80	14 289	52	8.46
1977 Census	6 792	90	1 814	3.41	57	81	12 469	54	7.63
INDUSTRY 2253, KNIT OUTERWEAR MILLS									
1992 Census	16 525	89	1 960	7.60	46	67	43 396	38	24.86
1991 ASM	15 305	88	2 022	6.64	48	70	36 443	42	20.59
1990 ASM	14 580	89	1 887	6.90	50	76	28 038	52	16.76
1989 ASM	14 562	88	1 863	6.93	51	76	28 176	52	17.21
1988 ASM	14 270	81	1 908	6.86	51	77	27 005	53	17.53
1987 Census	14 210	86	1 915	6.39	49	75	28 602	50	17.41
1986 ASM	13 657	85	1 852	6.32	51	74	28 068	49	17.81
1985 ASM	13 241	84	1 837	6.21	53	76	26 721	50	17.24
1984 ASM	12 316	84	1 909	5.58	49	72	28 118	44	17.46
1983 ASM	11 574	85	1 806	5.56	47	72	24 733	47	16.09
1982 Census	11 099	84	1 825	5.29	46	70	25 521	43	16.71
1981 ASM	10 546	85	1 825	5.05	49	73	22 267	47	14.28
1980 ASM	9 499	86	1 796	4.61	49	74	19 957	48	12.88
1979 ASM	8 855	86	1 790	4.24	51	75	17 706	50	11.46
1978 ASM	8 440	87	1 791	4.04	49	76	16 682	51	10.69
1977 Census	7 973	86	1 818	3.70	52	77	15 884	50	10.17
INDUSTRY 2254, KNIT UNDERWEAR MILLS									
1992 Census	15 850	90	1 898	7.62	45	67	41 567	38	24.33
1991 ASM	15 432	91	1 913	7.55	47	64	49 957	31	28.81
1990 ASM	14 695	92	1 865	7.29	49	69	38 734	38	22.68
1989 ASM	14 706	90	1 856	7.26	48	72	31 035	47	18.58
1988 ASM	15 087	92	1 875	7.46	57	83	27 481	55	15.97
1987 Census	14 285	90	1 902	6.99	52	78	26 762	53	15.60
1986 ASM	13 502	92	1 824	6.73	55	79	25 103	54	14.97
1985 ASM	12 575	90	1 815	6.38	59	86	20 488	61	12.54
1984 ASM	12 088	88	1 869	6.00	51	81	19 712	61	11.93
1983 ASM	10 990	88	1 835	5.61	46	74	21 840	50	13.47
1982 Census	10 417	90	1 765	5.43	45	73	20 009	52	12.64
1981 ASM	9 892	90	1 778	5.15	43	73	15 404	64	9.63
1980 ASM	9 459	91	1 826	4.75	53	81	15 143	62	9.10
1979 ASM	8 096	90	1 794	4.11	51	80	14 362	56	8.92
1978 ASM	7 615	91	1 855	3.84	51	79	14 902	51	8.87
1977 Census	6 952	93	1 825	3.56	54	81	12 131	57	7.16
INDUSTRY 2257, WEFT KNIT FABRICS MILLS									
1992 Census	19 319	85	2 048	8.21	61	78	45 278	43	26.11
1991 ASM	20 244	84	2 231	8.15	62	78	48 714	42	25.87
1990 ASM	19 420	85	2 177	8.10	62	79	44 625	44	24.20
1989 ASM	19 356	86	2 148	8.17	60	76	49 338	39	26.84
1988 ASM	17 193	85	2 010	7.74	63	81	35 078	49	20.52
1987 Census	16 553	84	1 962	7.41	61	77	40 848	41	24.88
1986 ASM	16 567	83	1 969	7.37	64	81	34 604	48	21.13
1985 ASM	16 288	82	1 962	7.24	66	85	28 977	56	17.99
1984 ASM	14 152	83	1 870	6.63	66	84	25 997	54	16.71
1983 ASM	13 849	82	2 062	5.96	67	84	28 099	49	16.54
1982 Census	13 534	83	1 981	6.07	66	82	27 344	49	16.71
1981 ASM	12 364	85	1 971	5.45	66	83	23 769	52	14.23
1980 ASM	11 811	85	1 989	5.23	66	83	23 757	50	14.03
1979 ASM	10 935	85	1 968	4.91	65	82	22 413	49	13.44
1978 ASM	10 089	85	1 948	4.63	67	83	20 142	50	12.11
1977 Census	9 517	85	2 005	4.21	68	83	19 952	48	11.72
INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS									
1992 Census	20 880	83	2 073	8.86	57	75	49 930	42	29.20
1991 ASM	19 741	84	2 144	7.97	57	75	48 540	41	26.98
1990 ASM	19 731	84	2 112	8.09	59	78	41 776	47	23.58
1989 ASM	19 727	85	2 075	8.28	60	78	44 991	44	25.51
1988 ASM	20 245	81	2 196	8.06	64	83	38 537	53	21.56
1987 Census	18 922	82	2 113	8.06	59	79	39 620	48	22.88
1986 ASM	17 969	83	2 015	7.76	62	80	36 559	49	21.96
1985 ASM	17 523	81	2 035	7.47	58	76	40 483	43	24.48
1984 ASM	16 362	82	2 136	6.75	58	75	39 676	41	22.67
1983 ASM	15 248	80	2 086	6.65	61	80	32 183	47	19.18
1982 Census	13 573	81	1 941	6.28	60	79	27 507	49	17.59
1981 ASM	13 059	86	2 025	5.73	62	79	29 021	45	16.73
1980 ASM	12 032	85	2 014	5.32	65	81	27 048	44	15.76
1979 ASM	10 692	85	2 049	4.70	67	83	22 383	48	12.86
1978 ASM	10 187	85	2 042	4.52	68	83	22 438	45	12.95
1977 Census	9 444	85	2 078	4.04	68	84	18 228	52	10.38

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:50 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:22B_92.DAT;1 5/ 9/95 14:47:43 UTF:22B_93.DAT;2 5/10/95 13:42:37 META:TIPS96-13495511.DAT;1 5/10/95 13:50:35

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2259, KNITTING MILLS, N.E.C.								
1992 Census	18 969	84	2 037	8.05	48	74	38 438	49	22.36
1991 ASM	16 795	85	1 818	7.88	47	73	35 205	48	22.88
1990 ASM	16 308	85	1 818	7.83	45	70	35 000	47	22.75
1989 ASM	15 875	84	1 778	7.69	46	70	34 969	45	23.31
1988 ASM	15 211	82	1 871	7.05	50	76	30 816	49	20.19
1987 Census	14 395	84	1 813	6.60	50	79	25 763	56	16.88
1986 ASM	15 704	89	1 917	7.22	51	78	29 296	54	17.20
1985 ASM	14 292	87	1 476	8.45	49	77	25 833	55	20.00
1984 ASM	12 154	88	1 826	5.86	49	75	24 077	50	14.90
1983 ASM	12 700	97	1 793	5.67	51	79	21 967	58	12.67
1982 Census	11 655	86	1 880	5.47	50	80	19 103	61	11.79
1981 ASM	9 250	94	2 200	3.67	57	86	10 063	92	4.88
1980 ASM	8 528	92	2 091	3.74	49	75	12 472	68	6.51
1979 ASM	7 714	93	2 051	3.33	53	81	13 167	59	6.91
1978 ASM	7 725	93	2 027	3.27	55	84	12 775	60	6.81
1977 Census	7 088	91	1 935	3.17	57	82	12 029	59	6.82

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS														
United States	–	**151**	**88**	**25.3**	**398.0**	**22.8**	**45.8**	**321.7**	**977.5**	**893.7**	**1 843.0**	**65.0**	**29.3**	**769.5**
Alabama	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Mexico	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	98	62	16.7	259.0	15.2	29.8	211.8	620.0	548.5	1 152.6	28.8	18.3	403.0
South Carolina	–	9	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Tennessee	E3	5	4	1.4	17.5	1.0	2.1	10.3	30.8	40.4	70.7	(D)	H	(D)
Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2252, HOSIERY, N.E.C.														
United States	–	**448**	**277**	**38.1**	**596.0**	**33.1**	**63.6**	**465.5**	**1 261.5**	**1 345.3**	**2 582.5**	**66.4**	**36.5**	**960.1**
Alabama	–	118	54	5.4	78.9	4.7	8.8	59.4	149.1	230.2	378.5	8.2	3.3	73.9
California	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	E1	21	15	2.1	33.5	1.7	3.4	24.0	59.9	104.8	161.3	3.1	G	(D)
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kentucky	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
North Carolina	–	242	165	23.2	365.4	20.2	38.5	289.3	795.4	763.8	1 540.3	43.9	24.1	630.4
Pennsylvania	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	51.1
Tennessee	–	23	15	3.1	47.0	2.8	5.6	38.1	87.2	92.5	176.3	5.3	3.3	84.2
Virginia	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:50 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:22B_92.DAT;1 5/ 9/95 14:47:43 UTF:22B_93.DAT;2 5/10/95 13:42:37 META:TIPS96-13495511.DAT;1 5/10/95 13:50:35

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2253, KNIT OUTERWEAR MILLS														
United States	–	**679**	**334**	**53.0**	**875.8**	**47.2**	**92.5**	**703.1**	**2 300.0**	**1 928.9**	**4 182.3**	**117.5**	**59.0**	**1 687.5**
Alabama	–	22	8	3.6	59.9	3.3	6.0	50.6	120.8	109.2	227.4	4.0	G	(D)
California	E1	70	33	2.5	39.9	2.2	4.6	30.4	101.2	77.1	176.9	7.1	H	(D)
Connecticut	–	4	1	.1	2.0	.1	.1	1.1	2.7	2.6	5.5	(D)	E	(D)
Florida	E2	20	10	.9	11.3	.8	1.4	8.6	27.0	15.5	41.6	(D)	G	(D)
Georgia	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Illinois	–	11	5	.3	5.5	.3	.5	3.8	11.1	9.1	20.0	.5	C	(D)
Kentucky	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Louisiana	–	4	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	6	3	.2	3.2	.1	.2	2.0	2.8	3.3	6.3	(D)	G	(D)
Minnesota	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	F	(D)
Mississippi	–	4	3	2.5	39.5	2.4	4.4	35.7	65.5	25.3	86.1	2.8	G	(D)
Missouri	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	55	28	1.4	23.7	1.3	2.5	17.7	45.1	36.9	82.0	2.3	2.6	70.4
New York	E3	255	113	7.6	128.3	6.7	13.2	95.9	265.0	249.3	510.8	20.7	12.7	326.7
North Carolina	–	53	36	12.5	224.0	11.3	22.6	183.0	548.6	628.5	1 171.3	56.6	H	(D)
Ohio	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	G	(D)
Oregon	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	37	25	2.9	46.8	2.4	4.5	30.6	94.1	104.5	195.5	3.2	5.7	225.3
South Carolina	E1	11	5	.9	12.5	.7	1.1	8.9	24.0	7.7	31.5	.9	2.5	64.5
Tennessee	E1	21	18	2.9	39.3	2.3	4.9	25.3	99.7	135.7	245.7	2.4	2.1	116.9
Texas	E2	10	3	.3	4.1	.2	.5	2.8	6.0	7.3	13.0	.2	C	(D)
Virginia	–	10	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.6	H	(D)
Washington	E3	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	8	6	.5	6.0	.4	.7	3.9	12.0	7.7	19.7	.2	E	(D)
INDUSTRY 2254, KNIT UNDERWEAR MILLS														
United States	–	**69**	**50**	**12.0**	**190.2**	**10.8**	**20.5**	**156.3**	**498.8**	**403.9**	**891.1**	**35.5**	**19.3**	**516.5**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	6	4	.4	5.3	.3	.6	4.1	28.1	20.1	48.1	.4	G	(D)
North Carolina	–	13	11	4.2	74.8	3.7	7.3	61.8	112.8	123.8	229.0	19.7	3.9	96.6
Ohio	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	16	11	1.6	28.7	1.4	2.7	21.9	109.5	62.8	176.7	(D)	1.9	55.6
South Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2257, WEFT KNIT FABRICS MILLS														
United States	–	**387**	**234**	**41.7**	**805.6**	**35.3**	**72.3**	**593.6**	**1 888.1**	**3 018.5**	**4 924.1**	**159.8**	**34.9**	**1 425.6**
Alabama	–	8	8	2.0	38.3	1.8	3.8	30.7	66.4	218.3	284.4	(D)	G	(D)
Arkansas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	27	15	2.0	40.7	1.6	3.6	27.0	95.4	193.0	286.7	7.0	G	(D)
Florida	E2	12	5	.4	9.2	.3	.7	6.7	18.4	41.4	59.7	1.4	C	(D)
Georgia	–	12	9	1.8	31.1	1.6	3.1	24.0	62.8	80.8	145.0	5.1	G	(D)
Massachusetts	–	5	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	30	14	.8	19.0	.7	1.5	14.1	31.7	39.2	70.8	3.2	1.1	37.0
New York	E2	83	24	1.5	31.1	1.2	2.6	22.2	59.2	96.9	156.6	5.6	G	(D)
North Carolina	–	115	92	20.5	387.4	17.6	36.0	300.3	927.9	1 587.9	2 516.1	83.9	15.5	638.8
Pennsylvania	–	30	15	1.4	30.7	1.2	2.5	22.7	70.1	56.7	126.9	5.2	1.4	59.9
Rhode Island	E1	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	C	(D)
South Carolina	–	22	17	2.7	51.6	2.3	4.8	37.6	106.2	152.4	272.5	8.9	2.1	95.5
Tennessee	E2	14	12	2.2	49.3	1.8	3.7	32.2	131.8	127.3	263.0	(D)	1.8	95.2
Virginia	–	6	6	2.2	34.5	1.9	3.6	28.5	100.6	152.5	253.4	(D)	H	(D)
Wisconsin	E1	5	4	.4	9.2	.3	.8	6.9	20.5	40.6	61.5	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS														
United States	**–**	**278**	**163**	**20.0**	**417.6**	**16.5**	**34.2**	**302.9**	**998.6**	**1 312.4**	**2 309.6**	**75.8**	**20.5**	**812.2**
Alabama	–	5	3	.3	6.1	.3	.5	4.6	10.7	12.2	22.1	(D)	C	(D)
California	E1	11	3	.3	5.8	.2	.5	4.1	12.7	10.9	23.6	.7	E	(D)
Connecticut	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	7	4	.7	17.8	.6	1.3	12.0	37.2	44.2	81.1	(D)	F	(D)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maine	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	6	3	.2	5.6	.2	.4	3.7	11.9	8.5	20.5	(D)	C	(D)
New Jersey	–	55	30	2.4	56.0	2.0	4.2	42.7	111.4	93.1	202.9	4.9	1.9	71.5
New York	E1	58	26	2.5	53.0	2.1	4.3	39.6	123.9	153.0	277.6	5.9	H	(D)
North Carolina	–	55	46	6.6	132.7	5.4	11.1	95.3	394.4	436.3	828.6	34.1	6.8	270.4
Pennsylvania	–	15	13	1.9	34.6	1.6	3.2	24.7	112.1	147.0	256.5	6.7	2.2	95.1
Rhode Island	–	12	9	.8	16.2	.7	1.4	13.4	37.3	63.5	100.3	2.9	1.2	47.5
South Carolina	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	48.4
Tennessee	E1	7	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Texas	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Virginia	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	14.6
INDUSTRY 2259, KNITTING MILLS, N.E.C.														
United States	**E2**	**84**	**27**	**3.2**	**60.7**	**2.7**	**5.5**	**44.3**	**123.0**	**112.8**	**235.8**	**5.8**	**3.8**	**97.9**
California	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E5	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Indiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	18	3	.6	12.3	.5	1.1	9.6	28.0	17.2	45.1	2.0	F	(D)
North Carolina	–	16	7	1.1	19.7	1.0	1.9	15.6	39.9	42.0	83.1	1.3	G	(D)
Wisconsin	E8	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Women's hosiery, except socks (SIC 2251)	Hosiery, n.e.c. (SIC 2252)	Knit outerwear mills (SIC 2253)				Knit underwear mills (SIC 2254)
				Total	Manufacturers (SIC 2253-11)	Jobbers (SIC 2253-22)	Contractors (SIC 2253-33)	
Companies	number	127	403	646	297	46	310	57
All establishments	number	151	448	679	319	46	314	69
With 1 to 19 employees	number	63	171	345	153	31	161	19
With 20 to 99 employees	number	36	176	230	90	14	126	25
With 100 employees or more	number	52	101	104	76	1	27	25
Employment and labor costs:								
Employees	1,000	25.3	38.1	53.0	39.5	.9	12.7	12.0
Compensation, total	mil dol	480.1	712.5	1 081.5	829.2	24.8	227.6	238.2
Annual payroll	mil dol	398.0	596.0	875.8	665.2	21.7	189.0	190.2
Fringe benefits	mil dol	82.1	116.5	205.7	164.1	3.1	38.6	48.0
Social Security and other legally required payments	mil dol	44.7	59.7	98.5	76.8	2.1	19.7	25.6
Employer voluntary payments	mil dol	37.3	56.8	107.2	87.3	1.0	18.9	22.4
Production workers:								
Average for year	1,000	22.8	33.1	47.2	35.1	.5	11.5	10.8
March	1,000	22.9	33.0	45.7	34.0	.5	11.2	10.3
May	1,000	23.2	33.5	47.2	35.1	.5	11.6	10.6
August	1,000	22.7	33.5	47.8	35.5	.6	11.7	11.1
November	1,000	22.6	32.3	47.9	35.9	.5	11.5	11.4
Hours	millions	45.8	63.6	92.5	68.5	1.2	22.8	20.5
Wages	mil dol	321.7	465.5	703.1	537.0	9.5	156.7	156.3
Cost of materials[1]	mil dol	893.7	1 345.3	1 928.9	1 680.5	145.5	102.9	403.9
Materials, parts, containers, etc., consumed[2]	mil dol	825.9	1 191.7	1 635.2	1 483.5	71.4	80.4	354.4
Resales	mil dol	12.6	71.4	32.4	30.1	2.1	.3	4.6
Fuels	mil dol	8.1	15.7	26.2	22.7	.4	3.1	5.9
Purchased electricity	mil dol	32.1	34.7	34.3	27.6	.7	5.9	11.2
Contract work	mil dol	15.0	31.8	200.7	116.6	70.9	13.2	27.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's hosiery, except socks (SIC 2251)	Hosiery, n.e.c. (SIC 2252)	Knit outerwear mills (SIC 2253)				Knit underwear mills (SIC 2254)
			Total	Manufacturers (SIC 2253-11)	Jobbers (SIC 2253-22)	Contractors (SIC 2253-33)	
Quantity of electric energy used for heat and power:							
Purchased mil kWh	546.5	632.7	573.2	483.8	8.4	81.0	217.0
Generated less sold mil kWh	–	–	–	–	–	–	–
Total value of shipments mil dol	1 843.0	2 582.5	4 182.3	3 531.8	222.6	427.9	891.1
Value added mil dol	977.5	1 261.5	2 300.0	1 891.0	83.0	326.0	498.8
Inventories by stage of fabrication:							
Beginning of 1992 mil dol	218.8	331.6	514.1	449.0	23.5	41.6	122.1
Finished goods mil dol	77.8	147.8	269.4	249.8	9.6	10.1	67.5
Work in process mil dol	86.4	109.8	117.8	101.5	6.6	9.6	26.6
Materials and supplies mil dol	54.6	74.1	126.9	97.7	7.3	22.0	28.0
End of 1992 mil dol	244.2	359.0	555.0	481.1	30.4	43.5	134.7
Finished goods mil dol	83.0	166.4	300.5	279.1	11.3	10.2	73.9
Work in process mil dol	109.3	115.5	133.1	112.0	10.7	10.4	31.8
Materials and supplies mil dol	51.9	77.2	121.4	90.0	8.4	22.9	29.0

Item	Weft knit fabrics mills (SIC 2257)				Lace and warp knit fabrics mills (SIC 2258)				Knitting mills, n.e.c. (SIC 2259)
	Total	Manufacturers (SIC 2257-11)	Jobbers (SIC 2257-22)	Contractors (SIC 2257-33)	Total	Manufacturers (SIC 2258-11)	Jobbers (SIC 2258-22)	Contractors (SIC 2258-33)	
Companies number	344	206	11	135	252	158	4	94	82
All establishments number	387	236	11	140	278	176	4	98	84
With 1 to 19 employees number	153	92	6	55	115	71	3	41	57
With 20 to 99 employees number	132	70	2	60	106	62	1	43	19
With 100 employees or more number	102	74	3	25	57	43	–	14	8
Employment and labor costs:									
Employees 1,000	41.7	32.1	.6	8.9	20.0	15.2	.1	4.7	3.2
Compensation, total mil dol	981.0	749.6	15.7	215.7	497.9	380.3	2.6	115.0	73.5
Annual payroll mil dol	805.6	615.6	13.6	176.4	417.6	317.0	2.2	98.3	60.7
Fringe benefits mil dol	175.4	134.0	2.1	39.4	80.3	63.3	.4	16.7	12.8
Social Security and other legally required payments mil dol	82.6	63.4	1.4	17.8	38.3	29.8	.2	8.4	7.5
Employer voluntary payments mil dol	92.8	70.6	.7	21.6	42.0	33.5	.2	8.3	5.2
Production workers:									
Average for year 1,000	35.3	27.2	.5	7.6	16.5	12.6	(Z)	3.9	2.7
March 1,000	35.3	26.9	.5	7.8	16.6	12.6	(Z)	3.9	2.7
May 1,000	35.6	27.2	.5	7.9	16.7	12.6	(Z)	4.0	2.8
August 1,000	35.4	27.6	.4	7.4	16.7	12.6	(Z)	4.0	2.8
November 1,000	34.9	27.3	.5	7.1	16.2	12.3	(Z)	3.9	2.7
Hours millions	72.3	55.3	.9	16.1	34.2	26.1	.1	8.1	5.5
Wages mil dol	593.6	452.5	8.5	132.6	302.9	230.8	0.5	71.7	44.3
Cost of materials[1] mil dol	3 018.5	2 680.5	140.0	198.0	1 312.4	1 192.9	30.8	88.7	112.8
Materials, parts, containers, etc., consumed[2] mil dol	2 736.6	2 478.7	98.3	159.6	1 198.3	1 109.6	20.7	68.0	97.0
Resales mil dol	4.3	3.9	–	.4	1.0	.5	.4	.1	11.6
Fuels mil dol	64.9	46.1	.3	18.5	23.4	14.2	–	9.2	.5
Purchased electricity mil dol	77.3	59.3	1.2	16.7	40.5	31.2	(Z)	9.3	2.3
Contract work mil dol	135.5	92.5	40.2	2.8	49.2	37.3	9.6	2.2	1.4
Quantity of electric energy used for heat and power:									
Purchased mil kWh	1 429.3	1 141.1	17.5	270.7	644.4	518.4	.3	125.7	39.1
Generated less sold mil kWh	(D)	(D)	–	–	–	–	–	–	–
Total value of shipments mil dol	4 924.1	4 114.0	189.4	620.8	2 309.6	1 994.8	35.8	278.9	235.8
Value added mil dol	1 888.1	1 421.1	48.1	418.9	998.6	804.9	4.4	189.3	123.0
Inventories by stage of fabrication:									
Beginning of 1992 mil dol	425.0	365.8	21.9	37.3	266.5	246.3	5.8	14.4	41.0
Finished goods mil dol	138.4	127.3	4.8	6.3	74.4	69.6	2.2	2.7	24.1
Work in process mil dol	142.7	122.2	8.8	11.6	104.7	99.1	2.2	3.4	4.5
Materials and supplies mil dol	143.9	116.2	8.4	19.3	87.4	77.6	1.4	8.3	12.4
End of 1992 mil dol	409.6	351.7	19.6	38.3	275.0	256.8	5.5	12.8	41.7
Finished goods mil dol	130.4	120.1	4.6	5.7	76.5	72.4	2.0	2.2	23.7
Work in process mil dol	133.2	117.0	7.7	8.5	104.0	99.2	1.8	3.0	5.0
Materials and supplies mil dol	146.0	114.6	7.3	24.1	94.5	85.1	1.8	7.6	13.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's hosiery, except socks (SIC 2251)	Hosiery, n.e.c. (SIC 2252)	Knit outerwear mills (SIC 2253)	Knit underwear mills (SIC 2254)	Weft knit fabrics mills (SIC 2257)	Lace and warp knit fabrics mills (SIC 2258)	Knitting mills, n.e.c. (SIC 2259)
Gross book value of depreciable assets:							
Total:							
Beginning of year	532.3	665.5	969.0	259.9	1 461.3	879.5	70.5
New capital expenditures[1]	65.0	66.4	117.5	35.5	159.8	75.8	5.8
Used capital expenditures	(D)	8.1	6.3	(D)	9.3	4.6	.4
Retirements	(D)	16.5	43.0	(D)	36.3	23.4	1.2
End of year	580.9	723.5	1 049.8	290.8	1 594.0	936.5	75.5
Buildings and other structures:							
Beginning of year	124.5	164.3	258.7	79.6	322.9	160.6	11.4
New capital expenditures	6.0	10.7	23.0	6.0	21.6	7.2	.9
Used capital expenditures	(D)	2.3	3.5	(D)	2.7	.3	(Z)
Retirements	(D)	3.3	9.1	(D)	.7	.4	.1
End of year	129.4	174.0	276.0	86.0	346.4	167.8	12.3
Machinery and equipment:							
Beginning of year	407.8	501.1	710.4	180.3	1 138.4	718.9	59.0
New capital expenditures[1]	59.1	55.7	94.5	29.5	138.2	68.6	4.9
Used capital expenditures	6.3	5.9	2.9	.6	6.6	4.3	.4
Retirements	21.5	13.2	34.0	5.7	35.6	23.0	1.1
End of year	451.6	549.4	773.8	204.8	1 247.6	768.7	63.1
Depreciation charges during 1992:							
Total	37.0	55.9	72.2	16.5	100.7	63.0	5.6
Buildings and other structures	5.1	9.6	11.8	3.4	13.3	6.5	.6
Machinery and equipment	31.9	46.4	60.4	13.1	87.4	56.5	5.1
Rental payments:							
Total	8.7	13.6	23.8	3.2	27.1	13.3	2.3
Buildings and other structures	3.7	7.7	12.5	1.3	13.0	8.0	1.3
Machinery and equipment	5.0	6.0	11.4	1.9	14.1	5.3	1.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's hosiery, except socks (SIC 2251)		Hosiery, n.e.c. (SIC 2252)		Knit outerwear mills (SIC 2253)		Knit underwear mills (SIC 2254)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	2.2	(X)	3.6	(X)	4.4	(X)	2.1	(X)
Response coverage ratio (percent)[2]	65.1	(X)	81.2	(X)	80.4	(X)	86.7	(X)
Machinery	17.2	(X)	11.1	(X)	15.9	(X)	7.1	(X)
Response coverage ratio (percent)[2]	74.8	(X)	81.2	(X)	82.0	(X)	87.9	(X)
Other purchased services:								
Communications	1.9	(X)	2.8	(X)	2.9	(X)	1.1	(X)
Response coverage ratio (percent)[2]	73.0	(X)	80.6	(X)	79.6	(X)	87.2	(X)
Legal	1.1	(X)	1.8	(X)	1.9	(X)	.4	(X)
Response coverage ratio (percent)[2]	72.6	(X)	78.3	(X)	80.7	(X)	83.4	(X)
Accounting and bookkeeping	.4	(X)	1.8	(X)	2.0	(X)	.3	(X)
Response coverage ratio (percent)[2]	72.6	(X)	81.1	(X)	83.8	(X)	83.4	(X)
Advertising	1.8	(X)	3.8	(X)	2.4	(X)	2.3	(X)
Response coverage ratio (percent)[2]	74.8	(X)	80.0	(X)	81.7	(X)	80.5	(X)
Software and other data processing	1.0	(X)	2.1	(X)	1.9	(X)	.5	(X)
Response coverage ratio (percent)[2]	74.8	(X)	79.7	(X)	82.7	(X)	83.4	(X)
Refuse removal, including hazardous waste	.8	(X)	.5	(X)	1.6	(X)	.3	(X)
Response coverage ratio (percent)[2]	74.1	(X)	77.9	(X)	80.5	(X)	83.4	(X)
New machinery and equipment expenditures	59.1	(X)	55.7	(X)	94.5	(X)	29.5	(X)
Automobiles, trucks, etc., for highway use	.2	8	2.0	13	2.2	16	.3	5
Computers and peripheral data processing equipment	1.2	5	1.4	20	5.2	25	1.4	3
All other	57.6	1	52.3	1	87.2	2	27.8	1
Adjustment ratio[3]	1.0	(X)	1.3	(X)	1.5	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	825.9	(X)	1 191.7	(X)	1 635.2	(X)	354.4	(X)
Materials purchased or transferred from foreign sources[4]	28.5	61	.8	50	4.4	48	.3	1
Materials purchased or transferred from domestic sources	797.4	3	1 191.0	1	1 630.8	1	354.1	1
Adjustment ratio[3]	1.4	(X)	1.7	(X)	1.7	(X)	1.9	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Circular knit fabrics mills (SIC 2257)		Warp knit fabrics mills (SIC 2258)		Knitting mills, n.e.c. (SIC 2259)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	6.5	(X)	4.2	(X)	.6	(X)
Response coverage ratio (percent)[2]	78.1	(X)	77.2	(X)	77.5	(X)
Machinery	32.8	(X)	24.3	(X)	(D)	(X)
Response coverage ratio (percent)[2]	78.5	(X)	77.9	(X)	(D)	(X)
Other purchased services:						
Communications	3.6	(X)	3.6	(X)	.5	(X)
Response coverage ratio (percent)[2]	66.5	(X)	77.2	(X)	77.5	(X)
Legal	1.3	(X)	1.6	(X)	.1	(X)
Response coverage ratio (percent)[2]	78.5	(X)	74.9	(X)	62.7	(X)
Accounting and bookkeeping	1.3	(X)	.8	(X)	.2	(X)
Response coverage ratio (percent)[2]	78.6	(X)	75.6	(X)	77.5	(X)
Advertising	.4	(X)	.4	(X)	.6	(X)
Response coverage ratio (percent)[2]	78.5	(X)	74.1	(X)	77.5	(X)
Software and other data processing	1.8	(X)	3.4	(X)	.3	(X)
Response coverage ratio (percent)[2]	75.6	(X)	77.9	(X)	77.5	(X)
Refuse removal, including hazardous waste	3.1	(X)	1.6	(X)	.1	(X)
Response coverage ratio (percent)[2]	78.6	(X)	77.1	(X)	77.5	(X)
New machinery and equipment expenditures	138.2	(X)	68.6	(X)	4.9	(X)
Automobiles, trucks, etc., for highway use	.8	29	.3	11	(D)	(X)
Computers and peripheral data processing equipment	4.8	5	3.0	10	(D)	(X)
All other	132.6	1	65.3	1	(D)	(X)
Adjustment ratio[3]	1.3	(X)	1.2	(X)	(D)	(X)
Cost of materials, components, parts, etc., used	2 736.6	(X)	1 198.3	(X)	97.0	(X)
Materials purchased or transferred from foreign sources[4]	56.8	39	(D)	(X)	(D)	(X)
Materials purchased or transferred from domestic sources	2 679.8	1	(D)	(X)	(D)	(X)
Adjustment ratio[3]	2.0	(X)	(D)	(X)	(D)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS												
Total	**–**	**151**	**25.3**	**398.0**	**22.8**	**45.8**	**321.7**	**977.5**	**893.7**	**1 843.0**	**65.0**	**244.2**
Establishments with an average of–												
1 to 4 employees	E8	22	(Z)	.7	(Z)	.1	.6	1.4	1.5	2.9	.1	.4
5 to 9 employees	E6	18	.1	1.7	.1	.2	1.4	3.6	3.8	7.3	.3	1.1
10 to 19 employees	E4	23	.3	4.8	.3	.5	3.6	9.9	8.4	18.1	.8	2.0
20 to 49 employees	E1	20	.6	8.7	.6	1.0	7.0	17.1	17.7	35.2	1.3	3.2
50 to 99 employees	–	16	1.1	16.2	.8	1.5	10.3	31.6	32.4	64.4	2.5	4.9
100 to 249 employees	E1	19	3.4	52.3	2.9	5.9	40.1	121.7	146.0	265.4	4.0	32.8
250 to 499 employees	–	13	4.6	68.0	4.2	8.1	57.8	163.9	163.2	329.6	13.8	31.8
500 to 999 employees	–	16	10.8	180.1	9.9	21.0	150.0	436.9	406.3	833.1	26.5	87.3
1,000 to 2,499 employees	–	4	4.4	65.4	4.1	7.4	50.8	191.5	114.5	286.9	15.7	80.8
Covered by administrative records[2]	E9	47	.3	3.9	.3	.5	3.2	7.8	8.2	16.0	.6	2.5
INDUSTRY 2252, HOSIERY, N.E.C.												
Total	**–**	**448**	**38.1**	**596.0**	**33.1**	**63.6**	**465.5**	**1 261.5**	**1 345.3**	**2 582.5**	**66.4**	**359.0**
Establishments with an average of–												
1 to 4 employees	E9	73	.1	1.7	.1	.2	1.4	3.0	3.3	6.3	.2	.7
5 to 9 employees	E9	40	.3	2.9	.2	.4	2.4	5.7	6.1	11.7	.4	1.6
10 to 19 employees	E2	58	.9	11.8	.7	1.4	8.7	22.0	26.1	48.0	1.1	4.4
20 to 49 employees	–	113	3.6	50.0	3.0	5.5	37.2	85.2	115.5	199.7	4.9	16.7
50 to 99 employees	E1	63	4.6	65.9	3.8	7.2	47.6	123.7	158.7	280.4	6.1	31.6
100 to 249 employees	–	57	9.6	148.9	8.2	15.7	114.7	294.0	359.9	647.8	13.3	91.5
250 to 499 employees	–	33	11.5	193.0	10.2	20.0	150.6	434.5	426.9	854.9	21.8	142.8
500 to 999 employees	–	10	7.6	121.8	6.8	13.1	103.0	293.5	248.8	533.6	18.6	69.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	122	.7	7.3	.6	1.1	6.1	13.1	14.4	27.6	.9	3.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2253, KNIT OUTERWEAR MILLS												
Total	**–**	**679**	**53.0**	**875.8**	**47.2**	**92.5**	**703.1**	**2 300.0**	**1 928.9**	**4 182.3**	**117.5**	**555.0**
Establishments with an average of—												
1 to 4 employees	E7	163	.3	5.1	.3	.6	3.7	13.0	12.3	24.7	1.1	4.4
5 to 9 employees	E4	81	.6	10.7	.5	.9	7.2	24.3	26.3	50.3	1.4	5.6
10 to 19 employees	E2	101	1.4	24.4	1.2	2.4	17.7	54.2	42.4	96.5	4.2	13.2
20 to 49 employees	E1	147	4.7	72.9	4.1	8.0	54.9	148.7	148.3	295.4	17.3	39.2
50 to 99 employees	E3	83	5.7	86.4	5.0	9.5	65.6	164.6	140.7	304.7	9.9	42.0
100 to 249 employees	E1	62	9.5	142.1	8.4	16.6	108.7	331.8	259.1	583.9	30.7	81.7
250 to 499 employees	–	20	7.4	126.5	6.5	13.1	95.4	233.6	308.0	539.0	11.0	55.8
500 to 999 employees	–	15	9.9	169.1	8.8	16.8	133.6	399.9	397.1	809.3	26.0	86.3
1,000 to 2,499 employees	–	5	13.5	238.7	12.5	24.5	216.3	929.9	594.7	1 478.6	16.0	226.8
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	205	1.1	14.9	.9	1.9	12.0	25.4	22.5	48.0	2.0	7.0
INDUSTRY 2254, KNIT UNDERWEAR MILLS												
Total	**–**	**69**	**12.0**	**190.2**	**10.8**	**20.5**	**156.3**	**498.8**	**403.9**	**891.1**	**35.5**	**134.7**
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.2	(Z)	(Z)	.1	.3	.2	.5	.1	.1
5 to 9 employees	E5	3	(Z)	.3	(Z)	(Z)	.2	.8	.4	1.3	(D)	.3
10 to 19 employees	E4	7	.1	1.3	.1	.2	.8	2.9	2.6	5.2	.1	1.3
20 to 49 employees	E1	11	.3	4.7	.3	.6	3.6	11.0	10.2	21.5	.6	2.1
50 to 99 employees	–	14	1.0	14.3	.8	1.5	10.4	36.2	27.7	61.6	.6	15.8
100 to 249 employees	–	11	1.7	22.1	1.5	2.8	17.8	58.1	54.9	110.7	2.1	18.0
250 to 499 employees	–	5	1.9	26.2	1.8	3.2	23.3	46.1	38.5	86.2	1.7	12.7
500 to 999 employees	–	8	7.0	121.2	6.3	12.1	100.1	343.3	269.4	604.2	30.3	84.3
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	13	.1	.7	(Z)	.1	.5	1.4	1.0	2.4	.1	.3
INDUSTRY 2257, WEFT KNIT FABRICS MILLS												
Total	**–**	**387**	**41.7**	**805.6**	**35.3**	**72.3**	**593.6**	**1 888.1**	**3 018.5**	**4 924.1**	**159.8**	**409.6**
Establishments with an average of—												
1 to 4 employees	E8	48	.1	2.0	.1	.2	1.4	3.3	6.5	9.8	.2	1.0
5 to 9 employees	E5	53	.3	6.8	.3	.5	5.0	11.9	18.7	30.5	1.1	3.3
10 to 19 employees	E2	52	.7	14.5	.6	1.2	9.6	31.6	70.7	101.5	2.4	13.8
20 to 49 employees	–	77	2.5	49.4	2.1	4.3	34.1	111.2	127.8	239.0	7.6	20.7
50 to 99 employees	–	55	3.9	79.9	3.3	7.1	60.4	169.8	272.9	440.8	16.4	39.3
100 to 249 employees	–	57	10.0	202.2	8.5	17.9	149.6	423.1	795.4	1 222.7	28.4	106.8
250 to 499 employees	–	32	12.1	226.3	10.2	20.9	172.2	515.9	739.3	1 269.6	48.5	124.7
500 to 999 employees	–	9	6.3	117.2	5.5	11.1	94.6	244.8	568.2	808.6	41.8	48.4
1,000 to 2,499 employees	–	4	5.7	107.3	4.7	9.0	66.7	376.5	419.1	801.6	13.3	51.7
Covered by administrative records[2]	E9	92	.5	8.4	.4	.9	6.4	13.5	20.2	33.6	1.1	3.4
INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS												
Total	**–**	**278**	**20.0**	**417.6**	**16.5**	**34.2**	**302.9**	**998.6**	**1 312.4**	**2 309.6**	**75.8**	**275.0**
Establishments with an average of—												
1 to 4 employees	E8	34	.1	1.4	.1	.1	.9	2.9	4.6	7.5	.2	.8
5 to 9 employees	E7	36	.3	4.8	.2	.4	3.7	8.3	11.7	19.9	.8	2.0
10 to 19 employees	E2	45	.6	13.3	.5	1.0	8.2	24.7	51.9	77.2	1.6	7.9
20 to 49 employees	–	61	2.0	45.8	1.7	3.5	32.0	98.2	122.7	219.6	7.9	21.2
50 to 99 employees	E1	45	3.3	64.6	2.9	5.8	49.6	125.3	143.1	268.7	8.6	26.2
100 to 249 employees	–	36	5.3	108.2	4.3	9.0	78.0	212.3	273.0	483.6	10.6	53.0
250 to 499 employees	–	17	5.7	121.5	4.8	10.2	89.9	391.1	514.1	901.7	23.1	123.2
500 to 999 employees	–	4	2.7	58.1	2.1	4.3	40.5	135.9	191.3	331.2	23.0	40.7
Covered by administrative records[2]	E9	70	.4	7.5	.3	.7	5.7	11.1	18.2	29.3	1.0	3.2
INDUSTRY 2259, KNITTING MILLS, N.E.C.												
Total	**E2**	**84**	**3.2**	**60.7**	**2.7**	**5.5**	**44.3**	**123.0**	**112.8**	**235.8**	**5.8**	**41.7**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	1.3	(Z)	.1	.9	2.6	2.1	4.7	.2	.9
5 to 9 employees	E4	7	.1	1.0	(Z)	.1	.7	2.4	2.0	4.4	.1	.6
10 to 19 employees	E2	12	.2	2.8	.1	.2	1.8	6.1	6.6	12.9	.3	1.5
20 to 49 employees	E3	9	.3	4.6	.3	.4	3.5	6.9	8.3	15.3	.4	1.8
50 to 99 employees	E1	10	.6	10.9	.6	1.1	7.9	20.7	21.2	41.6	1.3	5.5
100 to 249 employees	–	5	.7	11.0	.6	1.2	8.4	21.1	25.3	47.0	3.5	8.4
250 to 499 employees	E5	2	1.3	29.0	1.1	2.3	21.0	63.2	47.3	110.0	(D)	23.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	41	.1	1.8	.1	.2	1.2	3.7	3.0	6.7	.3	1.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2251	**Women's hosiery, except socks:**										
	All establishments in industry	151	25.3	398.0	22.8	45.8	321.7	977.5	893.7	1 843.0	65.0
	Establishments with this product class primary:										
22514	Women's and misses' finished hosiery, full-length and knee-length	23	3.8	61.8	3.4	7.0	52.3	147.6	130.3	276.5	14.2
22516	Women's and misses' finished panty hose, including tights	52	19.4	305.2	17.6	35.4	244.7	770.6	694.3	1 438.1	45.9
22518	Women's hosiery shipped in the greige	14	1.2	18.0	1.1	2.0	14.9	33.7	46.9	81.2	3.3
2252	**Hosiery, n.e.c.:**										
	All establishments in industry	448	38.1	596.0	33.1	63.6	465.5	1 261.5	1 345.3	2 582.5	66.4
	Establishments with this product class primary:										
22522	Men's finished seamless hosiery (sizes 10 and up)	117	17.9	288.5	15.5	30.4	224.6	589.6	683.6	1 271.4	32.1
22525	All other finished hosiery	90	14.2	221.6	12.5	23.9	174.4	524.5	475.6	980.8	26.0
22526	Seamless hosiery shipped in the greige	64	3.7	58.3	3.1	5.7	44.1	94.1	129.6	220.5	4.8
2253	**Knit outerwear mills:**										
	All establishments in industry	679	53.0	875.8	47.2	92.5	703.1	2 300.0	1 928.9	4 182.3	117.5
	Establishments with this product class primary:										
22534	Men's and boys' sweaters	25	2.9	48.7	2.5	5.2	33.1	104.7	82.2	185.1	5.7
22535	Women's, misses', and juniors' sweaters	51	3.7	61.4	3.1	6.1	44.3	171.6	188.8	355.6	8.3
22536	Girls', children's, and infants' sweaters	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2253A	Men's, and boys' knit shirts	36	18.5	311.7	17.2	33.1	267.0	1 003.7	858.6	1 847.4	27.0
2253B	Women's, misses', and juniors' knit shirts and blouses	15	2.4	37.6	2.1	4.1	26.6	74.8	81.3	155.0	4.4
2253C	Girls', children's, and infants' knit shirts and blouses	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2253D	All other knit outerwear products	34	9.8	177.9	8.2	16.2	138.1	525.3	501.3	1 003.8	45.5
2253E	Contract and commission receipts for knitting only or knitting and finishing outerwear	238	12.3	183.2	11.2	22.1	152.2	318.1	94.6	411.8	17.1
2254	**Knit underwear mills:**										
	All establishments in industry	69	12.0	190.2	10.8	20.5	156.3	498.8	403.9	891.1	35.5
	Establishments with this product class primary:										
22541	Men's and boys' knit underwear and nightwear	20	5.6	97.0	5.1	9.7	80.1	285.9	202.2	485.7	7.8
22544	Women's and children's knit underwear and nightwear	29	5.7	85.4	5.1	9.7	68.9	198.5	192.2	381.5	27.4
2257	**Weft knit fabrics mills:**										
	All establishments in industry	387	41.7	805.6	35.3	72.3	593.6	1 888.1	3 018.5	4 924.1	159.8
	Establishments with this product class primary:										
22571	Weft (circular) knit fabrics greige goods, except hosiery	81	8.0	150.7	7.0	14.1	121.4	295.5	854.3	1 149.7	27.3
22573	Finished weft (circular) knit fabrics, except hosiery	96	23.8	456.7	19.9	40.4	323.0	1 146.6	1 881.0	3 042.6	102.6
22579	Contract and commission receipts for knitting only or knitting and finishing weft (circular) knit fabrics	103	8.7	176.4	7.3	15.7	132.1	412.6	206.3	622.5	26.8
2258	**Lace and warp knit fabrics mills:**										
	All establishments in industry	278	20.0	417.6	16.5	34.2	302.9	998.6	1 312.4	2 309.6	75.8
	Establishments with this product class primary:										
22581	Warp knit fabrics greige goods	55	4.0	85.0	3.4	7.0	65.0	171.6	287.5	464.4	11.7
22584	Finished warp knit fabrics	65	10.6	223.2	8.6	17.9	158.6	621.7	893.8	1 507.6	52.1
22585	Lace and net goods	14	.7	12.9	.6	1.2	9.2	21.6	27.6	49.8	4.1
22589	Contract and commission receipts for knitting only or knitting and finishing of warp knit fabrics, or finishing lace	71	4.1	84.2	3.4	7.0	61.6	165.6	71.4	237.6	6.1
2259	**Knitting mills, n.e.c.:**										
	All establishments in industry	84	3.2	60.7	2.7	5.5	44.3	123.0	112.8	235.8	5.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS			
Total value of shipments	1 843.0	1 497.5	1 411.3
Primary products value of shipments	1 787.2	1 455.5	1 296.2
Secondary products value of shipments	29.8	29.4	69.6
Total miscellaneous receipts	26.0	12.6	45.5
Value of resales	14.6	(D)	26.3
Contract receipts	10.9	2.6	19.1
Other miscellaneous receipts	.4	(D)	.1
Primary products specialization ratio	98	98	95
Value of primary products shipments made in all industries	1 856.9	1 514.5	1 425.3
Value of primary products shipments made in this industry	1 787.2	1 455.5	1 296.2
Value of primary products shipments made in other industries	69.7	58.9	129.1
Coverage ratio	96	96	91
INDUSTRY 2252, HOSIERY, N.E.C.			
Total value of shipments	2 582.5	1 952.1	1 443.4
Primary products value of shipments	2 428.0	1 859.3	1 258.7
Secondary products value of shipments	67.8	45.5	109.3
Total miscellaneous receipts	86.7	47.3	75.4
Value of resales	77.8	37.2	54.7
Contract receipts	7.0	9.6	19.8
Other miscellaneous receipts	1.9	.5	.9
Primary products specialization ratio	97	98	92
Value of primary products shipments made in all industries	2 462.0	1 902.4	1 324.5
Value of primary products shipments made in this industry	2 428.0	1 859.3	1 258.7
Value of primary products shipments made in other industries	34.0	43.2	65.9
Coverage ratio	99	98	95
INDUSTRY 2253, KNIT OUTERWEAR MILLS			
Total value of shipments	4 182.3	3 264.9	3 182.4
Primary products value of shipments	3 434.7	2 950.3	2 972.6
Secondary products value of shipments	695.8	184.0	162.8
Total miscellaneous receipts	51.8	130.6	47.0
Value of resales	43.2	82.3	34.5
Contract receipts	(D)	6.5	7.7
Other miscellaneous receipts	(D)	41.9	4.9
Primary products specialization ratio	83	94	95
Value of primary products shipments made in all industries	3 517.2	3 293.5	3 154.2
Value of primary products shipments made in this industry	3 434.7	2 950.3	2 972.6
Value of primary products shipments made in other industries	82.6	343.2	181.6
Coverage ratio	98	90	94
INDUSTRY 2254, KNIT UNDERWEAR MILLS			
Total value of shipments	891.1	1 058.1	829.9
Primary products value of shipments	777.9	741.9	714.6
Secondary products value of shipments	102.3	295.3	101.7
Total miscellaneous receipts	10.9	20.9	13.7
Value of resales	(D)	(D)	7.2
Contract receipts	(D)	17.9	5.9
Other miscellaneous receipts	(D)	(D)	.6
Primary products specialization ratio	88	72	88
Value of primary products shipments made in all industries	1 140.1	803.2	767.4
Value of primary products shipments made in this industry	777.9	741.9	714.6
Value of primary products shipments made in other industries	362.3	61.3	52.8
Coverage ratio	68	92	93
INDUSTRY 2257, WEFT KNIT FABRICS MILLS			
Total value of shipments	4 924.1	3 578.5	2 538.8
Primary products value of shipments	4 548.8	3 355.9	2 323.6
Secondary products value of shipments	359.5	207.3	202.8
Total miscellaneous receipts	15.8	15.2	12.4
Value of resales	4.9	4.5	6.6
Contract receipts	5.1	(D)	3.4
Other miscellaneous receipts	5.8	(D)	2.4
Primary products specialization ratio	93	94	92
Value of primary products shipments made in all industries	4 950.3	3 539.2	2 494.9
Value of primary products shipments made in this industry	4 548.8	3 355.9	2 323.6
Value of primary products shipments made in other industries	401.5	183.2	171.3
Coverage ratio	92	95	93

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS			
Total value of shipments	2 309.6	1 991.9	1 538.0
Primary products value of shipments	2 190.9	1 933.7	(NA)
Secondary products value of shipments	103.1	53.9	(NA)
Total miscellaneous receipts	15.6	4.3	(NA)
Value of resales	1.1	2.3	(NA)
Contract receipts	7.8	1.4	(NA)
Other miscellaneous receipts	6.7	.6	(NA)
Primary products specialization ratio	96	97	(NA)
Value of primary products shipments made in all industries	2 461.6	2 106.5	(NA)
Value of primary products shipments made in this industry	2 190.9	1 933.7	(NA)
Value of primary products shipments made in other industries	270.8	172.8	(NA)
Coverage ratio	89	92	(NA)
INDUSTRY 2259, KNITTING MILLS, N.E.C.			
Total value of shipments	235.8	187.6	114.5
Primary products value of shipments	211.9	174.8	108.5
Secondary products value of shipments	10.0	2.8	3.3
Total miscellaneous receipts	13.9	10.0	2.7
Value of resales	(D)	9.6	(D)
Contract receipts	–	(D)	–
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	95	98	97
Value of primary products shipments made in all industries	236.4	222.4	133.5
Value of primary products shipments made in this industry	211.9	174.8	108.5
Value of primary products shipments made in other industries	24.6	47.6	25.0
Coverage ratio	90	79	81

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2251– —	**WOMEN'S HOSIERY, EXCEPT SOCKS**						
	Total	**(NA)**	**(X)**	**1 856.9**	**(NA)**	**(X)**	**1 514.5**
22514	Women's and misses' finished hosiery, full-length and knee-length	(NA)	(X)	338.7	(NA)	(X)	235.5
22514 17	Knee-length, stretch and nonstretch, mil dozen pairs	28	33.6	144.5	23	32.2	175.4
	Full-length:						
22514 13	Stretch, mil dozen pairs	12	4.1	23.9	(NA)	(D)	(D)
22514 15	Nonstretch, mil dozen pairs	6	(D)	(D)	(NA)	(D)	(D)
22514 19	Support, mil dozen pairs	5	1.5	12.6	(NA)	(D)	(D)
22514 23	All other full-length, mil dozen pairs	6	(D)	(D)	(NA)	(D)	(D)
22514 00	Women's and misses' finished hosiery, full-length and knee-length, n.s.k.	(NA)	(X)	8.1	(NA)	(X)	(D)

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2251– —	**WOMEN'S HOSIERY, EXCEPT SOCKS**—Con.						
22516	Women's and misses' finished panty hose, including tights	(NA)	(X)	1 394.2	(NA)	(X)	1 132.8
22516 12	Less than 30 denier, sheer stretch—mil dozen pairs	37	63.3	644.9	48	*61.8	543.8
22516 14	30 denier or heavier, opaque stretch—mil dozen pairs	27	30.2	259.3	26	11.8	118.8
	Elastomer:						
22516 16	Control top, no leg support—mil dozen pairs	17	15.6	179.7	20	16.4	185.2
22516 15	Leg support, less than 35 denier—mil dozen pairs	13	9.7	132.3			
22516 17	Leg support, 35 denier or heavier—mil dozen pairs	14	8.7	120.1	20	17.6	217.8
22516 19	Other miscellaneous sheers, including fancies, sewed on legs, waist connected legs, replaceable legs, nonstretch, etc.—mil dozen pairs	8	**4.1	58.0	8	4.7	67.3
22516 00	Women's and misses' finished panty hose, including tights, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
22518	Women's hosiery shipped in the greige	(NA)	(X)	84.6	(NA)	(X)	106.8
22518 14	Full-fashioned and seamless full-length and knee-length (except panty hose and socks)—mil dozen pairs	13	*7.7	21.5	11	18.3	32.2
22518 17	Panty hose—mil dozen pairs	12	9.2	63.1	18	14.2	74.6
22518 00	Women's hosiery shipped in the greige, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
22510	Women's hosiery, except socks, n.s.k.	(NA)	(X)	39.3	(NA)	(X)	39.4
22510 00	Women's hosiery, except socks, n.s.k.[3]	(NA)	(X)	6.2	(NA)	(X)	5.1
22510 02	Women's hosiery, except socks, n.s.k.[4]	(NA)	(X)	33.2	(NA)	(X)	34.3
2252– —	**HOSIERY, N.E.C.**						
	Total	**(NA)**	**(X)**	**2 462.0**	**(NA)**	**(X)**	**1 902.4**
22522	Men's finished seamless hosiery (sizes 10 and up)	(NA)	(X)	1 129.8	(NA)	(X)	844.7
	Anklets (including slack socks, crew socks, athletic socks, etc.):						
22522 23	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	97	*62.8	460.8	73	43.0	356.7
22522 25	Manmade fibers—mil dozen pairs	60	*24.7	218.1	52	*22.3	206.6
	Midcalf (including half hose):						
22522 33	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	38	59.3	227.0	40	18.2	112.4
22522 35	Manmade fibers—mil dozen pairs	29	*9.0	97.9	27	8.5	65.5
	Knee (bermuda, campus, etc.):						
22522 43	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	16	**5.4	45.5	23	*4.9	42.9
22522 45	Manmade fibers—mil dozen pairs	20	7.2	60.5	20	*5.0	39.3
22522 87	All other (including foot socks)—mil dozen pairs	14	(D)	(D)	10	**1.8	15.5
22522 00	Men's finished seamless hosiery (sizes 10 and up), n.s.k.	(NA)	(X)	(D)	(NA)	(X)	5.7
22525	All other finished hosiery	(NA)	(X)	1 002.6	(NA)	(X)	694.3
22525 13	Women's and misses' below the knee sheer hosiery (foot socks, anklets, and midcalf/ crew)—mil dozen pairs	23	11.2	57.1	(NA)	(NA)	(5)
22525 15	Women's and misses' finished knee-length socks, all fibers (including bermuda, campus, etc.) (sizes 8-11)—mil dozen pairs	14	*1.8	16.4	(NA)	(NA)	(5)
	Women's, misses', girls', and boys' (sizes 8-11):						
	Anklets, except sheer (including slack socks, crew socks, athletic socks, etc.):						
22525 01	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	80	73.2	528.0	(NA)	(NA)	(5)
22525 03	Manmade fibers—mil dozen pairs	31	*7.1	69.8	(NA)	(NA)	(5)
	Girls' and boys' (excluding anklets):						
	Knee (including bermuda, campus, etc.):						
22525 21	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	19	**6.5	46.2	23	3.5	23.6
22525 27	Manmade fibers—mil dozen pairs	17	*4.8	35.1	21	*3.8	28.0
22525 31	All others (including foot socks, stockings, and waist-highs)—mil dozen pairs	12	(S)	22.6	13	*4.0	19.8
	Infants' and children's (sizes 3-8 1/ 2):						
	Anklets (including slack socks, crew socks, athletic socks, etc.):						
22525 51	Natural fibers (cotton and/ or wool, etc.)—mil dozen pairs	32	*27.9	167.9	41	14.0	83.7
22525 57	Manmade fibers—mil dozen pairs	20	4.6	29.6	27	6.5	42.7
22525 61	Knee (including bermuda, campus, etc.)—mil dozen pairs	10	.8	5.9	15	1.5	11.1
22525 81	All other (including foot socks, stockings, and waist-highs)—mil dozen pairs	9	(S)	12.9	14	(S)	13.0

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2252– —	**HOSIERY, N.E.C.**—Con.						
22525	All other finished hosiery—Con.						
22525 00	All other finished hosiery, n.s.k.	(NA)	(X)	11.1	(NA)	(X)	[5]472.4
22526	Seamless hosiery shipped in the greige	(NA)	(X)	226.7	(NA)	(X)	242.7
22526 25	Men's, all types (sizes 10 and up) mil dozen pairs	53	**24.4	101.9	43	**25.2	133.7
22526 42	Women's and misses' (except full-length and knee-length); girls' and boys' mil dozen pairs	47	*18.1	91.1	49	*20.6	85.6
22526 51	Children's and infants' mil dozen pairs	21	(S)	33.8	19	**6.5	23.4
22526 00	Seamless hosiery shipped in the greige, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
22520	Hosiery, n.e.c., n.s.k.	(NA)	(X)	102.8	(NA)	(X)	120.7
22520 00	Hosiery, n.e.c., n.s.k.[3]	(NA)	(X)	41.7	(NA)	(X)	54.0
22520 02	Hosiery, n.e.c., n.s.k.[4]	(NA)	(X)	61.1	(NA)	(X)	66.7

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2253– —	**KNIT OUTERWEAR MILLS**				
	Total	**(NA)**	**3 517.2**	**(NA)**	**3 293.5**
22534	Men's and boys' sweaters	(NA)	172.4	(NA)	388.7
22534 00	Men's and boys' sweaters (from yarns or from fabrics knit in the same establishment)[6]	41	172.4	51	r388.7
22535	Women's, misses', and juniors' sweaters	(NA)	301.9	(NA)	447.4
22535 00	Women's, misses', and juniors' sweaters (from yarns or from fabrics knit in the same establishment)[6]	61	301.9	79	r447.4
22536	Girls', children's, and infants' sweaters	(NA)	25.8	(NA)	59.1
22536 00	Girls', children's, and infants' sweaters (from yarns or from fabrics knit in the same establishment)[6]	11	25.8	19	59.1
2253A	Men's, and boys' knit shirts	(NA)	1 447.1	(NA)	725.9
2253A 00	Men's and boys' knit shirts (from yarns or from fabrics knit in the same establishment)[6]	40	1 447.1	40	r725.9
2253B	Women's, misses', and juniors' knit shirts and blouses	(NA)	179.2	(NA)	184.8
2253B 00	Women's, misses', and juniors' knit shirts and blouses (from yarns or from fabrics knit in the same establishment)[6]	26	179.2	28	r184.8
2253C	Girls', children's, and infants' knit shirts and blouses	(NA)	64.0	(NA)	51.0
2253C 00	Girls', children's, and infants' knit shirts and blouses (from yarns or from fabrics knit in the same establishment)[6]	9	64.0	8	r51.0
2253D	All other knit outerwear products	(NA)	743.1	(NA)	825.3
2253D 01	Women's, misses', and juniors' (from yarns or from fabrics knit in the same establishment)	25	(D)	(NA)	(D)
2253D 05	Men's and boys' (from yarns or from fabrics knit in the same establishment)	20	460.4	(NA)	(D)
2253D 09	Girls', children's, and infants' (from yarns or from fabrics knit in the same establishment)	10	150.9	10	153.6
2253D 00	All other knit outerwear products, n.s.k.	(NA)	(D)	(NA)	3.0
2253E	Contract and commission receipts for knitting only or knitting and finishing outerwear[7]	(NA)	413.4	(NA)	318.9
2253E 00	Contract and commission receipts for knitting only or knitting and finishing outerwear	189	401.7	228	300.5
2253E 02	Contract and commission receipts for knitting only or knitting and finishing outerwear, n.s.k.	31	11.7	56	18.4
22530	Knit outerwear mills, n.s.k.	(NA)	170.4	(NA)	292.5
22530 00	Knit outerwear mills, n.s.k.[8]	(NA)	133.8	(NA)	r214.6
22530 02	Knit outerwear mills, n.s.k.[9]	(NA)	36.6	(NA)	77.9
2254– —	**KNIT UNDERWEAR MILLS**				
	Total	**(NA)**	**1 140.1**	**(NA)**	**803.2**
22541	Men's and boys' knit underwear and nightwear[10]	(NA)	(D)	(NA)	610.2
22541 11	Underwear	23	725.9	23	598.2
22541 13	Nightwear, except robes	2	(D)	4	12.0
22541 00	Men's and boys' knit underwear and nightwear, n.s.k.	(NA)	–	(NA)	–
22544	Women's and children's knit underwear and nightwear[10]	(NA)	405.2	(NA)	183.6
22544 11	Underwear	31	351.4	25	142.4
22544 13	Nightwear, except robes	13	53.8	11	41.2
22544 00	Women's and children's knit underwear and nightwear, n.s.k.	(NA)	–	(NA)	–
22540	Knit underwear mills, n.s.k.	(NA)	(D)	(NA)	9.3
22540 00	Knit underwear mills, n.s.k.[3]	(NA)	4.3	(NA)	2.4
22540 02	Knit underwear mills, n.s.k.[4]	(NA)	(D)	(NA)	6.9

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2257– —	**WEFT KNIT FABRICS MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**4 950.3**	**(NA)**	**(X)**	**(X)**	**3 539.2**
22571	Weft (circular) knit fabrics greige goods, except hosiery	(NA)	(X)	(X)	1 278.4	(NA)	(X)	(X)	872.3
22571 10	Narrow fabrics (12 inches wide or less) mil lb	6	10.5	*5.4	12.9	15	(NA)	44.2	83.8
22571 20	Broad fabrics (more than 12 inches wide) mil lb	99	1 885.4	674.8	1 265.5	55	(NA)	*381.6	775.6
22571 00	Weft (circular) knit fabrics greige goods, except hosiery, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	12.9
22573	Finished weft (circular) knit fabrics, except hosiery	(NA)	(X)	(X)	2 940.6	(NA)	(X)	(X)	2 102.5
	Knit and finished in the same establishment:								
22573 10	Narrow (12 inches wide or less) mil fin lin yd	10	(X)	(S)	37.2	17	(X)	48.0	106.8
22573 20	Broad (more than 12 inches wide) mil fin lin yd	78	(X)	649.5	1 863.7	49	(X)	574.8	1 304.9
	Purchased and finished:								
22573 30	Narrow (12 inches wide or less) mil fin lin yd	8	(X)	(S)	13.5	2	(X)	(D)	(D)
22573 40	Broad (more than 12 inches wide) mil fin lin yd	29	(X)	428.7	1 026.2	19	(X)	271.0	578.2
22573 00	Finished weft (circular) knit fabrics, except hosiery, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
22579	Contract and commission receipts for knitting only or knitting and finishing weft (circular) knit fabrics	(NA)	(X)	(X)	622.5	(NA)	(X)	(X)	341.2
22579 13	Finishing fabrics only	33	(X)	(X)	362.4	26	(X)	(X)	156.9
22579 15	Knitting only or knitting and finishing narrow (12 inches wide or less) fabrics	4	(X)	(X)	15.5	3	(X)	(X)	(D)
22579 17	Knitting only or kniting and finishing broad (more than 12 inches wide) fabrics	52	(X)	(X)	223.4	53	(X)	(X)	165.3
22579 00	Contract and commission receipts for knitting only or knitting and finishing weft (circular) knit fabrics, n.s.k.	(NA)	(X)	(X)	17.4	(NA)	(X)	(X)	(D)
22579 02	Contract and commission receipts for knitting only or knitting and finishing weft (circular) knit fabrics, n.s.k.	13	(X)	(X)	3.8	(NA)	(X)	(X)	1.4
22570	Weft knit fabrics mills, n.s.k.	(NA)	(X)	(X)	108.8	(NA)	(X)	(X)	223.2
22570 00	Weft knit fabrics mills, n.s.k.[3]	(NA)	(X)	(X)	83.5	(NA)	(X)	(X)	158.9
22570 02	Weft knit fabrics mills, n.s.k.[4]	(NA)	(X)	(X)	25.4	(NA)	(X)	(X)	64.3
2258– —	**WARP KNIT FABRICS MILLS AND LACE GOODS**								
	Total	**(NA)**	**(X)**	**(X)**	**2 461.6**	**(NA)**	**(X)**	**(X)**	**2 106.5**
22581	Warp knit fabrics greige goods	(NA)	(X)	(X)	454.3	(NA)	(X)	(X)	391.5
22581 10	Narrow fabrics (12 inches wide or less) mil lb	9	*25.7	14.2	30.4	11	(NA)	27.8	76.3
22581 20	Broad fabrics (more than 12 inches wide) mil lb	52	313.2	139.5	423.9	48	(NA)	*116.6	312.1
22581 00	Warp knit fabrics greige goods, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	3.1
22584	Finished warp knit fabrics	(NA)	(X)	(X)	1 651.9	(NA)	(X)	(X)	1 332.5
	Knit and finished in the same establishment:								
22584 10	Narrow (12 inches wide or less) mil fin lin yd	23	(X)	**443.8	125.3	21	(X)	(S)	141.4
22584 20	Broad (more than 12 inches wide) mil fin lin yd	38	(X)	316.3	726.8	29	(X)	**432.6	819.2
	Purchased and finished:								
22584 30	Narrow (12 inches wide or less) mil fin lin yd	7	(X)	(S)	37.7	2	(X)	(S)	(D)
22584 40	Broad (more than 12 inches wide) mil fin lin yd	21	(X)	260.5	762.0	14	(X)	(S)	340.5
22584 00	Finished warp knit fabrics, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(D)
22585	Lace and net goods	(NA)	(X)	(X)	55.7	(NA)	(X)	(X)	121.0
22585 00	Lace and net goods, all leavers and Nottingham lace machine products, including bobbinets and barmen laces	16	(X)	(X)	55.7	30	(X)	(X)	121.0
22589	Contract and commission receipts for knitting only or knitting and finishing of warp knit fabrics, or finishing lace	(NA)	(X)	(X)	256.0	(NA)	(X)	(X)	197.5
22589 13	Knitting only or knitting and finishing narrow (12 inches wide or less) fabrics	5	(X)	(X)	2.4	3	(X)	(X)	3.4
22589 17	Knitting only or knitting and finishing broad (more than 12 inches wide) fabrics	33	(X)	(X)	67.8	33	(X)	(X)	60.5
22589 15	Finishing only, warp knit fabrics	24	(X)	(X)	133.6	19	(X)	(X)	98.1
22589 21	Dyeing and finishing lace and net goods, except raschel and burned-out lace	9	(X)	(X)	41.8	11	(X)	(X)	25.5
22589 00	Contract and commission receipts for knitting only or knitting and finishing of warp knit fabrics, n.s.k.	(NA)	(X)	(X)	6.2	(NA)	(X)	(X)	9.3
22589 02	Contract and commission receipts for knitting only or knitting and finishing of warp knit fabrics, n.s.k.	10	(X)	(X)	4.4	(NA)	(X)	(X)	.7
22580	Warp knit fabrics mills and lace goods, n.s.k.	(NA)	(X)	(X)	43.7	(NA)	(X)	(X)	63.9
22580 00	Warp knit fabrics mills and lace goods, n.s.k.[11]	(NA)	(X)	(X)	17.8	(NA)	(X)	(X)	33.0
22580 02	Warp knit fabrics mills and lace goods, n.s.k.[12]	(NA)	(X)	(X)	25.9	(NA)	(X)	(X)	30.9

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2259– –	**KNITTING MILLS, N.E.C.**				
	Total	**(NA)**	**236.4**	**(NA)**	**222.4**
22590	Knit gloves and other knit products (made in knitting mills)	(NA)	236.4	(NA)	222.4
22590 20	Gloves and mittens including fabric-and-leather combination[6]	14	108.0	17	86.1
22590 98	Other knit end products, except fabrics (including towels and washcloths)	21	113.6	28	115.8
22590 00	Knitting mills, n.e.c., n.s.k.[13]	(NA)	5.3	(NA)	15.7
22590 02	Knitting mills, n.e.c., n.s.k.[14]	(NA)	9.5	(NA)	4.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Data for these products were not collected seperately in 1987; therefore, they are included in product code 22525 00.
[6]This product code is primary to more than one industry.
[7]Data for this product class represent value of receipts rather than value of shipments.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.
[10]This product class is primary to more than one industry.
[11]Typically for establishments with 20 employees or more.
[12]Typically for establishments with less than 20 employees.
[13]Typically for establishments with 5 employees or more.
[14]Typically for establishments with less than 5 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Sweaters	(NA)	794.5	(NA)	1 228.7
	Made in knitting mills	(NA)	500.0	(NA)	895.2
	Made in cut-and-sew shops	(NA)	294.5	(NA)	333.5
	Men's and boys' sweaters	(NA)	248.2	(NA)	442.2
22534 00	Made in knitting mills	41	172.4	51	388.7
23293 60	Made in cut-and-sew shops	24	75.8	25	53.5
	Women's, misses', and juniors' sweaters	(NA)	490.8	(NA)	687.4
22535 00	Made in knitting mills	61	301.9	79	447.4
23397 30	Made in cut-and-sew shops	49	188.9	77	240.0
	Girls', children's, and infants' sweaters	(NA)	55.6	(NA)	99.1
22536 00	Made in knitting mills	11	25.8	19	59.1
23693 70	Made in cut-and-sew shops	14	29.8	18	40.0
	Knit shirts and blouses	(NA)	7 356.9	(NA)	4 452.9
	Made in knitting mills	(NA)	1 690.3	(NA)	961.7
	Made in cut-and-sew shops	(NA)	5 666.6	(NA)	3 491.2
	Men's and boys' knit shirts	(NA)	4 992.9	(NA)	2 588.9
2253A 00	Made in knitting mills	40	1 447.1	40	725.9
23213 00	Made in cut-and-sew shops	227	3 545.7	178	1 863.0
	Women's, misses', and juniors' knit shirts and blouses	(NA)	1 665.1	(NA)	1 255.1
2253B 00	Made in knitting mills	26	179.2	28	184.8
23313 00	Made in cut-and-sew shops	407	1 485.9	281	1 070.3
	Girls', children's, and infants' knit shirts and blouses	(NA)	699.0	(NA)	608.9
2253C 00	Made in knitting mills	9	64.0	8	51.0
23613 00	Made in cut-and-sew shops	108	635.0	106	557.9
	Men's and boys' knit underwear and nightwear	(NA)	(D)	(NA)	1 546.1
22541	Made in knitting mills	(NA)	(D)	(NA)	610.2
	Made in cut-and-sew shops	(NA)	749.7	(NA)	935.9
	Underwear	(NA)	1 351.4	(NA)	1 366.5
22541 11	Made in knitting mills	23	725.9	23	598.2
23221 00	Made in cut-and-sew shops	37	625.5	29	768.3
	Nightwear	(NA)	(D)	(NA)	160.3
22541 13	Made in knitting mills	2	(D)	4	12.0
23222 00	Made in cut-and-sew shops	22	117.7	26	148.3
	Men's and boys' knit underwear and nightwear, n.s.k.	(NA)	6.5	(NA)	19.3
22541 00	Made in knitting mills	(NA)	–	(NA)	–
23220 00	Made in cut-and-sew shops	(NA)	–	(NA)	–
23220 02	Made in cut-and-sew shops	(NA)	6.5	(NA)	19.3

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Women's and children's knit underwear and nightwear	(NA)	2 396.9	(NA)	2 452.5
22544	Made in knitting mills	(NA)	405.2	(NA)	183.6
	Made in cut-and-sew shops	(NA)	1 991.7	(NA)	2 268.9
	Underwear	(NA)	1 348.4	(NA)	1 161.6
22544 11	Made in knitting mills	31	351.4	25	142.4
23412 00	Made in cut-and-sew shops	76	997.0	112	1 019.2
	Nightwear	(NA)	1 009.5	(NA)	1 221.2
22544 13	Made in knitting mills	13	53.8	11	41.2
23413 00	Made in cut-and-sew shops	93	955.7	124	1 180.0
	Women's and children's knit underwear and nightwear, n.s.k.	(NA)	39.0	(NA)	69.7
22544 00	Made in knitting mills	(NA)	–	(NA)	–
23410 00	Made in cut-and-sew shops	(NA)	29.3	(NA)	7.4
23410 02	Made in cut-and-sew shops	(NA)	9.7	(NA)	62.3
	Gloves and mittens	(NA)	427.3	(NA)	402.4
22590 20	Made in knitting mills	14	108.0	17	86.1
23813 00	Made from purchased knit fabrics	34	184.3	30	139.6
23814 00	Made from purchased leather-and-fabric (combinations)	24	22.2	32	43.0
31510 00	Gloves and mittens, all leather	50	112.8	48	133.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
22514, WOMEN'S AND MISSES' FINISHED HOSIERY, FULL-LENGTH AND KNEE-LENGTH		
United States	**338.7**	**235.5**
North Carolina	248.0	161.9
South Carolina	39.4	(NA)
22516, WOMEN'S AND MISSES' FINISHED PANTY HOSE, INCLUDING TIGHTS		
United States	**1 394.2**	**1 132.8**
North Carolina	819.2	632.9
Tennessee	54.6	(NA)
22518, WOMEN'S HOSIERY SHIPPED IN THE GREIGE		
United States	**84.6**	**106.8**
North Carolina	57.8	87.8
22522, MEN'S FINISHED SEAMLESS HOSIERY (SIZES 10 AND UP)		
United States	**1 129.8**	**844.7**
Alabama	177.7	47.4
Georgia	97.0	80.5
North Carolina	584.4	499.5
Pennsylvania	58.8	(NA)
Tennessee	76.4	56.8
22525, ALL OTHER FINISHED HOSIERY		
United States	**1 002.6**	**694.3**
Alabama	117.9	61.5
Georgia	45.0	28.3
North Carolina	695.8	482.0
Tennessee	90.1	75.8
22526, SEAMLESS HOSIERY SHIPPED IN THE GREIGE		
United States	**226.7**	**242.7**
Alabama	35.7	24.9
North Carolina	158.8	185.2
22534, MEN'S AND BOYS' SWEATERS		
United States	**172.4**	**388.7**
New Jersey	5.9	20.5
New York	60.9	39.5
North Carolina	30.1	87.5
Pennsylvania	16.2	133.6
22535, WOMEN'S, MISSES', AND JUNIORS' SWEATERS		
United States	**301.9**	**447.4**
California	27.8	(NA)
New York	170.2	212.7
Wisconsin	4.0	(NA)
22536, GIRLS', CHILDREN'S, AND INFANTS' SWEATERS		
United States	**25.8**	**59.1**
New York	18.3	20.5
2253A, MEN'S, AND BOYS' KNIT SHIRTS		
United States	**1 447.1**	**725.9**
North Carolina	434.4	228.7
Pennsylvania	44.6	48.9
2253B, WOMEN'S, MISSES', AND JUNIORS' KNIT SHIRTS AND BLOUSES		
United States	**179.2**	**184.8**
California	19.2	(NA)
New York	7.2	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2253C, GIRLS', CHILDREN'S, AND INFANTS' KNIT SHIRTS AND BLOUSES		
United States	**64.0**	**51.0**
2253D, ALL OTHER KNIT OUTERWEAR PRODUCTS		
United States	**743.1**	**825.3**
California	16.9	(NA)
New York	7.4	24.5
North Carolina	335.8	186.6
Pennsylvania	12.3	58.8
Wisconsin	20.7	(NA)
2253E, CONTRACT AND COMMISSION RECEIPTS FOR KNITTING ONLY OR KNITTING AND FINISHING OUTERWEAR		
United States	**413.4**	**318.9**
Alabama	40.9	6.9
California	44.8	17.0
Florida	25.0	6.4
New Jersey	27.4	43.9
New York	136.5	177.6
North Carolina	45.2	19.2
Pennsylvania	11.8	17.7
Tennessee	40.3	(NA)
22541, MEN'S AND BOYS' KNIT UNDERWEAR AND NIGHTWEAR		
United States	**728.3**	**610.2**
North Carolina	65.4	65.7
22544, WOMEN'S AND CHILDREN'S KNIT UNDERWEAR AND NIGHTWEAR		
United States	**405.2**	**183.6**
California	6.5	(NA)
New York	18.0	(NA)
North Carolina	173.4	(NA)
Pennsylvania	55.6	33.5
22571, WEFT (CIRCULAR) KNIT FABRICS GREIGE GOODS, EXCEPT HOSIERY		
United States	**1 278.4**	**872.3**
California	51.3	107.8
Georgia	35.4	(NA)
New Jersey	24.7	(NA)
New York	27.9	19.7
North Carolina	700.0	452.6
Pennsylvania	22.7	54.8
Tennessee	10.7	(NA)
22573, FINISHED WEFT (CIRCULAR) KNIT FABRICS, EXCEPT HOSIERY		
United States	**2 940.6**	**2 102.5**
Alabama	105.5	(NA)
California	160.3	(NA)
Florida	31.1	7.2
Georgia	108.7	55.3
New Jersey	11.7	(NA)
New York	53.6	79.0
North Carolina	1 632.2	1 138.1
Pennsylvania	8.8	(NA)
South Carolina	196.5	145.0
Tennessee	233.9	166.3
Virginia	168.0	(NA)
Wisconsin	28.0	(NA)
22579, CONTRACT AND COMMISSION RECEIPTS FOR KNITTING ONLY OR KNITTING AND FINISHING WEFT (CIRCULAR) KNIT FABRICS		
United States	**622.5**	**341.2**
California	37.3	22.1
New Jersey	29.3	16.5
New York	34.1	18.3
North Carolina	360.9	148.9
Pennsylvania	99.3	49.7
South Carolina	25.8	29.8
22581, WARP KNIT FABRICS GREIGE GOODS		
United States	**454.3**	**391.5**
New Jersey	41.1	55.7
New York	60.6	34.3
North Carolina	107.3	68.9
Pennsylvania	116.7	(NA)
22584, FINISHED WARP KNIT FABRICS		
United States	**1 651.9**	**1 332.5**
Georgia	48.3	(NA)
Massachusetts	141.5	(NA)
New Jersey	76.4	14.8
New York	150.5	126.0
North Carolina	644.4	583.8
Pennsylvania	121.7	165.3
Rhode Island	88.9	86.0
22585, LACE AND NET GOODS		
United States	**55.7**	**121.0**
New Jersey	9.9	40.9
Rhode Island	3.6	24.8
22589, CONTRACT AND COMMISSION RECEIPTS FOR KNITTING ONLY OR KNITTING AND FINISHING OF WARP KNIT FABRICS, OR FINISHING LACE		
United States	**256.0**	**197.5**
California	30.4	14.7
New Jersey	64.7	27.8
New York	53.3	18.7
North Carolina	75.0	66.9
Pennsylvania	6.8	30.1

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2251-	**Women's hosiery, except socks**	**1 856.9**	**1 611.5**	**1 606.2**	**1 492.7**	**1 550.4**	**1 514.5**	**1 425.3**	**819.1**
22514	Women's and misses' finished hosiery, full-length and knee-length	338.7	110.2	130.9	113.2	180.3	235.5	240.9	723.4
22516	Women's and misses' finished panty hose, including tights	1 394.2	1 344.6	1 283.1	1 208.0	1 220.5	1 132.8	943.2	
22518	Women's hosiery shipped in the greige	84.6	105.1	124.5	102.8	96.1	106.8	85.6	58.4
22510	Women's hosiery, except socks, n.s.k.	39.3	51.6	67.7	68.7	53.3	39.4	43.1	37.3
2252-	**Hosiery, n.e.c.**	**2 462.0**	**2 250.1**	**2 241.7**	**2 077.5**	**2 110.1**	**1 902.4**	**1 324.5**	**893.6**
22522	Men's finished seamless hosiery (sizes 10 and up)	1 129.8	728.7	724.8	671.2	838.4	844.7	655.0	464.6
22525	All other finished hosiery	1 002.6	1 040.3	1 008.4	953.6	899.7	694.3	564.5	367.8
22526	Seamless hosiery shipped in the greige	226.7	325.8	353.0	304.5	246.5	242.7	155.6	
22520	Hosiery, n.e.c., n.s.k.	102.8	155.3	155.4	148.2	125.5	120.7	61.9	61.2
2253-	**Knit outerwear mills**	**3 517.2**	**3 545.1**	**3 266.6**	**3 233.1**	**3 082.7**	**3 293.5**	**3 154.2**	**2 136.6**
22534	Men's and boys' sweaters	172.4	187.9	244.6	290.9	318.8	388.7	362.9	(NA)
22535	Women's, misses', and juniors' sweaters	301.9	190.8	175.0	240.0	376.6	447.4	310.6	(NA)
22536	Girls', children's, and infants' sweaters	25.8	76.1	73.6	73.5	65.3	59.1	50.9	(NA)
2253A	Men's, and boys' knit shirts	1 447.1	1 688.5	1 375.8	1 166.3	842.6	725.9	830.7	(NA)
2253B	Women's, misses', and juniors' knit shirts and blouses	179.2	202.3	182.7	212.5	237.7	184.8	216.8	(NA)
2253C	Girls', children's, and infants' knit shirts and blouses	64.0	49.0	39.6	37.5	35.7	51.0	48.5	(NA)
2253D	All other knit outerwear products	743.1	648.0	606.8	605.2	679.2	825.3	751.9	(NA)
2253E	Contract and commission receipts for knitting only or knitting and finishing outerwear	413.4	349.6	401.9	347.7	294.6	318.9	209.8	154.2
22530	Knit outerwear mills, n.s.k.	170.4	152.9	166.8	259.5	232.3	292.5	262.0	219.1
2254-	**Knit underwear mills**	**1 140.1**	**1 058.0**	**1 043.5**	**968.2**	**844.9**	**803.2**	**767.4**	**579.5**
22541	Men's and boys' knit underwear and nightwear	(D)	793.8	789.2	779.0	669.8	610.2	574.8	431.0
22544	Women's and children's knit underwear and nightwear	405.2	254.2	243.8	178.0	165.8	183.6	187.2	145.4
22540	Knit underwear mills, n.s.k.	(D)	10.1	10.3	11.3	9.3	9.3	5.4	3.1
2257-	**Weft knit fabrics mills**	**4 950.3**	**3 844.0**	**3 569.8**	**3 986.3**	**3 309.8**	**3 539.2**	**2 494.9**	**3 111.2**
22571	Weft (circular) knit fabrics greige goods, except hosiery	1 278.4	889.3	818.5	925.8	930.6	872.3	467.6	343.5
22573	Finished weft (circular) knit fabrics, except hosiery	2 940.6	2 480.9	2 284.5	2 601.9	1 777.5	2 102.5	1 567.7	2 321.7
22579	Contract and commission receipts for knitting only or knitting and finishing weft (circular) knit fabrics	622.5	399.5	369.1	338.2	365.5	341.2	282.5	286.1
22570	Weft knit fabrics mills, n.s.k.	108.8	74.3	97.7	120.4	236.3	223.2	177.1	159.9
2258-	**Warp knit fabrics mills and lace goods**	**2 461.6**	**2 697.8**	**2 352.7**	**2 588.6**	**2 181.8**	**2 106.5**	**1 635.5**	**1 608.2**
22581	Warp knit fabrics greige goods	454.3	637.6	501.2	511.7	390.8	391.5	445.5	363.3
22584	Finished warp knit fabrics	1 651.9	1 576.5	1 421.4	1 660.2	1 370.8	1 332.5	961.8	1 036.3
22585	Lace and net goods	55.7	184.9	163.8	163.5	142.4	121.0	66.6	39.8
22589	Contract and commission receipts for knitting only or knitting and finishing of warp knit fabrics, or finishing lace	256.0	219.4	204.8	195.0	203.5	197.5	114.5	138.7
22580	Warp knit fabrics mills and lace goods, n.s.k.	43.7	79.3	61.5	58.2	74.3	63.9	45.7	30.1
2259-	**Knitting mills, n.e.c.**	**236.4**	**238.2**	**225.1**	**235.6**	**294.3**	**222.4**	**133.5**	**112.9**
22590	Knit gloves and other knit products (made in knitting mills)	236.4	238.2	225.1	235.6	294.3	222.4	133.5	112.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2251, WOMEN'S HOSIERY, EXCEPT SOCKS		
	Materials, ingredients, containers, and supplies	**825.9**	**667.0**
225011	Hosiery in the greige, except panty hose	23.1	44.5
225021	Panty hose shipped in the greige	(D)	65.5
228102	Cotton yarns	26.4	10.2
228141	Nylon spun yarns	270.4	46.6
228145	Acrylic	(D)	15.5
282411	Nylon filament yarns	128.9	188.1
282435	Spandex filament yarns	61.8	110.5
228011	All other yarns	37.1	16.8
190003	Flexible packaging materials	41.0	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	48.8	(2)
970099	All other materials and components, parts, containers, and supplies	114.7	[2]154.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	12.3	14.6
	INDUSTRY 2252, HOSIERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 191.7**	**905.0**
225011	Hosiery in the greige, except panty hose	355.3	264.3
225021	Panty hose shipped in the greige	2.7	(2)
228102	Cotton yarns	294.8	179.9
228141	Nylon spun yarns	51.0	35.6
228145	Acrylic	72.2	80.9
282411	Nylon filament yarns	46.0	43.5
282435	Spandex filament yarns	11.3	16.0
228011	All other yarns	100.5	60.7
190003	Flexible packaging materials	55.9	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	25.7	(2)
970099	All other materials and components, parts, containers, and supplies	144.1	[2]192.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	32.3	32.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2253, KNIT OUTERWEAR MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 635.2**	**(X)**	**1 238.8**
225078	Knit fabrics—mil lb	(S)	309.1	(S)	13.7
	Fibers:				
282014	Manmade fibers, staple, and tow—mil lb	2.8	8.3	(S)	4.9
013101	Raw cotton—1,000 bales	(D)	(D)	(S)	3.9
021401	Raw wool—mil lb	(D)	(D)	*1.6	3.5
	Yarn:				
	Cotton:				
228110	Carded—mil lb	**239.9	408.2	*91.0	164.9
228120	Combed—mil lb	(S)	115.0	*84.2	161.4
	Manmade:				
	Spun:				
228130	Rayon and acetate—mil lb	(S)	.8	(S)	20.0
228141	Nylon—mil lb	(D)	(D)	(S)	8.4
228143	Polyester—mil lb	115.7	132.6	**70.7	111.3
	Filament:				
282301	Rayon and acetate—mil lb	1.0	2.1	(S)	11.0
282410	Nylon—mil lb	(D)	(D)	(S)	21.5
282420	Polyester—mil lb	3.3	6.2	(S)	65.1
228145	Acrylic—mil lb	101.1	155.4	**64.0	139.9
228151	Wool—mil lb	3.8	15.5	**10.0	29.2
228011	All other yarns—mil lb	*9.8	18.7	17.8	39.0
970099	All other materials and components, parts, containers, and supplies	(X)	324.1	(X)	402.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	120.4	(X)	38.8
	INDUSTRY 2254, KNIT UNDERWEAR MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**354.4**	**(X)**	**510.4**
225078	Knit fabrics—mil lb	(S)	60.0	(S)	8.8
	Fibers:				
282014	Manmade fibers, staple, and tow—mil lb	(D)	(D)	(NA)	(2)
013101	Raw cotton—1,000 bales	(D)	(D)	(NA)	(2)
021401	Raw wool—mil lb	–	–	(NA)	(2)
	Yarn:				
	Cotton:				
228110	Carded—mil lb	*76.2	100.1	(S)	158.8
228120	Combed—mil lb	29.6	53.6	23.0	46.5
	Manmade:				
	Spun:				
228130	Rayon and acetate—mil lb	–	–	(NA)	(2)
228141	Nylon—mil lb	(D)	(D)	(NA)	(2)
228143	Polyester—mil lb	(S)	11.0	(NA)	(2)
	Filament:				
282301	Rayon and acetate—mil lb	–	–	(NA)	(2)
282410	Nylon—mil lb	2.7	10.1	(NA)	(2)
282420	Polyester—mil lb	3.8	5.1	(NA)	(2)
228145	Acrylic—mil lb	(D)	(D)	2.3	3.7
228151	Wool—mil lb	(D)	(D)	(NA)	(2)
228011	All other yarns—mil lb	*2.3	6.1	(NA)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	80.3	(X)	[2]289.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	.8	(X)	3.6
	INDUSTRY 2257, WEFT KNIT FABRICS MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 736.6**	**(X)**	**1 971.9**
225078	Knit fabrics—mil lb	384.9	584.7	*160.7	269.8
	Fibers:				
282014	Manmade fibers, staple, and tow—mil lb	(S)	37.2	74.8	59.6
013101	Raw cotton—1,000 bales	**144.9	57.0	**97.9	30.7
021401	Raw wool—mil lb	(D)	(D)	(S)	8.9
	Yarn:				
	Cotton:				
228110	Carded—mil lb	265.8	459.4	*70.1	118.9
228120	Combed—mil lb	133.5	226.7	*157.2	287.8
	Manmade:				
	Spun:				
228130	Rayon and acetate—mil lb	(S)	1.2	(D)	(4)
228141	Nylon—mil lb	*3.5	7.6	(S)	3.9
228143	Polyester—mil lb	267.4	395.7	155.6	207.8
	Filament:				
282301	Rayon and acetate—mil lb	6.0	10.1	(S)	5.6
282410	Nylon—mil lb	19.9	34.1	7.0	17.1
282420	Polyester—mil lb	*27.1	44.8	*112.5	172.9
228145	Acrylic—mil lb	(D)	(D)	*28.0	41.7
228151	Wool—mil lb	(D)	(D)	(S)	23.5
228011	All other yarns—mil lb	(S)	190.0	*46.9	77.9
970099	All other materials and components, parts, containers, and supplies	(X)	515.4	(X)	[4]552.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	70.4	(X)	93.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2258, LACE AND WARP KNIT FABRICS MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 198.3**	**(X)**	**1 093.2**
225078	Knit fabrics, mil lb	*152.7	297.3	*37.8	87.2
	Fibers:				
282014	Manmade fibers, staple, and tow, mil lb	7.8	22.4	(S)	46.8
013101	Raw cotton, 1,000 bales	(D)	(D)	–	–
021401	Raw wool, mil lb	–	–	(NA)	(2)
	Yarn:				
	Cotton:				
228110	Carded, mil lb	21.4	33.1	(S)	31.6
228120	Combed, mil lb	15.4	26.0	(S)	29.1
	Manmade:				
	Spun:				
228130	Rayon and acetate, mil lb	(D)	(D)	(S)	12.8
228141	Nylon, mil lb	**19.1	55.4		
228143	Polyester, mil lb	31.8	60.2	(S)	50.4
	Filament:				
282301	Rayon and acetate, mil lb	*3.2	6.7	*30.1	47.7
282410	Nylon, mil lb	45.5	118.3	*81.6	161.9
282420	Polyester, mil lb	*66.6	116.6	*108.1	189.1
228145	Acrylic, mil lb	7.8	15.9	8.9	14.8
228151	Wool, mil lb	–	–	–	–
228011	All other yarns, mil lb	26.1	71.3	*17.7	44.8
970099	All other materials and components, parts, containers, and supplies	(X)	341.7	(X)	[2]352.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	20.7	(X)	24.7
	INDUSTRY 2259, KNITTING MILLS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**97.0**	**(X)**	**79.3**
225078	Knit fabrics, mil lb	(D)	(D)	(D)	(2)
	Fibers:				
282014	Manmade fibers, staple, and tow, mil lb	–	–	(NA)	(2)
013101	Raw cotton, 1,000 bales	(D)	(D)	(NA)	(2)
021401	Raw wool, mil lb	(D)	(D)	(NA)	(2)
	Yarn:				
	Cotton:				
228110	Carded, mil lb	(S)	23.9	(S)	25.3
228120	Combed, mil lb	(D)	(D)	(S)	4.9
	Manmade:				
	Spun:				
228130	Rayon and acetate, mil lb	(D)	(D)	(NA)	(2)
228141	Nylon, mil lb	(D)	(D)	(NA)	(2)
228143	Polyester, mil lb	**4.4	7.8	(NA)	(2)
	Filament:				
282301	Rayon and acetate, mil lb	–	–	(NA)	(2)
282410	Nylon, mil lb	(D)	(D)	(NA)	(2)
282420	Polyester, mil lb	(S)	4.6	(NA)	(2)
228145	Acrylic, mil lb	(D)	(D)	(NA)	(2)
228151	Wool, mil lb	(D)	(D)	(NA)	(2)
228011	All other yarns, mil lb	(D)	(D)	(NA)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	35.3	(X)	[2]46.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	5.0	(X)	2.4

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]This material was not collected separetely in 1987, therefore, it is included in material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1987, data for material code 228130 were included with material code 970099 to avoid disclosing data of individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2211F 01	2211F 00
2211F 03	2211F 00
2211F 05	2211F 00
2211F 07	2211F 00
2211F 09	2211F 00
2211F 11	2211F 00
2211F 13	2211F 00
2211F 15	2211F 00
2211F 19	2211F 00
2211F 23	2211F 00
2211H 01	2211H 42
2211H 01	2211H 73
2211H 01	2211H 75
2211H 03	2211H 37
2211H 03	2211H 43
2211H 03	2211H 44
2211H 03	2211H 46
2211H 03	2211H 62
2211H 03	2211H 65
2211H 03	2211H 67
2211H 03	2211H 69
2221J 01	2221J 00
2221J 03	2221J 00
2221J 05	2221J 00
2221J 07	2221J 00
2221J 11	2221J 00
2221J 13	2221J 00
2221J 15	2221J 00
2221J 19	2221J 00
2221J 23	2221J 00
2221J 25	2221J 00
2221J 27	2221J 00
2221J 29	2221J 00
2221J 31	2221J 00
2221M 01	2221M 21
2221M 01	2221M 71
2221M 01	2221M 77
2221M 03	2221M 23
2221M 03	2221M 25
2221M 03	2221M 27
2221M 03	2221M 33
2221M 03	2221M 41
2221M 03	2221M 42
2221M 03	2221M 43
2221M 03	2221M 47
22316	22313
22316	22314
22316 00	22313 00
22316 00	22314 00
22317	22315
22317 91	22315 91
22317 92	22315 92
22317 93	22315 93
22319 01	22319 25
22319 01	22319 27
22319 01	22319 29
22319 01	22319 31
22319 03	22319 25
22319 03	22319 27
22319 03	22319 29
22319 03	22319 31
22411 03	22411 01
22411 05	22411 01
22411 07	22411 01
22411 11	22411 31
22411 13	22411 31
22411 14	22411 31
22411 15	22411 31
22411 16	22411 31
22411 19	22411 31
22414 01	22414 00
22414 03	22414 00
22414 05	22414 00
22514 13	22514 21
22514 13	22514 37
22514 13	22514 39
22514 13	22514 45
22514 15	22514 21
22514 15	22514 37
22514 15	22514 39
22514 15	22514 45
22514 19	22514 21
22514 19	22514 37
22514 19	22514 39
22514 19	22514 45
22514 23	22514 21
22514 23	22514 37
22514 23	22514 39
22514 23	22514 45
22516 15	22516 18
22516 17	22516 18
22525 01	22525 11
22525 01	22525 15
22525 01	22525 17
22525 03	22525 11
22525 03	22525 15
22525 03	22525 17
22525 13	22525 11
22525 13	22525 17
2253D 01	2253D 11
2253D 01	2253D 13
2253D 01	2253D 15
2253D 01	2253D 16
2253D 01	2253D 19
2253D 05	2253D 33
2253D 05	2253D 38
2253D 09	2253D 62
22544	22542
22544	22543
22544 11	22542 00
22544 13	22543 00
22617 01	22617 00
22617 03	22617 00
22617 05	22617 00
22617 07	22617 00
22617 09	22617 00
22617 11	22617 00
22617 13	22617 00
22617 15	22617 00
22617 19	22617 00
22617 23	22617 00
22619 01	22619 00
22619 03	22619 00
22619 05	22619 00
22619 07	22619 00
22619 09	22619 00
22619 11	22619 00
22619 13	22619 00
22619 15	22619 00
22619 19	22619 00
22619 23	22619 00
22628 01	22628 00
22628 03	22628 00
22628 05	22628 00
22628 07	22628 00
22628 11	22628 00
22628 13	22628 00
22628 15	22628 00
22628 19	22628 00
22628 23	22628 00
22628 25	22628 00
22628 27	22628 00
22628 29	22628 00
22628 31	22628 00
22629 01	22629 00
22629 03	22629 00
22629 05	22629 00
22629 07	22629 00
22629 11	22629 00
22629 13	22629 00
22629 15	22629 00
22629 19	22629 00
22629 23	22629 00
22629 25	22629 00
22629 27	22629 00
22629 29	22629 00
22629 31	22629 00
22812 15	22812 51
22812 15	22812 61
22812 15	22812 71
22952	22951
22953 11	22951 11
22953 11	22951 15
22953 11	22951 19
22953 17	22953 22
22953 17	22953 24
22953 17	22953 26
22972 41	22972 43
22972 41	22972 45
22972 41	22972 48
22981 11	22981 18
22981 11	22981 29
22982 14	22982 15
22982 19	22982 15
22991 11	22991 12
22991 11	22991 13
22991 11	22991 15
22991 11	22991 17
22991 11	22991 21
22991 11	22991 23
22994 11	22994 31
22994 11	22994 35
22994 13	22994 22
22994 13	22994 39

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2211F 00	2211F 01
2211F 00	2211F 03
2211F 00	2211F 05
2211F 00	2211F 07
2211F 00	2211F 09
2211F 00	2211F 11
2211F 00	2211F 13
2211F 00	2211F 15
2211F 00	2211F 19
2211F 00	2211F 23
2211H 37	2211H 03
2211H 42	2211H 01
2211H 43	2211H 03
2211H 44	2211H 03
2211H 46	2211H 03
2211H 62	2211H 03
2211H 65	2211H 03
2211H 67	2211H 03
2211H 69	2211H 03
2211H 73	2211H 01
2211H 75	2211H 01
2221J 00	2221J 01
2221J 00	2221J 03
2221J 00	2221J 05
2221J 00	2221J 07
2221J 00	2221J 11
2221J 00	2221J 13
2221J 00	2221J 15
2221J 00	2221J 19
2221J 00	2221J 23
2221J 00	2221J 25
2221J 00	2221J 27
2221J 00	2221J 29
2221J 00	2221J 31
2221M 21	2221M 01
2221M 23	2221M 03
2221M 25	2221M 03
2221M 27	2221M 03
2221M 33	2221M 03
2221M 41	2221M 03
2221M 42	2221M 03
2221M 43	2221M 03
2221M 47	2221M 03
2221M 71	2221M 01
2221M 77	2221M 01
22313	22316
22313 00	22316 00
22314	22316
22314 00	22316 00
22315	22317
22315 91	22317 91
22315 92	22317 92
22315 93	22317 93
22319 25	22319 01
22319 25	22319 03
22319 27	22319 01
22319 27	22319 03
22319 29	22319 01
22319 29	22319 03
22319 31	22319 01
22319 31	22319 03
22411 01	22411 03
22411 01	22411 05
22411 01	22411 07
22411 31	22411 11
22411 31	22411 13
22411 31	22411 14
22411 31	22411 15
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22514 45	22514 23
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22525 11	22525 13
22525 15	22525 01
22525 15	22525 03
22525 15	22525 15
22525 17	22525 01
22525 17	22525 03
22525 17	22525 13
2253D 11	2253D 01
2253D 13	2253D 01
2253D 15	2253D 01
2253D 16	2253D 01
2253D 19	2253D 01
2253D 33	2253D 05
2253D 38	2253D 05
2253D 62	2253D 09
22542	22544
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22543	22544
22543 00	22544 13
22617 00	22617 01
22617 00	22617 03
22617 00	22617 05
22617 00	22617 07
22617 00	22617 09
22617 00	22617 11
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22629 00	22629 25
22629 00	22629 27
22629 00	22629 29
22629 00	22629 31
22812 51	22812 15
22812 61	22812 15
22812 71	22812 15
22951	22952
22951 11	22953 11
22951 15	22953 11
22951 19	22953 11
22953 22	22953 17
22953 24	22953 17
22953 26	22953 17
22972 43	22972 41
22972 45	22972 41
22972 48	22972 41
22981 18	22981 11
22981 29	22981 11
22982 15	22982 14
22982 15	22982 19
22991 12	22991 11
22991 13	22991 11
22991 15	22991 11
22991 17	22991 11
22991 21	22991 11
22991 23	22991 11
22994 22	22994 13
22994 31	22994 11
22994 35	22994 11
22994 39	22994 13

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-22C

INDUSTRY SERIES

Dyeing and Finishing Textiles, Except Wool Fabrics and Knit Goods

Industries 2261, 2262, and 2269

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-22C

INDUSTRY SERIES

Dyeing and Finishing Textiles, Except Wool Fabrics and Knit Goods

Industries 2261, 2262, and 2269

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Robert Reinard**, Section Chief, with primary staff assistance by **Keith Featherstone.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2261	Finishing Plants, Cotton
2262	Finishing Plants, Manmade
2269	Finishing Plants, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2261, FINISHING PLANTS, COTTON

This industry is made up of establishments primarily engaged in finishing purchased cotton broadwoven fabrics, or finishing such fabrics on a commission basis. These finishing operations include bleaching, dyeing, printing (roller, screen, flock, plisse), and other mechanical finishing, such as preshrinking, calendering, and napping. Also included in this industry are establishments primarily engaged in shrinking and sponging of cotton broadwoven fabrics for the trade and chemical finishing for water repellency, fire resistance, and mildew proofing. Establishments primarily engaged in finishing wool broadwoven fabrics are classified in industry 2231; those finishing knit goods are classified in industry group 225; and those coating or impregnating fabrics are classified in industry 2295.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2261, Finishing Plants, Cotton, had employment of 16.0 thousand. The employment figure was 3 percent below the 16.5 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, South Carolina, and Georgia. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2261 shipped $2.2 billion of products considered primary to the industry, $346.3 million of secondary products, and had $15.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 73 percent.

The products primary to industry 2261, no matter in what industry they were produced, appear in table 6a and

aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the finishing plants, cotton industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2262, FINISHING PLANTS, MANMADE

This industry is made up of establishments primarily engaged in finishing purchased manmade fiber and silk broadwoven fabrics, or finishing such fabrics on a commission basis. These finishing operations include bleaching, dyeing, printing (roller, screen, flock, plisse), and other mechanical finishing, such as preshrinking, calendering, and napping. Establishments primarily engaged in finishing wool broadwoven fabrics are classified in industry 2231; those finishing knit goods are classified in industry group 225; and those coating or impregnating fabrics are classified in industry 2295.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2262, Finishing Plants, Manmade, had employment of 24.9 thousand. The employment figure was 11 percent below the 27.9 thousand reported in 1987. Compared with 1991, employment increased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, South Carolina, and New Jersey, accounting for approximately 61 percent of the industry's employment. The leading States in 1987 were South Carolina and North Carolina.

The total value of shipments for establishments classified in this industry was $3.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2262 shipped $2.8 billion of products considered primary to the industry, $579.2 million of secondary products, and had $74.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 79 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2262, no matter in what industry they were produced, appear in table 6a and aggregate to $3.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the finishing plants, manmade, industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2269, FINISHING PLANTS, N.E.C.

This industry is made up of establishments primarily engaged in dyeing and finishing textiles, not elsewhere classified, such as bleaching, dyeing, printing, and finishing of raw stock, yarn, braided goods, and narrow fabrics, except wool and knit fabrics.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2269, Finishing Plants, N.E.C., had employment of 9.9 thousand. The employment figure was 15 percent below the 11.7 thousand reported in 1987.

The leading State in employment in 1992 was North Carolina, accounting for approximately 32 percent of the industry's employment. This same State was the leader in 1987 when it accounted for 23 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2269 shipped $1.0 billion of products considered primary to the industry, $6.0 million of secondary products, and had $53.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2269, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the finishing plants, not elsewhere classified, industry amounted to $684.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2261, FINISHING PLANTS, COTTON															
1992 Census	154	168	107	16.0	343.8	13.1	28.5	257.0	824.5	1 751.6	2 570.4	60.2	241.5	86	81
1991 ASM	(NA)	(NA)	(NA)	15.8	320.5	13.0	27.5	238.8	r929.1	r1 174.1	r2 085.7	43.2	202.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.9	288.6	12.3	24.5	219.2	812.3	786.9	1 594.8	40.0	190.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.9	285.7	12.1	24.4	212.0	712.7	703.5	1 407.2	50.1	166.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.8	293.2	12.7	25.9	209.4	679.2	732.3	1 392.5	34.7	183.3	(NA)	(NA)
1987 Census	184	198	105	16.5	298.5	13.5	27.3	213.6	602.4	790.9	1 385.0	48.4	168.1	85	73
1986 ASM	(NA)	(NA)	(NA)	9.3	168.0	7.9	15.3	126.3	293.8	591.1	873.7	31.3	127.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.4	155.6	8.0	15.9	122.2	250.6	586.3	846.5	27.8	81.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.2	153.4	8.5	18.4	118.4	307.3	550.8	851.1	24.6	103.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.6	171.8	9.6	19.3	129.5	308.2	560.7	867.4	24.2	103.1	(NA)	(NA)
1982 Census	266	275	80	11.6	161.8	9.6	18.2	121.2	256.1	492.6	753.8	24.0	84.6	85	78
1981 ASM	(NA)	(NA)	(NA)	18.3	239.6	15.3	31.1	179.9	433.6	650.1	1 099.1	25.8	104.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.1	273.9	18.4	37.4	210.3	566.8	664.2	1 225.8	39.0	121.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.6	220.0	16.5	34.5	171.0	380.5	505.3	888.0	28.4	87.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.1	224.5	16.9	34.8	171.1	421.6	435.5	858.0	31.6	89.2	(NA)	(NA)
1977 Census	195	210	94	20.8	211.4	17.3	35.7	162.2	351.3	414.8	759.5	29.2	80.1	83	79
INDUSTRY 2262, FINISHING PLANTS, MANMADE															
1992 Census	163	180	131	24.9	599.9	19.8	43.8	417.9	1 530.7	1 909.2	3 432.5	104.4	249.7	83	85
1991 ASM	(NA)	(NA)	(NA)	21.7	505.8	17.7	39.4	356.5	1 301.0	1 989.7	3 280.5	80.6	260.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.3	486.8	17.9	38.4	345.5	1 109.7	2 284.2	3 400.9	72.0	255.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.7	502.5	19.2	41.1	359.2	1 239.0	2 584.8	3 822.2	86.7	319.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.6	531.8	21.6	45.8	385.6	1 305.0	2 650.1	3 962.6	96.9	320.4	(NA)	(NA)
1987 Census	245	268	123	27.9	545.9	22.3	47.4	387.4	1 251.3	3 183.3	4 391.9	98.5	373.4	79	91
1986 ASM	(NA)	(NA)	(NA)	32.8	605.4	26.6	55.8	435.5	1 269.6	2 826.6	4 132.1	123.0	361.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	32.0	573.2	25.8	52.9	415.4	1 129.8	2 600.3	3 787.8	74.5	390.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.9	577.2	27.5	56.8	420.5	1 290.2	2 545.4	3 822.2	105.4	444.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	34.5	578.1	27.9	59.6	424.6	1 191.2	2 417.2	3 609.9	106.7	385.9	(NA)	(NA)
1982 Census	265	296	166	34.4	514.8	27.8	55.7	375.0	999.0	2 173.3	3 186.2	79.0	359.2	82	92
1981 ASM	(NA)	(NA)	(NA)	31.6	443.2	25.9	53.2	327.3	960.6	2 035.1	2 966.9	66.5	338.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.1	386.7	23.7	49.2	281.0	855.6	1 675.6	2 463.3	55.8	305.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.0	401.7	27.0	55.1	294.8	844.4	1 537.6	2 411.5	56.1	242.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	36.3	416.3	29.8	62.2	308.3	934.1	1 717.6	2 656.6	73.6	263.9	(NA)	(NA)
1977 Census	246	285	189	37.2	396.2	30.4	63.7	293.4	792.0	1 619.0	2 404.3	75.9	266.5	80	87
INDUSTRY 2269, FINISHING PLANTS, N.E.C.															
1992 Census	123	133	87	9.9	196.2	8.4	17.6	143.4	426.3	648.7	1 074.6	23.6	117.5	99	94
1991 ASM	(NA)	(NA)	(NA)	11.3	219.6	9.8	21.1	161.6	466.9	815.7	1 285.7	26.8	139.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.2	222.5	10.6	22.5	162.7	443.6	864.5	1 308.1	26.2	160.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.2	235.7	11.4	23.8	171.9	525.1	943.4	1 449.9	42.0	167.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.4	191.5	9.6	19.8	140.7	408.4	844.6	1 248.0	25.4	145.9	(NA)	(NA)
1987 Census	176	182	93	11.7	191.5	9.8	20.1	138.6	466.9	815.5	1 264.8	25.8	135.5	93	97
1986 ASM	(NA)	(NA)	(NA)	10.5	162.2	8.9	17.9	115.8	323.3	585.9	908.0	20.5	110.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.8	158.3	9.1	18.3	113.1	377.2	593.2	966.7	16.9	105.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.7	163.6	9.8	19.7	117.4	422.4	676.6	1 098.7	21.2	117.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.6	178.7	10.3	20.6	129.5	399.6	778.4	1 164.5	14.8	125.4	(NA)	(NA)
1982 Census	177	182	107	12.0	157.3	10.0	19.7	111.2	335.1	685.1	1 031.9	15.1	108.5	90	92
1981 ASM	(NA)	(NA)	(NA)	8.6	111.2	7.4	14.0	77.3	229.9	498.7	730.2	9.5	71.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.7	101.5	7.4	13.1	69.9	225.0	449.7	671.3	13.3	73.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.7	111.7	8.5	16.8	78.1	221.4	451.1	674.7	22.5	69.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.6	139.9	12.1	23.9	104.7	289.6	579.0	870.3	24.2	88.3	(NA)	(NA)
1977 Census	178	183	112	14.1	132.3	12.1	24.1	98.4	274.0	560.9	830.6	24.6	88.0	95	81

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2261, FINISHING PLANTS, COTTON								
1992 Census	21 488	82	2 176	9.02	68	82	51 531	42	28.93
1991 ASM	20 285	82	2 115	8.68	56	72	58 804	34	33.79
1990 ASM	19 369	83	1 992	8.95	49	67	54 517	36	33.16
1989 ASM	19 174	81	2 017	8.69	50	70	47 832	40	29.21
1988 ASM	18 557	80	2 039	8.08	53	74	42 987	43	26.22
1987 Census	18 091	82	2 022	7.82	57	79	36 509	50	22.07
1986 ASM	18 065	85	1 937	8.25	68	87	31 591	57	19.20
1985 ASM	16 553	85	1 988	7.69	69	88	26 660	62	15.76
1984 ASM	15 039	83	2 165	6.43	65	83	30 127	50	16.70
1983 ASM	14 810	83	2 010	6.71	65	84	26 569	56	15.97
1982 Census	13 948	83	1 896	6.66	65	87	22 078	63	14.07
1981 ASM	13 093	84	2 033	5.78	59	81	23 694	55	13.94
1980 ASM	12 394	83	2 033	5.62	54	77	25 647	48	15.16
1979 ASM	11 224	84	2 091	4.96	57	82	19 413	58	11.03
1978 ASM	11 169	84	2 059	4.92	51	77	20 975	53	12.11
1977 Census	10 163	83	2 064	4.54	55	82	16 889	60	9.84
	INDUSTRY 2262, FINISHING PLANTS, MANMADE								
1992 Census	24 092	80	2 212	9.54	56	73	61 474	39	34.95
1991 ASM	23 309	82	2 226	9.05	61	76	59 954	39	33.02
1990 ASM	21 830	80	2 145	9.00	67	81	49 762	44	28.90
1989 ASM	21 203	81	2 141	8.74	68	81	52 278	41	30.15
1988 ASM	19 992	81	2 120	8.42	67	80	49 060	41	28.49
1987 Census	19 566	80	2 126	8.17	72	85	44 849	44	26.40
1986 ASM	18 457	81	2 098	7.80	68	83	38 707	48	22.75
1985 ASM	17 913	81	2 050	7.85	69	84	35 306	51	21.36
1984 ASM	17 027	81	2 065	7.40	67	82	38 059	45	22.71
1983 ASM	16 757	81	2 136	7.12	67	83	34 528	49	19.99
1982 Census	14 965	81	2 004	6.73	68	84	29 041	52	17.94
1981 ASM	14 025	82	2 054	6.15	69	84	30 399	46	18.06
1980 ASM	13 289	81	2 076	5.71	68	84	29 402	45	17.39
1979 ASM	12 173	82	2 041	5.35	64	80	25 588	48	15.32
1978 ASM	11 468	82	2 087	4.96	65	80	25 733	45	15.02
1977 Census	10 651	82	2 095	4.61	67	84	21 290	50	12.43
	INDUSTRY 2269, FINISHING PLANTS, N.E.C.								
1992 Census	19 818	85	2 095	8.15	60	79	43 061	46	24.22
1991 ASM	19 434	87	2 153	7.66	63	81	41 319	47	22.13
1990 ASM	18 238	87	2 123	7.23	66	83	36 361	50	19.72
1989 ASM	17 856	86	2 088	7.22	65	81	39 780	45	22.06
1988 ASM	16 798	84	2 062	7.11	68	83	35 825	47	20.63
1987 Census	16 368	84	2 051	6.90	64	80	39 906	41	23.23
1986 ASM	15 448	85	2 011	6.47	65	82	30 790	50	18.06
1985 ASM	14 657	84	2 011	6.18	61	78	34 926	42	20.61
1984 ASM	13 983	84	2 010	5.96	62	76	36 103	39	21.44
1983 ASM	14 183	82	2 000	6.29	67	82	31 714	45	19.40
1982 Census	13 108	83	1 970	5.64	66	82	27 925	47	17.01
1981 ASM	12 930	86	1 892	5.52	68	84	26 733	48	16.42
1980 ASM	11 667	85	1 770	5.34	67	82	25 862	45	17.18
1979 ASM	11 515	88	1 976	4.65	67	83	22 825	50	13.18
1978 ASM	9 582	83	1 975	4.38	67	83	19 836	48	12.12
1977 Census	9 383	86	1 992	4.08	68	83	19 433	48	11.37

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2261, FINISHING PLANTS, COTTON														
United States	–	**168**	**107**	**16.0**	**343.8**	**13.1**	**28.5**	**257.0**	**824.5**	**1 751.6**	**2 570.4**	**60.2**	**16.5**	**602.4**
Alabama	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	10	8	.3	6.5	.3	.6	5.0	15.8	23.3	39.0	.4	F	(D)
Connecticut	E2	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	E3	12	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Georgia	–	10	8	1.6	30.6	1.3	3.0	22.3	73.1	135.2	206.4	(D)	G	(D)
Illinois	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maryland	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	7	7	1.1	25.0	.7	1.5	16.1	49.2	86.6	137.2	(D)	G	(D)
New Jersey	E1	8	6	.4	9.2	.3	.6	6.3	17.6	14.1	31.9	.9	1.0	42.4
New York	E3	15	6	.4	7.6	.3	.7	6.0	18.0	12.7	30.6	.4	E	(D)
North Carolina	–	15	10	2.4	53.6	1.9	4.1	37.8	117.9	154.0	273.4	7.4	3.2	123.4
Ohio	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	13	6	.3	8.1	.3	.6	6.1	17.2	6.0	23.2	2.1	.4	13.2
Rhode Island	–	8	6	.7	19.2	.6	1.2	13.2	36.7	27.9	64.8	(D)	F	(D)
South Carolina	–	24	21	5.5	124.8	4.8	10.7	99.9	356.2	1 048.5	1 397.3	25.2	H	(D)
Tennessee	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Texas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2262, FINISHING PLANTS, MANMADE														
United States	–	**180**	**131**	**24.9**	**599.9**	**19.8**	**43.8**	**417.9**	**1 530.7**	**1 909.2**	**3 432.5**	**104.4**	**27.9**	**1 251.3**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	18	12	.9	21.5	.7	1.5	14.8	40.9	39.7	81.9	3.8	E	(D)
Connecticut	–	4	4	.5	15.8	.4	.9	10.4	23.6	57.4	80.2	2.7	F	(D)
Delaware	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Georgia	–	7	6	1.2	25.9	.9	2.1	17.3	80.6	75.2	156.3	3.1	G	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	13	10	2.4	67.1	1.8	4.4	45.2	154.1	97.2	256.5	14.8	G	(D)
New Jersey	–	29	25	2.7	82.0	2.1	4.5	56.5	167.7	113.8	281.3	7.9	1.8	98.0
New York	–	10	7	.7	14.4	.5	1.0	8.4	28.6	40.9	67.8	2.5	C	(D)
North Carolina	E1	25	23	5.2	113.2	4.2	9.0	80.9	256.9	641.9	889.4	22.3	5.4	213.2
Pennsylvania	E2	9	5	.5	12.0	.4	.9	8.9	28.8	41.0	69.7	1.9	.4	25.3
Rhode Island	E4	3	3	.5	11.2	.4	.8	6.8	28.4	18.7	47.1	(D)	F	(D)
South Carolina	–	20	19	7.3	170.2	5.9	13.1	123.3	408.0	509.2	915.5	27.3	10.8	435.3
Tennessee	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
INDUSTRY 2269, FINISHING PLANTS, N.E.C.														
United States	–	**133**	**87**	**9.9**	**196.2**	**8.4**	**17.6**	**143.4**	**426.3**	**648.7**	**1 074.6**	**23.6**	**11.7**	**466.9**
Arkansas	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E4	12	9	.6	11.6	.5	1.0	7.8	23.5	20.0	43.2	2.3	E	(D)
Georgia	E1	16	9	1.5	29.7	1.3	2.7	23.2	85.9	94.4	182.5	(D)	G	(D)
Illinois	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	E3	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	8	7	.4	8.1	.3	.7	6.0	11.8	9.9	22.6	(D)	C	(D)
New Jersey	E1	10	5	.4	11.7	.4	.8	8.0	23.6	15.0	38.1	.3	.8	33.2
New York	E4	14	6	.4	7.4	.3	.7	5.3	16.7	21.2	37.9	.8	.6	22.7
North Carolina	–	27	22	3.2	63.0	2.8	5.8	47.2	130.9	268.7	399.1	11.1	3.5	119.8
Pennsylvania	–	8	5	.2	4.3	.2	.4	2.9	10.2	5.4	15.6	(Z)	.7	20.5
South Carolina	–	6	4	.4	6.5	.3	.7	4.3	4.6	28.5	33.2	1.1	E	(D)
Tennessee	–	8	6	1.0	17.1	.9	1.8	13.8	38.2	71.0	107.9	2.1	F	(D)
Virginia	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Finishing plants, cotton (SIC 2261)			Finishing plants, manmade (SIC 2262)			Finishing plants, n.e.c. (SIC 2269)		
	Total	Finishing own fabrics (SIC 2261-11)	Commission finishing (SIC 2261-51)	Total	Finishing own fabrics (SIC 2262-11)	Commission finishing (SIC 2262-51)	Total	Finishing own yarns (SIC 2269-11)	Commission finishing (SIC 2269-51)
Companies ---- number	154	60	97	163	63	104	123	84	41
All establishments ---- number	168	65	103	180	70	110	133	92	41
With 1 to 19 employees ---- number	61	26	35	49	21	28	46	29	17
With 20 to 99 employees ---- number	69	20	49	53	20	33	56	34	22
With 100 employees or more ---- number	38	19	19	78	29	49	31	29	2
Employment and labor costs:									
Employees ---- 1,000	16.0	6.9	9.0	24.9	10.6	14.3	9.9	8.5	1.4
Compensation, total ---- mil dol	414.7	190.8	223.9	724.5	287.2	437.3	235.2	199.4	35.8
Annual payroll ---- mil dol	343.8	155.0	188.8	599.9	240.3	359.5	196.2	166.4	29.8
Fringe benefits ---- mil dol	70.9	35.8	35.2	124.7	46.9	77.8	39.1	33.1	6.0
Social Security and other legally required payments ---- mil dol	33.2	15.3	17.9	59.3	21.4	37.9	19.0	16.2	2.8
Employer voluntary payments ---- mil dol	37.7	20.5	17.2	65.4	25.5	39.9	20.1	16.8	3.2
Production workers:									
Average for year ---- 1,000	13.1	5.8	7.3	19.8	8.5	11.2	8.4	7.3	1.2
March ---- 1,000	13.2	5.8	7.4	19.7	8.5	11.2	8.3	7.2	1.1
May ---- 1,000	13.1	5.7	7.4	19.8	8.5	11.2	8.5	7.3	1.2
August ---- 1,000	13.1	5.8	7.4	19.8	8.6	11.3	8.5	7.3	1.2
November ---- 1,000	13.1	5.9	7.2	19.8	8.6	11.2	8.4	7.2	1.2
Hours ---- millions	28.5	13.1	15.4	43.8	18.7	25.1	17.6	15.1	2.5
Wages ---- mil dol	257.0	117.4	139.6	417.9	171.1	246.8	143.4	122.3	21.2
Cost of materials[1] ---- mil dol	1 751.6	1 474.0	277.5	1 909.2	1 453.9	455.3	648.7	612.8	35.9
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 648.3	1 431.6	216.7	1 693.5	1 336.4	357.1	592.4	564.8	27.6
Resales ---- mil dol	2.0	1.7	.3	52.1	44.8	7.3	1.2	1.2	–
Fuels ---- mil dol	55.5	22.7	32.8	73.9	29.7	44.2	19.3	15.2	4.2
Purchased electricity ---- mil dol	39.9	14.9	25.0	71.1	31.0	40.1	25.9	21.8	4.1
Contract work ---- mil dol	5.8	3.1	2.7	18.7	12.0	6.7	9.8	9.8	(Z)
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	666.1	266.6	399.4	1 244.9	599.8	645.2	446.6	390.9	55.7
Generated less sold ---- mil kWh	(D)	(D)	(D)	(D)	(D)	16.9	(D)	–	(D)
Total value of shipments ---- mil dol	2 570.4	1 879.4	691.0	3 432.5	2 091.5	1 341.0	1 074.6	969.1	105.4
Value added ---- mil dol	824.5	411.8	412.7	1 530.7	650.0	880.8	426.3	356.6	69.8
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	230.8	181.0	49.8	228.0	154.0	74.0	123.7	116.1	7.6
Finished goods ---- mil dol	106.2	101.8	4.5	66.5	56.8	9.7	45.1	43.1	2.0
Work in process ---- mil dol	63.2	48.4	14.8	69.4	44.1	25.3	28.3	26.5	1.9
Materials and supplies ---- mil dol	61.4	30.8	30.6	92.1	53.1	39.0	50.3	46.5	3.8
End of 1992 ---- mil dol	241.5	190.4	51.2	249.7	175.5	74.2	117.5	109.6	7.9
Finished goods ---- mil dol	98.1	93.7	4.4	73.6	63.2	10.4	43.5	41.5	2.0
Work in process ---- mil dol	77.0	62.9	14.1	69.6	50.0	19.6	30.4	28.4	2.0
Materials and supplies ---- mil dol	66.5	33.8	32.7	106.5	62.3	44.2	43.6	39.8	3.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Finishing plants, cotton (SIC 2261)	Finishing plants, manmade (SIC 2262)	Finishing plants, n.e.c. (SIC 2269)	Item	Finishing plants, cotton (SIC 2261)	Finishing plants, manmade (SIC 2262)	Finishing plants, n.e.c. (SIC 2269)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	685.4	1 160.4	279.0	Beginning of year—Con.			
New capital expenditures[1]	60.2	104.4	23.6	New capital expenditures[1]	53.1	88.3	20.2
Used capital expenditures	5.1	8.7	2.9	Used capital expenditures	(D)	7.0	2.6
Retirements	25.0	30.8	11.5	Retirements	(D)	25.8	11.0
End of year	725.8	1 242.7	294.0	End of year	581.7	984.4	228.4
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	137.4	245.5	62.3	Total	46.6	80.1	20.1
New capital expenditures	7.1	16.1	3.4	Buildings and other structures	6.1	9.1	2.5
Used capital expenditures	(D)	1.7	.4	Machinery and equipment	40.5	70.9	17.6
Retirements	(D)	4.9	.5	Rental payments:			
End of year	144.0	258.3	65.6	Total	15.0	18.9	7.1
Machinery and equipment:				Buildings and other structures	7.2	10.9	4.1
Beginning of year	548.0	914.9	216.7	Machinery and equipment	7.8	8.0	3.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Finishing plants, cotton (SIC 2261)		Finishing plants, manmade (SIC 2262)		Finishing plants, n.e.c. (SIC 2269)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	4.4	(X)	9.1	(X)	2.1	(X)
Response coverage ratio (percent)[2]	75.5	(X)	90.1	(X)	79.0	(X)
Machinery	25.0	(X)	31.2	(X)	10.7	(X)
Response coverage ratio (percent)[2]	75.9	(X)	92.8	(X)	79.0	(X)
Other purchased services:						
Communications	1.5	(X)	3.0	(X)	1.4	(X)
Response coverage ratio (percent)[2]	74.1	(X)	84.7	(X)	78.8	(X)
Legal	1.2	(X)	2.3	(X)	.4	(X)
Response coverage ratio (percent)[2]	75.9	(X)	90.3	(X)	71.1	(X)
Accounting and bookkeeping	.7	(X)	1.3	(X)	.3	(X)
Response coverage ratio (percent)[2]	75.9	(X)	90.3	(X)	76.4	(X)
Advertising	.1	(X)	.3	(X)	.2	(X)
Response coverage ratio (percent)[2]	75.9	(X)	85.7	(X)	73.7	(X)
Software and other data processing	.9	(X)	2.3	(X)	.5	(X)
Response coverage ratio (percent)[2]	75.9	(X)	90.3	(X)	73.7	(X)
Refuse removal, including hazardous waste	1.7	(X)	2.7	(X)	.9	(X)
Response coverage ratio (percent)[2]	75.5	(X)	91.5	(X)	79.0	(X)
New machinery and equipment expenditures	53.1	(X)	88.3	(X)	20.2	(X)
Automobiles, trucks, etc., for highway use	.1	9	2.0	49	(D)	(X)
Computers and peripheral data processing equipment	1.2	7	3.6	10	(D)	(X)
All other	51.9	1	82.8	2	18.2	2
Adjustment ratio[3]	1.2	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 648.3	(X)	1 693.5	(X)	592.4	(X)
Materials purchased or transferred from foreign sources[4]	99.8	23	108.1	3	22.2	14
Materials purchased or transferred from domestic sources	1 548.5	2	1 585.4	1	570.2	1
Adjustment ratio[3]	1.3	(X)	1.6	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2261, FINISHING PLANTS, COTTON												
Total	**–**	**168**	**16.0**	**343.8**	**13.1**	**28.5**	**257.0**	**824.5**	**1 751.6**	**2 570.4**	**60.2**	**241.5**
Establishments with an average of–												
1 to 4 employees	E6	16	(Z)	.7	(Z)	.1	.5	1.5	1.6	3.1	.2	.4
5 to 9 employees	E7	16	.1	2.2	.1	.2	1.7	4.9	4.7	9.6	.3	1.2
10 to 19 employees	E3	29	.4	7.7	.3	.6	5.5	17.1	9.5	26.6	.7	3.0
20 to 49 employees	E1	42	1.3	28.8	1.1	2.4	20.8	74.3	56.6	130.7	3.3	15.0
50 to 99 employees	E1	27	1.9	42.8	1.6	3.4	32.4	88.2	111.1	200.5	6.3	21.5
100 to 249 employees	–	19	3.2	71.2	2.5	5.5	49.0	153.7	348.0	502.4	11.1	42.1
250 to 499 employees	–	14	5.0	108.6	4.2	9.1	82.7	236.6	459.8	692.1	21.6	60.7
500 to 999 employees	–	4	3.9	81.8	3.4	7.3	64.3	248.2	760.3	1 005.5	16.7	97.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	25	.2	2.7	.2	.3	2.0	6.3	4.6	10.9	.4	1.3
INDUSTRY 2262, FINISHING PLANTS, MANMADE												
Total	**–**	**180**	**24.9**	**599.9**	**19.8**	**43.8**	**417.9**	**1 530.7**	**1 909.2**	**3 432.5**	**104.4**	**249.7**
Establishments with an average of–												
1 to 4 employees	E1	7	(Z)	.3	(Z)	(Z)	.2	.5	.6	1.0	(Z)	.1
5 to 9 employees	E5	17	.1	2.3	.1	.2	1.5	4.1	5.8	10.0	.2	1.1
10 to 19 employees	E3	25	.3	7.5	.3	.6	5.0	16.1	22.2	38.2	1.1	4.1
20 to 49 employees	E2	28	.9	16.7	.7	1.4	11.4	35.1	35.0	69.4	2.3	6.6
50 to 99 employees	E1	25	1.9	47.4	1.4	2.9	32.2	98.1	148.5	244.7	8.6	26.0
100 to 249 employees	E1	47	7.5	193.9	5.9	13.1	130.6	423.8	487.1	909.5	26.6	55.2
250 to 499 employees	–	22	7.3	177.6	5.7	13.3	119.7	392.2	573.0	962.6	30.2	88.5
500 to 999 employees	–	6	3.5	75.7	2.9	6.1	57.6	377.4	264.7	641.7	17.4	22.7
1,000 to 2,499 employees	–	3	3.4	78.6	2.8	6.2	59.7	183.4	372.4	555.4	18.1	45.3
Covered by administrative records[2]	E9	17	.1	2.3	.1	.3	1.6	4.7	4.0	8.8	.3	.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2269, FINISHING PLANTS, N.E.C.												
Total	–	**133**	**9.9**	**196.2**	**8.4**	**17.6**	**143.4**	**426.3**	**648.7**	**1 074.6**	**23.6**	**117.5**
Establishments with an average of—												
1 to 4 employees	E6	6	(Z)	.5	(Z)	(Z)	.2	.7	1.1	1.8	(Z)	.1
5 to 9 employees	E2	10	.1	1.8	.1	.1	1.1	5.0	7.4	12.4	.1	1.1
10 to 19 employees	E2	30	.4	8.2	.4	.7	5.4	21.6	25.6	47.6	.9	4.4
20 to 49 employees	E2	34	1.1	23.2	.9	1.9	15.5	47.9	34.8	82.7	2.2	7.6
50 to 99 employees	E2	22	1.5	30.8	1.3	2.7	22.0	67.4	89.1	156.2	3.5	12.7
100 to 249 employees	–	22	3.4	62.2	3.0	6.0	48.0	110.2	248.0	355.6	6.0	38.7
250 to 499 employees	–	7	3.3	69.5	2.8	6.0	51.2	173.6	242.6	418.2	10.9	52.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	12	.1	1.7	.1	.2	1.1	3.0	2.4	5.4	.2	.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2261	**Finishing plants, cotton:**										
	All establishments in industry	168	16.0	343.8	13.1	28.5	257.0	824.5	1 751.6	2 570.4	60.2
	Establishments with this product class primary:										
22617	Finished cotton broadwoven fabrics (not finished in weaving mills)	43	6.9	153.6	5.7	13.0	116.3	408.8	1 470.7	1 873.2	30.7
22619	Job or commission finishing of cotton broadwoven fabrics	102	9.0	188.7	7.3	15.4	139.6	412.6	277.4	690.7	29.3
2262	**Finishing plants, manmade:**										
	All establishments in industry	180	24.9	599.9	19.8	43.8	417.9	1 530.7	1 909.2	3 432.5	104.4
	Establishments with this product class primary:										
22628	Finished manmade fiber and silk broadwoven fabrics (not finished in weaving mills)	55	10.4	239.0	8.4	18.4	170.0	646.3	1 448.8	2 084.8	54.2
22629	Job or commission finishing of manmade fiber and silk broadwoven fabrics	112	14.4	359.0	11.3	25.3	246.9	881.6	455.7	1 340.7	50.1
2269	**Finishing plants, n.e.c.:**										
	All establishments in industry	133	9.9	196.2	8.4	17.6	143.4	426.3	648.7	1 074.6	23.6

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2261, FINISHING PLANTS, COTTON			
Total value of shipments	2 570.4	1 385.0	753.8
Primary products value of shipments	2 208.7	1 166.1	595.3
Secondary products value of shipments	346.3	203.7	103.9
Total miscellaneous receipts	15.4	15.2	54.6
Value of resales	2.4	6.9	6.0
Contract receipts	(D)	6.9	47.3
Other miscellaneous receipts	(D)	1.4	1.3
Primary products specialization ratio	86	85	85
Value of primary products shipments made in all industries	2 729.6	1 604.6	768.2
Value of primary products shipments made in this industry	2 208.7	1 166.1	595.3
Value of primary products shipments made in other industries	520.9	438.5	172.8
Coverage ratio	81	73	78
INDUSTRY 2262, FINISHING PLANTS, MANMADE			
Total value of shipments	3 432.5	4 391.9	3 186.2
Primary products value of shipments	2 779.2	3 192.9	2 542.4
Secondary products value of shipments	579.2	867.2	571.9
Total miscellaneous receipts	74.1	331.8	71.9
Value of resales	56.6	311.6	39.4
Contract receipts	(D)	(D)	22.3
Other miscellaneous receipts	(D)	(D)	10.2
Primary products specialization ratio	83	79	82
Value of primary products shipments made in all industries	3 251.1	3 537.3	2 767.5
Value of primary products shipments made in this industry	2 779.2	3 192.9	2 542.4
Value of primary products shipments made in other industries	471.9	344.4	225.1
Coverage ratio	85	91	92
INDUSTRY 2269, FINISHING PLANTS, N.E.C.			
Total value of shipments	1 074.6	1 264.8	1 031.9
Primary products value of shipments	1 015.0	1 005.6	845.0
Secondary products value of shipments	6.0	75.9	94.1
Total miscellaneous receipts	53.5	183.3	92.8
Value of resales	1.4	18.4	(D)
Contract receipts	50.3	(D)	88.5
Other miscellaneous receipts	1.8	(D)	(D)
Primary products specialization ratio	99	93	90
Value of primary products shipments made in all industries	1 075.1	1 033.2	920.6
Value of primary products shipments made in this industry	1 015.0	1 005.6	845.0
Value of primary products shipments made in other industries	60.1	27.6	75.6
Coverage ratio	94	97	92

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2261– —	**FINISHING PLANTS, COTTON**								
	Total	**(NA)**	**(X)**	**(X)**	**2 729.6**	**(NA)**	**(X)**	**(X)**	**1 604.6**
22617	Finished cotton broadwoven fabrics (not finished in weaving mills)[3]	(NA)	(X)	(X)	1 866.8	(NA)	(X)	(X)	[4]949.1
	Plain weave, except pile:								
22617 01	Print cloth mil sq yd	23	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 03	Poplin and broadcloth mil sq yd	7	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 05	Sheeting, including bedsheeting and osnaburgs mil sq yd	18	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 07	Tobacco, cheese, and bandage cloth mil sq yd	3	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 09	Duck mil sq yd	7	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 11	Other, including lawns, voiles, and batistes mil sq yd	4	15.1	13.4	17.3	(NA)	([4])	([4])	([4])
22617 13	Twill weave, except pile mil sq yd	10	270.6	258.5	281.4	(NA)	([4])	([4])	([4])
	Other weaves, except pile:								
22617 15	Sateens mil sq yd	6	(D)	(D)	(D)	(NA)	([4])	([4])	([4])
22617 19	Other, including oxfords, table damask, jacquard, dobby shirting, and birdseye diaper cloth mil sq yd	8	88.2	85.7	124.1	(NA)	([4])	([4])	([4])
22617 23	Pile fabrics (velvets, plushes, corduroy, terry toweling, terry cloth, and others) mil sq yd	3	(D)	(D)	(D)	68	[4]887.4	[4]845.3	[4]949.1
22617 00	Finished cotton broadwoven fabrics (not finished in weaving mills), n.s.k.	(NA)	(X)	(X)	17.3	(NA)	(X)	(X)	([4])
22619	Job or commission finishing of cotton broadwoven fabrics	(NA)	(X)	(X)	857.1	(NA)	(X)	(X)	[5]621.4
	Plain weave, except pile:								
22619 01	Print cloth mil sq yd	38	**688.7	*676.5	283.8	(NA)	([5])	([5])	([5])
22619 03	Poplin and broadcloth mil sq yd	25	195.6	193.9	65.0	(NA)	([5])	([5])	([5])
22619 05	Sheeting, including bedsheeting and osnaburgs mil sq yd	26	*366.2	362.8	113.1	(NA)	([5])	([5])	([5])
22619 07	Tobacco, cheese, and bandage cloth mil sq yd	6	27.2	27.1	13.0	(NA)	([5])	([5])	([5])
22619 09	Duck mil sq yd	16	48.1	47.7	27.1	(NA)	([5])	([5])	([5])
22619 11	Other, including lawns, voiles, and batistes mil sq yd	7	10.3	10.1	7.2	(NA)	([5])	([5])	([5])
22619 13	Twill weave, except pile mil sq yd	22	*475.0	*474.3	183.4	(NA)	([5])	([5])	([5])
	Other weaves, except pile:								
22619 15	Sateens mil sq yd	14	48.2	47.3	31.4	(NA)	([5])	([5])	([5])
22619 19	Other, including oxfords, table damask, jacquard, dobby shirting, and birdseye diaper cloth mil sq yd	16	89.8	87.6	52.6	(NA)	([5])	([5])	([5])
22619 23	Pile fabrics (velvets, plushes, corduroy, terry toweling, terry cloth, and others) mil sq yd	9	63.4	63.4	22.8	125	[5]1 402.7	[5]1 407.1	[5]621.4
22619 00	Job or commission finishing of cotton broadwoven fabrics, n.s.k.	(NA)	(X)	(X)	57.8	(NA)	(X)	(X)	([5])
22610	Finishing plants, cotton, n.s.k.	(NA)	(X)	(X)	5.8	(NA)	(X)	(X)	34.1
22610 00	Finishing plants, cotton, n.s.k.[6]	(NA)	(X)	(X)	4.7	(NA)	(X)	(X)	1.1
22610 02	Finishing plants, cotton, n.s.k.[7]	(NA)	(X)	(X)	1.1	(NA)	(X)	(X)	33.0
2262– —	**FINISHING PLANTS, MANMADE FIBER AND SILK**								
	Total	**(NA)**	**(X)**	**(X)**	**3 251.1**	**(NA)**	**(X)**	**(X)**	**3 537.3**
22628	Finished manmade fiber and silk broadwoven fabrics (not finished in weaving mills)[3]	(NA)	(X)	(X)	1 967.0	(NA)	(X)	(X)	[8]2 700.6
	85 percent or more spun yarn fibers:								
	Plain weave, except pile:								
22628 01	Print cloth mil sq yd	16	218.8	218.8	189.2	(NA)	([8])	([8])	([8])
22628 03	Poplin and broadcloth, carded and combed mil sq yd	7	(D)	(D)	(D)	(NA)	([8])	([8])	([8])
22628 05	Sheeting, including bedsheeting and osnaburgs mil sq yd	5	(D)	(D)	(D)	(NA)	([8])	([8])	([8])
22628 07	Lawns, voiles, and batistes mil sq yd	1	(D)	(D)	(D)	(NA)	([8])	([8])	([8])
22628 11	Other types mil sq yd	6	78.7	77.5	61.0	(NA)	([8])	([8])	([8])
22628 13	Twill weave, except pile mil sq yd	6	226.7	215.3	199.6	(NA)	([8])	([8])	([8])
	Other weaves, except pile:								
22628 15	Sateens mil sq yd	4	22.0	22.0	27.4	(NA)	([8])	([8])	([8])
22628 19	Other, including oxfords, table damask, jacquard, and dobby shirting mil sq yd	9	221.6	217.2	333.6	(NA)	([8])	([8])	([8])
22628 23	Pile fabrics (velvets, plushes, corduroy, and others) mil sq yd	4	57.4	57.4	75.5	(NA)	([8])	([8])	([8])
	85 percent or more filament yarn fabrics:								
22628 25	Chiefly rayon and/ or acetate mil sq yd	9	(D)	(D)	(D)	(NA)	([8])	([8])	([8])
22628 27	Chiefly polyester mil sq yd	13	276.4	266.9	350.9	(NA)	([8])	([8])	([8])
22628 29	Other mil sq yd	8	121.7	119.0	152.2	(NA)	([8])	([8])	([8])
22628 31	Other fabrics, including combinations of spun yarn and filament, blends with wool, silk, and blends with silk mil sq yd	6	(D)	(D)	(D)	61	[8]1 793.1	[8]1 748.1	[8]2 700.6
22628 00	Finished manmade fiber and silk broadwoven fabrics (not finished in weaving mills), n.s.k.	(NA)	(X)	(X)	20.5	(NA)	(X)	(X)	([8])
22629	Job or commission finishing of manmade fiber and silk broadwoven fabrics	(NA)	(X)	(X)	1 277.3	(NA)	(X)	(X)	[9]710.0
	85 percent or more spun yarn fabrics:								
	Plain weave, except pile:								
22629 01	Print cloth mil sq yd	33	*671.0	672.8	341.4	(NA)	([9])	([9])	([9])
22629 03	Poplin and broadcloth mil sq yd	10	*110.1	109.2	52.0	(NA)	([9])	([9])	([9])
22629 05	Sheeting, including bedsheeting and osnaburgs mil sq yd	11	176.5	176.4	87.1	(NA)	([9])	([9])	([9])
22629 07	Lawns, voiles, and batistes mil sq yd	3	(D)	(D)	(D)	(NA)	([9])	([9])	([9])
22629 11	Other types mil sq yd	8	56.6	56.4	40.8	(NA)	([9])	([9])	([9])
22629 13	Twill weave, except pile mil sq yd	9	*80.7	80.1	42.8	(NA)	([9])	([9])	([9])
	Other weaves, except pile:								
22629 15	Sateens mil sq yd	6	(D)	(D)	(D)	(NA)	([9])	([9])	([9])
22629 19	Other, including oxfords, table damask, jacquard, and dobby shirting mil sq yd	7	40.8	40.8	18.8	(NA)	([9])	([9])	([9])
22629 23	Pile fabrics (velvets, plushes, corduroy, and others) mil sq yd	4	(D)	(D)	(D)	(NA)	([9])	([9])	([9])

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2262– —	**FINISHING PLANTS, MANMADE FIBER AND SILK**—Con.								
22629	Job or commission finishing of manmade fiber and silk broadwoven fabrics—Con.								
	85 percent or more filament yarn fabrics:								
22629 25	Chiefly rayon or acetate ---- mil sq yd	29	*594.5	586.8	287.1	(NA)	(9)	(9)	(9)
22629 27	Chiefly polyester ---- mil sq yd	36	308.3	307.9	190.2	(NA)	(9)	(9)	(9)
22629 29	Other ---- mil sq yd	15	118.9	117.5	81.5	(NA)	(9)	(9)	(9)
22629 31	Other fabrics, including combinations of spun yarn and filament, blends with wool, and blends with silk --- mil sq yd	16	(S)	**54.7	21.0	96	91 911.1	91 913.4	9710.0
22629 00	Job or commission finishing of manmade fiber and silk broadwoven fabrics, n.s.k. ----	(NA)	(X)	(X)	43.2	(NA)	(X)	(X)	(9)
22620	Finishing plants, manmade fiber and silk, n.s.k. ----	(NA)	(X)	(X)	6.9	(NA)	(X)	(X)	126.7
22620 00	Finishing plants, manmade fiber and silk, n.s.k.[6] ----	(NA)	(X)	(X)	3.7	(NA)	(X)	(X)	1.9
22620 02	Finishing plants, manmade fiber and silk, n.s.k.[7] ----	(NA)	(X)	(X)	3.2	(NA)	(X)	(X)	124.8

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2269– —	**FINISHING PLANTS, N.E.C.**						
	Total ----	**(NA)**	**(X)**	**1 075.1**	**(NA)**	**(X)**	**1 033.2**
22690	Finished yarn, raw stock, and narrow fabrics (except knit and wool) ----	(NA)	(X)	1 075.1	(NA)	(X)	1 033.2
22690 12	Yarns bleached ---- mil lb	6	(D)	(D)	6	7.6	21.7
	Yarns dyed:						
22690 21	Carded cotton ---- mil lb	30	65.3	150.1	21	147.7	239.7
22690 23	Combed cotton ---- mil lb	15	60.1	123.9	17	70.1	131.8
22690 26	Rayon and/or acetate ---- mil lb	16	26.5	53.4	13	18.7	34.9
22690 30	Acrylic and/or modacrylic ---- mil lb	6	(D)	(D)	10	32.6	104.3
22690 31	Polyester blends with cotton ---- mil lb	22	33.3	82.5	19	69.6	137.5
22690 33	All other polyester ---- mil lb	18	(S)	116.6	17	35.8	76.2
22690 34	Other manmade fiber and silk yarns ---- mil lb	20	(S)	108.0	16	71.9	126.5
22690 39	Mercerized cotton yarns ---- mil lb	4	14.8	68.8	3	5.8	25.8
22690 42	Raw stock, bleached or dyed (except wool) ---- mil lb	7	(S)	70.0	5	(D)	(D)
22690 61	Printed plastics film ---- mil lb	1	–	(D)	1	(D)	(D)
22690 71	Finished braided or woven narrow fabrics ---- mil lb	11	(S)	51.9	7	(S)	41.6
22690 00	Finishing plants, n.e.c., n.s.k.[6] ----	(NA)	(X)	12.9	(NA)	(X)	18.6
22690 02	Finishing plants, n.e.c., n.s.k.[7] ----	(NA)	(X)	15.4	(NA)	(X)	60.2

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]This product class is primary to more than one industry.
[4]For 1987, data for these products were not collected separately, but are included with product code 22617 23. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabrics Production.
[5]For 1987, data for these products were not collected separately, but are included with product code 22619 23. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabrics Production.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]For 1987, data for these products were not collected separately, but are included with product code 22628 31. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabrics Production.
[9]For 1987, data for these products were not collected separately, but are included with product code 22629 31. Detailed data for 1987 were published in the Current Industrial Report Series MA22S, Finished Broadwoven Fabrics Production.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
	Finished cotton broadwoven fabrics	(NA)	(X)	(X)	3 120.4	(NA)	(X)	(X)	1 759.0
2211F	Finished in weaving mills	(NA)	(X)	(X)	1 253.6	(NA)	(X)	(X)	809.9
22617	Finished in other industries	(NA)	(X)	(X)	1 866.8	(NA)	(X)	(X)	949.1
	Plain weave print cloth mil sq yd	(NA)	410.3	384.0	416.3	(NA)	(3)	(3)	(3)
2211F 01	Finished in weaving mills mil sq yd	6	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 01	Finished in other industries mil sq yd	23	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave poplin and broadcloth mil sq yd	(NA)	96.1	95.1	80.0	(NA)	(3)	(3)	(3)
2211F 03	Finished in weaving mills mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 03	Finished in other industries mil sq yd	7	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave sheeting, including bedsheeting and osnaburgs mil sq yd	(NA)	1 136.0	1 130.8	831.5	(NA)	(3)	(3)	(3)
2211F 05	Finished in weaving mills mil sq yd	4	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 05	Finished in other industries mil sq yd	18	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave tobacco, cheese, and bandage cloth mil sq yd	(NA)	53.4	53.1	55.3	(NA)	(3)	(3)	(3)
2211F 07	Finished in weaving mills mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 07	Finished in other industries mil sq yd	3	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Plain weave duck mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
2211F 09	Finished in weaving mills mil sq yd	–	–	–	–	(NA)	(3)	(3)	(3)
22617 09	Finished in other industries mil sq yd	7	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Other plain weave fabrics, including lawns, voiles, and batistes mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
2211F 11	Finished in weaving mills mil sq yd	–	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 11	Finished in other industries mil sq yd	4	15.1	13.4	17.3	(NA)	(3)	(3)	(3)
	Twill weave, except pile mil sq yd	(NA)	764.2	748.6	1 034.3	(NA)	(3)	(3)	(3)
2211F 13	Finished in weaving mills mil sq yd	9	493.6	490.1	752.9	(NA)	(3)	(3)	(3)
22617 13	Finished in other industries mil sq yd	10	270.6	258.5	281.4	(NA)	(3)	(3)	(3)
	Sateens mil sq yd	(NA)	8.3	7.1	16.0	(NA)	(3)	(3)	(3)
2211F 15	Finished in weaving mills mil sq yd	1	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
22617 15	Finished in other industries mil sq yd	6	(D)	(D)	(D)	(NA)	(3)	(3)	(3)
	Other weave fabrics, including oxfords, table damask, jacquard, dobby shirting, and birdseye diaper cloth mil sq yd	(NA)	190.5	185.9	266.3	(NA)	(3)	(3)	(3)
2211F 19	Finished in weaving mills mil sq yd	8	102.3	100.3	142.2	(NA)	(3)	(3)	(3)
22617 19	Finished in other industries mil sq yd	8	88.2	85.7	124.1	(NA)	(3)	(3)	(3)
	Pile fabrics (velvets, plushes, corduroy, terry toweling, terry cloth, etc.) mil sq yd	(NA)	136.4	136.3	249.1	(NA)	[3]1 519.1	[3]1 320.7	[3]1 759.0
2211F 23	Finished in weaving mills mil sq yd	6	(D)	(D)	(D)	27	[3]631.7	[3]475.4	[3]809.9
22617 23	Finished in other industries mil sq yd	3	(D)	(D)	(D)	68	[3]887.4	[3]845.3	[3]949.1
	Finished cotton broadwoven fabrics, n.s.k.	(NA)	(X)	(X)	19.9	(NA)	(X)	(X)	(3)
2211F 00	Finished in weaving mills	(NA)	(X)	(X)	2.6	(NA)	(X)	(X)	(3)
22617 00	Finished in other industries	(NA)	(X)	(X)	17.3	(NA)	(X)	(X)	(3)
	Finished manmade fiber and silk broadwoven fabrics	(NA)	(X)	(X)	3 258.0	(NA)	(X)	(X)	3 737.0
2221J	Finished in weaving mills	(NA)	(X)	(X)	1 291.0	(NA)	(X)	(X)	1 036.4
22628	Finished in other industries	(NA)	(X)	(X)	1 967.0	(NA)	(X)	(X)	2 700.6
	Plain weave print cloth mil sq yd	(NA)	265.3	235.2	227.0	(NA)	(4)	(4)	(4)
2221J 01	Finished in weaving mills mil sq yd	4	46.5	*16.5	37.8	(NA)	(4)	(4)	(4)
22628 01	Finished in other industries mil sq yd	16	218.8	218.8	189.2	(NA)	(4)	(4)	(4)
	Plain weave poplin and broadcloth mil sq yd	(NA)	*242.1	*241.0	283.2	(NA)	(4)	(4)	(4)
2221J 03	Finished in weaving mills mil sq yd	5	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 03	Finished in other industries mil sq yd	7	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Plain weave sheeting, including bedsheeting and osnaburgs mil sq yd	(NA)	100.8	83.1	111.8	(NA)	(4)	(4)	(4)
2221J 05	Finished in weaving mills mil sq yd	2	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 05	Finished in other industries mil sq yd	5	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Plain weave lawns, voiles, and batistes mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2221J 07	Finished in weaving mills mil sq yd	–	–	–	–	(NA)	(4)	(4)	(4)
22628 07	Finished in other industries mil sq yd	1	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	Other plain weave fabrics mil sq yd	(NA)	112.7	94.7	101.5	(NA)	(4)	(4)	(4)
2221J 11	Finished in weaving mills mil sq yd	4	34.0	17.2	40.5	(NA)	(4)	(4)	(4)
22628 11	Finished in other industries mil sq yd	6	78.7	77.5	61.0	(NA)	(4)	(4)	(4)
	Twill weave, except pile mil sq yd	(NA)	377.4	364.5	522.3	(NA)	(4)	(4)	(4)
2221J 13	Finished in weaving mills mil sq yd	8	150.8	149.2	322.7	(NA)	(4)	(4)	(4)
22628 13	Finished in other industries mil sq yd	6	226.7	215.3	199.6	(NA)	(4)	(4)	(4)
	Sateens mil sq yd	(NA)	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
2221J 15	Finished in weaving mills mil sq yd	2	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 15	Finished in other industries mil sq yd	4	22.0	22.0	27.4	(NA)	(4)	(4)	(4)
	Other weave fabrics, including oxfords, table damask, jacquard, and dobby shirting mil sq yd	(NA)	356.1	350.9	514.5	(NA)	(4)	(4)	(4)
2221J 19	Finished in weaving mills mil sq yd	4	134.5	133.7	180.9	(NA)	(4)	(4)	(4)
22628 19	Finished in other industries mil sq yd	9	221.6	217.2	333.6	(NA)	(4)	(4)	(4)
	Pile fabrics mil sq yd	(NA)	77.3	77.3	124.7	(NA)	(4)	(4)	(4)
2221J 23	Finished in weaving mills mil sq yd	5	19.9	19.9	49.2	(NA)	(4)	(4)	(4)
22628 23	Finished in other industries mil sq yd	4	57.4	57.4	75.5	(NA)	(4)	(4)	(4)
	85 percent or more chiefly rayon and/or acetate mil sq yd	(NA)	*137.6	98.1	164.6	(NA)	(4)	(4)	(4)
2221J 25	Finished in weaving mills mil sq yd	3	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
22628 25	Finished in other industries mil sq yd	9	(D)	(D)	(D)	(NA)	(4)	(4)	(4)
	85 or more chiefly polyester mil sq yd	(NA)	348.7	341.1	496.8	(NA)	(4)	(4)	(4)
2221J 27	Finished in weaving mills mil sq yd	13	72.3	74.2	145.9	(NA)	(4)	(4)	(4)
22628 27	Finished in other industries mil sq yd	13	276.4	266.9	350.9	(NA)	(4)	(4)	(4)
	Other 85 percent or more filament yarn fabrics mil sq yd	(NA)	272.1	268.4	349.8	(NA)	(4)	(4)	(4)
2221J 29	Finished in weaving mills mil sq yd	7	150.3	149.4	197.6	(NA)	(4)	(4)	(4)
22628 29	Finished in other industries mil sq yd	8	121.7	119.0	152.2	(NA)	(4)	(4)	(4)
	Other fabrics, including combinations of spun yarn and filament, blends with wool, silk, and blends with silk mil sq yd	(NA)	143.5	143.5	302.5	(NA)	[4]2 390.2	[4]2 305.4	[4]3 737.0
2221J 31	Finished in weaving mills mil sq yd	7	(D)	(D)	(D)	36	[4]597.1	[4]557.3	[4]1 036.4
22628 31	Finished in other industries mil sq yd	6	(D)	(D)	(D)	61	[4]1 793.1	[4]1 748.1	[4]2 700.6
	Finished manmade fiber and silk broadwoven fabrics, n.s.k.	(NA)	(X)	(X)	24.8	(NA)	(X)	(X)	(4)
2221J 00	Finished in weaving mills	(NA)	(X)	(X)	4.3	(NA)	(X)	(X)	(4)
22628 00	Finished in other industries	(NA)	(X)	(X)	20.5	(NA)	(X)	(X)	(4)

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for these products were not collected separately, but were included with either 2211F 23 or 22617 23.
[4]For 1987, data for these products were not collected separately, but were included with either 2221J 31 or 22628 31.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
22617, FINISHED COTTON BROADWOVEN FABRICS (NOT FINISHED IN WEAVING MILLS)		
United States	**1 866.8**	**946.4**
Alabama	190.8	(NA)
California	31.1	(NA)
Connecticut	25.6	(NA)
Massachusetts	102.3	71.9
New Jersey	20.7	12.3
North Carolina	171.3	193.8
Rhode Island	20.1	(NA)
South Carolina	1 019.9	378.1
Tennessee	21.7	(NA)
22619, JOB OR COMMISSION FINISHING OF COTTON BROADWOVEN FABRICS		
United States	**857.1**	**621.4**
Alabama	28.6	(NA)
California	19.1	24.2
Connecticut	12.3	8.8
Florida	12.9	3.5
Georgia	87.6	25.0
Massachusetts	39.8	61.6
New Jersey	21.5	61.9
New York	27.6	16.0
North Carolina	160.9	121.8
Pennsylvania	23.4	18.3
Rhode Island	43.1	41.4
South Carolina	287.0	138.3
Tennessee	3.9	12.0
22628, FINISHED MANMADE FIBER AND SILK BROADWOVEN FABRICS (NOT FINISHED IN WEAVING MILLS)		
United States	**1 967.0**	**2 700.6**
California	46.1	29.1
Georgia	29.2	120.3
Massachusetts	129.4	110.6
New Jersey	40.2	19.5
New York	37.4	23.5
North Carolina	472.6	538.5
South Carolina	708.2	1 247.1
22629, JOB OR COMMISSION FINISHING OF MANMADE FIBER AND SILK BROADWOVEN FABRICS		
United States	**1 277.3**	**710.0**
Alabama	11.1	(NA)
California	26.1	(NA)
Georgia	117.1	58.9
Illinois	5.0	(NA)
Massachusetts	206.6	93.2
New Jersey	224.3	125.6
New York	24.1	(NA)
North Carolina	193.4	139.0
Pennsylvania	37.4	15.7
South Carolina	271.6	172.7

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2261-	**Finishing plants, cotton**	**2 729.6**	**2 119.7**	**1 847.2**	**1 768.0**	**1 684.8**	**1 604.6**	**768.2**	**751.7**
22617	Finished cotton broadwoven fabrics (not finished in weaving mills)	1 866.8	1 265.7	1 068.9	1 027.4	1 083.8	949.1	436.3	264.2
22619	Job or commission finishing of cotton broadwoven fabrics	857.1	753.4	662.5	713.6	567.5	621.4	297.9	477.9
22610	Finishing plants, cotton, n.s.k.	5.8	100.6	115.8	27.0	33.4	34.1	34.0	9.6
2262-	**Finishing plants, manmade fiber and silk**	**3 251.1**	**3 152.3**	**3 059.4**	**2 976.4**	**3 268.1**	**3 537.3**	**2 767.5**	**2 137.7**
22628	Finished manmade fiber and silk broadwoven fabrics (not finished in weaving mills)	1 967.0	2 043.5	2 025.9	2 019.8	2 434.1	2 700.6	1 823.7	1 303.5
22629	Job or commission finishing of manmade fiber and silk broadwoven fabrics	1 277.3	899.3	788.4	751.0	698.5	710.0	935.3	830.5
22620	Finishing plants, manmade fiber and silk, n.s.k.	6.9	209.5	245.1	205.6	135.5	126.7	8.5	3.7
2269-	**Finishing plants, n.e.c.**	**1 075.1**	**1 173.8**	**1 161.6**	**1 230.7**	**1 077.2**	**1 033.2**	**920.6**	**764.9**
22690	Finished yarn, raw stock, and narrow fabrics (except knit and wool)	1 075.1	1 173.8	1 161.6	1 230.7	1 077.2	1 033.2	920.6	764.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2261, FINISHING PLANTS, COTTON				
	Materials, ingredients, containers, and supplies	**(X)**	**1 648.3**	**(X)**	**r695.3**
228101	Yarn, all fibers--mil lb	(D)	(D)	(NA)	(2)
220211	Purchased broadwoven fabrics (piece goods)--mil sq yd	1 801.9	1 230.3	430.4	367.1
225078	Knit fabrics--mil lb	(D)	(D)	(NA)	(2)
280031	Dyes, lakes, and toners	(X)	295.9	(X)	224.2
970099	All other materials and components, parts, containers, and supplies	(X)	86.3	(X)	2 r77.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	20.4	(X)	26.7
	INDUSTRY 2262, FINISHING PLANTS, MANMADE				
	Materials, ingredients, containers, and supplies	**(X)**	**1 693.5**	**(X)**	**2 721.0**
228101	Yarn, all fibers--mil lb	(D)	(D)	(NA)	(2)
220211	Broadwoven fabrics--mil sq yd	**1 383.4	1 006.8	1 712.6	1 920.4
225078	Knit fabrics--mil lb	(D)	(D)	(NA)	(2)
280031	Dyes, lakes, and toners	(X)	380.7	(X)	343.8
970099	All other materials and components, parts, containers, and supplies	(X)	249.4	(X)	2364.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	11.1	(X)	92.1
	INDUSTRY 2269, FINISHING PLANTS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**592.4**	**(X)**	**r741.0**
228101	Purchased yarn, all fibers--mil lb	274.0	402.3	(S)	456.7
220211	Broadwoven fabrics--mil sq yd	(D)	(D)	10.2	12.6
225078	Knit fabrics--mil lb	(D)	(D)	(NA)	(2)
280031	Dyes, lakes, and toners	(X)	80.0	(X)	97.2
970099	All other materials and components, parts, containers, and supplies	(X)	88.2	(X)	2129.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	17.9	(X)	r45.5

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, data for these materials were not collected separately, but are included with material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2211F 01	2211F 00
2211F 03	2211F 00
2211F 05	2211F 00
2211F 07	2211F 00
2211F 09	2211F 00
2211F 11	2211F 00
2211F 13	2211F 00
2211F 15	2211F 00
2211F 19	2211F 00
2211F 23	2211F 00
2211H 01	2211H 42
2211H 01	2211H 73
2211H 01	2211H 75
2211H 03	2211H 37
2211H 03	2211H 43
2211H 03	2211H 44
2211H 03	2211H 46
2211H 03	2211H 62
2211H 03	2211H 65
2211H 03	2211H 67
2211H 03	2211H 69
2221J 01	2221J 00
2221J 03	2221J 00
2221J 05	2221J 00
2221J 07	2221J 00
2221J 11	2221J 00
2221J 13	2221J 00
2221J 15	2221J 00
2221J 19	2221J 00
2221J 23	2221J 00
2221J 25	2221J 00
2221J 27	2221J 00
2221J 29	2221J 00
2221J 31	2221J 00
2221M 01	2221M 21
2221M 01	2221M 71
2221M 01	2221M 77
2221M 03	2221M 23
2221M 03	2221M 25
2221M 03	2221M 27
2221M 03	2221M 33
2221M 03	2221M 41
2221M 03	2221M 42
2221M 03	2221M 43
2221M 03	2221M 47
22316	22313
22316	22314
22316 00	22313 00
22316 00	22314 00
22317	22315
22317 91	22315 91
22317 92	22315 92
22317 93	22315 93
22319 01	22319 25
22319 01	22319 27
22319 01	22319 29
22319 01	22319 31
22319 03	22319 25
22319 03	22319 27
22319 03	22319 29
22319 03	22319 31
22411 03	22411 01
22411 05	22411 01
22411 07	22411 01
22411 11	22411 31
22411 13	22411 31
22411 14	22411 31
22411 15	22411 31
22411 16	22411 31
22411 19	22411 31
22414 01	22414 00
22414 03	22414 00
22414 05	22414 00
22514 13	22514 21
22514 13	22514 37
22514 13	22514 39
22514 13	22514 45
22514 15	22514 21
22514 15	22514 37
22514 15	22514 39
22514 15	22514 45
22514 19	22514 21
22514 19	22514 37
22514 19	22514 39
22514 19	22514 45
22514 23	22514 21
22514 23	22514 37
22514 23	22514 39
22514 23	22514 45
22516 15	22516 18
22516 17	22516 18
22525 01	22525 11
22525 01	22525 15
22525 01	22525 17
22525 03	22525 11
22525 03	22525 15
22525 03	22525 17
22525 13	22525 11
22525 13	22525 17
2253D 01	2253D 11
2253D 01	2253D 13
2253D 01	2253D 15
2253D 01	2253D 16
2253D 01	2253D 19
2253D 05	2253D 33
2253D 05	2253D 38
2253D 09	2253D 62
22544	22542
22544	22543
22544 11	22542 00
22544 13	22543 00
22617 01	22617 00
22617 03	22617 00
22617 05	22617 00
22617 07	22617 00
22617 09	22617 00
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22629 29	22629 00
22629 31	22629 00
22812 15	22812 51
22812 15	22812 61
22812 15	22812 71
22952	22951
22953 11	22951 11
22953 11	22951 15
22953 11	22951 19
22953 17	22953 22
22953 17	22953 24
22953 17	22953 26
22972 41	22972 43
22972 41	22972 45
22972 41	22972 48
22981 11	22981 18
22981 11	22981 29
22982 14	22982 15
22982 19	22982 15
22991 11	22991 12
22991 11	22991 13
22991 11	22991 15
22991 11	22991 17
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22991 11	22991 23
22994 11	22994 31
22994 11	22994 35
22994 13	22994 22
22994 13	22994 39

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2211F 00	2211F 01
2211F 00	2211F 03
2211F 00	2211F 05
2211F 00	2211F 07
2211F 00	2211F 09
2211F 00	2211F 11
2211F 00	2211F 13
2211F 00	2211F 15
2211F 00	2211F 19
2211F 00	2211F 23
2211H 37	2211H 03
2211H 42	2211H 01
2211H 43	2211H 03
2211H 44	2211H 03
2211H 46	2211H 03
2211H 62	2211H 03
2211H 65	2211H 03
2211H 67	2211H 03
2211H 69	2211H 03
2211H 73	2211H 01
2211H 75	2211H 01
2221J 00	2221J 01
2221J 00	2221J 03
2221J 00	2221J 05
2221J 00	2221J 07
2221J 00	2221J 11
2221J 00	2221J 13
2221J 00	2221J 15
2221J 00	2221J 19
2221J 00	2221J 23
2221J 00	2221J 25
2221J 00	2221J 27
2221J 00	2221J 29
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2221M 41	2221M 03
2221M 42	2221M 03
2221M 43	2221M 03
2221M 47	2221M 03
2221M 71	2221M 01
2221M 77	2221M 01
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22314 00	22316 00
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22315 91	22317 91
22315 92	22317 92
22315 93	22317 93
22319 25	22319 01
22319 25	22319 03
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22982 15	22982 14
22982 15	22982 19
22991 12	22991 11
22991 13	22991 11
22991 15	22991 11
22991 17	22991 11
22991 21	22991 11
22991 23	22991 11
22994 22	22994 13
22994 31	22994 11
22994 35	22994 11
22994 39	22994 13

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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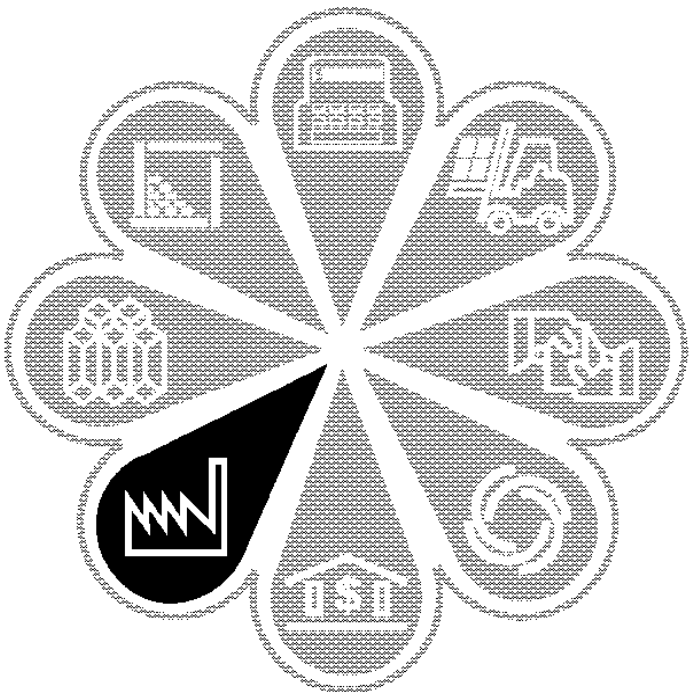
1992 Census of Manufactures

MC92-I-22D

INDUSTRY SERIES

Yarn and Thread Mills

Industries 2281, 2282, and 2284



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

JOBNAME: No Job Name PAGE: 1 SESS: 18 OUTPUT: Wed Jan 11 07:01:35 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2281	Yarn Spinning Mills
2282	Throwing and Winding Mills
2284	Thread Mills

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2281, YARN SPINNING MILLS

This industry is made up of establishments primarily engaged in spinning yarn wholly or chiefly by weight of cotton, manmade fibers, silk, wool, mohair, or similar animal fibers. Establishments primarily engaged in dyeing or finishing purchased yarns or finishing yarns on a commission basis are classified in industry 2231 if the yarns are of wool and in industry 2269 if they are of other fibers. Establishments primarily engaged in producing specialty yarns or producing spun yarns of other fibers are classified in industry 2299.

In the 1992 Census of Manufactures, Industry 2281, Yarn Spinning Mills, had employment of 68.7 thousand. The employment figure was 23 percent below the 89.0 thousand reported in 1987.

The leading States in employment in 1992 were Georgia, North Carolina, and South Carolina, accounting for approximately 79 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 81 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was 7.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2281 shipped 7.4 billion of yarn spinning mills products considered primary to the industry, 264.7 million of secondary products, and had 49.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2281, no matter in what industry they were produced, appear in table 6a and aggregate to 7.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the yarn spinning mills industry amounted to 4.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2282, THROWING AND WINDING MILLS

This industry is made up of establishments primarily engaged in texturizing, throwing, twisting, winding, or spooling purchased yarns or manmade fiber filaments wholly or chiefly by weight of cotton, manmade fibers, silk, or wool, mohair or similar animal fibers, or in performing such activities on a commission basis. Establishments primarily engaged in dyeing or finishing purchased yarns or finishing yarns on a commission basis are classified in industry 2231 if the yarns are of wool and in industry 2269 if they are of other fibers. Establishments primarily engaged in producing and texturing manmade fiber filaments and yarns in the same plant are classified in industries 2823 or 2834.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2282, Throwing and Winding Mills, had employment of 17.3 thousand. The employment figure was 5 percent below the 18.3 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading State in employment in 1992 was North Carolina , accounting for approximately 36 percent of the industry's employment. This same State was the leader in 1987 when it accounted for 41 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was 2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2282 shipped 2.6 billion of throwing and winding mills products considered primary to the industry, 204.7 million of secondary products, and had 13.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 2282, no matter in what industry they were produced, appear in table 6a and aggregate to 3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the throwing and winding mills industry amounted to 1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2284, THREAD MILLS

This industry is made up of establishments primarily engaged in manufacturing thread of cotton, silk, manmade fibers, wool, or similar animal fibers. Important products of this industry include sewing, crochet, darning, embroidery, tatting, handknitting, and other handicraft threads. Establishments primarily engaged in manufacturing thread of flax, hemp, and ramie are classified in industry 2299.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2284, Thread Mills, had employment of 6.2 thousand. The employment figure was 5 percent below the 6.5 thousand reported in 1987.

The leading State in employment in 1992 was North Carolina , accounting for approximately 50 percent of the industry's employment. This same State was the leader in 1987 when it accounted for 46 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was 837.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2284 shipped 815.6 million of Thread Mills products considered primary to the industry, 17.8 million of secondary products, and had 3.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 2284, no matter in what industry they were produced, appear in table 6a and aggregate to 832.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the thread mills industry amounted to 511.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2281, YARN SPINNING MILLS															
1992 Census	211	396	324	68.7	1 288.4	62.6	126.2	1 070.6	2 890.6	4 788.4	7 668.6	294.0	578.0	97	95
1991 ASM	(NA)	(NA)	(NA)	69.8	1 233.1	63.6	124.4	1 029.5	2 566.9	4 675.6	7 265.4	363.5	610.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	75.0	1 312.6	68.8	138.2	1 109.0	2 654.5	4 622.8	7 259.2	342.3	665.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	77.2	1 362.2	71.0	146.6	1 162.2	2 769.4	4 595.7	7 327.2	348.4	642.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	83.8	1 374.0	76.5	156.0	1 158.8	2 756.3	4 521.4	7 278.9	512.9	593.0	(NA)	(NA)
1987 Census	241	414	351	89.0	1 453.0	81.1	170.7	1 226.9	3 022.4	4 512.2	7 517.5	340.2	639.3	95	91
1986 ASM	(NA)	(NA)	(NA)	73.8	1 454.6	67.7	142.5	949.2	2 139.9	3 500.4	5 664.4	209.5	475.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	73.7	1 032.7	67.3	131.1	872.2	1 874.7	3 167.6	5 087.3	256.5	493.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	78.4	1 060.7	72.5	143.2	892.4	1 890.8	3 612.3	5 503.5	(D)	563.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	76.5	1 027.7	70.0	141.8	869.2	1 874.8	3 386.6	5 240.1	226.0	553.4	(NA)	(NA)
1982 Census	(NA)	450	347	76.0	891.5	69.5	130.5	756.1	1 575.0	2 913.6	4 512.9	156.8	517.8	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	89.3	1 002.5	81.4	159.5	845.1	1 821.6	3 089.9	4 874.1	192.4	546.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	92.7	986.0	84.8	170.0	835.8	1 776.3	2 825.9	4 592.7	155.3	488.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	93.7	915.5	86.3	175.1	784.3	1 795.0	2 511.2	4 279.7	145.0	448.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	96.8	872.2	89.1	180.7	745.4	1 769.4	2 464.1	4 220.0	170.5	413.3	(NA)	(NA)
1977 Census	(NA)	532	413	97.1	815.8	89.3	182.5	702.8	1 562.1	2 494.9	4 059.8	117.1	381.0	(NA)	(NA)
INDUSTRY 2282, THROWING AND WINDING MILLS															
1992 Census	111	137	90	17.3	340.1	15.3	31.7	262.5	842.6	1 930.3	2 771.9	85.5	197.0	93	84
1991 ASM	(NA)	(NA)	(NA)	17.9	312.1	16.1	32.1	246.1	779.2	1 841.6	2 622.6	125.9	201.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.5	314.1	16.6	33.2	251.5	769.3	1 745.5	2 521.0	142.8	186.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.8	293.1	16.0	31.4	235.2	647.8	1 603.2	2 249.0	57.9	167.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.0	305.0	16.8	32.8	242.9	684.0	1 572.2	2 261.2	61.2	182.1	(NA)	(NA)
1987 Census	121	139	100	18.3	290.8	16.1	31.5	230.7	588.4	1 549.8	2 124.2	43.2	149.9	92	86
1986 ASM	(NA)	(NA)	(NA)	19.7	291.7	17.5	33.9	233.0	606.5	1 545.1	2 138.8	39.0	186.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.9	315.0	19.2	37.2	248.5	628.9	1 701.4	2 340.4	51.5	195.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	21.9	304.9	19.5	37.1	240.1	586.9	1 628.7	2 213.7	75.3	178.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.5	326.3	22.5	44.8	257.2	675.1	1 667.3	2 324.5	52.5	216.7	(NA)	(NA)
1982 Census	160	189	139	22.8	273.0	19.8	37.7	212.3	527.4	1 399.6	1 944.7	59.0	157.8	94	89
1981 ASM	(NA)	(NA)	(NA)	24.3	280.0	21.1	40.5	216.5	561.3	1 374.2	1 936.0	71.6	175.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.3	266.2	22.0	42.5	211.1	589.7	1 138.4	1 728.3	60.3	165.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.3	267.7	24.0	46.2	212.4	576.0	1 119.3	1 674.5	65.8	157.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.6	264.5	26.2	51.9	211.7	500.1	1 056.6	1 564.9	61.7	132.0	(NA)	(NA)
1977 Census	172	196	148	30.5	262.3	27.1	54.5	210.4	496.9	1 030.9	1 510.1	51.1	132.3	92	87
INDUSTRY 2284, THREAD MILLS															
1992 Census	50	65	41	6.2	115.4	5.6	11.9	87.3	328.4	511.7	837.0	22.0	118.5	98	98
1991 ASM	(NA)	(NA)	(NA)	6.7	124.8	5.9	13.4	94.6	338.3	455.4	799.3	24.1	132.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.1	127.7	6.3	13.4	95.7	329.3	465.9	794.5	23.8	137.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.0	126.2	6.2	12.8	93.1	326.1	434.5	764.8	29.7	122.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.9	123.6	6.9	13.9	95.6	318.1	468.5	780.1	11.0	128.5	(NA)	(NA)
1987 Census	49	59	38	6.5	106.1	5.6	11.0	77.1	248.1	398.9	635.6	14.1	107.5	96	89
1986 ASM	(NA)	(NA)	(NA)	8.0	119.9	6.8	13.1	88.9	268.0	333.4	600.4	10.4	114.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.5	119.7	7.2	13.1	86.3	245.3	343.2	591.3	12.4	112.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.8	117.9	7.5	13.5	86.2	253.2	355.6	619.9	12.3	114.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.5	118.7	8.0	14.8	89.4	266.2	357.6	615.5	26.5	127.8	(NA)	(NA)
1982 Census	60	75	45	9.8	113.2	8.4	15.1	86.3	215.5	360.8	578.8	15.3	115.3	97	90
1981 ASM	(NA)	(NA)	(NA)	11.4	129.4	9.8	18.9	101.4	258.4	483.2	741.1	15.8	113.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.8	125.0	10.0	18.9	93.6	235.3	432.7	664.0	14.6	118.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.1	118.9	10.2	19.5	89.8	220.4	396.2	613.9	12.8	104.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.5	111.9	10.6	20.1	83.8	199.6	366.0	564.9	12.5	102.5	(NA)	(NA)
1977 Census	59	70	47	12.8	106.3	10.9	21.1	81.1	201.9	351.9	544.4	11.8	102.7	96	91

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2281, YARN SPINNING MILLS								
1992 Census	18 754	91	2 016	8.48	62	79	42 076	45	22.90
1991 ASM	17 666	91	1 956	8.28	64	81	36 775	48	20.63
1990 ASM	17 501	92	2 009	8.02	64	82	35 393	49	19.21
1989 ASM	17 645	92	2 065	7.93	63	81	35 873	49	18.89
1988 ASM	16 396	91	2 039	7.43	62	81	32 891	50	17.67
1987 Census	16 326	91	2 105	7.19	60	79	33 960	48	17.71
1986 ASM	19 710	92	2 105	6.66	62	87	28 996	68	15.02
1985 ASM	14 012	91	1 948	6.65	62	83	25 437	55	14.30
1984 ASM	13 529	92	1 975	6.23	66	85	24 117	56	13.20
1983 ASM	13 434	92	2 026	6.13	65	84	24 507	55	13.22
1982 Census	11 730	91	1 878	5.79	65	84	20 724	57	12.07
1981 ASM	11 226	91	1 959	5.30	63	84	20 399	55	11.42
1980 ASM	10 636	91	2 005	4.92	62	83	19 162	56	10.45
1979 ASM	9 771	92	2 029	4.48	59	80	19 157	51	10.25
1978 ASM	9 010	92	2 028	4.13	58	79	18 279	49	9.79
1977 Census	8 402	92	2 044	3.85	61	82	16 088	52	8.56
	INDUSTRY 2282, THROWING AND WINDING MILLS								
1992 Census	19 659	88	2 072	8.28	70	82	48 699	40	26.58
1991 ASM	17 436	90	1 994	7.67	70	82	43 531	40	24.27
1990 ASM	16 978	90	2 000	7.58	69	82	41 584	41	23.17
1989 ASM	16 466	90	1 963	7.49	71	84	36 393	45	20.63
1988 ASM	16 053	88	1 952	7.41	70	83	36 000	45	20.85
1987 Census	15 891	88	1 957	7.32	73	87	32 153	49	18.68
1986 ASM	14 807	89	1 937	6.87	72	86	30 787	48	17.89
1985 ASM	14 384	88	1 938	6.68	73	86	28 717	50	16.91
1984 ASM	13 922	89	1 903	6.47	74	87	26 799	52	15.82
1983 ASM	12 796	88	1 991	5.74	72	86	26 475	48	15.07
1982 Census	11 974	87	1 904	5.63	72	86	23 132	52	13.99
1981 ASM	11 523	87	1 919	5.35	71	85	23 099	50	13.86
1980 ASM	10 522	87	1 932	4.97	66	81	23 308	45	13.88
1979 ASM	9 806	88	1 925	4.60	67	83	21 099	46	12.47
1978 ASM	8 936	89	1 981	4.08	68	84	16 895	53	9.64
1977 Census	8 600	89	2 011	3.86	68	86	16 292	53	9.12
	INDUSTRY 2284, THREAD MILLS								
1992 Census	18 613	90	2 125	7.34	61	75	52 968	35	27.60
1991 ASM	18 627	88	2 271	7.06	57	73	50 493	37	25.25
1990 ASM	17 986	89	2 127	7.14	59	75	46 380	39	24.57
1989 ASM	18 029	89	2 065	7.27	57	73	46 586	39	25.48
1988 ASM	15 646	87	2 014	6.88	60	76	40 266	39	22.88
1987 Census	16 323	86	1 964	7.01	63	79	38 169	43	22.55
1986 ASM	14 988	85	1 926	6.79	56	75	33 500	45	20.46
1985 ASM	14 082	85	1 819	6.59	58	78	28 859	49	18.73
1984 ASM	13 398	85	1 800	6.39	57	76	28 773	47	18.76
1983 ASM	12 495	84	1 850	6.04	58	77	28 021	45	17.99
1982 Census	11 551	86	1 798	5.72	62	82	21 990	53	14.27
1981 ASM	11 351	86	1 929	5.37	65	83	22 667	50	13.67
1980 ASM	10 593	85	1 890	4.95	65	84	19 941	53	12.45
1979 ASM	9 826	84	1 912	4.61	65	84	18 215	54	11.30
1978 ASM	8 952	85	1 896	4.17	65	85	15 968	56	9.93
1977 Census	8 305	85	1 936	3.84	65	84	15 773	53	9.57

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2281, YARN SPINNING MILLS														
United States	–	**396**	**324**	**68.7**	**1 288.4**	**62.6**	**126.2**	**1 070.6**	**2 890.6**	**4 788.4**	**7 668.6**	**294.0**	**89.0**	**3 022.4**
Alabama	–	34	33	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Arizona	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	63	57	12.8	245.8	11.7	23.4	201.7	487.7	958.6	1 442.6	25.7	17.2	588.4
Kentucky	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E6	10	4	.2	4.6	.2	.3	3.4	8.2	12.1	20.1	.7	E	(D)
New Hampshire	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E4	14	2	.2	3.6	.2	.4	2.5	5.8	6.6	12.5	.4	E	(D)
North Carolina	–	168	152	33.4	615.8	30.5	62.0	512.7	1 511.1	2 247.2	3 755.0	143.8	43.4	1 412.0
Pennsylvania	–	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	13.6
Rhode Island	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	42	39	8.0	150.0	7.1	14.6	120.7	327.9	551.2	873.2	29.4	11.1	382.2
Tennessee	–	11	8	1.9	41.9	1.8	3.9	37.4	104.0	198.3	304.1	20.2	G	(D)
Virginia	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	F	(D)
INDUSTRY 2282, THROWING AND WINDING MILLS														
United States	–	**137**	**90**	**17.3**	**340.1**	**15.3**	**31.7**	**262.5**	**842.6**	**1 930.3**	**2 771.9**	**85.5**	**18.3**	**588.4**
Alabama	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	32	25	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
New Jersey	E6	6	3	.2	4.4	.2	.4	3.4	7.9	15.4	23.4	(D)	E	(D)
North Carolina	–	36	25	6.2	124.6	5.5	11.7	99.1	418.8	863.7	1 283.9	20.3	7.3	220.4
Pennsylvania	–	17	12	.9	14.9	.8	1.5	11.1	32.2	32.8	64.5	1.0	1.1	28.1
Rhode Island	–	5	4	.3	7.1	.3	.5	4.0	15.0	13.2	28.2	.2	.5	15.1
South Carolina	–	11	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2284, THREAD MILLS														
United States	–	**65**	**41**	**6.2**	**115.4**	**5.6**	**11.9**	**87.3**	**328.4**	**511.7**	**837.0**	**22.0**	**6.5**	**248.1**
Connecticut	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E2	5	4	.2	6.3	.2	.4	3.7	11.9	13.8	25.4	.3	E	(D)
North Carolina	–	19	18	3.1	55.2	2.8	6.1	43.5	190.8	287.9	473.2	15.5	3.0	113.4
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Pennsylvania	E3	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	6.9
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E2	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Yarn spinning mills (SIC 2281)	Throwing and winding mills (SIC 2282)			Thread mills (SIC 2284)
			Total	Manufacturers (SIC 2282-11)	Commission mills (SIC 2282-51)	
Companies	number	211	111	79	32	50
All establishments	number	396	137	104	33	65
With 1 to 19 employees	number	72	47	26	21	24
With 20 to 99 employees	number	82	40	32	8	19
With 100 employees or more	number	242	50	46	4	22
Employment and labor costs:						
Employees	1,000	68.7	17.3	15.6	1.7	6.2
Compensation, total	mil dol	1 555.1	418.4	377.7	40.8	142.9
Annual payroll	mil dol	1 288.4	340.1	307.3	32.8	115.4
Fringe benefits	mil dol	266.7	78.4	70.4	7.9	27.5
Social Security and other legally required payments	mil dol	124.9	33.3	30.6	2.7	12.3
Employer voluntary payments	mil dol	141.8	45.1	39.9	5.3	15.2

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Yarn spinning mills (SIC 2281)	Throwing and winding mills (SIC 2282)			Thread mills (SIC 2284)
			Total	Manufacturers (SIC 2282-11)	Commission mills (SIC 2282-51)	
Production workers:						
Average for year	1,000	62.6	15.3	13.9	1.4	5.6
March	1,000	63.1	15.3	13.9	1.4	5.5
May	1,000	63.1	15.4	13.9	1.4	5.5
August	1,000	62.5	15.4	14.0	1.4	5.5
November	1,000	61.9	15.1	13.8	1.4	5.6
Hours	millions	126.2	31.7	28.7	2.9	11.9
Wages	mil dol	1 070.6	262.5	243.0	19.5	87.3
Cost of materials[1]	mil dol	4 788.4	1 930.3	1 918.0	12.3	511.7
Materials, parts, containers, etc., consumed[2]	mil dol	4 445.4	1 845.6	1 838.1	7.4	480.0
Resales	mil dol	8.9	.8	.7	.1	2.8
Fuels	mil dol	21.0	7.6	7.2	.4	7.0
Purchased electricity	mil dol	308.0	70.8	66.7	4.1	20.2
Contract work	mil dol	5.1	5.5	5.2	.4	1.8
Quantity of electric energy used for heat and power:						
Purchased	mil kWh	6 401.8	1 462.5	1 393.3	69.1	402.4
Generated less sold	mil kWh	(D)	(D)	(D)	–	–
Total value of shipments	mil dol	7 668.6	2 771.9	2 711.0	60.8	837.0
Value added	mil dol	2 890.6	842.6	793.8	48.8	328.4
Inventories by stage of fabrication:						
Beginning of 1992	mil dol	578.0	200.9	199.5	1.4	113.7
Finished goods	mil dol	175.3	67.4	67.2	.2	56.0
Work in process	mil dol	135.2	46.4	46.1	.3	34.0
Materials and supplies	mil dol	267.5	87.1	86.2	.9	23.7
End of 1992	mil dol	578.0	197.0	195.2	1.8	118.5
Finished goods	mil dol	191.6	69.9	69.5	.5	57.8
Work in process	mil dol	129.4	44.8	44.5	.3	35.4
Materials and supplies	mil dol	257.0	82.2	81.2	1.1	25.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Yarn spinning mills (SIC 2281)	Throwing and winding mills (SIC 2282)	Thread mills (SIC 2284)	Item	Yarn spinning mills (SIC 2281)	Throwing and winding mills (SIC 2282)	Thread mills (SIC 2284)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	4 182.7	1 048.8	280.3	Beginning of year—Con.			
New capital expenditures[1]	294.0	85.5	22.0	New capital expenditures[1]	255.6	(D)	19.8
Used capital expenditures	18.7	2.2	3.0	Used capital expenditures	15.0	(D)	3.0
Retirements	113.0	15.7	9.5	Retirements	102.0	14.5	9.4
End of year	4 382.4	1 120.8	295.8	End of year	3 634.6	931.2	225.2
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	716.6	167.7	68.3	Total	296.9	71.0	16.6
New capital expenditures	38.4	(D)	2.2	Buildings and other structures	27.2	8.0	2.4
Used capital expenditures	3.7	(D)	(Z)	Machinery and equipment	269.7	63.0	14.2
Retirements	11.0	1.2	(Z)	Rental payments:			
End of year	747.8	189.5	70.6	Total	20.3	11.4	2.5
Machinery and equipment:				Buildings and other structures	10.2	7.3	1.4
Beginning of year	3 466.0	881.1	211.9	Machinery and equipment	10.1	4.1	1.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Yarn spinning mills (SIC 2281)		Throwing and winding mills (SIC 2282)		Thread mills (SIC 2284)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	19.2	(X)	8.1	(X)	1.5	(X)
Response coverage ratio (percent)[2]	80.2	(X)	75.3	(X)	80.9	(X)
Machinery	155.9	(X)	23.2	(X)	9.1	(X)
Response coverage ratio (percent)[2]	84.0	(X)	75.3	(X)	78.8	(X)
Other purchased services:						
Communications	3.9	(X)	1.6	(X)	1.1	(X)
Response coverage ratio (percent)[2]	70.5	(X)	68.6	(X)	80.9	(X)
Legal	8.8	(X)	(S)	(X)	.1	(X)
Response coverage ratio (percent)[2]	74.0	(X)	(S)	(X)	75.7	(X)
Accounting and bookkeeping	1.1	(X)	(S)	(X)	.5	(X)
Response coverage ratio (percent)[2]	71.7	(X)	(S)	(X)	75.7	(X)
Advertising	.3	(X)	(S)	(X)	.5	(X)
Response coverage ratio (percent)[2]	71.8	(X)	(S)	(X)	75.7	(X)
Software and other data processing	2.3	(X)	.4	(X)	.4	(X)
Response coverage ratio (percent)[2]	73.8	(X)	50.2	(X)	75.7	(X)
Refuse removal, including hazardous waste	3.1	(X)	7.2	(X)	.2	(X)
Response coverage ratio (percent)[2]	82.9	(X)	56.3	(X)	75.7	(X)
New machinery and equipment expenditures	255.6	(X)	(D)	(X)	19.8	(X)
Automobiles, trucks, etc., for highway use	.8	5	(D)	(X)	(Z)	(X)
Computers and peripheral data processing equipment	7.2	11	2.3	26	.3	16
All other	247.6	1	59.0	4	19.4	1
Adjustment ratio[3]	1.3	(X)	1.1	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	4 445.4	(X)	1 845.6	(X)	480.0	(X)
Materials purchased or transferred from foreign sources[4]	172.6	12	(S)	(X)	3.2	65
Materials purchased or transferred from domestic sources	4 272.8	1	(S)	(X)	476.7	1
Adjustment ratio[3]	1.9	(X)	(S)	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2281, YARN SPINNING MILLS												
Total	**–**	**396**	**68.7**	**1 288.4**	**62.6**	**126.2**	**1 070.6**	**2 890.6**	**4 788.4**	**7 668.6**	**294.0**	**578.0**
Establishments with an average of–												
1 to 4 employees	E9	37	.1	1.3	.1	.1	1.1	2.5	4.3	6.8	.3	.6
5 to 9 employees	E9	16	.1	1.9	.1	.2	1.6	3.4	5.1	8.5	.3	.7
10 to 19 employees	E3	19	.3	4.4	.2	.5	3.4	10.9	19.0	30.0	.7	2.6
20 to 49 employees	–	29	.9	16.6	.7	1.4	11.6	36.6	60.2	97.0	1.4	12.0
50 to 99 employees	–	53	4.2	76.3	3.8	7.9	63.3	195.4	366.1	557.5	22.6	43.9
100 to 249 employees	–	143	23.7	446.2	21.4	43.2	369.4	1 073.2	1 648.1	2 711.8	145.7	187.1
250 to 499 employees	–	82	28.4	530.8	26.2	52.7	448.2	1 161.7	1 876.2	3 032.4	94.2	214.9
500 to 999 employees	–	15	11.0	210.8	10.2	20.3	172.0	406.9	809.5	1 224.6	28.9	116.2
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	54	.3	4.3	.2	.5	3.6	7.4	12.3	19.6	.8	1.6
INDUSTRY 2282, THROWING AND WINDING MILLS												
Total	**–**	**137**	**17.3**	**340.1**	**15.3**	**31.7**	**262.5**	**842.6**	**1 930.3**	**2 771.9**	**85.5**	**197.0**
Establishments with an average of–												
1 to 4 employees	E9	18	(Z)	.6	(Z)	.1	.5	1.5	1.9	3.4	.1	.2
5 to 9 employees	E7	14	.1	1.5	.1	.1	1.1	3.0	4.1	7.1	.3	.5
10 to 19 employees	E1	15	.2	4.1	.2	.3	2.6	8.7	11.3	20.3	.2	1.3
20 to 49 employees	–	22	.8	14.2	.6	1.3	9.7	34.4	60.9	94.0	.8	9.6
50 to 99 employees	E1	18	1.3	24.7	1.1	2.3	18.4	49.3	69.8	119.4	3.3	12.1
100 to 249 employees	–	24	3.9	73.5	3.5	7.1	57.3	163.5	421.2	580.4	12.9	44.0
250 to 499 employees	–	19	6.5	119.6	5.9	12.2	97.8	323.0	717.3	1 037.2	12.0	77.1
500 to 999 employees	–	7	4.6	101.8	4.0	8.3	75.2	259.2	643.7	910.2	55.7	52.1
Covered by administrative records[2]	E9	32	.2	2.7	.2	.3	2.0	5.1	4.6	9.7	.4	.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2284, THREAD MILLS												
Total	–	**65**	**6.2**	**115.4**	**5.6**	**11.9**	**87.3**	**328.4**	**511.7**	**837.0**	**22.0**	**118.5**
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.4	(Z)	(Z)	.3	.7	1.1	1.8	(Z)	.2
5 to 9 employees	E8	11	.1	1.4	.1	.1	1.0	3.0	4.2	7.1	.2	1.1
10 to 19 employees	E7	4	(Z)	.8	(Z)	.1	.6	1.4	2.3	3.7	.1	.5
20 to 49 employees	E3	14	.5	8.2	.4	.8	5.9	22.6	34.4	55.7	1.5	7.3
50 to 99 employees	–	5	.4	7.4	.4	.7	6.0	24.7	49.8	73.7	.5	7.5
100 to 249 employees	–	14	2.0	39.1	1.8	3.7	27.5	83.9	125.0	208.4	4.6	15.4
250 to 499 employees	–	6	3.2	58.3	2.9	6.4	46.0	192.1	294.9	486.6	15.1	86.4
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	20	.1	1.8	.1	.2	1.4	3.3	5.5	8.8	.2	1.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2281	**Yarn spinning mills:**										
	All establishments in industry	396	68.7	1 288.4	62.6	126.2	1 070.6	2 890.6	4 788.4	7 668.6	294.0
	Establishments with this product class primary:										
22811	Carded cotton yarns	101	21.5	412.4	19.5	40.0	345.8	1 168.8	1 671.0	2 831.5	154.6
22812	Combed cotton yarns	31	7.5	142.4	6.9	13.9	119.6	297.5	298.9	600.2	30.2
22813	Rayon and/or acetate spun yarns	14	2.3	42.7	2.0	3.9	32.7	88.5	138.9	226.7	4.4
22814	Spun noncellulosic fiber and silk yarns	156	34.6	639.6	31.9	63.6	533.6	1 254.2	2 500.4	3 748.7	100.6
22815	Wool yarns	28	2.3	43.3	2.0	4.0	32.3	67.9	153.1	221.5	2.9
2282	**Throwing and winding mills:**										
	All establishments in industry	137	17.3	340.1	15.3	31.7	262.5	842.6	1 930.3	2 771.9	85.5
	Establishments with this product class primary:										
22822	Rewound, plied, etc., yarns (not spun or thrown at the same establishment)	10	1.5	29.9	1.4	3.1	25.4	65.3	142.8	208.0	5.2
22823	Thrown filament yarns, except textured	28	2.8	50.7	2.4	4.9	36.7	91.9	185.8	273.7	5.5
22825	Textured, crimped, or bulked filament yarns, including stretch yarn (made from purchased filament yarn)	46	10.8	215.8	9.6	20.0	172.3	613.7	1 570.4	2 187.6	72.3
22829	Commission throwing, plying, etc., of yarns	32	2.0	41.6	1.7	3.6	26.8	68.1	23.7	91.4	2.0
2284	**Thread mills:**										
	All establishments in industry	65	6.2	115.4	5.6	11.9	87.3	328.4	511.7	837.0	22.0

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2281, YARN SPINNING MILLS			
Total value of shipments	7 668.6	7 517.5	4 512.9
Primary products value of shipments	7 354.6	7 049.2	(NA)
Secondary products value of shipments	264.7	403.7	(NA)
Total miscellaneous receipts	49.3	64.6	(NA)
Value of resales	11.3	20.7	(NA)
Contract receipts	21.1	34.7	(NA)
Receipts for commission spinning of yarn	13.9	(NA)	(NA)
Receipts for work done for others on their materials	7.3	(NA)	(NA)
Other miscellaneous receipts	16.8	9.3	(NA)
Primary products specialization ratio	97	95	(NA)
Value of primary products shipments made in all industries	7 755.1	7 711.2	(NA)
Value of primary products shipments made in this industry	7 354.6	7 049.2	(NA)
Value of primary products shipments made in other industries	400.5	662.0	(NA)
Coverage ratio	95	91	(NA)
INDUSTRY 2282, THROWING AND WINDING MILLS			
Total value of shipments	2 771.9	2 124.2	1 944.7
Primary products value of shipments	2 553.6	1 930.4	1 789.5
Secondary products value of shipments	204.7	173.8	124.2
Total miscellaneous receipts	13.6	20.0	31.0
Value of resales	(D)	2.4	(D)
Contract receipts	11.2	13.6	11.3
Receipts for commission spinning of yarn	8.6	(NA)	2.6
Receipts for work done for others on their materials	2.6	(NA)	8.7
Receipts for work done for others on their materials, n.s.k.	–	(NA)	–
Other miscellaneous receipts	(D)	4.1	(D)
Primary products specialization ratio	93	92	94
Value of primary products shipments made in all industries	3 025.8	2 243.8	2 002.5
Value of primary products shipments made in this industry	2 553.6	1 930.4	1 789.5
Value of primary products shipments made in other industries	472.2	313.4	213.0
Coverage ratio	84	86	89
INDUSTRY 2284, THREAD MILLS			
Total value of shipments	837.0	635.6	578.8
Primary products value of shipments	815.6	601.7	553.6
Secondary products value of shipments	17.8	22.1	17.6
Total miscellaneous receipts	3.6	11.8	7.6
Value of resales	(D)	1.5	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	98	96	97
Value of primary products shipments made in all industries	832.6	677.0	614.6
Value of primary products shipments made in this industry	815.6	601.7	553.6
Value of primary products shipments made in other industries	17.0	75.2	61.0
Coverage ratio	98	89	90

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2281– —	**YARN SPINNING MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**7 755.1**	**(NA)**	**(X)**	**(X)**	**7 711.2**
22811	Carded cotton yarns	(NA)	(X)	(X)	2 761.3	(NA)	(X)	(X)	1 895.0
22811 10	Spun gray, mil lb	62	3 290.6	1 284.7	1 770.7	64	2 152.6	1 141.3	1 625.7
22811 87	Spun and finished in the same establishment, mil lb	15	(X)	702.2	989.1	16	(X)	172.0	264.8
22811 00	Carded cotton yarns, n.s.k.	(NA)	(X)	(X)	1.5	(NA)	(X)	(X)	4.4
22812	Combed cotton yarns	(NA)	(X)	(X)	627.3	(NA)	(X)	(X)	795.2
22812 10	Spun gray, mil lb	21	425.9	272.5	557.7	34	563.2	406.4	714.2
22812 15	Spun and finished in the same establishment, mil lb	8	(X)	30.1	69.5	(NA)	(X)	(NA)	70.6
22812 00	Combed cotton yarns, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	10.4
22813	Rayon and/or acetate spun yarns	(NA)	(X)	(X)	247.7	(NA)	(X)	(X)	282.1
22813 10	Spun gray, mil lb	27	(D)	(D)	(D)	36	237.2	173.0	243.4
22813 43	Spun and finished in the same establishment, mil lb	3	(X)	(D)	(D)	8	(X)	20.3	37.4
22813 00	Rayon and/or acetate spun yarns, n.s.k.	(NA)	(X)	(X)	1.1	(NA)	(X)	(X)	1.3
22814	Spun noncellulosic fiber and silk yarns	(NA)	(X)	(X)	3 824.2	(NA)	(X)	(X)	4 303.0
	Polyester spun yarn:								
22814 20	Spun gray, mil lb	70	2 036.5	756.1	1 216.3	68	1 190.1	673.3	1 023.7
22814 41	Spun and finished in the same establishment, mil lb	22	(X)	353.7	508.7	20	(X)	124.4	204.9
	All other spun noncellulosic fibers and silk yarns:								
22814 80	Spun gray, mil lb	52	1 215.4	838.0	1 427.6	70	1 124.8	1 171.3	2 111.0
22814 81	Spun and finished in the same establishment, mil lb	29	(X)	395.5	669.8	33	(X)	460.7	955.5
22814 00	Spun noncellulosic fiber and silk yarns, n.s.k.	(NA)	(X)	(X)	1.8	(NA)	(X)	(X)	7.9
22815	Wool yarns	(NA)	(X)	(X)	257.8	(NA)	(X)	(X)	329.8
22815 10	Wool yarns, except carpet yarns (including new, reused, and reprocessed wool), mil lb	33	114.6	*51.8	215.0	26	151.4	57.8	252.7
22815 20	Wool carpet (weaving and tufting) yarns, including new, reused, and reprocessed wool, mil lb	8	17.7	14.8	38.6	6	16.1	16.1	46.1
22815 00	Wool yarns, n.s.k.	(NA)	(X)	(X)	4.1	(NA)	(X)	(X)	–
22810	Yarn spinning mills, n.s.k.	(NA)	(X)	(X)	36.9	(NA)	(X)	(X)	106.2
22810 00	Yarn spinning mills, n.s.k.[3]	(NA)	(X)	(X)	13.1	(NA)	(X)	(X)	71.9
22810 02	Yarn spinning mills, n.s.k.[4]	(NA)	(X)	(X)	23.8	(NA)	(X)	(X)	34.3
2282– —	**YARN THROWING AND WINDING MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**3 025.8**	**(NA)**	**(X)**	**(X)**	**2 243.8**
22822	Rewound, plied, etc., yarns (not spun or thrown at the same establishment)	(NA)	(X)	(X)	173.9	(NA)	(X)	(X)	118.1
22822 21	Rewound and novelty yarns, other than wool, not spun or thrown at the same establishment, mil lb	9	(X)	(S)	60.5	10	(X)	18.1	72.9
22822 31	Plied yarns, other than wool, not spun or thrown at the same establishment, mil lb	8	(X)	34.0	79.7	6	(X)	*20.1	45.2
22822 41	Winding, warping, etc., of purchased wool yarns, mil lb	4	(X)	(X)	33.7	(NA)	(X)	(X)	(Z)
22822 00	Rewound, plied, etc., yarns (not spun or thrown at the same establishment), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
22823	Thrown filament yarns, except textured	(NA)	(X)	(X)	332.7	(NA)	(X)	(X)	314.2
22823 11	Nylon yarns, mil lb	22	(X)	76.0	188.3	24	(X)	142.6	218.4
22823 13	Polyester yarns, mil lb	20	(X)	**28.3	83.2	17	(X)	14.4	37.2
22823 15	All other thrown yarns, mil lb	15	(X)	33.7	55.3	10	(X)	26.4	53.4
22823 00	Thrown filament yarns, except textured, n.s.k.	(NA)	(X)	(X)	5.9	(NA)	(X)	(X)	5.3
22825	Textured, crimped, or bulked filament yarns, including stretch yarn (made from purchased filament yarn)	(NA)	(X)	(X)	2 376.8	(NA)	(X)	(X)	1 644.9
22825 00	Textured, crimped, or bulked filament yarns, including stretch yarns[5], mil lb	46	1 753.3	1 264.2	2 376.8	49	1 124.0	1 060.3	1 644.9
22829	Commission throwing, plying, etc., of yarns	(NA)	(X)	(X)	131.8	(NA)	(X)	(X)	109.6
22829 11	Receipts for throwing or texturing of filament yarns	12	(X)	(X)	24.5	20	(X)	(X)	41.2
22829 51	Receipts for winding, warping, etc., of yarn not thrown or spun at the same establishment	12	(X)	(X)	100.7	18	(X)	(X)	66.6
22829 00	Commission throwing, plying, etc., of yarns, n.s.k.	(NA)	(X)	(X)	6.6	(NA)	(X)	(X)	1.8
22820	Yarn throwing and winding mills, n.s.k.	(NA)	(X)	(X)	10.6	(NA)	(X)	(X)	57.0
22820 00	Yarn throwing and winding mills, n.s.k.[3]	(NA)	(X)	(X)	6.4	(NA)	(X)	(X)	29.7
22820 02	Yarn throwing and winding mills, n.s.k.[4]	(NA)	(X)	(X)	4.3	(NA)	(X)	(X)	27.4

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2284– –	**THREAD MILLS**						
	Total	**(NA)**	**(X)**	**832.6**	**(NA)**	**(X)**	**677.0**
22840	Thread	(NA)	(X)	832.6	(NA)	(X)	677.0
	Cotton thread:						
22840 10	Finished thread for use in the home—mil lb	2	(D)	(D)	4	(S)	9.9
22840 23	Finished thread for industrial or manufacturers' use (excluding cordage products, such as bag thread, string, or twine)—mil lb	6	8.2	35.1	11	*19.9	79.1
	Manmade fiber thread and other thread, except silk:						
	Filament yarn thread:						
22840 31	Finished thread for use in the home—mil lb	2	(D)	(D)	3	(D)	(D)
22840 33	Industrial thread for industrial or manufacturers' use (excluding cordage products, such as bag thread, string, & twine)—mil lb	18	*42.1	174.4	15	28.2	120.3
	Spun yarn thread:						
22840 41	Finished thread for use in the home—mil lb	(NA)	–	–	5	21.3	27.1
22840 43	Industrial thread for industrial or manufacturers' use (excluding cordage products, such as bag thread, string, & twine)—mil lb	10	126.3	492.1	14	102.8	354.7
22840 51	Silk thread—mil lb	2	(D)	(D)	1	(D)	(D)
22840 61	Unfinished thread shipped or transferred to other plants for finishing—mil lb	3	(D)	(D)	2	(D)	(D)
22840 00	Thread mills, n.s.k.[6]	(NA)	(X)	11.3	(NA)	(X)	4.8
22840 02	Thread mills, n.s.k.[7]	(NA)	(X)	8.8	(NA)	(X)	10.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 15 employees or more.
[4]Typically for establishments with less than 15 employees.
[5]This product code is primary to more than one industry.
[6]Typically for establishments with 20 employees or more.
[7]Typically for establishments with less than 20 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
	Textured, crimped, or bulked filament yarns, including stretch yarns	(NA)	(X)	(X)	4 880.5	(NA)	(X)	(X)	4 046.6
22825 00	Made from purchased filament yarn—mil lb	46	1 753.3	1 264.2	2 376.8	49	1 124.0	1 060.3	1 644.9
	Made by filament yarn producers	(NA)	(X)	(X)	2 503.6	(NA)	(X)	(X)	2 401.7
28230 36	Rayon and acetate—mil lb	–	–	–	–	(NA)	–	–	–
28248 15	Nylon and other polyamides—mil lb	6	1 193.1	1 210.5	1 955.2	6	1 307.2	1 315.8	2 092.6
28248 51	Polyester—mil lb	2	(D)	(D)	(D)	2	(D)	(D)	(D)
28248 75	Polyolefin—mil lb	5	382.4	375.7	454.3	6	(D)	(D)	(D)
28248 79	Other noncellulosic manmade fibers—mil lb	4	(D)	(D)	(D)				
28248 00	Producer textured noncellulosic manmade fibers, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
22811, CARDED COTTON YARNS		
United States	**2 761.3**	**1 895.0**
Alabama	516.9	423.6
Georgia	266.2	189.6
North Carolina	1 570.5	966.8
South Carolina	294.5	244.7
Tennessee	96.0	46.7
22812, COMBED COTTON YARNS		
United States	**627.3**	**795.2**
Georgia	61.3	68.8
North Carolina	458.2	504.0
South Carolina	24.8	138.1
22813, RAYON AND/ OR ACETATE SPUN YARNS		
United States	**247.7**	**282.1**
North Carolina	136.7	135.9
South Carolina	79.0	69.5
22814, SPUN NONCELLULOSIC FIBER AND SILK YARNS		
United States	**3 824.2**	**4 303.0**
Alabama	365.0	320.1
Georgia	1 093.6	1 308.1
North Carolina	1 491.7	1 584.2
South Carolina	498.6	559.0
Tennessee	150.3	181.3
Virginia	34.4	69.7
22815, WOOL YARNS		
United States	**257.8**	**329.8**
Maine	9.8	(NA)
South Carolina	49.4	(NA)
22822, REWOUND, PLIED, ETC., YARNS (NOT SPUN OR THROWN AT THE SAME ESTABLISHMENT)		
United States	**173.9**	**118.1**
Pennsylvania	14.6	(NA)
22823, THROWN FILAMENT YARNS, EXCEPT TEXTURED		
United States	**332.7**	**314.2**
Georgia	65.6	72.1
New Jersey	6.6	14.1
North Carolina	105.2	49.4
22825, TEXTURED, CRIMPED, OR BULKED FILAMENT YARNS, INCLUDING STRETCH YARN (MADE FROM PURCHASED FILAMENT YARN)		
United States	**2 376.8**	**1 644.9**
Georgia	690.7	479.6
North Carolina	1 154.2	843.3
Pennsylvania	13.9	(NA)
Virginia	207.1	46.0
22829, COMMISSION THROWING, PLYING, ETC., OF YARNS		
United States	**131.8**	**109.6**
North Carolina	3.7	6.1
Pennsylvania	12.8	10.8

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2281-	**Yarn spinning mills**	**7 755.1**	**7 518.8**	**7 550.9**	**7 661.6**	**7 625.5**	**7 711.2**	**4 767.7**	**4 390.8**
22811	Carded cotton yarns	2 761.3	2 660.7	2 462.9	2 072.9	2 045.7	1 895.0	939.2	905.6
22812	Combed cotton yarns	627.3	821.8	742.5	721.1	782.1	795.2	350.5	520.6
22813	Rayon and/ or acetate spun yarns	247.7	394.0	370.6	349.6	334.2	282.1	149.3	199.4
22814	Spun noncellulosic fiber and silk yarns	3 824.2	3 214.9	3 527.6	4 086.0	4 076.7	4 303.0	3 001.2	2 485.9
22815	Wool yarns	257.8	341.7	357.6	323.3	306.1	329.8	242.5	234.4
22810	Yarn spinning mills, n.s.k.	36.9	85.8	89.7	108.7	80.7	106.2	85.0	44.9
2282-	**Yarn throwing and winding mills**	**3 025.8**	**2 762.2**	**2 622.3**	**2 263.1**	**2 241.5**	**2 243.8**	**2 002.5**	**1 558.3**
22822	Rewound, plied, etc., yarns (not spun or thrown at the same establishment)	173.9	172.1	165.3	118.3	111.5	118.1	221.3	128.7
22823	Thrown filament yarns, except textured	332.7	438.5	406.7	371.5	351.4	314.2	151.3	136.1
22825	Textured, crimped, or bulked filament yarns, including stretch yarn (made from purchased filament yarn)	2 376.8	1 980.6	1 880.7	1 600.2	1 577.8	1 644.9	1 487.5	1 220.7
22829	Commission throwing, plying, etc., of yarns	131.8	123.0	125.6	105.0	94.9	109.6	139.5	61.5
22820	Yarn throwing and winding mills, n.s.k.	10.6	48.1	44.1	68.1	105.9	57.0	29.9	30.8
2284-	**Thread mills**	**832.6**	**788.1**	**777.7**	**737.4**	**770.1**	**677.0**	**614.6**	**551.1**
22840	Thread	832.6	788.1	777.7	737.4	770.1	677.0	614.6	551.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2281, YARN SPINNING MILLS					
	Materials, ingredients, containers, and supplies		**(X)**	**4 445.4**	**(X)**	**4 132.9**
	Natural fibers:					
013101	Raw cotton	1,000 bales	4 975.7	1 649.8	*3 136.2	973.8
020001	Raw wool, mohair, and other animal fibers (scoured weight)	mil lb	(D)	(D)	**31.8	90.0
229963	Wool tops	mil lb	(D)	(D)	20.8	49.3
010014	All other fibers (silk, jute, reused wool, waste, etc.)	mil lb	72.3	15.8	(S)	7.0
	Manmade fibers (staple and tow):					
282305	Rayon and acetate	mil lb	122.5	138.3	124.3	86.3
282413	Nylon	mil lb	926.9	992.1	825.8	1 005.9
282425	Polyester	mil lb	763.0	598.8	676.0	474.0
282426	Acrylic	mil lb	144.6	159.7	*324.4	357.2
282428	All other manmade fiber staple and tow (except glass)	mil lb	*66.7	108.1	**86.3	123.7
	Yarns:					
228101	Spun yarn, all fibers	mil lb	*32.0	45.4	*81.2	95.5
282411	Nylon filament yarns	mil lb	95.9	148.5	177.2	268.2
282423	Polyester filament yarn	mil lb	100.5	97.3	40.0	44.5
282408	All other manmade filament yarn	mil lb	*1.7	3.4	.5	1.5
280031	Dyes, lakes, and toners		(X)	18.9	(X)	39.4
970099	All other materials and components, parts, containers, and supplies		(X)	330.0	(X)	481.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	14.8	(X)	r35.5
	INDUSTRY 2282, THROWING AND WINDING MILLS					
	Materials, ingredients, containers, and supplies		**(X)**	**1 845.6**	**(X)**	**1 468.4**
228101	Spun yarn, all fibers	mil lb	40.6	48.7	**46.9	53.9
282423	Polyester filament yarn	mil lb	693.9	697.1	472.2	434.6
282411	Nylon filament yarns	mil lb	*507.8	821.5	*407.1	609.5
282408	All other manmade filament yarn	mil lb	49.0	100.6	(S)	60.2
280031	Dyes, lakes, and toners		(X)	2.7	(X)	8.7
970099	All other materials and components, parts, containers, and supplies		(X)	167.3	(X)	281.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	7.7	(X)	20.1
	INDUSTRY 2284, THREAD MILLS					
	Materials, ingredients, containers, and supplies		**(X)**	**480.0**	**(X)**	**374.9**
013101	Raw cotton	1,000 bales	(S)	15.9	23.7	5.4
	Manmade fibers (staple and tow):					
282413	Nylon	mil lb	*19.8	28.5	(S)	52.0
282305	Rayon and acetate	mil lb	(D)	(D)	9.9	7.9
282425	Polyester	mil lb	*7.9	12.7	4.7	7.2
282426	Acrylic	mil lb	–	–	(D)	(D)
	Yarns:					
228101	Spun yarn, all fibers	mil lb	76.8	232.8	56.7	190.2
282411	Nylon filament	mil lb	11.9	24.9	(S)	22.3
282423	Polyester filament	mil lb	*30.1	58.9	(S)	30.2
282408	All other manmade filament yarn	mil lb	*22.5	24.5	(D)	(D)
280031	Dyes, lakes, and toners		(X)	(D)	(X)	8.7
970099	All other materials and components, parts, containers, and supplies		(X)	45.3	(X)	40.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	11.8	(X)	5.9

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2211F 01	2211F 00
2211F 03	2211F 00
2211F 05	2211F 00
2211F 07	2211F 00
2211F 09	2211F 00
2211F 11	2211F 00
2211F 13	2211F 00
2211F 15	2211F 00
2211F 19	2211F 00
2211F 23	2211F 00
2211H 01	2211H 42
2211H 01	2211H 73
2211H 01	2211H 75
2211H 03	2211H 37
2211H 03	2211H 43
2211H 03	2211H 44
2211H 03	2211H 46
2211H 03	2211H 62
2211H 03	2211H 65
2211H 03	2211H 67
2211H 03	2211H 69
2221J 01	2221J 00
2221J 03	2221J 00
2221J 05	2221J 00
2221J 07	2221J 00
2221J 11	2221J 00
2221J 13	2221J 00
2221J 15	2221J 00
2221J 19	2221J 00
2221J 23	2221J 00
2221J 25	2221J 00
2221J 27	2221J 00
2221J 29	2221J 00
2221J 31	2221J 00
2221M 01	2221M 21
2221M 01	2221M 71
2221M 01	2221M 77
2221M 03	2221M 23
2221M 03	2221M 25
2221M 03	2221M 27
2221M 03	2221M 33
2221M 03	2221M 41
2221M 03	2221M 42
2221M 03	2221M 43
2221M 03	2221M 47
22316	22313
22316	22314
22316 00	22313 00
22316 00	22314 00
22317	22315
22317 91	22315 91
22317 92	22315 92
22317 93	22315 93
22319 01	22319 25
22319 01	22319 27
22319 01	22319 29
22319 01	22319 31
22319 03	22319 25
22319 03	22319 27
22319 03	22319 29
22319 03	22319 31
22411 03	22411 01
22411 05	22411 01
22411 07	22411 01
22411 11	22411 31
22411 13	22411 31
22411 14	22411 31
22411 15	22411 31
22411 16	22411 31
22411 19	22411 31
22414 01	22414 00
22414 03	22414 00
22414 05	22414 00
22514 13	22514 21
22514 13	22514 37
22514 13	22514 39
22514 13	22514 45
22514 15	22514 21
22514 15	22514 37
22514 15	22514 39
22514 15	22514 45
22514 19	22514 21
22514 19	22514 37
22514 19	22514 39
22514 19	22514 45
22514 23	22514 21
22514 23	22514 37
22514 23	22514 39
22514 23	22514 45
22516 15	22516 18
22516 17	22516 18
22525 01	22525 11
22525 01	22525 15
22525 01	22525 17
22525 03	22525 11
22525 03	22525 15
22525 03	22525 17
22525 13	22525 11
22525 13	22525 17
2253D 01	2253D 11
2253D 01	2253D 13
2253D 01	2253D 15
2253D 01	2253D 16
2253D 01	2253D 19
2253D 05	2253D 33
2253D 05	2253D 38
2253D 09	2253D 62
22544	22542
22544	22543
22544 11	22542 00
22544 13	22543 00
22617 01	22617 00
22617 03	22617 00
22617 05	22617 00
22617 07	22617 00
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22617 23	22617 00
22619 01	22619 00
22619 03	22619 00
22619 05	22619 00
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22619 09	22619 00
22619 11	22619 00
22619 13	22619 00
22619 15	22619 00
22619 19	22619 00
22619 23	22619 00
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22628 29	22628 00
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22629 23	22629 00
22629 25	22629 00
22629 27	22629 00
22629 29	22629 00
22629 31	22629 00
22812 15	22812 51
22812 15	22812 61
22812 15	22812 71
22952	22951
22953 11	22951 11
22953 11	22951 15
22953 11	22951 19
22953 17	22953 22
22953 17	22953 24
22953 17	22953 26
22972 41	22972 43
22972 41	22972 45
22972 41	22972 48
22981 11	22981 18
22981 11	22981 29
22982 14	22982 15
22982 19	22982 15
22991 11	22991 12
22991 11	22991 13
22991 11	22991 15
22991 11	22991 17
22991 11	22991 21
22991 11	22991 23
22994 11	22994 31
22994 11	22994 35
22994 13	22994 22
22994 13	22994 39

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2211F 00	2211F 01
2211F 00	2211F 03
2211F 00	2211F 05
2211F 00	2211F 07
2211F 00	2211F 09
2211F 00	2211F 11
2211F 00	2211F 13
2211F 00	2211F 15
2211F 00	2211F 19
2211F 00	2211F 23
2211H 37	2211H 03
2211H 42	2211H 01
2211H 43	2211H 03
2211H 44	2211H 03
2211H 46	2211H 03
2211H 62	2211H 03
2211H 65	2211H 03
2211H 67	2211H 03
2211H 69	2211H 03
2211H 73	2211H 01
2211H 75	2211H 01
2221J 00	2221J 01
2221J 00	2221J 03
2221J 00	2221J 05
2221J 00	2221J 07
2221J 00	2221J 11
2221J 00	2221J 13
2221J 00	2221J 15
2221J 00	2221J 19
2221J 00	2221J 23
2221J 00	2221J 25
2221J 00	2221J 27
2221J 00	2221J 29
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2221M 23	2221M 03
2221M 25	2221M 03
2221M 27	2221M 03
2221M 33	2221M 03
2221M 41	2221M 03
2221M 42	2221M 03
2221M 43	2221M 03
2221M 47	2221M 03
2221M 71	2221M 01
2221M 77	2221M 01
22313	22316
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22314	22316
22314 00	22316 00
22315	22317
22315 91	22317 91
22315 92	22317 92
22315 93	22317 93
22319 25	22319 01
22319 25	22319 03
22319 27	22319 01
22319 27	22319 03
22319 29	22319 01
22319 29	22319 03
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22525 17	22525 13
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2253D 13	2253D 01
2253D 15	2253D 01
2253D 16	2253D 01
2253D 19	2253D 01
2253D 33	2253D 05
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22629 00	22629 01
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22629 00	22629 11
22629 00	22629 13
22629 00	22629 15
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22629 00	22629 23
22629 00	22629 25
22629 00	22629 27
22629 00	22629 29
22629 00	22629 31
22812 51	22812 15
22812 61	22812 15
22812 71	22812 15
22951	22952
22951 11	22953 11
22951 15	22953 11
22951 19	22953 11
22953 22	22953 17
22953 24	22953 17
22953 26	22953 17
22972 43	22972 41
22972 45	22972 41
22972 48	22972 41
22981 18	22981 11
22981 29	22981 11
22982 15	22982 14
22982 15	22982 19
22991 12	22991 11
22991 13	22991 11
22991 15	22991 11
22991 17	22991 11
22991 21	22991 11
22991 23	22991 11
22994 22	22994 13
22994 31	22994 11
22994 35	22994 11
22994 39	22994 13

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:11 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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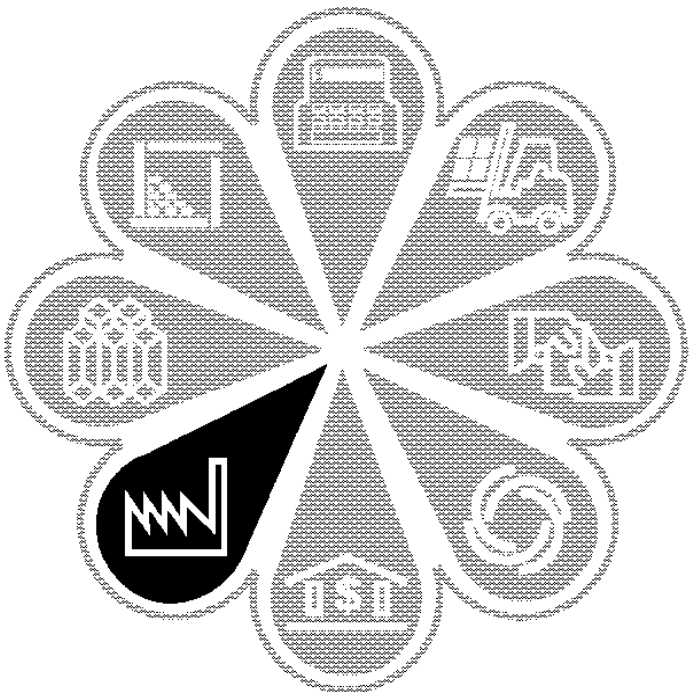
1992
Census of Manufactures

MC92-I-22E

INDUSTRY SERIES

Miscellaneous Textile Goods

Industries 2295, 2296, 2297, 2298, and 2299



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-22E

INDUSTRY SERIES

Miscellaneous Textile Goods

Industries 2295, 2296, 2297, 2298, and 2299

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

Acknowledgments

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Robert Reinard**, Section Chief, with primary staff assistance by **Maria Dixon.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2295	Coated Fabrics, Not Rubberized
2296	Tire Cord and Fabrics
2297	Nonwoven Fabrics
2298	Cordage and Twine
2299	Textile Goods, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED

This industry is made up of establishments primarily engaged in manufacturing coated, impregnated, or laminated textiles and in the special finishing of textiles, such as varnishing and waxing. Establishments primarily engaged in rubberizing purchased fabrics are classified in industry 3069. Establishments primarily engaged in dyeing and finishing textiles are classified in industry 2231.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2295, Coated Fabrics, Not Rubberized, had employment of 9.2 thousand. The employment figure was 11 percent below the 10.3 thousand reported in 1987.

The leading States in employment in 1992 were Massachusetts and Ohio, accounting for approximately 25 percent of the industry's employment. .

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2295 shipped $1.3 billion of products considered primary to the industry, $195.3 million of secondary products, and had $53.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio also was 87 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2295, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the coated fabrics, not rubberized industry amounted to $912.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2296, TIRE CORD AND FABRICS

This industry is made up of establishments primarily engaged in manufacturing cord and fabrics for use in reinforcing rubber tires, industrial belting, fuel cells, and similar uses.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2296, Tire Cord and Fabrics, had employment of 5.1 thousand. The employment figure was unchanged from the 5.1 thousand reported in 1987. Compared with 1991, employment increased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama and Georgia. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $981.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2296 shipped $927.7 million of products considered primary to the industry, $52.0 million of secondary products, and had $1.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio).

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio).

The products primary to industry 2296, no matter in what industry they were produced, appear in table 6a and aggregate to $928.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the tire cord and fabrics industry amounted to $584.6 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census.

INDUSTRY 2297, NONWOVEN FABRICS

This industry is made up of establishments primarily engaged in manufacturing nonwoven fabrics (by bonding and/ or interlocking of fibers) by mechanical, thermal, or solvent means or by combination thereof. Establishments primarily engaged in producing woven felts are classified in industry 2231. Establishments primarily engaged in producing other felts are classified in industry 2299.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2297, Nonwoven Fabrics, had employment of 16.8 thousand. The employment figure was 22 percent above the 13.8 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina and Tennessee. This represents a shift from 1987 when North Carolina, Pennsylvania, and South Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2297 shipped $2.5 billion of products considered primary to the industry, $173.3 million of secondary products, and had $160.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio).

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 72 percent.

The products primary to industry 2297, no matter in what industry they were produced, appear in table 6a and aggregate to $3.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonwoven fabrics industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2298, CORDAGE AND TWINE

This industry is made up of establishments primarily engaged in manufacturing rope, cable, cordage, twine, and related products from abaca (manila), sisal, henequen, hemp, cotton, jute, flax, manmade fibers including glass, and other fibers.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2298, Cordage and Twine, had employment of 6.7 thousand. The employment figure was 3 percent below the 6.9 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama and North Carolina. This represents a shift from 1987 when Alabama, Georgia, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $672.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2298 shipped $580.5 million of products considered primary to the industry, $32.6 million of secondary products, and had $59.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2298, no matter in what industry they were produced, appear in table 6a and aggregate to $624.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cordage and twine industry amounted to $324.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 23 percent of the total value of shipments.

INDUSTRY 2299,TEXTILE GOODS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing textile goods, not elsewhere classified, including linen goods, jute goods, felt goods, padding and upholstery filling, processed waste, and recovered fibers and flock. Establishments primarily engaged in processing textile fibers to prepare them for spinning, such as wool scouring and carbonizing, and converting tow to top are also classified in industry 2299. Establishments primarily engaged in manufacturing woven felts and wool haircloth are classified in industry 2231, and those manufacturing needle punch carpeting are classified in industry 2273. Establishments primarily engaged in manufacturing embroideries are classified in industry group 239. Establishments primarily engaged in sorting wiping rags or waste are classified in wholesale trade, industry 5093.

The 1992 definition of this industry is the same as that used in 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2299, Textile Goods, N.E.C., had employment of 16.7 thousand. The employment figure was 2 percent above the 16.4 thousand reported in 1987. Compared with 1991, employment increased 22 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, North Carolina, and South Carolina, accounting for approximately 38 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2299 shipped $1.6 billion of products considered primary to the industry, $79.8 million of secondary products, and had $142.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2299, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the textile goods, n.e.c., industry amounted to $875.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED															
1992 Census	186	193	90	9.2	274.1	6.6	13.8	165.6	613.7	912.0	1 528.1	47.1	216.1	87	89
1991 ASM	(NA)	(NA)	(NA)	8.0	234.3	5.5	11.6	141.6	528.5	758.5	1 298.4	54.5	191.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.9	244.1	6.4	12.8	145.5	578.6	777.4	1 361.8	52.9	204.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.4	253.9	6.6	13.4	156.2	639.3	892.4	1 542.7	59.8	216.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.3	251.1	7.4	15.7	160.8	583.6	927.7	1 509.4	38.7	233.9	(NA)	(NA)
1987 Census	180	185	91	10.3	251.9	7.4	15.7	161.4	567.1	874.1	1 433.7	63.4	224.9	87	91
1986 ASM	(NA)	(NA)	(NA)	9.7	218.1	7.2	14.9	139.4	457.9	713.9	1 172.0	37.4	172.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.4	221.2	7.7	15.7	141.7	464.8	762.4	1 228.2	33.9	178.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.7	235.9	8.6	17.5	148.2	514.3	826.7	1 336.9	25.0	201.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.7	205.8	7.7	15.3	126.7	435.6	685.9	1 129.8	25.9	182.0	(NA)	(NA)
1982 Census	188	198	114	11.0	198.5	8.0	15.7	120.8	435.2	676.2	1 115.0	28.4	177.3	88	87
1981 ASM	(NA)	(NA)	(NA)	11.4	186.2	8.1	15.9	116.8	376.7	670.2	1 044.7	19.5	158.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.8	171.5	8.3	15.8	102.5	294.5	655.1	951.7	15.3	154.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.9	177.7	9.2	17.5	106.5	336.3	660.8	998.3	27.9	186.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.3	169.8	9.0	18.3	106.8	374.9	573.2	949.1	58.5	167.1	(NA)	(NA)
1977 Census	175	191	109	13.6	182.3	9.9	20.9	117.1	413.1	650.5	1 059.0	26.0	190.0	87	89
INDUSTRY 2296, TIRE CORD AND FABRICS															
1992 Census	13	16	15	5.1	112.6	4.4	8.7	86.0	402.6	584.6	981.0	37.2	85.3	95	99
1991 ASM	(NA)	(NA)	(NA)	4.9	98.9	4.2	7.9	75.7	332.2	647.2	982.0	9.8	81.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.1	99.3	4.4	8.3	76.1	334.3	654.8	981.6	10.7	88.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.2	101.0	4.6	8.9	78.6	347.9	702.9	1 045.9	32.3	83.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.1	96.6	4.5	8.8	75.7	337.4	608.7	943.3	4.5	73.3	(NA)	(NA)
1987 Census	9	13	12	5.1	99.8	4.4	9.1	79.8	396.5	612.9	1 005.0	5.5	73.0	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	5.2	95.1	4.5	8.6	73.8	351.6	653.2	1 007.8	5.3	75.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.7	95.4	4.9	9.0	73.5	342.6	718.3	1 064.4	5.9	81.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.0	101.4	5.2	10.2	81.0	371.6	801.5	1 192.1	14.8	97.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.4	100.5	5.5	10.1	78.6	316.9	737.7	1 063.7	9.1	118.2	(NA)	(NA)
1982 Census	12	21	19	6.5	90.5	5.6	9.6	69.7	289.9	687.9	981.5	6.2	123.8	90	99
1981 ASM	(NA)	(NA)	(NA)	8.6	110.9	7.4	14.0	88.0	216.9	834.6	1 060.1	4.8	121.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.9	103.6	7.6	13.8	81.8	228.5	782.8	1 009.2	8.3	135.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.7	114.5	8.4	16.5	92.9	256.2	873.1	1 129.2	11.5	122.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.6	103.6	8.3	16.3	83.1	245.0	839.7	1 090.1	10.7	128.4	(NA)	(NA)
1977 Census	8	20	20	9.6	94.7	8.5	16.2	78.1	242.1	779.7	1 013.2	7.0	126.7	90	99
INDUSTRY 2297, NONWOVEN FABRICS															
1992 Census	144	168	110	16.8	475.6	12.6	26.0	302.8	1 217.5	1 619.7	2 851.9	166.2	398.4	94	77
1991 ASM	(NA)	(NA)	(NA)	16.2	413.5	12.1	25.2	254.8	1 260.0	1 526.5	2 767.5	124.5	364.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.9	416.1	12.9	26.5	262.9	1 306.9	1 563.9	2 851.0	113.0	382.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.1	408.8	12.2	25.8	260.1	1 232.1	1 556.2	2 756.5	178.6	352.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.9	382.1	11.7	24.7	237.1	1 149.9	1 397.2	2 542.8	122.2	305.2	(NA)	(NA)
1987 Census	111	130	93	13.8	330.6	10.3	21.2	203.8	901.0	1 097.5	1 966.1	94.8	263.0	(D)	72
1986 ASM	(NA)	(NA)	(NA)	13.1	260.8	10.2	20.9	173.3	702.3	785.4	1 478.6	84.4	189.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.5	237.5	9.8	19.4	162.1	640.7	780.4	1 426.7	106.7	173.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.4	236.8	10.4	21.0	166.6	668.5	824.0	1 489.8	148.2	191.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.3	211.1	9.4	19.5	147.5	591.2	748.3	1 338.8	111.4	166.9	(NA)	(NA)
1982 Census	114	132	91	12.3	198.8	9.5	18.7	136.2	544.4	743.4	1 278.7	78.7	167.0	90	68
1981 ASM	(NA)	(NA)	(NA)	11.9	187.4	9.0	18.5	132.7	585.2	740.7	1 311.8	87.5	166.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.1	170.0	9.3	19.1	118.1	505.4	640.6	1 138.1	49.4	151.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.9	162.5	10.1	20.8	116.8	486.4	608.2	1 082.1	57.0	151.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.0	168.1	11.5	23.7	121.7	490.5	585.1	1 063.5	58.2	139.6	(NA)	(NA)
1977 Census	81	100	74	13.0	139.8	10.4	21.1	100.2	386.0	489.8	864.4	41.1	121.5	86	66
INDUSTRY 2298, CORDAGE AND TWINE															
1992 Census	191	210	78	6.7	138.7	5.2	10.8	85.7	350.1	324.8	672.7	21.5	129.2	95	93
1991 ASM	(NA)	(NA)	(NA)	6.8	128.0	5.3	11.4	82.0	248.1	355.0	588.5	16.6	126.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.0	129.7	5.3	11.3	82.5	248.8	387.7	636.9	23.2	109.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.2	124.9	5.6	10.7	79.0	258.7	390.9	646.3	13.8	107.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.9	117.4	5.4	10.6	78.0	281.8	280.4	560.3	11.0	97.7	(NA)	(NA)
1987 Census	181	197	78	6.9	112.3	5.5	10.8	75.6	283.8	261.1	541.1	12.0	94.1	94	97
1986 ASM	(NA)	(NA)	(NA)	6.0	93.8	4.7	9.2	62.4	226.2	182.5	413.0	9.5	83.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.3	92.9	5.0	9.5	61.7	211.9	182.2	394.5	23.7	93.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.6	87.1	5.2	9.6	59.4	209.8	201.9	408.8	19.0	94.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.2	93.6	5.7	10.6	62.9	200.4	206.5	412.9	15.8	92.7	(NA)	(NA)
1982 Census	164	181	69	6.6	77.0	5.2	9.4	51.7	181.5	178.7	358.7	17.0	89.6	92	91
1981 ASM	(NA)	(NA)	(NA)	6.6	69.1	5.3	9.8	48.7	183.4	183.9	359.4	14.2	78.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	72.8	5.7	10.6	49.7	171.3	175.9	341.7	12.6	81.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.3	85.0	7.4	13.7	58.1	201.3	192.6	387.1	8.8	87.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.5	86.7	8.9	15.3	58.6	176.7	184.7	358.2	13.2	82.5	(NA)	(NA)
1977 Census	151	171	84	9.5	79.5	7.9	14.2	53.7	173.8	162.9	332.2	6.5	79.4	90	95
INDUSTRY 2299, TEXTILE GOODS, N.E.C.															
1992 Census	537	573	188	16.7	400.4	12.6	27.1	247.1	947.2	875.5	1 795.7	83.3	279.9	95	85
1991 ASM	(NA)	(NA)	(NA)	13.7	301.0	10.6	22.8	197.5	708.2	777.4	1 523.2	74.1	236.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.4	302.8	11.3	23.9	199.7	823.4	847.3	1 646.5	77.1	293.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.0	330.6	12.8	26.6	221.7	804.9	831.5	1 608.0	44.1	283.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.8	295.0	11.5	22.4	191.4	676.8	739.6	1 410.9	68.2	226.4	(NA)	(NA)
1987 Census	519	551	173	16.4	314.5	13.0	26.4	210.0	718.6	742.3	1 452.4	85.1	225.3	95	88
1986 ASM	(NA)	(NA)	(NA)	17.0	285.2	14.0	28.0	205.6	708.7	636.3	1 333.1	57.3	214.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.0	273.6	14.2	28.4	193.6	632.0	660.2	1 296.1	33.0	201.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.5	272.5	14.5	29.1	196.0	660.9	693.5	1 352.5	33.9	209.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.3	248.9	13.3	27.2	170.0	524.4	679.3	1 186.8	26.0	201.2	(NA)	(NA)
1982 Census	506	523	179	17.3	242.8	14.0	27.8	166.1	507.0	617.8	1 129.2	47.0	183.9	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	18.8	251.5	15.5	32.1	172.9	550.3	697.8	1 232.9	46.1	180.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	234.4	15.4	32.2	161.3	500.7	632.5	1 128.4	25.2	157.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.6	233.4	17.0	36.1	163.0	492.2	636.9	1 126.0	32.6	148.8	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2299, TEXTILE GOODS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	21.7	222.3	17.9	35.9	156.3	460.1	574.4	1 034.1	38.4	136.5	(NA)	(NA)
1977 Census	677	701	212	19.9	191.4	16.2	33.2	134.4	398.4	466.4	859.0	30.3	111.2	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED								
1992 Census	29 793	72	2 091	12.00	60	78	66 707	45	44.47
1991 ASM	29 288	69	2 109	12.21	58	76	66 063	44	45.56
1990 ASM	27 427	72	2 000	11.37	57	75	65 011	42	45.20
1989 ASM	27 011	70	2 030	11.66	58	74	68 011	40	47.71
1988 ASM	24 379	72	2 122	10.24	61	78	56 660	43	37.17
1987 Census	24 456	72	2 122	10.28	61	79	55 058	44	36.12
1986 ASM	22 485	74	2 069	9.36	61	80	47 206	48	30.73
1985 ASM	21 269	74	2 039	9.03	62	80	44 692	48	29.61
1984 ASM	20 162	74	2 035	8.47	62	79	43 957	46	29.39
1983 ASM	19 234	72	1 987	8.28	61	79	40 710	47	28.47
1982 Census	18 045	73	1 963	7.69	61	78	39 564	46	27.72
1981 ASM	16 333	71	1 963	7.35	64	82	33 044	49	23.69
1980 ASM	14 534	70	1 904	6.49	69	87	24 958	58	18.64
1979 ASM	13 775	71	1 902	6.09	66	84	26 070	53	19.22
1978 ASM	13 805	73	2 033	5.84	60	78	30 480	45	20.49
1977 Census	13 404	73	2 111	5.60	61	79	30 375	44	19.77
	INDUSTRY 2296, TIRE CORD AND FABRICS								
1992 Census	22 078	86	1 977	9.89	60	71	78 941	28	46.28
1991 ASM	20 184	86	1 881	9.58	66	76	67 796	30	42.05
1990 ASM	19 471	86	1 886	9.17	67	77	65 549	30	40.28
1989 ASM	19 423	88	1 935	8.83	67	77	66 904	29	39.09
1988 ASM	18 941	88	1 956	8.60	65	75	66 157	29	38.34
1987 Census	19 569	86	2 068	8.77	61	71	77 745	25	43.57
1986 ASM	18 288	87	1 911	8.58	65	74	67 615	27	40.88
1985 ASM	16 737	86	1 837	8.17	67	76	60 105	28	38.07
1984 ASM	16 900	87	1 962	7.94	67	76	61 933	27	36.43
1983 ASM	15 703	86	1 836	7.78	69	79	49 516	32	31.38
1982 Census	13 923	86	1 714	7.26	70	79	44 600	31	30.20
1981 ASM	12 895	86	1 892	6.29	79	89	25 221	51	15.49
1980 ASM	11 640	85	1 816	5.93	78	88	25 674	45	16.56
1979 ASM	11 804	87	1 964	5.63	77	87	26 412	45	15.53
1978 ASM	10 792	86	1 964	5.10	77	87	25 521	42	15.03
1977 Census	9 865	89	1 906	4.82	77	86	25 219	39	14.94
	INDUSTRY 2297, NONWOVEN FABRICS								
1992 Census	28 310	75	2 063	11.65	57	73	72 470	39	46.83
1991 ASM	25 525	75	2 083	10.11	55	70	77 778	33	50.00
1990 ASM	24 621	76	2 054	9.92	55	69	77 331	32	49.32
1989 ASM	25 391	76	2 115	10.08	56	71	76 528	33	47.76
1988 ASM	24 031	74	2 111	9.60	55	70	72 321	33	46.55
1987 Census	23 957	75	2 058	9.61	56	73	65 290	37	42.50
1986 ASM	19 908	78	2 049	8.29	53	71	53 611	37	33.60
1985 ASM	19 000	78	1 980	8.36	55	71	51 256	37	33.03
1984 ASM	17 672	78	2 019	7.93	55	71	49 888	35	31.83
1983 ASM	17 163	76	2 074	7.56	56	72	48 065	36	30.32
1982 Census	16 163	77	1 968	7.28	58	74	44 260	37	29.11
1981 ASM	15 748	76	2 056	7.17	56	71	49 176	32	31.63
1980 ASM	14 050	77	2 054	6.18	56	71	41 769	34	26.46
1979 ASM	12 597	78	2 059	5.62	56	71	37 705	33	23.38
1978 ASM	12 007	82	2 061	5.14	55	71	35 036	34	20.70
1977 Census	10 754	80	2 029	4.75	57	73	29 692	36	18.29

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2298, CORDAGE AND TWINE								
1992 Census	20 701	78	2 077	7.94	48	69	52 254	40	32.42
1991 ASM	18 824	78	2 151	7.19	60	82	36 485	52	21.76
1990 ASM	18 529	76	2 132	7.30	61	81	35 543	52	22.02
1989 ASM	17 347	78	1 911	7.38	60	80	35 931	48	24.18
1988 ASM	17 014	78	1 963	7.36	50	71	40 841	42	26.58
1987 Census	16 275	80	1 964	7.00	48	69	41 130	40	26.28
1986 ASM	15 633	78	1 957	6.78	44	67	37 700	41	24.59
1985 ASM	14 746	79	1 900	6.49	46	70	33 635	44	22.31
1984 ASM	13 197	79	1 846	6.19	49	71	31 788	42	21.85
1983 ASM	13 000	79	1 860	5.93	50	73	27 833	47	18.91
1982 Census	11 667	79	1 808	5.50	50	71	27 500	42	19.31
1981 ASM	10 470	80	1 849	4.97	51	70	27 788	38	18.71
1980 ASM	10 111	79	1 860	4.69	51	73	23 792	42	16.16
1979 ASM	9 140	80	1 851	4.24	50	72	21 645	42	14.69
1978 ASM	8 257	85	1 719	3.83	52	76	16 829	49	11.55
1977 Census	8 368	83	1 797	3.78	49	73	18 295	46	12.24
	INDUSTRY 2299, TEXTILE GOODS, N.E.C.								
1992 Census	23 976	75	2 151	9.12	49	71	56 719	42	34.95
1991 ASM	21 971	77	2 151	8.66	51	71	51 693	43	31.06
1990 ASM	21 028	78	2 115	8.36	51	70	57 181	37	34.45
1989 ASM	20 663	80	2 078	8.33	52	72	50 306	41	30.26
1988 ASM	19 932	78	1 948	8.54	52	73	45 730	44	30.21
1987 Census	19 177	79	2 031	7.95	51	73	43 817	44	27.22
1986 ASM	16 776	82	2 000	7.34	48	69	41 688	40	25.31
1985 ASM	16 094	84	2 000	6.82	51	72	37 176	43	22.25
1984 ASM	15 571	83	2 007	6.74	51	71	37 766	41	22.71
1983 ASM	15 270	82	2 045	6.25	57	78	32 172	47	19.28
1982 Census	14 035	81	1 986	5.97	55	76	29 306	48	18.24
1981 ASM	13 378	82	2 071	5.39	57	77	29 271	46	17.14
1980 ASM	12 535	82	2 091	5.01	56	77	26 775	47	15.55
1979 ASM	11 330	83	2 124	4.52	57	77	23 893	47	13.63
1978 ASM	10 244	82	2 006	4.35	56	77	21 203	48	12.82
1977 Census	9 618	81	2 049	4.05	54	77	20 020	48	12.00

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED														
United States	**–**	**193**	**90**	**9.2**	**274.1**	**6.6**	**13.8**	**165.6**	**613.7**	**912.0**	**1 528.1**	**47.1**	**10.3**	**567.1**
California	E1	22	7	.9	29.2	.5	.9	12.3	65.1	88.3	157.6	5.1	F	(D)
Connecticut	E2	7	4	.4	12.1	.2	.5	5.2	24.1	29.6	54.4	(D)	E	(D)
Georgia	E6	7	3	.1	3.0	.1	.2	2.0	3.2	5.9	9.1	.3	.6	41.1
Indiana	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	24	14	1.1	35.0	.8	1.7	20.3	80.0	146.8	227.6	4.6	.9	53.5
Michigan	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	17	8	.7	18.1	.5	1.0	10.7	42.0	73.3	117.3	3.9	F	(D)
New York	–	16	8	.6	15.7	.4	.9	9.2	47.2	58.6	106.3	1.8	F	(D)
North Carolina	–	13	6	.7	14.9	.6	1.2	10.2	46.3	74.5	118.6	(D)	E	(D)
North Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E2	16	11	1.2	38.6	.8	1.7	22.7	69.8	122.2	191.6	3.7	G	(D)
Pennsylvania	E1	9	5	.2	6.3	.1	.3	2.9	16.3	20.7	37.0	1.0	.3	14.7
South Carolina	–	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.9
Tennessee	–	7	4	.7	19.3	.5	1.2	14.8	46.0	48.9	92.3	2.5	F	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E1	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)

See footnotes at end of table.

TIPS [UPF] BATCH_450 [EISS,BA_TAYLOR] MCD-SRB 4/27/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 3
TSF:22E_92.DAT;3 4/27/95 11:34:54 UTF:22E_93.DAT;3 4/27/95 11:34:54 META:TIPS96-11344819.DAT;1 4/27/95 11:35:58

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2296, TIRE CORD AND FABRICS														
United States	**–**	**16**	**15**	**5.1**	**112.6**	**4.4**	**8.7**	**86.0**	**402.6**	**584.6**	**981.0**	**37.2**	**5.1**	**396.5**
Alabama	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	3	3	2.0	39.6	1.8	3.4	31.9	145.3	191.1	335.6	(D)	2.3	145.6
Indiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
North Carolina	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2297, NONWOVEN FABRICS														
United States	**–**	**168**	**110**	**16.8**	**475.6**	**12.6**	**26.0**	**302.8**	**1 217.5**	**1 619.7**	**2 851.9**	**166.2**	**13.8**	**901.0**
Alabama	E1	5	2	.2	4.0	.1	.2	1.8	7.2	9.9	17.5	(D)	(NA)	(NA)
Arkansas	E2	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	9	6	1.1	29.6	.8	1.5	19.3	57.1	108.1	166.6	(D)	.8	35.8
Indiana	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E6	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maine	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	F	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	10	6	1.1	38.5	.6	1.0	16.3	81.5	80.6	164.9	(D)	F	(D)
Michigan	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	6	5	.4	11.7	.3	.8	6.9	27.9	46.7	74.2	1.3	E	(D)
New York	E1	23	13	1.0	22.4	.8	1.5	14.8	57.3	57.8	114.5	3.2	F	(D)
North Carolina	–	22	18	3.1	80.4	2.4	5.2	53.5	219.0	237.3	454.5	36.2	H	(D)
Ohio	E6	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	10	8	1.2	28.6	1.0	1.8	17.5	84.0	84.0	171.5	2.8	1.2	62.5
Rhode Island	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	12	8	1.7	49.4	1.3	2.9	32.1	138.8	151.5	288.0	19.5	1.2	64.8
South Dakota	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.9	G	(D)
Texas	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	–	8	4	.3	11.9	.3	.6	8.7	36.9	78.4	116.7	(D)	(NA)	(NA)
INDUSTRY 2298, CORDAGE AND TWINE														
United States	**E2**	**210**	**78**	**6.7**	**138.7**	**5.2**	**10.8**	**85.7**	**350.1**	**324.8**	**672.7**	**21.5**	**6.9**	**283.8**
Alabama	–	10	5	.8	14.6	.6	1.4	10.1	31.6	19.5	50.4	1.1	F	(D)
California	E4	22	7	.3	7.5	.3	.6	4.6	17.0	13.1	29.9	.7	C	(D)
Connecticut	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	15	3	.2	3.4	.1	.2	1.3	9.2	8.0	17.1	(D)	C	(D)
Georgia	E7	10	5	.4	6.6	.4	.7	4.6	16.3	14.2	30.2	(D)	.6	26.7
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E3	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	E1	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maine	E9	7	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	7	1	.1	2.9	.1	.2	1.5	7.7	6.2	14.4	(D)	E	(D)
Michigan	–	5	3	.1	2.6	.1	.2	1.1	5.1	2.6	7.1	(Z)	C	(D)
Minnesota	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	5	3	.2	3.6	.2	.3	2.6	7.3	10.3	17.4	(D)	C	(D)
New York	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	E4	17	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	F	(D)
Ohio	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	13	6	.4	9.2	.3	.8	6.2	20.0	32.7	51.7	1.1	.3	17.7
Rhode Island	E1	6	2	.1	3.1	.1	.2	1.7	6.4	2.9	9.5	.1	(NA)	(NA)
Texas	E4	16	2	.1	2.2	.1	.2	1.4	4.3	4.8	8.9	.2	(NA)	(NA)
Utah	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	10	6	.4	9.8	.3	.6	5.7	24.0	28.6	52.0	.6	E	(D)

See footnotes at end of table.

TIPS [UPF] BATCH_450 [EISS,BA_TAYLOR] MCD-SRB 4/27/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 4
TSF:22E_92.DAT;3 4/27/95 11:34:54 UTF:22E_93.DAT;3 4/27/95 11:34:54 META:TIPS96-11344819.DAT;1 4/27/95 11:35:58

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2299, TEXTILE GOODS, N.E.C.														
United States	**E1**	**573**	**188**	**16.7**	**400.4**	**12.6**	**27.1**	**247.1**	**947.2**	**875.5**	**1 795.7**	**83.3**	**16.4**	**718.6**
Alabama	E9	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
California	E3	64	19	1.2	21.5	1.0	2.0	14.1	51.4	55.2	106.0	6.4	G	(D)
Connecticut	–	12	3	.3	10.3	.2	.5	4.3	20.7	21.4	41.1	.7	(NA)	(NA)
Florida	E4	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	C	(D)
Georgia	E2	40	14	1.0	24.8	.7	1.6	15.2	68.6	62.8	130.2	8.8	.8	27.1
Illinois	–	12	3	.2	5.1	.2	.3	3.0	11.0	12.3	23.3	.2	F	(D)
Indiana	–	6	2	.2	4.5	.1	.3	2.4	9.6	7.6	17.2	(D)	E	(D)
Kentucky	–	6	2	.2	4.3	.1	.2	1.9	17.7	11.1	28.6	(D)	(NA)	(NA)
Maine	E7	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E2	30	15	1.3	37.6	1.1	2.7	27.6	70.5	113.2	183.1	3.7	G	(D)
Mississippi	–	5	4	.3	5.3	.2	.5	4.2	14.7	19.7	34.5	.4	C	(D)
Missouri	E1	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	5	4	.5	15.9	.4	.8	11.9	27.0	22.8	48.8	(D)	C	(D)
New Jersey	E3	37	11	.7	15.6	.5	1.0	9.3	26.0	28.0	53.7	2.8	F	(D)
New York	E1	79	21	1.8	42.3	1.3	3.4	24.0	97.4	68.5	162.4	4.5	G	(D)
North Carolina	–	52	23	2.0	38.0	1.6	3.1	24.4	74.5	79.8	151.8	5.2	G	(D)
Ohio	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	25	4	.4	10.3	.3	.6	6.0	32.2	18.4	49.6	.9	.7	33.3
Rhode Island	E4	4	3	.2	4.0	.2	.4	2.8	11.3	17.9	28.5	(D)	.3	15.6
South Carolina	–	29	18	2.6	73.0	2.0	3.9	43.7	189.3	158.2	334.0	24.0	2.2	137.7
Tennessee	–	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E4	22	4	.3	6.1	.3	.6	4.5	13.8	10.0	23.7	1.0	E	(D)
Virginia	–	7	6	.7	18.3	.5	.9	8.0	44.4	14.0	59.1	(D)	E	(D)
Wisconsin	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Coated fabrics, not rubberized (SIC 2295)	Tire cord and fabrics (SIC 2296)	Nonwoven fabrics (SIC 2297)	Cordage and twine (SIC 2298)	Textile goods, n.e.c. (SIC 2299)
Companies ---- number	186	13	144	191	537
All establishments ---- number	193	16	168	210	573
With 1 to 19 employees ---- number	103	1	58	132	385
With 20 to 99 employees ---- number	62	3	68	59	146
With 100 employees or more ---- number	28	12	42	19	42
Employment and labor costs:					
Employees ---- 1,000	9.2	5.1	16.8	6.7	16.7
Compensation, total ---- mil dol	357.0	155.2	591.7	168.5	764.4
Annual payroll ---- mil dol	274.1	112.6	475.6	138.7	400.4
Fringe benefits ---- mil dol	82.9	42.6	116.0	29.8	364.0
Social Security and other legally required payments ---- mil dol	28.4	12.0	46.6	14.0	109.5
Employer voluntary payments ---- mil dol	54.5	30.6	69.5	15.8	254.5
Production workers:					
Average for year ---- 1,000	6.6	4.4	12.6	5.2	12.6
March ---- 1,000	6.6	4.3	12.5	5.3	12.7
May ---- 1,000	6.6	4.3	12.6	5.2	12.7
August ---- 1,000	6.6	4.4	12.8	5.2	12.6
November ---- 1,000	6.5	4.5	12.4	5.1	12.4
Hours ---- millions	13.8	8.7	26.0	10.8	27.1
Wages ---- mil dol	165.6	86.0	302.8	85.7	247.1
Cost of materials[1] ---- mil dol	912.0	584.6	1 619.7	324.8	875.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	847.4	554.3	1 317.6	263.3	740.5
Resales ---- mil dol	19.3	.1	132.2	35.2	75.7
Fuels ---- mil dol	14.3	4.7	33.8	2.3	16.7
Purchased electricity ---- mil dol	20.5	24.7	77.2	10.1	36.1
Contract work ---- mil dol	10.5	.9	59.0	13.9	6.5
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	299.2	540.0	1 705.2	168.4	585.6
Generated less sold ---- mil kWh	–	–	(D)	–	–
Total value of shipments ---- mil dol	1 528.1	981.0	2 851.9	672.7	1 795.7
Value added ---- mil dol	613.7	402.6	1 217.5	350.1	947.2

See footnotes at end of table.

TIPS [UPF] BATCH_450 [EISS,BA_TAYLOR] MCD-SRB 4/27/95 11:36 AM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 5
TSF:22E_92.DAT;3 4/27/95 11:34:54 UTF:22E_93.DAT;3 4/27/95 11:34:54 META:TIPS96-11344819.DAT;1 4/27/95 11:35:58

Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Coated fabrics, not rubberized (SIC 2295)	Tire cord and fabrics (SIC 2296)	Nonwoven fabrics (SIC 2297)	Cordage and twine (SIC 2298)	Textile goods, n.e.c. (SIC 2299)
Inventories by stage of fabrication:					
Beginning of 1992 ---mil dol---	224.3	79.5	405.4	129.1	252.7
Finished goods ---mil dol---	77.4	21.6	214.3	74.7	117.1
Work in process ---mil dol---	44.7	23.4	61.6	15.4	29.8
Materials and supplies ---mil dol---	102.2	34.6	129.5	39.0	105.8
End of 1992 ---mil dol---	216.1	85.3	398.4	129.2	279.9
Finished goods ---mil dol---	73.9	26.3	204.0	76.8	141.8
Work in process ---mil dol---	45.7	24.9	57.1	15.6	32.2
Materials and supplies ---mil dol---	96.5	34.1	137.2	36.9	106.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Coated fabrics, not rubberized (SIC 2295)	Tire cord and fabrics (SIC 2296)	Nonwoven fabrics (SIC 2297)	Cordage and twine (SIC 2298)	Textile goods, n.e.c. (SIC 2299)
Gross book value of depreciable assets:					
Total:					
Beginning of year	500.8	334.5	1 809.1	197.7	820.8
New capital expenditures[1]	47.1	37.2	166.2	21.5	83.3
Used capital expenditures	(D)	(D)	(D)	3.3	5.0
Retirements	(D)	(D)	(D)	4.0	28.6
End of year	531.4	375.2	1 924.0	218.5	880.5
Buildings and other structures:					
Beginning of year	117.9	80.2	320.9	38.4	170.8
New capital expenditures	5.6	.9	23.6	3.1	10.8
Used capital expenditures	(D)	–	(D)	.4	.6
Retirements	(D)	.1	(D)	.1	2.0
End of year	121.3	81.0	342.2	41.8	180.2
Machinery and equipment:					
Beginning of year	382.9	254.3	1 488.2	159.2	650.1
New capital expenditures[1]	41.5	36.4	142.7	18.4	72.5
Used capital expenditures	.8	(D)	4.7	2.9	4.4
Retirements	15.0	(D)	53.6	3.9	26.6
End of year	410.1	294.2	1 581.9	176.8	700.3
Depreciation charges during 1992:					
Total	32.9	18.9	117.2	14.0	60.5
Buildings and other structures	4.9	2.7	11.7	1.6	9.2
Machinery and equipment	27.9	16.3	105.6	12.3	51.3
Rental payments:					
Total	20.4	7.2	28.8	7.5	20.7
Buildings and other structures	4.9	2.8	9.9	4.2	11.4
Machinery and equipment	15.5	4.4	18.8	3.2	9.3

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Coated fabrics, not rubberized (SIC 2295)		Tire cord and fabrics (SIC 2296)		Nonwoven fabrics (SIC 2297)		Cordage and twine (SIC 2298)		Textile goods, n.e.c. (SIC 2299)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.9	(X)	1.3	(X)	6.5	(X)	.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	76.5	(X)	78.5	(X)	80.7	(X)	51.6	(X)	(S)	(X)
Machinery	24.8	(X)	3.3	(X)	59.4	(X)	2.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	76.6	(X)	78.5	(X)	84.6	(X)	52.1	(X)	(S)	(X)
Other purchased services:										
Communications	5.4	(X)	.5	(X)	5.0	(X)	(S)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	74.8	(X)	66.4	(X)	79.6	(X)	(S)	(X)	(S)	(X)
Legal	6.1	(X)	.1	(X)	2.8	(X)	1.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	76.6	(X)	78.5	(X)	78.0	(X)	52.1	(X)	(S)	(X)
Accounting and bookkeeping	3.4	(X)	.1	(X)	10.6	(X)	(S)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	76.5	(X)	78.5	(X)	74.5	(X)	(S)	(X)	(S)	(X)
Advertising	6.0	(X)	–	(X)	7.6	(X)	5.7	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.1	(X)	78.5	(X)	79.4	(X)	52.1	(X)	(S)	(X)
Software and other data processing	2.0	(X)	.4	(X)	6.6	(X)	(S)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	76.5	(X)	78.5	(X)	81.2	(X)	(S)	(X)	(S)	(X)
Refuse removal, including hazardous waste	6.1	(X)	.8	(X)	5.0	(X)	.2	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.0	(X)	78.5	(X)	85.1	(X)	52.1	(X)	(S)	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Coated fabrics, not rubberized (SIC 2295)		Tire cord and fabrics (SIC 2296)		Nonwoven fabrics (SIC 2297)		Cordage and twine (SIC 2298)		Textile goods, n.e.c. (SIC 2299)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	41.5	(X)	36.4	(X)	142.7	(X)	18.4	(X)	72.5	(X)
Automobiles, trucks, etc., for highway use	.3	39	.1	1	.5	29	(S)	(X)	55.5	19
Computers and peripheral data processing equipment	4.5	65	.6	1	8.3	4	(S)	(X)	1.2	61
All other	36.6	9	35.7	1	133.9	1	(S)	(X)	15.8	61
Adjustment ratio[3]	1.2	(X)	1.2	(X)	1.2	(X)	(S)	(X)	.6	(X)
Cost of materials, components, parts, etc., used	847.4	(X)	554.3	(X)	1 317.6	(X)	263.3	(X)	740.5	(X)
Materials purchased or transferred from foreign sources[4]	21.0	31	32.8	1	57.7	24	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	826.4	1	521.5	1	1 259.8	2	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.6	(X)	1.4	(X)	1.5	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED												
Total	**–**	**193**	**9.2**	**274.1**	**6.6**	**13.8**	**165.6**	**613.7**	**912.0**	**1 528.1**	**47.1**	**216.1**
Establishments with an average of—												
1 to 4 employees	E9	49	.1	1.9	.1	.1	1.2	3.9	5.7	9.6	.5	1.5
5 to 9 employees	E8	26	.2	4.3	.1	.2	2.5	8.8	12.4	21.1	.5	3.0
10 to 19 employees	E1	28	.4	9.9	.3	.5	5.1	21.1	26.7	48.9	1.9	6.8
20 to 49 employees	E1	37	1.2	34.7	.9	1.7	19.3	81.3	121.8	204.7	3.0	30.8
50 to 99 employees	–	25	1.8	49.9	1.2	2.5	25.8	130.3	214.0	342.3	7.9	52.4
100 to 249 employees	–	24	3.9	114.1	2.7	5.7	67.9	246.0	388.3	638.4	19.3	94.8
250 to 499 employees	–	4	1.7	59.4	1.3	3.0	43.8	122.4	143.0	263.2	14.0	26.9
Covered by administrative records[2]	E9	64	.2	4.6	.1	.3	2.9	8.5	12.5	21.0	.6	3.2
INDUSTRY 2296, TIRE CORD AND FABRICS												
Total	**–**	**16**	**5.1**	**112.6**	**4.4**	**8.7**	**86.0**	**402.6**	**584.6**	**981.0**	**37.2**	**85.3**
Establishments with an average of—												
10 to 19 employees	–	1	1.2	23.0	.9	1.9	15.7	38.6	137.4	171.4	37.2	24.5
20 to 49 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	3	4.0	89.6	3.4	6.7	70.3	364.0	447.3	809.7	(D)	60.8
500 to 999 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2297, NONWOVEN FABRICS												
Total	**–**	**168**	**16.8**	**475.6**	**12.6**	**26.0**	**302.8**	**1 217.5**	**1 619.7**	**2 851.9**	**166.2**	**398.4**
Establishments with an average of—												
1 to 4 employees	E8	20	(Z)	.8	(Z)	.1	.6	2.5	2.9	5.3	.2	.9
5 to 9 employees	E7	14	.1	1.9	.1	.1	1.3	4.9	5.9	10.9	.4	1.3
10 to 19 employees	E1	24	.3	8.7	.2	.5	5.0	27.4	44.3	71.7	1.5	9.4
20 to 49 employees	E2	39	1.3	31.6	1.0	1.9	18.4	87.3	121.0	210.6	3.9	23.8
50 to 99 employees	E1	29	2.1	50.7	1.7	3.6	31.4	118.2	156.1	273.8	20.2	35.1
100 to 249 employees	–	22	3.4	92.8	2.6	5.6	61.9	239.3	284.0	523.9	32.2	59.1
250 to 499 employees	–	11	3.7	103.1	2.8	5.3	69.2	321.2	382.9	710.1	59.9	92.5
500 to 999 employees	–	9	5.8	185.8	4.1	8.9	115.1	416.7	622.5	1 045.6	48.1	176.3
Covered by administrative records[2]	E9	29	.2	2.8	.1	.2	1.9	6.0	7.5	13.5	.5	1.8

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2298, CORDAGE AND TWINE												
Total	**E2**	**210**	**6.7**	**138.7**	**5.2**	**10.8**	**85.7**	**350.1**	**324.8**	**672.7**	**21.5**	**129.2**
Establishments with an average of—												
1 to 4 employees	E9	66	.1	2.2	.1	.2	1.4	5.1	5.5	10.7	.5	1.9
5 to 9 employees	E6	31	.2	3.5	.2	.3	2.0	8.2	8.0	16.4	.5	2.5
10 to 19 employees	E1	35	.5	8.9	.4	.8	5.5	22.1	20.8	43.0	1.2	6.3
20 to 49 employees	E1	35	1.1	23.7	.9	1.8	14.9	54.9	48.5	104.1	2.8	16.7
50 to 99 employees	E4	24	1.6	34.7	1.2	2.6	21.9	79.2	99.8	176.7	6.0	31.3
100 to 249 employees	E1	17	3.2	65.7	2.5	5.1	40.1	180.6	142.1	321.9	10.4	70.5
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	86	.3	4.4	.2	.4	2.8	10.1	10.8	20.9	1.0	3.7
INDUSTRY 2299, TEXTILE GOODS, N.E.C.												
Total	**E1**	**573**	**16.7**	**400.4**	**12.6**	**27.1**	**247.1**	**947.2**	**875.5**	**1 795.7**	**83.3**	**279.9**
Establishments with an average of—												
1 to 4 employees	E8	209	.3	6.1	.3	.5	3.9	15.0	13.6	28.4	1.9	3.5
5 to 9 employees	E5	98	.7	12.6	.5	1.0	7.9	29.6	28.9	58.4	3.3	6.1
10 to 19 employees	E2	78	1.1	22.5	.8	1.8	14.6	62.0	63.7	125.0	4.4	12.9
20 to 49 employees	E2	95	2.9	59.4	2.3	5.6	37.7	148.3	164.1	309.0	12.3	38.9
50 to 99 employees	E1	51	3.6	79.9	2.8	5.7	52.6	176.7	187.5	365.2	11.3	35.5
100 to 249 employees	–	32	4.7	116.7	3.3	6.8	64.8	268.5	221.2	481.8	24.3	77.4
250 to 499 employees	E1	10	3.3	103.2	2.6	5.6	65.6	247.0	196.4	427.9	25.8	105.6
Covered by administrative records[2]	E9	229	.7	12.0	.6	1.1	7.7	24.3	24.7	49.0	3.7	6.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2295	**Coated fabrics, not rubberized:**										
	All establishments in industry	193	9.2	274.1	6.6	13.8	165.6	613.7	912.0	1 528.1	47.1
	Establishments with this product class primary:										
22952	Vinyl coated fabrics, including expanded vinyl coated	41	3.8	121.8	2.7	5.8	74.5	266.1	417.0	678.9	23.7
22953	Other coated or laminated fabrics and coated yarns	59	4.6	130.3	3.3	6.8	79.0	314.9	424.4	747.3	20.7
2296	**Tire cord and fabrics:**										
	All establishments in industry	16	5.1	112.6	4.4	8.7	86.0	402.6	584.6	981.0	37.2
2297	**Nonwoven fabrics:**										
	All establishments in industry	168	16.8	475.6	12.6	26.0	302.8	1 217.5	1 619.7	2 851.9	166.2
	Establishments with this product class primary:										
22971	Nonwoven fabrics	76	10.9	346.1	7.9	17.0	220.6	857.0	1 287.7	2 151.5	151.9
22972	Fabricated nonwoven products	42	5.3	117.9	4.2	8.1	74.3	333.9	304.0	645.8	12.2
2298	**Cordage and twine:**										
	All establishments in industry	210	6.7	138.7	5.2	10.8	85.7	350.1	324.8	672.7	21.5
	Establishments with this product class primary:										
22981	Hard fiber cordage and twine	12	.5	12.1	.5	1.0	9.0	32.9	57.7	90.3	3.3
22982	Soft fiber cordage and twine (except cotton)	58	4.1	88.6	3.1	6.3	52.9	241.2	197.1	437.4	11.7
22983	Cotton cordage and twine	16	1.2	21.6	1.0	2.0	13.7	40.6	35.8	75.6	4.0
2299	**Textile goods, n.e.c.:**										
	All establishments in industry	573	16.7	400.4	12.6	27.1	247.1	947.2	875.5	1 795.7	83.3
	Establishments with this product class primary:										
22991	Pressed, punched, or needled felts, except hats	52	4.9	145.4	3.7	8.2	88.1	391.6	224.0	608.3	31.6
22994	Recovered fibers, processed mill waste and related products	35	2.6	63.3	2.0	4.1	38.2	150.3	224.6	364.5	14.5
22995	Paddings and upholstery filling, batting, and wadding (excluding foam rubber and plastics)	79	4.4	102.0	3.1	6.6	62.4	203.3	256.1	454.8	15.3
22996	Jute goods and scouring and combing mill products	16	.8	18.7	.6	1.2	11.7	53.2	35.1	86.5	4.4

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED			
Total value of shipments	1 528.1	1 433.7	1 115.0
Primary products value of shipments	1 279.5	1 202.5	926.0
Secondary products value of shipments	195.3	172.7	121.9
Total miscellaneous receipts	53.4	58.5	67.2
Value of resales	23.4	37.6	34.5
Contract receipts	14.9	17.6	29.2
Other miscellaneous receipts	15.1	3.3	3.8
Primary products specialization ratio	87	87	88
Value of primary products shipments made in all industries	1 435.5	1 323.4	1 069.3
Value of primary products shipments made in this industry	1 279.5	1 202.5	926.0
Value of primary products shipments made in other industries	156.0	120.9	143.3
Coverage ratio	89	91	87
INDUSTRY 2296, TIRE CORD AND FABRICS			
Total value of shipments	981.0	1 005.0	981.5
Primary products value of shipments	927.7	(D)	879.2
Secondary products value of shipments	52.0	(D)	95.6
Total miscellaneous receipts	1.3	(D)	6.7
Value of resales	(D)	(D)	(D)
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	95	(D)	90
Value of primary products shipments made in all industries	928.0	896.6	892.2
Value of primary products shipments made in this industry	927.7	(D)	879.2
Value of primary products shipments made in other industries	.3	(D)	13.0
Coverage ratio	99	(D)	99
INDUSTRY 2297, NONWOVEN FABRICS			
Total value of shipments	2 851.9	1 966.1	1 278.7
Primary products value of shipments	2 518.6	1 738.8	1 120.2
Secondary products value of shipments	173.3	(D)	127.1
Total miscellaneous receipts	160.0	(D)	31.5
Value of resales	141.7	(D)	11.2
Contract receipts	9.8	(D)	14.4
Other miscellaneous receipts	8.5	(D)	6.0
Primary products specialization ratio	94	(D)	90
Value of primary products shipments made in all industries	3 285.3	2 423.5	1 658.8
Value of primary products shipments made in this industry	2 518.6	1 738.8	1 120.2
Value of primary products shipments made in other industries	766.7	684.7	538.6
Coverage ratio	77	72	68
INDUSTRY 2298, CORDAGE AND TWINE			
Total value of shipments	672.7	541.1	358.7
Primary products value of shipments	580.5	459.4	306.1
Secondary products value of shipments	32.6	29.0	25.2
Total miscellaneous receipts	59.6	52.7	27.5
Value of resales	56.1	44.3	26.3
Contract receipts	(D)	8.4	.8
Other miscellaneous receipts	(D)	.1	.4
Primary products specialization ratio	95	94	92
Value of primary products shipments made in all industries	624.9	475.4	336.0
Value of primary products shipments made in this industry	580.5	459.4	306.1
Value of primary products shipments made in other industries	44.4	16.0	29.9
Coverage ratio	93	97	91
INDUSTRY 2299, TEXTILE GOODS, N.E.C.			
Total value of shipments	1 795.7	1 452.4	(NA)
Primary products value of shipments	1 573.2	1 252.1	(NA)
Secondary products value of shipments	79.8	61.3	(NA)
Total miscellaneous receipts	142.7	139.0	(NA)
Value of resales	75.8	96.8	(NA)
Contract receipts	58.1	39.9	(NA)
Other miscellaneous receipts	8.8	2.3	(NA)
Primary products specialization ratio	95	95	(NA)
Value of primary products shipments made in all industries	1 841.8	1 424.5	(NA)
Value of primary products shipments made in this industry	1 573.2	1 252.1	(NA)
Value of primary products shipments made in other industries	268.6	172.4	(NA)
Coverage ratio	85	88	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2295– —	**COATED FABRICS, NOT RUBBERIZED**						
	Total	**(NA)**	**(X)**	**1 435.5**	**(NA)**	**(X)**	**1 323.4**
22952	Vinyl coated fabrics, including expanded vinyl coated	(NA)	(X)	614.1	(NA)	(X)	699.0
	Lightweight fabrics, 10 oz or less per sq yd finished weight:						
22952 13	Woven fabrics base, mil lin yd	18	(S)	59.7	14	36.1	59.5
22952 15	Knit fabrics base, mil lin yd	9	(S)	53.0	7	(S)	26.8
22952 17	Nonwoven base, mil lin yd	8	16.5	62.4	3	(S)	13.9
	Mediumweight fabrics, more than 10 oz up to 16 oz per sq yd finished weight:						
22952 22	Woven fabrics base, mil lin yd	16	(S)	91.9	15	30.3	85.2
22952 24	Knit fabrics base, mil lin yd	9	**23.6	70.1	8	*3.6	15.1
22952 26	Nonwoven base, mil lin yd	8	*25.0	44.3	8	*28.6	51.4
	Heavyweight fabrics, more than 16 oz per sq yd finished weight:						
22952 32	Woven fabrics base, mil lin yd	16	37.2	138.7	23	*54.6	188.2
22952 34	Knit fabrics base, mil lin yd	6	*9.5	43.0	9	29.3	140.3
22952 36	Nonwoven base, mil lin yd	9	(S)	30.6	10	24.8	94.6
22952 00	Vinyl coated fabrics, including expanded vinyl coated, n.s.k.	(NA)	(X)	20.3	(NA)	(X)	24.1
22953	Other coated or laminated fabrics and coated yarns	(NA)	(X)	731.4	(NA)	(X)	521.9
22953 11	Pyroxylin coated fabrics, mil lin yd	5	54.3	54.2	(NA)	(NA)	39.4
22953 15	Polyurethane coated fabrics, mil lin yd	12	**26.8	87.8	11	(S)	78.9
	Other coated or laminated fabrics, excluding rubber:						
22953 17	Lightweight fabrics, 10 oz or less per sq yd finished weight, mil lin yd	25	148.4	177.6	(NA)	(NA)	277.1
22953 38	Mediumweight fabrics, more than 10 oz up to and including 16 oz per sq yd finished weight, mil lin yd	22	(S)	170.2	9	**11.6	35.0
22953 48	Heavyweight fabrics, more than 16 oz per sq yd finished weight, mil lin yd	22	(S)	180.8	9	(S)	42.6
22953 98	Coated yarns, all types except rubber, mil lin yd	10	4.3	55.5	10	(S)	39.6
22953 00	Other coated or laminated fabrics and coated yarns, n.s.k.	(NA)	(X)	5.2	(NA)	(X)	9.3
22950	Coated fabrics, not rubberized, n.s.k.	(NA)	(X)	90.1	(NA)	(X)	102.5
22950 00	Coated fabrics, not rubberized, n.s.k.[3]	(NA)	(X)	68.4	(NA)	(X)	47.4
22950 02	Coated fabrics, not rubberized, n.s.k.[4]	(NA)	(X)	21.6	(NA)	(X)	55.0
2296– —	**TIRE CORD AND TIRE CORD FABRICS**						
	Total	**(NA)**	**(X)**	**928.0**	**(NA)**	**(X)**	**896.6**
22960	Tire cord and tire cord fabrics	(NA)	(X)	928.0	(NA)	(X)	896.6
22960 00	Tire cord and tire cord fabrics, mil lb	13	505.4	928.0	10	*495.9	r896.6
22960 02	Tire cord and tire cord fabrics, n.s.k.[5]	(NA)	(X)	–	(NA)	(X)	–
2297– —	**NONWOVEN FABRICS**						
	Total	**(NA)**	**(X)**	**3 285.3**	**(NA)**	**(X)**	**2 423.5**
22971	Nonwoven fabrics	(NA)	(X)	2 471.3	(NA)	(X)	1 847.3
	Laminated and wet laid:						
22971 21	Less than 1 oz per sq yd, mil sq yd	12	283.8	61.7	16	(S)	140.1
22971 23	1 oz to 2.5 oz per sq yd, mil sq yd	18	(S)	389.8	12	(S)	179.8
22971 25	More than 2.5 oz per sq yd, mil sq yd	21	196.3	143.3	16	(S)	103.7
	Spun bonded, dry laid, and other:						
22971 31	Less than 0.8 oz per sq yd, mil sq yd	17	5 255.0	357.4	16	*3 984.5	372.3
22971 33	0.8 oz to 1.5 oz per sq yd, mil sq yd	17	(S)	800.5	14	4 084.4	581.9
22971 35	More than 1.5 oz per sq yd, mil sq yd	31	1 375.3	619.7	25	660.8	341.3
22971 00	Nonwoven fabrics, n.s.k.	(NA)	(X)	98.9	(NA)	(X)	128.2
22972	Fabricated nonwoven products	(NA)	(X)	754.5	(NA)	(X)	502.0
22972 41	Blankets made from nonwoven fabrics, 1,000 dozen	7	**558.5	112.0	(NA)	(S)	122.4
	Ribbons, nonwoven for gift tyings:						
22972 03	Christmas gift tyings, mil lin yd	7	(S)	46.3	8	(S)	30.6
22972 05	Other gift tyings, mil lin yd	9	60.0	99.2	11	(S)	73.7
22972 51	Wipers made from nonwoven fabrics (including windshield, industrial, and lithographic), 1,000 dozen	19	*213.8	111.5	4	**354.4	101.4
22972 98	All other fabricated nonwoven products, excluding diapers and orthopedic, prosthetic, and surgical supplies, 1,000 dozen	29	(S)	379.7	18	(NA)	173.2
22972 00	Fabricated nonwoven products, n.s.k.	(NA)	(X)	5.8	(NA)	(X)	.6
22970	Nonwoven fabrics, n.s.k.	(NA)	(X)	59.5	(NA)	(X)	74.2
22970 00	Nonwoven fabrics, n.s.k.[6]	(NA)	(X)	46.0	(NA)	(X)	44.2
22970 02	Nonwoven fabrics, n.s.k.[7]	(NA)	(X)	13.5	(NA)	(X)	29.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2298– —	**CORDAGE AND TWINE**						
	Total	**(NA)**	**(X)**	**624.9**	**(NA)**	**(X)**	**475.4**
22981	Hard fiber cordage and twine	(NA)	(X)	119.0	(NA)	(X)	95.4
22981 11	Hard fiber cordage rope and cable (including products of 3 strands or more) each strand composed of 2 yarns or more, mil lb	13	189.9	44.1	(NA)	*44.1	82.4
22981 35	Hard fiber twine (including products laid or twisted, but not stranded; and twine of hard fiber and paper), mil lb	3	(D)	(D)	4	(D)	(D)
22981 00	Hard fiber cordage and twine, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	(D)
22982	Soft fiber cordage and twine (except cotton)	(NA)	(X)	356.9	(NA)	(X)	258.7
	Manmade fiber cordage and twine:						
	Fish line:						
22982 01	Commercial, mil lb	7	(S)	5.3	4	(D)	(D)
22982 02	Recreational, mil lb	5	(D)	(D)	(NA)	(D)	(D)
	Fish nets and fish netting:						
22982 03	Commercial, mil lb	10	*3.4	20.9	13	6.8	28.2
22982 05	Recreational, mil lb	6	**.5	2.6	4	(S)	3.4
22982 08	Rope 3/16 inch diameter and larger, mil lb	31	58.5	118.2	21	*34.9	65.5
22982 14	Industrial and agriculture twine, less than 3/16 inch diameter, mil lb	13	94.4	86.1	26	148.6	95.6
22982 19	All other manmade fiber cordage and twine, mil lb	27	148.6	68.2			
22982 28	Soft fiber cordage and twine (except cotton and manmade, including hemp, jute, and paper), mil lb	7	(S)	13.2	8	(S)	18.6
22982 00	Soft fiber cordage and twine (except cotton), n.s.k.	(NA)	(X)	(D)	(NA)	(X)	(D)
22983	Cotton cordage and twine	(NA)	(X)	74.0	(NA)	(X)	47.8
22983 11	Braided cord, regardless of size, mil lb	9	*6.6	18.4	9	**7.5	12.9
22983 25	Wrapping, seine, and other twine, mil lb	5	3.2	22.6	4	*6.7	9.6
22983 98	All other cotton cordage and twine, including fish nets, mil lb	10	42.8	18.1	5	(S)	14.2
22983 00	Cotton cordage and twine, n.s.k.	(NA)	(X)	14.9	(NA)	(X)	11.0
22980	Cordage and twine, n.s.k.	(NA)	(X)	75.0	(NA)	(X)	73.5
22980 00	Cordage and twine, n.s.k.[3]	(NA)	(X)	54.1	(NA)	(X)	48.8
22980 02	Cordage and twine, n.s.k.[4]	(NA)	(X)	20.9	(NA)	(X)	24.7
2299– —	**TEXTILE GOODS, N.E.C.**						
	Total	**(NA)**	**(X)**	**1 841.8**	**(NA)**	**(X)**	**1 424.5**
22991	Pressed, punched, or needled felts, except hats	(NA)	(X)	635.9	(NA)	(X)	428.2
22991 11	Pressed felts, mil lb	13	*6.8	136.4	(NA)	(NA)	102.4
	Punched or needled felts (including stitch bonded):						
22991 35	Hair and/or jute felts, including carpet and rug linings and cushions, mil sq yd	11	**23.8	97.0	6	*28.9	33.5
22991 47	Wool felts and manmade fiber felts, excluding carpet and rug suitable for outdoor use (indoor/outdoor), mil lb	34	*301.8	400.2	17	(S)	285.0
22991 00	Pressed, punched, or needled felts, except hats, n.s.k.	(NA)	(X)	2.4	(NA)	(X)	7.3
22994	Recovered fibers, processed mill waste and related products	(NA)	(X)	292.6	(NA)	(X)	188.4
	Fibers recovered from mill waste:						
22994 11	Manmade fibers, mil lb	23	*530.0	134.8	(NA)	304.9	95.0
22994 13	All other fibers, including oakum, mil lb	13	*127.4	50.1	(NA)	(D)	(D)
22994 41	Flock, all fibers (new stock, waste, or reclaimed fiber), mil lb	13	**163.0	91.3	10	(S)	37.2
22994 00	Recovered fibers, processed mill waste and related products, n.s.k.	(NA)	(X)	16.4	(NA)	(X)	(D)
22995	Paddings and upholstery filling, batting, and wadding (excluding foam rubber and plastics)	(NA)	(X)	534.4	(NA)	(X)	433.9
22995 17	Automotive pads, mil lb	10	(S)	81.4	13	**134.2	147.9
22995 19	All other paddings, mil lb	22	*44.7	81.2	17	(S)	66.1
	Batting, wadding, and mattress felts:						
22995 32	Made from cotton linters, cotton waste, and raw cotton, mil lb	29	(D)	(D)	27	*133.5	58.3
22995 33	Made from manmade fibers, mil lb	33	170.9	141.8	(NA)	*110.9	105.1
22995 35	Made from all other fibers, mil lb	7	(D)	(D)			
22995 57	Upholstery filling, mil lb	14	*73.3	77.0	6	23.9	23.3
22995 00	Paddings and upholstery filling, batting, and wadding (excluding foam rubber and plastics), n.s.k.	(NA)	(X)	38.8	(NA)	(X)	33.2
22996	Jute goods and scouring and combing mill products	(NA)	(X)	174.7	(NA)	(X)	217.7
	Jute goods (except jute felts, cordage, and twine) and linen goods:						
22996 01	Jute yarn, bagging, and all other jute woven goods (except felt, cordage, or twine)	3	(X)	(D)	4	(X)	(D)
22996 03	Linen thread, fabrics, and other linen goods, except cordage or twine	9	(X)	106.4	1	(X)	(D)
	Scouring and combing mill products:						
22996 10	Tops and noils, including top or sliver converted from tow without combing, mil lb	4	1.0	31.4	14	(S)	162.0
22996 11	Scoured wool and other scouring and combing mill products, including nubs and slubs, etc., mil lb	5	16.4	29.4	10	*41.6	51.3
22996 00	Jute goods and scouring and combing mill products, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	–
22990	Textile goods, n.e.c., n.s.k.	(NA)	(X)	204.1	(NA)	(X)	156.3
22990 00	Textile goods, n.e.c., n.s.k.[3]	(NA)	(X)	142.4	(NA)	(X)	107.2
22990 02	Textile goods, n.e.c., n.s.k.[4]	(NA)	(X)	61.7	(NA)	(X)	49.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]There were no administrative-record cases for this industry.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
22952, VINYL COATED FABRICS, INCLUDING EXPANDED VINYL COATED		
United States	**614.1**	**699.0**
Indiana	5.9	(NA)
Massachusetts	89.3	77.8
New Jersey	37.1	29.2
New York	6.6	17.3
North Carolina	71.9	50.1
Ohio	102.3	136.1
Tennessee	32.4	27.8
22953, OTHER COATED OR LAMINATED FABRICS AND COATED YARNS		
United States	**731.4**	**521.9**
California	102.6	(NA)
Connecticut	22.2	(NA)
Georgia	3.0	(NA)
Massachusetts	104.7	(NA)
New York	64.7	(NA)
North Carolina	55.6	(NA)
Ohio	64.6	(NA)
Pennsylvania	29.3	(NA)
22971, NONWOVEN FABRICS		
United States	**2 471.3**	**1 847.3**
Georgia	142.9	99.7
New Hampshire	10.2	(NA)
New Jersey	62.9	51.5
New York	49.3	32.9
North Carolina	370.9	269.5
South Carolina	334.7	216.3
Tennessee	406.9	(NA)
Wisconsin	91.8	(NA)
22972, FABRICATED NONWOVEN PRODUCTS		
United States	**754.5**	**502.0**
Mississippi	19.4	(NA)
New York	48.2	17.6
North Carolina	132.6	120.9
22981, HARD FIBER CORDAGE AND TWINE		
United States	**119.0**	**95.4**
North Carolina	25.7	(NA)
22982, SOFT FIBER CORDAGE AND TWINE (EXCEPT COTTON)		
United States	**356.9**	**258.7**
Alabama	28.8	(NA)
California	22.9	8.4
Georgia	17.4	(NA)
Massachusetts	13.8	13.1
Michigan	5.1	(NA)
New York	9.3	(NA)
North Carolina	23.8	30.8
22982, SOFT FIBER CORDAGE AND TWINE (EXCEPT COTTON)—Con.		
Pennsylvania	23.2	14.6
Washington	38.5	24.2
22983, COTTON CORDAGE AND TWINE		
United States	**74.0**	**47.8**
Alabama	7.5	5.4
North Carolina	35.9	10.5
Pennsylvania	4.6	(NA)
22991, PRESSED, PUNCHED, OR NEEDLED FELTS, EXCEPT HATS		
United States	**635.9**	**428.2**
California	7.6	(NA)
Georgia	52.5	(NA)
Illinois	6.7	(NA)
Massachusetts	84.7	81.0
New York	58.9	55.1
North Carolina	33.5	(NA)
South Carolina	143.8	128.2
22994, RECOVERED FIBERS, PROCESSED MILL WASTE AND RELATED PRODUCTS		
United States	**292.6**	**188.4**
Georgia	22.1	(NA)
Massachusetts	43.0	(NA)
New York	15.0	(NA)
North Carolina	19.2	12.6
South Carolina	96.4	68.4
22995, PADDINGS AND UPHOLSTERY FILLING, BATTING, AND WADDING (EXCLUDING FOAM RUBBER AND PLASTICS)		
United States	**534.4**	**433.9**
California	45.3	51.5
Georgia	18.4	13.9
Illinois	4.1	(NA)
Indiana	22.6	18.6
Massachusetts	37.9	13.2
Mississippi	28.1	(NA)
New York	41.5	24.2
North Carolina	78.3	71.7
South Carolina	31.6	(NA)
Tennessee	62.5	(NA)
Texas	8.4	3.4
22996, JUTE GOODS AND SCOURING AND COMBING MILL PRODUCTS		
United States	**174.7**	**217.7**
South Carolina	32.4	43.1

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2295-	**Coated fabrics, not rubberized**	**1 435.5**	**1 401.5**	**1 470.7**	**1 557.0**	**1 452.2**	**1 323.4**	**1 069.3**	**987.0**
22952	Vinyl coated fabrics, including expanded vinyl coated	614.1	647.3	740.4	821.8	764.8	699.0	628.5	680.4
22953	Other coated or laminated fabrics and coated yarns	731.4	644.5	609.9	619.9	578.5	521.9	376.5	258.3
22950	Coated fabrics, not rubberized, n.s.k.	90.1	109.6	120.5	115.3	108.9	102.5	64.3	48.3
2296-	**Tire cord and tire cord fabrics**	**928.0**	**961.5**	**921.4**	**979.1**	**860.3**	**896.6**	**892.2**	**919.8**
22960	Tire cord and tire cord fabrics	928.0	961.5	921.4	979.1	860.3	896.6	892.2	919.8
2297-	**Nonwoven fabrics**	**3 285.3**	**3 376.5**	**3 341.2**	**3 212.7**	**2 954.7**	**2 423.5**	**1 658.8**	**1 095.1**
22971	Nonwoven fabrics	2 471.3	2 513.5	2 418.7	2 285.3	2 151.8	1 847.3	1 263.0	782.4
22972	Fabricated nonwoven products	754.5	786.6	848.3	854.8	730.2	502.0	360.4	260.8
22970	Nonwoven fabrics, n.s.k.	59.5	76.3	74.2	72.6	72.7	74.2	35.4	51.9
2298-	**Cordage and twine**	**624.9**	**566.3**	**575.8**	**591.3**	**488.7**	**475.4**	**336.0**	**291.6**
22981	Hard fiber cordage and twine	119.0	153.2	177.6	148.4	96.5	95.4	58.3	42.5
22982	Soft fiber cordage and twine (except cotton)	356.9	261.8	249.7	281.5	271.8	258.7	228.1	183.8
22983	Cotton cordage and twine	74.0	80.8	72.6	88.5	48.2	47.8	21.8	47.6
22980	Cordage and twine, n.s.k.	75.0	70.6	75.9	73.0	72.3	73.5	27.8	17.7
2299-	**Textile goods, n.e.c.**	**1 841.8**	**1 593.3**	**1 681.7**	**1 677.8**	**1 426.0**	**1 424.5**	**1 145.7**	**891.7**
22991	Pressed, punched, or needled felts, except hats	635.9	546.5	564.7	529.4	445.2	428.2	261.9	186.2
22994	Recovered fibers, processed mill waste and related products	292.6	183.5	207.6	210.2	195.3	188.4	186.7	164.2
22995	Paddings and upholstery filling, batting, and wadding (excluding foam rubber and plastics)	534.4	512.2	481.7	492.9	417.7	433.9	283.8	260.5
22996	Jute goods and scouring and combing mill products	174.7	169.9	283.9	275.0	205.4	217.7	220.1	134.3
22990	Textile goods, n.e.c., n.s.k.	204.1	181.2	143.8	170.3	162.4	156.3	177.4	146.5

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2295, COATED FABRICS, NOT RUBBERIZED				
	Materials, ingredients, containers, and supplies	**(X)**	**847.4**	**(X)**	**r800.8**
282014	Manmade fibers, staple, and tow — mil lb	*61.3	27.5	*54.0	54.9
228015	Yarn, all fibers — mil lb	21.0	35.6	27.3	40.2
	Fabrics:				
220234	Cotton — mil lin yd	(S)	68.8	**83.0	71.8
220241	Manmade fiber, including glass — mil lin yd	222.6	201.3	*129.7	132.9
262104	Paper (cellulosic wadding) — mil lb	(S)	11.8	(S)	11.1
289147	Adhesives and binders (resins) — mil lb	(S)	25.6	(S)	18.9
286935	Plasticizers — mil lb	**66.6	39.1	72.0	42.7
282137	Vinyl and vinyl copolymer resins, all forms — mil lb	**123.2	56.5	115.0	60.6
282109	Plastics resins (except vinyl) consumed in the form of granules, pellets, powders, liquids, etc. — mil lb	*50.8	53.9	**140.0	72.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	28.0	(X)	20.4
280010	Additives (fire retardants, water repellants, softeners, and antistatics, etc.)	(X)	8.1	(X)	8.8
970099	All other materials and components, parts, containers, and supplies	(X)	177.5	(X)	118.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	113.6	(X)	r147.3
	INDUSTRY 2296, TIRE CORD AND FABRICS				
	Materials, ingredients, containers, and supplies	**(X)**	**554.3**	**(X)**	**r579.0**
	Raw fibers:				
013101	Raw cotton — 1,000 bales	(D)	(D)	(D)	(3)
020001	Raw wool, mohair, and other animal fibers (scoured weight) — mil lb	–	–	(NA)	(3)
229963	Wool tops — mil lb	–	–	(NA)	(3)
	Staple and tow:				
282305	Rayon and acetate — mil lb	(D)	(D)	(NA)	(3)
282413	Nylon staple and tow — mil lb	(D)	(D)	(NA)	(3)
282425	Polyester stable and tow — mil lb	90.7	100.1	(NA)	(3)
282428	All other manmade fiber staple and tow (except glass) — mil lb	(D)	(D)	(NA)	(3)
010014	All other fibers (silk, jute, reused wool, waste, etc.) — mil lb	–	–	(NA)	(3)
	Filament yarns:				
282301	Rayon and acetate — mil lb	3.5	5.9	(D)	(3)
282411	Nylon filament yarns — mil lb	49.7	61.5	*216.9	342.2
282423	Polyester filament yarn — mil lb	82.5	110.7	*119.2	161.4
282407	All other filament yarn, except glass — mil lb	(D)	(D)	16.3	32.7
322935	Glass filament yarn and roving — mil lb	1.5	2.2	4.7	6.9
228101	Spun yarn, all fibers — mil lb	(D)	(D)	(NA)	(3)
220211	Broadwoven fabrics — mil sq yd	–	–	(NA)	(3)
280031	Dyes, lakes, and toners	(X)	(D)	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	44.4	(X)	331.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	(D)	(X)	3.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2297, NONWOVEN FABRICS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 317.6**	**(X)**	**r953.8**
013101	Raw cotton, 1,000 bales	(D)	(D)	(NA)	(3)
190019	Cotton waste, mil lb	(D)	(D)	(NA)	(3)
207431	Cotton linters (net weight), mil lb	(D)	(D)	(NA)	(3)
020001	Raw wool, mohair, and other animal fibers (scoured weight), mil lb	(D)	(D)	(NA)	(3)
999823	Wool noils and waste, mil lb	–	–	(NA)	(3)
	Textile fibers (manmade):				
282303	Cellulosic (rayon and acetate), mil lb	*67.1	70.8	71.8	57.8
282403	Noncellulosic (polyester, nylon, etc.), mil lb	**352.4	262.3	298.4	241.2
228015	Yarn, all fibers, mil lb	**40.0	89.8	**8.0	10.7
220100	Textile fabrics, mil lin yd	(S)	47.9	*66.6	35.6
264926	Paper (cellulosic wadding), mil lb	*59.8	47.2	(S)	55.2
289147	Adhesives and binders (resins), mil lb	*83.7	55.2	*76.2	67.0
280010	Additives (fire retardants, water repellants, softeners, and antistatics, etc.)	(X)	28.8	(X)	18.1
999825	New and used rags, clips, etc., mil lb	(D)	(D)	(S)	10.5
282137	Vinyl and vinyl copolymer resins, all forms, mil lb	(S)	16.7	*22.7	14.9
282109	Plastics resins (except vinyl) consumed in the form of granules, pellets, powders, liquids, etc., mil lb	**516.0	243.3	**213.8	118.4
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	22.8	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	336.3	(X)	3268.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	59.2	(X)	r56.1
	INDUSTRY 2298, CORDAGE AND TWINE				
	Materials, ingredients, containers, and supplies	**(X)**	**263.3**	**(X)**	**210.9**
282014	Manmade fibers, staple, and tow, mil lb	25.9	37.7	*21.4	24.8
228015	Yarn, all fibers, mil lb	*64.4	80.4	(NA)	(3)
	Fabrics:				
220234	Cotton, mil lin yd	(D)	(D)	(NA)	(3)
220241	Manmade fiber, including glass, mil lin yd	(S)	2.8	(NA)	(3)
262104	Paper (cellulosic wadding), mil lb	(S)	3.5	(NA)	(3)
289147	Adhesives and binders (resins), mil lb	(D)	(D)	(S)	.1
286935	Plasticizers, mil lb	(D)	(D)	(NA)	(3)
282137	Vinyl and vinyl copolymer resins, all forms, mil lb	(D)	(D)	(NA)	(3)
282109	Plastics resins (except vinyl) consumed in the form of granules, pellets, powders, liquids, etc., mil lb	122.8	40.9	(NA)	(3)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	(3)
280010	Additives (fire retardants, water repellants, softeners, and antistatics, etc.)	(X)	2.8	(X)	3.1
970099	All other materials and components, parts, containers, and supplies	(X)	46.9	(X)	3139.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	42.4	(X)	43.9
	INDUSTRY 2299, TEXTILE GOODS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**740.5**	**(X)**	**608.0**
013101	Raw cotton, 1,000 bales	39.7	7.0	(S)	11.6
190019	Cotton waste, mil lb	*170.6	20.1	(S)	17.4
207431	Cotton linters (net weight), mil lb	**22.2	4.3	(S)	12.8
020001	Raw wool, mohair, and other animal fibers (scoured weight), mil lb	8.8	23.8	(S)	44.6
999823	Wool noils and waste, mil lb	19.4	8.5	(S)	25.6
	Textile fibers (manmade):				
282303	Cellulosic (rayon and acetate), mil lb	*6.9	15.2	(S)	5.9
282403	Noncellulosic (polyester, nylon, etc.), mil lb	490.6	213.0	(S)	182.5
228015	Yarn, all fibers, mil lb	*45.7	40.2	(NA)	(3)
220100	Textile fabrics, mil lin yd	(S)	11.4	(NA)	(3)
264926	Paper (cellulosic wadding), mil lb	(D)	(D)	(NA)	(3)
289147	Adhesives and binders (resins), mil lb	**69.3	22.3	(S)	14.0
280010	Additives (fire retardants, water repellants, softeners, and antistatics, etc.)	(X)	6.7	(X)	9.0
999825	New and used rags, clips, etc., mil lb	138.5	24.1	(S)	23.6
282137	Vinyl and vinyl copolymer resins, all forms, mil lb	(S)	4.9	1.8	.8
282109	Plastics resins (except vinyl) consumed in the form of granules, pellets, powders, liquids, etc., mil lb	(D)	(D)	(S)	8.6
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	8.0	(NA)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	151.0	(X)	3128.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	168.8	(X)	123.3

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, data for material codes 013101 and 282301 are combined with material code 970099 to avoid disclosing data of individual companies; data for material codes 020001, 229963, 282305, 282413, 282425, 282428, 010014, 228101, 220211, 280031, 190019, 207431, 013101 and 999823 were not collected separately in 1987 and are included with 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
2211F 01	2211F 00
2211F 03	2211F 00
2211F 05	2211F 00
2211F 07	2211F 00
2211F 09	2211F 00
2211F 11	2211F 00
2211F 13	2211F 00
2211F 15	2211F 00
2211F 19	2211F 00
2211F 23	2211F 00
2211H 01	2211H 42
2211H 01	2211H 73
2211H 01	2211H 75
2211H 03	2211H 37
2211H 03	2211H 43
2211H 03	2211H 44
2211H 03	2211H 46
2211H 03	2211H 62
2211H 03	2211H 65
2211H 03	2211H 67
2211H 03	2211H 69
2221J 01	2221J 00
2221J 03	2221J 00
2221J 05	2221J 00
2221J 07	2221J 00
2221J 11	2221J 00
2221J 13	2221J 00
2221J 15	2221J 00
2221J 19	2221J 00
2221J 23	2221J 00
2221J 25	2221J 00
2221J 27	2221J 00
2221J 29	2221J 00
2221J 31	2221J 00
2221M 01	2221M 21
2221M 01	2221M 71
2221M 01	2221M 77
2221M 03	2221M 23
2221M 03	2221M 25
2221M 03	2221M 27
2221M 03	2221M 33
2221M 03	2221M 41
2221M 03	2221M 42
2221M 03	2221M 43
2221M 03	2221M 47
22316	22313
22316	22314
22316 00	22313 00
22316 00	22314 00
22317	22315
22317 91	22315 91
22317 92	22315 92
22317 93	22315 93
22319 01	22319 25
22319 01	22319 27
22319 01	22319 29
22319 01	22319 31
22319 03	22319 25
22319 03	22319 27
22319 03	22319 29
22319 03	22319 31
22411 03	22411 01
22411 05	22411 01
22411 07	22411 01
22411 11	22411 31
22411 13	22411 31
22411 14	22411 31
22411 15	22411 31
22411 16	22411 31
22411 19	22411 31
22414 01	22414 00
22414 03	22414 00
22414 05	22414 00
22514 13	22514 21
22514 13	22514 37
22514 13	22514 39
22514 13	22514 45
22514 15	22514 21
22514 15	22514 37
22514 15	22514 39
22514 15	22514 45
22514 19	22514 21
22514 19	22514 37
22514 19	22514 39
22514 19	22514 45
22514 23	22514 21
22514 23	22514 37
22514 23	22514 39
22514 23	22514 45
22516 15	22516 18
22516 17	22516 18
22525 01	22525 11
22525 01	22525 15
22525 01	22525 17
22525 03	22525 11
22525 03	22525 15
22525 03	22525 17
22525 13	22525 11
22525 13	22525 17
2253D 01	2253D 11
2253D 01	2253D 13
2253D 01	2253D 15
2253D 01	2253D 16
2253D 01	2253D 19
2253D 05	2253D 33
2253D 05	2253D 38
2253D 09	2253D 62
22544	22542
22544	22543
22544 11	22542 00
22544 13	22543 00
22617 01	22617 00
22617 03	22617 00
22617 05	22617 00
22617 07	22617 00
22617 09	22617 00
22617 11	22617 00
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22617 15	22617 00
22617 19	22617 00
22617 23	22617 00
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22619 09	22619 00
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22629 25	22629 00
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22629 29	22629 00
22629 31	22629 00
22812 15	22812 51
22812 15	22812 61
22812 15	22812 71
22952	22951
22953 11	22951 11
22953 11	22951 15
22953 11	22951 19
22953 17	22953 22
22953 17	22953 24
22953 17	22953 26
22972 41	22972 43
22972 41	22972 45
22972 41	22972 48
22981 11	22981 18
22981 11	22981 29
22982 14	22982 15
22982 19	22982 15
22991 11	22991 12
22991 11	22991 13
22991 11	22991 15
22991 11	22991 17
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22991 11	22991 23
22994 11	22994 31
22994 11	22994 35
22994 13	22994 22
22994 13	22994 39

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
2211F 00	2211F 01
2211F 00	2211F 03
2211F 00	2211F 05
2211F 00	2211F 07
2211F 00	2211F 09
2211F 00	2211F 11
2211F 00	2211F 13
2211F 00	2211F 15
2211F 00	2211F 19
2211F 00	2211F 23
2211H 37	2211H 03
2211H 42	2211H 01
2211H 43	2211H 03
2211H 44	2211H 03
2211H 46	2211H 03
2211H 62	2211H 03
2211H 65	2211H 03
2211H 67	2211H 03
2211H 69	2211H 03
2211H 73	2211H 01
2211H 75	2211H 01
2221J 00	2221J 01
2221J 00	2221J 03
2221J 00	2221J 05
2221J 00	2221J 07
2221J 00	2221J 11
2221J 00	2221J 13
2221J 00	2221J 15
2221J 00	2221J 19
2221J 00	2221J 23
2221J 00	2221J 25
2221J 00	2221J 27
2221J 00	2221J 29
2221J 00	2221J 31
2221M 21	2221M 01
2221M 23	2221M 03
2221M 25	2221M 03
2221M 27	2221M 03
2221M 33	2221M 03
2221M 41	2221M 03
2221M 42	2221M 03
2221M 43	2221M 03
2221M 47	2221M 03
2221M 71	2221M 01
2221M 77	2221M 01
22313	22316
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22314	22316
22314 00	22316 00
22315	22317
22315 91	22317 91
22315 92	22317 92
22315 93	22317 93
22319 25	22319 01
22319 25	22319 03
22319 27	22319 01
22319 27	22319 03
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22319 29	22319 03
22319 31	22319 01
22319 31	22319 03
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22411 01	22411 05
22411 01	22411 07
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22411 31	22411 13
22411 31	22411 14
22411 31	22411 15
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22525 15	22525 01
22525 15	22525 03
22525 15	22525 15
22525 17	22525 01
22525 17	22525 03
22525 17	22525 13
2253D 11	2253D 01
2253D 13	2253D 01
2253D 15	2253D 01
2253D 16	2253D 01
2253D 19	2253D 01
2253D 33	2253D 05
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22981 29	22981 11
22982 15	22982 14
22982 15	22982 19
22991 12	22991 11
22991 13	22991 11
22991 15	22991 11
22991 17	22991 11
22991 21	22991 11
22991 23	22991 11
22994 22	22994 13
22994 31	22994 11
22994 35	22994 11
22994 39	22994 13

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-23A

INDUSTRY SERIES

Men's and Boys' Apparel

Industries 2311, 2321, 2322, 2323, 2325, 2326, and 2329

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 7:18 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-07181216.DAT;1 5/11/95 07:18:16 UTF:TIPS93-07181216.DAT;1 5/11/95 07:18:16 META:TIPS96-07181216.DAT;1 5/11/95 07:18:28

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2311	Men's and Boys' Suits and Coats
2321	Men's and Boys' Shirts
2322	Men's and Boys' Underwear and Nightwear
2323	Men's and Boys' Neckwear
2325	Men's and Boys' Trousers and Slacks
2326	Men's and Boys' Work Clothing
2329	Men's and Boys' Clothing, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS

This industry is made up of establishments primarily engaged in manufacturing men's and boys' tailored suits, coats, and overcoats from purchased woven or knit fabrics. Also included in this industry are establishments primarily engaged in manufacturing uniforms (except athletic and work uniforms). Establishments primarily engaged in manufacturing men's work uniforms and clothing are classified in industry 2326, and those manufacturing men's and boys' athletic uniforms are classified in industry 2329. Knitting mills primarily engaged in manufacturing suits and coats are classified in industry 2253. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2311, Men's and Boys' Suits and Coats, had employment of 43.8 thousand. The employment figure was 21 percent below the 55.2 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, New York, Georgia, and Massachusetts, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2311 shipped $2.2 billion of men's and boys' suits and coats considered primary to the industry, $170.6 million of secondary products, and had $67.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio

of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). .

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2311, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' suits and coats industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2321, MEN'S AND BOYS' SHIRTS

This industry is made up of establishments primarily engaged in manufacturing men's and boys' shirts (including polo and sport shirts) from purchased woven or knit fabrics. Establishments primarily engaged in manufacturing work shirts are classified in industry 2326. Knitting mills primarily engaged in manufacturing outerwear are classified in industry 2253. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2321, Men's and Boys' Shirts, had employment of 84.4 thousand. The employment figure was 10 percent above the 76.7 thousand reported in 1987. Compared with 1991, employment increased 23 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, Alabama, South Carolina, and Georgia, accounting for approximately 55 percent of the industry's employment. This represents a shift from 1987 when North Carolina, Georgia, Alabama, and Tennessee accounted for approximately 55 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2321 shipped $4.9 billion of men's and boys' shirts considered primary to the industry, $653.4 million of secondary products, and had $382.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 2321, no matter in what industry they were produced, appear in table 6a and aggregate to $5.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' shirts industry amounted to $2.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR

This industry is made up of establishments primarily engaged in manufacturing men's and boys' underwear and nightwear from purchased woven or knit fabrics. Knitting mills primarily engaged in manufacturing underwear and nightwear are classified in industry 2254. Establishments primarily engaged in manufacturing men's and boys' robes are classified in industry 2384. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2322, Men's and Boys' Underwear and Nightwear, had employment of 12.8 thousand. The employment figure was 26 percent below the 17.2 thousand reported in 1987.

The leading States in employment in 1992 were Georgia, Kentucky, Tennessee, and North Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $749.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2322 shipped $671.9 million of men's and boys' underwear and nightwear considered primary to the industry, $75.3 million of secondary products, and had $2.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2322, no matter in what industry they were produced, appear in table 6a and aggregate to $808.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' underwear and nightwear industry amounted to $360.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR

This industry is made up of establishments primarily engaged in manufacturing men's and boys' neckties, scarves, and mufflers from purchased woven or knit fabrics. Knitting mills primarily engaged in manufacturing neckties, scarves, and mufflers are classified in industry 2253.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2323, Men's and Boys' Neckwear, had employment of 7.5 thousand. The employment figure was 1 percent above the 7.4 thousand reported in 1987.

The leading States in employment in 1992 were New York and California accounting for approximately 52 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $618.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2323 shipped $532.5 million of men's and boys' neckwear considered primary to the industry, $7.5 million of secondary products, and had $78.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2323, no matter in what industry they were produced, appear in table 6a and aggregate to $539.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' neckwear industry amounted to $301.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS

This industry is made up of establishments primarily engaged in manufacturing men's and boys' separate trousers and slacks from purchased woven or knit fabrics, including jeans, dungarees, and jean-cut casual slacks. Establishments primarily engaged in manufacturing complete suits are classified in industry 2311; those manufacturing work pants (excluding jeans and dungarees) are classified in industry 2326. Knitting mills primarily engaged in manufacturing men's and boys' separate trousers and slacks are classified in industry 2253. Products of this industry also are collected the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2325, Men's and Boys' Trousers and Slacks, had employment of 78.3 thousand. The employment figure was 16 percent below the 93.3 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Tennessee, Alabama, and Georgia, accounting for approximately 51 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2325 shipped $5.5 billion of men's and boys' trousers and slacks considered primary to the industry, $956.5 million of secondary products, and had $28.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2325, no matter in what industry they were produced, appear in table 6a and aggregate to $6.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' trousers and slacks industry amounted to $2.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING

This industry is made up of establishments primarily engaged in manufacturing men's and boys' work shirts, work pants (excluding jeans), other work clothing, and washable service apparel. Establishments primarily engaged in manufacturing separate trousers and slacks are classified in industry 2325. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2326, Men's and Boys' Work Clothing, had employment of 32.6 thousand. The employment figure was 1 percent below the 33.0 thousand reported in 1987.

The leading States in employment in 1992 were Tennessee, Mississippi, Texas, and Kentucky, accounting for approximately 58 percent of the industry's employment. This represents a shift from 1987 when Tennessee, Mississippi, Georgia, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2326 shipped $1.4 billion of men's and boys' work clothing considered primary to the industry, $143.3 million of secondary products, and had $30.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2326, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' work clothing industry amounted to $708.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing men's and boys' clothing, not elsewhere classified, from purchased woven or knit fabrics. Establishments primarily engaged in manufacturing leather and sheep-lined garments are classified in industry 2386. Knitting mills primarily engaged in manufacturing outerwear are classified in industry 2253. Products of this industry also are collected in the Current Industrial Report, (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2329, Men's and Boys' Clothing, N.E.C., had employment of 47.9 thousand. The employment figure was 8 percent below the 52.2 thousand reported in 1987.

The leading States in employment in 1992 were Tennessee, California, New York, and Virginia, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when California, Alabama, Tennessee, and Virginia were the leading States.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2329 shipped $2.0 billion of men's and boys' work clothing, not elsewhere classified, considered primary to the industry, $448.0 million of secondary products, and had $116.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 82 percent (specialization ratio).

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 77 percent.

The products primary to industry 2329, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's and boys' clothing, not elsewhere classified, industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS															
1992 Census	249	302	199	43.8	720.3	37.2	66.9	533.2	1 372.5	1 024.2	2 426.0	22.2	504.9	93	92
1991 ASM	(NA)	(NA)	(NA)	43.6	743.0	36.5	66.0	537.4	1 399.7	1 070.5	2 466.8	24.3	623.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	48.4	768.1	41.3	73.6	577.1	1 500.8	1 107.7	2 622.4	21.6	590.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	54.5	832.7	47.0	83.9	635.8	1 658.5	1 258.3	2 918.2	30.4	611.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	60.0	877.5	51.7	93.4	662.8	1 864.6	1 328.9	3 169.3	28.5	612.8	(NA)	(NA)
1987 Census	285	337	236	55.2	779.0	48.1	85.8	596.4	1 761.2	1 110.8	2 863.3	29.1	511.0	(D)	91
1986 ASM	(NA)	(NA)	(NA)	59.5	808.3	52.8	94.9	626.5	1 871.9	1 362.1	3 242.0	29.0	568.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	64.9	862.5	57.4	102.8	667.6	1 879.8	1 456.2	3 321.0	23.8	603.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	73.9	916.5	63.9	115.4	671.8	1 788.9	1 462.6	3 208.8	38.0	591.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	70.8	849.6	60.4	108.9	647.4	1 674.1	1 376.0	3 045.7	28.4	561.2	(NA)	(NA)
1982 Census	443	529	344	75.2	878.2	65.0	116.9	658.9	1 683.0	1 397.5	3 061.5	24.6	578.2	92	93
1981 ASM	(NA)	(NA)	(NA)	80.1	878.6	68.4	124.2	651.5	1 631.2	1 444.0	3 024.2	35.9	590.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	81.1	833.5	70.4	126.6	628.6	1 567.0	1 281.2	2 807.0	29.8	521.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	87.2	818.1	75.3	134.7	622.1	1 479.7	1 160.7	2 634.9	28.3	479.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	97.8	853.0	85.4	148.4	661.5	1 534.2	1 121.8	2 653.0	25.9	466.4	(NA)	(NA)
1977 Census	619	737	467	98.7	822.2	86.2	152.9	645.4	1 574.4	1 232.4	2 767.5	25.8	470.5	93	92
INDUSTRY 2321, MEN'S AND BOYS' SHIRTS															
1992 Census	528	658	479	84.4	1 205.9	74.3	136.0	930.7	3 181.2	2 853.3	5 915.5	84.5	892.0	88	92
1991 ASM	(NA)	(NA)	(NA)	68.8	987.8	60.9	112.8	774.8	2 371.6	2 071.5	4 494.0	46.3	608.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	69.7	922.8	61.7	111.2	717.9	2 197.7	2 047.3	4 242.6	45.2	593.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	73.7	942.6	65.1	118.6	745.7	2 026.1	1 848.3	3 872.6	52.5	557.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	77.4	915.8	68.0	122.7	708.9	2 023.6	2 013.6	4 031.3	53.3	552.1	(NA)	(NA)
1987 Census	464	601	470	76.7	868.9	66.6	121.8	664.0	2 185.4	1 897.7	4 075.0	51.7	513.3	86	87
INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR															
1992 Census	66	85	62	12.8	172.0	11.8	22.2	149.1	398.7	360.6	749.2	6.9	112.9	90	83
1991 ASM	(NA)	(NA)	(NA)	11.8	165.0	10.9	19.1	141.7	371.7	333.0	709.9	6.2	103.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	15.3	183.8	14.4	26.5	160.9	381.7	333.7	724.9	11.8	106.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.2	190.8	15.3	27.0	167.8	432.1	395.9	827.9	27.2	106.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.1	207.2	16.1	29.4	182.8	556.6	488.7	1 044.5	11.6	106.5	(NA)	(NA)
1987 Census	71	96	76	17.2	200.1	16.2	29.5	176.4	577.8	465.2	1 045.4	7.6	103.5	84	88
INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR															
1992 Census	132	136	80	7.5	130.2	5.8	10.4	76.9	319.1	301.1	618.2	6.0	111.7	99	99
1991 ASM	(NA)	(NA)	(NA)	6.4	124.7	5.1	9.0	72.2	287.5	251.8	532.0	3.8	101.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.4	120.1	6.0	9.5	69.2	268.5	231.2	499.9	5.3	65.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.0	124.6	6.6	10.6	74.6	285.2	249.3	533.9	4.8	67.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.5	123.0	6.2	10.9	78.7	258.0	241.6	499.9	4.2	68.9	(NA)	(NA)
1987 Census	139	142	84	7.4	117.0	6.2	11.0	76.8	251.4	223.6	475.6	6.2	58.6	99	99
1986 ASM	(NA)	(NA)	(NA)	5.9	79.9	4.8	8.2	49.9	179.6	162.4	341.5	1.4	33.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.9	80.4	4.8	8.2	47.9	174.8	161.3	341.9	1.5	34.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.6	86.9	5.2	9.0	51.7	187.1	174.2	367.1	(D)	37.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.1	110.4	5.7	9.4	72.8	217.1	134.5	355.5	7.3	32.8	(NA)	(NA)
1982 Census	165	170	91	6.7	82.2	5.3	9.0	49.5	183.8	149.2	335.0	4.9	41.5	97	99
1981 ASM	(NA)	(NA)	(NA)	6.5	79.2	5.3	9.1	48.0	168.9	131.1	298.7	3.2	32.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.8	75.0	5.5	9.2	44.6	153.9	135.6	288.4	2.8	31.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.0	69.6	5.4	9.3	39.7	141.5	127.4	266.8	.9	31.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.8	62.0	5.6	9.2	34.5	139.7	130.1	270.5	1.4	35.5	(NA)	(NA)
1977 Census	198	207	81	6.3	57.5	5.1	8.7	33.4	117.5	108.9	223.8	2.6	29.6	100	97
INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS															
1992 Census	278	424	360	78.3	1 098.5	69.2	128.4	881.0	3 644.0	2 843.7	6 489.7	92.0	590.0	85	91
1991 ASM	(NA)	(NA)	(NA)	80.5	1 038.8	70.8	127.6	811.7	3 495.4	2 970.6	6 466.8	60.9	632.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	81.7	1 024.4	71.6	122.7	788.6	3 016.7	2 546.4	5 657.3	60.9	613.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	88.0	1 106.9	76.7	136.9	844.6	3 440.5	2 596.8	5 983.0	50.1	745.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	91.9	1 129.6	80.8	139.3	872.0	3 108.1	2 659.6	5 767.3	59.3	770.8	(NA)	(NA)
1987 Census	313	484	413	93.3	1 102.5	82.3	145.6	856.6	3 273.2	2 742.8	6 013.6	74.5	786.1	84	92
INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING															
1992 Census	188	284	190	32.6	409.6	28.4	52.9	315.8	860.3	708.4	1 572.5	24.9	191.3	91	92
1991 ASM	(NA)	(NA)	(NA)	30.8	359.8	27.2	50.0	284.1	825.7	627.2	1 426.1	18.2	227.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	31.5	350.6	27.8	50.6	276.3	846.3	618.9	1 461.7	19.3	201.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.0	360.7	30.0	52.3	282.8	856.2	616.5	1 464.2	17.5	211.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	33.3	353.2	29.5	54.4	281.7	913.8	713.9	1 632.8	17.7	219.1	(NA)	(NA)
1987 Census	177	255	191	33.0	335.6	29.0	50.9	263.0	870.1	665.1	1 541.6	14.3	204.3	85	90
INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.															
1992 Census	624	701	403	47.9	658.3	40.7	74.9	484.9	1 514.8	1 113.6	2 588.8	36.4	531.3	82	77
1991 ASM	(NA)	(NA)	(NA)	53.9	694.8	47.2	85.7	533.7	1 328.5	985.8	2 359.1	32.0	449.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	53.3	673.2	46.6	84.1	503.7	1 340.6	987.1	2 286.6	26.0	491.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	52.3	639.8	45.3	82.0	479.9	1 425.6	994.0	2 406.8	23.5	478.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	48.1	592.8	41.7	75.1	438.1	1 370.3	968.9	2 317.8	33.1	508.6	(NA)	(NA)
1987 Census	544	616	393	52.2	621.4	45.6	83.1	469.2	1 315.8	1 010.0	2 289.6	34.4	499.6	(D)	77
1986 ASM	(NA)	(NA)	(NA)	43.5	497.2	37.5	68.5	372.7	1 136.3	785.5	1 910.0	27.5	327.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.2	455.7	36.2	65.3	334.1	1 021.1	718.4	1 727.9	24.5	328.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	44.9	474.1	38.9	69.9	351.9	1 003.5	727.2	1 730.1	22.2	346.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	48.2	473.6	39.5	71.0	316.3	954.3	641.8	1 595.4	28.0	308.6	(NA)	(NA)
1982 Census	575	646	386	44.6	432.8	38.6	68.5	323.0	931.3	745.3	1 658.3	18.3	304.4	84	72
1981 ASM	(NA)	(NA)	(NA)	42.8	395.2	36.7	62.4	294.1	776.1	666.2	1 442.9	15.3	276.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	43.4	371.2	37.2	61.3	278.8	745.7	594.7	1 331.1	15.1	272.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	45.6	343.3	39.1	66.6	262.2	695.1	583.1	1 263.9	15.3	237.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.8	326.3	42.5	73.4	252.8	624.6	589.2	1 184.4	24.1	241.2	(NA)	(NA)
1977 Census	553	632	400	43.8	285.8	38.1	67.4	219.3	539.8	530.6	1 065.1	20.2	201.9	83	80

See footnotes at end of table.

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[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS								
1992 Census	16 445	85	1 798	7.97	42	72	31 336	52	20.52
1991 ASM	17 041	84	1 808	8.14	43	74	32 103	53	21.21
1990 ASM	15 870	85	1 782	7.84	42	72	31 008	51	20.39
1989 ASM	15 279	86	1 785	7.58	43	72	30 431	50	19.77
1988 ASM	14 625	86	1 807	7.10	42	70	31 077	47	19.96
1987 Census	14 112	87	1 784	6.95	39	66	31 906	44	20.53
1986 ASM	13 585	89	1 797	6.60	42	67	31 461	43	19.72
1985 ASM	13 290	88	1 791	6.49	44	70	28 965	46	18.29
1984 ASM	12 402	86	1 806	5.82	46	74	24 207	51	15.50
1983 ASM	12 000	85	1 803	5.94	45	73	23 645	51	15.37
1982 Census	11 678	86	1 798	5.64	46	74	22 380	52	14.40
1981 ASM	10 969	85	1 816	5.25	48	77	20 365	54	13.13
1980 ASM	10 277	87	1 798	4.97	46	75	19 322	53	12.38
1979 ASM	9 382	86	1 789	4.62	44	75	16 969	55	10.99
1978 ASM	8 722	87	1 738	4.46	42	74	15 687	56	10.34
1977 Census	8 330	87	1 774	4.22	45	74	15 951	52	10.30
	INDUSTRY 2321, MEN'S AND BOYS' SHIRTS								
1992 Census	14 288	88	1 830	6.84	48	69	37 692	38	23.39
1991 ASM	14 358	89	1 852	6.87	46	68	34 471	42	21.02
1990 ASM	13 240	89	1 802	6.46	48	70	31 531	42	19.76
1989 ASM	12 790	88	1 822	6.29	48	72	27 491	47	17.08
1988 ASM	11 832	88	1 804	5.78	50	73	26 145	45	16.49
1987 Census	11 329	87	1 829	5.45	47	68	28 493	40	17.94
	INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR								
1992 Census	13 438	92	1 881	6.72	48	71	31 148	43	17.96
1991 ASM	13 983	92	1 752	7.42	47	70	31 500	44	19.46
1990 ASM	12 013	94	1 840	6.07	46	71	24 948	48	14.40
1989 ASM	11 778	94	1 765	6.21	48	71	26 673	44	16.00
1988 ASM	12 117	94	1 826	6.22	47	67	32 550	37	18.93
1987 Census	11 634	94	1 821	5.98	44	64	33 593	35	19.59
	INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR								
1992 Census	17 360	77	1 793	7.39	49	70	42 547	41	30.68
1991 ASM	19 484	80	1 765	8.02	47	71	44 922	43	31.94
1990 ASM	16 230	81	1 583	7.28	46	70	36 284	45	28.26
1989 ASM	15 575	83	1 606	7.04	47	70	35 650	44	26.91
1988 ASM	16 400	83	1 758	7.22	48	73	34 400	48	23.67
1987 Census	15 811	84	1 774	6.98	47	72	33 973	47	22.85
1986 ASM	13 542	81	1 708	6.09	48	71	30 441	44	21.90
1985 ASM	13 627	81	1 708	5.84	47	71	29 627	46	21.32
1984 ASM	13 167	79	1 731	5.74	47	71	28 348	46	20.79
1983 ASM	15 549	80	1 649	7.74	38	69	30 577	51	23.10
1982 Census	12 269	79	1 698	5.50	45	69	27 433	45	20.42
1981 ASM	12 185	82	1 717	5.27	44	70	25 985	47	18.56
1980 ASM	11 029	81	1 673	4.85	47	73	22 632	49	16.73
1979 ASM	9 943	77	1 722	4.27	48	74	20 214	49	15.22
1978 ASM	9 118	82	1 643	3.75	48	71	20 544	44	15.18
1977 Census	9 127	81	1 706	3.84	49	74	18 651	49	13.51
	INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS								
1992 Census	14 029	88	1 855	6.86	44	61	46 539	30	28.38
1991 ASM	12 904	88	1 802	6.36	46	62	43 421	30	27.39
1990 ASM	12 539	88	1 714	6.43	45	63	36 924	34	24.59
1989 ASM	12 578	87	1 785	6.17	43	62	39 097	32	25.13
1988 ASM	12 292	88	1 724	6.26	46	66	33 820	36	22.31
1987 Census	11 817	88	1 769	5.88	46	64	35 083	34	22.48
	INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING								
1992 Census	12 564	87	1 863	5.97	45	71	26 390	48	16.26
1991 ASM	11 682	88	1 838	5.68	44	69	26 808	44	16.51
1990 ASM	11 130	88	1 820	5.46	42	66	26 867	41	16.73
1989 ASM	10 609	88	1 743	5.41	42	67	25 182	42	16.37
1988 ASM	10 607	89	1 844	5.18	44	65	27 441	39	16.80
1987 Census	10 170	88	1 755	5.17	43	65	26 367	39	17.09

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.								
1992 Census	13 743	85	1 840	6.47	43	68	31 624	43	20.22
1991 ASM	12 891	88	1 816	6.23	42	71	24 647	52	15.50
1990 ASM	12 630	87	1 805	5.99	43	73	25 152	50	15.94
1989 ASM	12 233	87	1 810	5.85	41	68	27 258	45	17.39
1988 ASM	12 324	87	1 801	5.83	42	67	28 489	43	18.25
1987 Census	11 904	87	1 822	5.65	44	71	25 207	47	15.83
1986 ASM	11 430	86	1 827	5.44	41	67	26 122	44	16.59
1985 ASM	10 799	86	1 804	5.12	42	68	24 197	45	15.64
1984 ASM	10 559	87	1 797	5.03	42	69	22 350	47	14.36
1983 ASM	9 826	82	1 797	4.45	40	70	19 799	50	13.44
1982 Census	9 704	87	1 775	4.72	45	71	20 881	46	13.60
1981 ASM	9 234	86	1 700	4.71	46	74	18 133	51	12.44
1980 ASM	8 553	86	1 648	4.55	45	73	17 182	50	12.16
1979 ASM	7 529	86	1 703	3.94	46	73	15 243	49	10.44
1978 ASM	6 972	91	1 727	3.44	50	77	13 346	52	8.51
1977 Census	6 525	87	1 769	3.25	50	77	12 324	53	8.01

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS														
United States	**–**	**302**	**199**	**43.8**	**720.3**	**37.2**	**66.9**	**533.2**	**1 372.5**	**1 024.2**	**2 426.0**	**22.2**	**55.2**	**1 761.2**
Alabama	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	18.6
Arkansas	–	3	3	.3	2.8	.2	.4	2.2	4.4	.8	5.2	(D)	E	(D)
California	E2	28	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	G	(D)
Delaware	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	–	5	4	.6	7.8	.4	.7	5.2	12.9	28.3	41.7	(D)	1.1	35.5
Georgia	–	20	18	5.2	68.7	4.5	8.2	52.1	121.4	105.9	231.7	2.6	H	(D)
Illinois	–	10	5	2.6	54.2	1.6	3.3	31.7	66.4	37.0	116.1	.5	H	(D)
Indiana	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E2	10	9	2.4	35.4	2.1	3.6	28.7	64.7	19.0	82.7	(D)	H	(D)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	C	(D)
Maryland	–	10	8	1.7	34.5	1.4	2.9	24.0	77.0	42.5	118.9	.5	1.6	53.7
Massachusetts	–	13	11	3.2	65.0	2.8	5.1	47.2	158.6	137.1	295.8	1.7	4.7	153.8
Mississippi	E1	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	17	11	1.0	18.2	.8	1.3	11.6	27.8	31.9	58.6	(D)	1.8	48.2
New York	–	66	28	5.3	106.0	4.5	7.9	70.8	221.0	244.2	468.3	3.3	H	(D)
North Carolina	–	7	7	1.5	19.2	1.2	2.2	14.9	23.9	9.4	33.9	1.4	F	(D)
Ohio	E1	8	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	46	34	8.5	145.4	7.3	12.8	111.2	276.0	169.2	445.5	3.8	11.6	348.7
South Carolina	–	4	3	.9	12.4	.8	1.4	11.6	16.2	6.6	22.8	(D)	F	(D)
Tennessee	–	11	8	2.1	31.5	1.8	3.1	23.9	62.3	69.1	129.6	(D)	2.4	57.6
Texas	–	10	6	1.6	20.7	1.6	3.4	19.4	27.0	7.6	34.4	.2	3.1	72.3
Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2321, MEN'S AND BOYS' SHIRTS														
United States	**–**	**658**	**479**	**84.4**	**1 205.9**	**74.3**	**136.0**	**930.7**	**3 181.2**	**2 853.3**	**5 915.5**	**84.5**	**76.7**	**2 185.4**
Alabama	–	52	46	10.9	144.4	10.1	17.3	129.6	378.9	269.1	614.4	9.7	8.7	213.9
Arizona	E5	5	3	.2	2.1	.2	.3	1.7	4.0	1.5	5.5	(D)	.6	15.0
Arkansas	E3	17	16	3.3	37.2	3.0	5.4	32.2	73.1	19.6	90.4	1.3	G	(D)
California	E2	86	52	3.7	59.3	2.9	5.2	36.2	148.8	193.3	339.9	6.6	3.4	129.8
Connecticut	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	39	23	4.3	62.3	3.9	6.7	44.1	169.9	164.9	334.7	(D)	2.8	60.1
Georgia	–	35	31	6.8	89.1	6.1	11.7	73.0	223.6	242.1	462.6	3.7	9.6	288.5
Hawaii	E1	19	8	.6	7.6	.5	.9	5.7	13.3	8.8	22.5	.4	.8	16.0
Illinois	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	6	4	.9	16.4	.7	1.2	10.5	35.3	41.9	72.3	(D)	F	(D)
Kentucky	–	9	9	5.4	85.0	4.9	8.8	67.5	430.5	185.0	612.9	5.3	G	(D)
Louisiana	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	.4	5.9
Maine	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 7:17 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:23A_92.DAT;1 5/ 3/95 14:13:55 UTF:23A_93.DAT;5 5/11/95 07:15:53 META:TIPS96-07161225.DAT;1 5/11/95 07:16:48

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2321, MEN'S AND BOYS' SHIRTS—Con.														
Mississippi	–	23	23	4.0	41.6	3.7	6.5	35.6	130.2	38.9	165.5	2.1	H	(D)
Missouri	–	11	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Jersey	–	10	6	1.1	21.7	.8	1.6	10.9	46.0	39.0	84.1	.9	1.2	37.0
New York	–	53	18	1.4	36.8	1.0	1.6	12.9	173.5	241.6	403.5	1.2	2.4	170.3
North Carolina	E1	89	73	13.0	188.1	10.9	19.9	134.0	452.2	545.9	975.7	14.4	13.6	412.1
Ohio	–	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Oregon	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	41	31	4.7	67.4	4.3	8.4	58.8	130.0	114.0	236.9	2.8	5.3	117.4
South Carolina	–	35	31	7.4	108.2	6.4	12.2	81.9	315.5	249.6	549.8	9.0	5.2	146.8
Tennessee	–	47	42	5.5	70.5	4.7	8.6	53.9	131.2	80.2	207.7	2.7	6.3	112.9
Texas	–	15	8	.6	8.8	.5	.9	5.4	15.7	36.0	52.8	(D)	E	(D)
Utah	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	15	13	3.7	55.8	3.5	6.6	52.2	88.0	189.8	277.8	4.2	2.2	88.3
West Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR														
United States	**–**	**85**	**62**	**12.8**	**172.0**	**11.8**	**22.2**	**149.1**	**398.7**	**360.6**	**749.2**	**6.9**	**17.2**	**577.8**
Alabama	E2	4	4	.6	6.9	.5	.9	5.4	15.6	17.9	32.7	(D)	.9	12.2
Arizona	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	E1	11	10	2.6	35.5	2.5	4.8	29.4	67.5	86.6	154.1	1.1	3.8	81.8
Kentucky	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
New York	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	8	5	1.1	15.7	1.0	1.8	13.3	30.7	31.4	60.5	(D)	G	(D)
Pennsylvania	E1	6	5	.8	11.8	.7	1.3	9.7	32.5	30.7	63.8	(D)	1.2	38.7
South Carolina	–	7	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	8	6	1.4	16.4	1.2	2.1	13.3	38.5	44.4	83.0	.6	G	(D)
Virginia	–	7	6	.9	11.5	.8	1.6	10.2	18.5	12.0	29.2	(D)	E	(D)
INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR														
United States	**–**	**136**	**80**	**7.5**	**130.2**	**5.8**	**10.4**	**76.9**	**319.1**	**301.1**	**618.2**	**6.0**	**7.4**	**251.4**
California	–	19	10	1.5	26.5	1.1	1.8	14.5	91.4	86.9	177.6	2.1	G	(D)
Colorado	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Connecticut	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Massachusetts	E1	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	6	4	.2	3.3	.2	.4	2.7	4.4	2.0	6.5	(D)	.3	13.8
New York	–	57	33	2.4	47.1	1.9	3.4	28.5	100.0	125.4	225.8	1.3	2.6	78.5
North Carolina	E2	8	8	.8	10.3	.7	1.3	7.0	22.4	19.1	41.2	.9	F	(D)
Pennsylvania	E6	8	4	.2	2.8	.2	.3	2.1	8.2	4.5	12.5	(D)	.2	4.4
INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS														
United States	**–**	**424**	**360**	**78.3**	**1 098.5**	**69.2**	**128.4**	**881.0**	**3 644.0**	**2 843.7**	**6 489.7**	**92.0**	**93.3**	**3 273.2**
Alabama	E1	33	32	8.4	106.0	7.7	14.1	90.1	232.9	135.0	365.6	7.7	10.9	229.1
Arkansas	–	11	11	3.0	37.0	2.8	4.9	33.5	100.6	49.7	150.5	(D)	2.0	70.8
California	–	50	31	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	3.2	101.4
Florida	E1	14	10	1.5	21.0	1.2	2.3	13.3	48.7	54.3	103.3	1.0	G	(D)
Georgia	–	52	50	8.2	103.3	6.5	11.9	76.1	253.3	134.8	388.8	6.2	10.8	280.6
Indiana	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	F	(D)
Kansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	F	(D)
Kentucky	–	25	24	4.6	52.7	4.2	7.0	47.0	95.8	64.5	160.4	2.2	4.4	81.6
Louisiana	–	5	5	1.0	10.7	1.0	1.7	10.1	16.4	7.9	23.8	(D)	2.1	27.7
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	3	3	.5	8.8	.5	.9	6.7	21.1	10.0	31.1	.2	E	(D)
Michigan	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Mississippi	E2	27	25	5.6	66.9	5.1	9.1	54.9	113.9	71.3	186.4	3.1	8.0	149.1
Missouri	–	17	16	3.4	41.9	3.2	5.4	36.3	60.9	25.4	87.9	2.1	4.2	99.6
New Mexico	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	23	7	.8	17.4	.7	1.2	9.6	54.8	72.0	127.5	1.1	1.4	101.0
North Carolina	–	13	12	2.3	39.2	2.2	4.4	31.9	162.5	108.1	270.4	2.8	3.8	103.5
Ohio	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Oklahoma	–	8	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 7:17 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:23A_92.DAT;1 5/ 3/95 14:13:55 UTF:23A_93.DAT;5 5/11/95 07:15:53 META:TIPS96-07161225.DAT;1 5/11/95 07:16:48

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS—Con.														
Pennsylvania	E1	21	16	1.6	27.1	1.4	2.3	20.5	66.3	38.7	105.2	.5	3.0	50.9
South Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	33.9
Tennessee	–	31	28	8.3	121.0	7.4	13.9	96.4	432.1	182.9	612.8	8.0	10.0	409.6
Texas	–	40	38	15.4	244.1	13.5	26.5	197.9	1 023.7	677.0	1 709.3	17.3	14.1	649.7
Virginia	–	9	9	2.7	38.2	2.4	4.7	32.0	99.3	111.4	214.0	(D)	H	(D)
Washington	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING														
United States	–	**284**	**190**	**32.6**	**409.6**	**28.4**	**52.9**	**315.8**	**860.3**	**708.4**	**1 572.5**	**24.9**	**33.0**	**870.1**
Alabama	E1	24	16	2.7	32.9	2.2	3.5	23.0	57.4	66.4	124.2	1.3	2.7	53.9
Arkansas	–	9	8	1.1	12.9	1.0	2.2	9.1	17.0	11.9	29.2	(D)	F	(D)
California	E2	29	10	.8	9.3	.7	1.3	7.9	15.2	8.7	23.9	(D)	G	(D)
Florida	–	12	4	.5	5.1	.4	.8	4.4	10.1	2.2	12.3	.2	1.1	21.6
Georgia	E1	16	11	2.7	33.3	2.0	4.0	21.1	77.4	48.5	125.6	1.6	3.8	83.9
Illinois	–	8	5	.5	10.0	.4	.8	6.7	16.9	18.3	35.0	.7	.8	25.5
Indiana	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kentucky	–	13	13	2.9	40.5	2.6	4.7	34.4	112.6	71.4	184.5	5.9	G	(D)
Louisiana	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	4	3	.4	5.0	.4	.5	4.6	9.2	4.2	13.6	(D)	E	(D)
Mississippi	–	36	33	6.7	80.9	6.2	11.8	64.6	171.5	151.0	327.2	5.4	H	(D)
Missouri	–	12	10	1.6	18.5	1.4	2.5	15.1	29.3	28.2	57.1	1.1	1.8	48.4
New York	–	12	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	6	3	.4	6.1	.4	.7	4.9	9.9	12.7	22.7	(D)	E	(D)
Ohio	E1	5	3	.2	3.8	.2	.3	2.5	6.1	6.4	11.9	(D)	C	(D)
Oklahoma	E2	4	3	.1	1.3	.1	.1	1.1	1.9	.4	2.2	(D)	C	(D)
Pennsylvania	–	8	4	.4	6.1	.4	.6	4.6	13.9	19.5	32.6	.1	.6	23.5
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	31	27	6.2	78.6	5.4	10.2	58.6	129.7	130.5	260.1	3.5	6.1	146.7
Texas	E1	20	16	3.0	34.1	2.6	4.9	28.4	110.2	77.0	187.7	(D)	3.2	165.7
INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.														
United States	–	**701**	**403**	**47.9**	**658.3**	**40.7**	**74.9**	**484.9**	**1 514.8**	**1 113.6**	**2 588.8**	**36.4**	**52.2**	**1 315.8**
Alabama	–	14	12	2.4	35.5	1.9	3.2	25.4	85.9	72.1	138.3	(D)	5.2	110.8
Arkansas	–	8	7	.9	11.3	.8	1.6	10.2	33.3	11.4	45.2	(D)	.8	36.3
California	E1	111	52	4.4	67.5	3.3	5.7	39.5	153.0	86.4	243.4	2.3	5.3	204.9
Colorado	–	13	4	.3	4.2	.2	.4	2.8	7.9	4.6	12.5	.2	E	(D)
Connecticut	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Florida	–	27	9	.9	10.3	.8	1.5	8.2	32.6	11.6	43.0	.4	F	(D)
Georgia	–	19	12	1.4	18.6	1.1	2.2	11.2	29.4	59.8	87.9	.6	2.1	40.4
Hawaii	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	6.9
Illinois	–	7	4	.4	4.9	.3	.7	4.3	12.1	10.2	22.8	(D)	(NA)	(NA)
Iowa	–	13	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	10	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	–	8	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	9.0
Maine	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Michigan	E2	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Minnesota	E1	16	10	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	10.6
Mississippi	–	11	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	17	13	1.3	15.9	1.1	1.9	12.4	45.5	47.0	90.1	.7	G	(D)
Nebraska	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	20	6	.4	6.7	.3	.5	4.5	8.7	6.7	15.8	.1	F	(D)
New Mexico	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	93	43	4.1	58.9	3.4	6.4	39.7	117.0	117.9	227.1	2.9	4.3	130.7
North Carolina	–	36	25	3.2	43.1	2.8	4.9	35.2	126.9	53.7	180.5	5.9	H	(D)
Ohio	–	9	6	.9	17.4	.7	1.4	9.0	32.4	62.9	96.5	2.0	1.0	23.2
Oklahoma	E1	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Pennsylvania	E1	37	26	2.1	25.9	1.9	3.3	20.6	41.0	17.1	57.8	.6	3.3	65.3
South Carolina	–	12	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	34.5
South Dakota	–	7	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Tennessee	–	43	33	6.1	82.8	5.4	10.1	63.3	187.9	154.8	336.2	3.6	5.7	141.2
Texas	–	25	12	1.7	18.6	1.5	2.7	14.5	28.9	18.9	47.4	.6	F	(D)
Utah	–	7	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	22.4
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	9	8	3.1	39.5	2.7	5.2	36.4	106.2	28.5	135.1	(D)	H	(D)
Washington	–	25	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	11	8	.6	6.7	.5	.9	5.3	12.9	8.4	20.8	(D)	.6	14.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Men's and boys' suits and coats (SIC 2311)				Men's and boys' shirts (SIC 2321)			
	Total	Manufacturers (SIC 2311-11)	Jobbers (SIC 2311-22)	Contractors (SIC 2311-33)	Total	Manufacturers (SIC 2321-11)	Jobbers (SIC 2321-22)	Contractors (SIC 2321-33)
Companies ---- number	249	158	17	87	528	285	47	226
All establishments ---- number	302	192	17	93	658	367	47	244
With 1 to 19 employees ---- number	103	68	8	27	179	108	23	48
With 20 to 99 employees ---- number	87	45	4	38	229	91	16	122
With 100 employees or more ---- number	112	79	5	28	250	168	8	74
Employment and labor costs:								
Employees ---- 1,000	43.8	30.1	1.2	12.6	84.4	58.8	2.5	23.1
Compensation, total ---- mil dol	916.2	669.1	30.8	216.3	1 488.8	1 067.6	83.6	337.6
Annual payroll ---- mil dol	720.3	524.6	25.3	170.4	1 205.9	855.3	73.1	277.5
Fringe benefits ---- mil dol	195.9	144.5	5.5	45.9	282.9	212.3	10.5	60.1
Social Security and other legally required payments ---- mil dol	83.2	58.8	2.4	22.0	134.0	98.5	5.3	30.1
Employer voluntary payments ---- mil dol	112.7	85.7	3.0	23.9	149.0	113.8	5.2	30.0
Production workers:								
Average for year ---- 1,000	37.2	25.0	.6	11.6	74.3	52.8	.8	20.7
March ---- 1,000	37.6	25.2	.6	11.8	73.6	52.1	.8	20.7
May ---- 1,000	37.2	24.9	.6	11.6	74.6	52.8	.8	20.9
August ---- 1,000	37.2	25.0	.6	11.6	74.5	53.0	.8	20.7
November ---- 1,000	36.8	24.9	.6	11.3	74.7	53.3	.7	20.6
Hours ---- millions	66.9	45.2	1.1	20.6	136.0	98.3	1.5	36.1
Wages ---- mil dol	533.2	375.7	9.1	148.4	930.7	685.1	11.2	234.4
Cost of materials[1] ---- mil dol	1 024.2	813.9	180.1	30.3	2 853.3	2 082.3	732.7	38.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	803.5	698.3	82.6	22.5	2 240.7	1 823.6	393.3	23.9
Resales ---- mil dol	37.3	28.1	9.2	.1	241.1	96.8	143.6	.7
Fuels ---- mil dol	8.2	6.5	.1	1.5	9.5	5.7	.9	2.9
Purchased electricity ---- mil dol	23.8	17.4	.8	5.7	33.2	23.2	1.6	8.4
Contract work ---- mil dol	151.5	63.6	87.4	.4	328.8	133.1	193.2	2.4
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	308.7	218.3	10.2	80.1	536.0	368.1	28.5	139.3
Generated less sold ---- mil kWh	–	–	–	–	–	–	–	–
Total value of shipments ---- mil dol	2 426.0	1 901.6	239.3	285.1	5 915.5	4 269.6	1 064.0	581.9
Value added ---- mil dol	1 372.5	1 063.0	55.9	253.6	3 181.2	2 275.1	360.9	545.2
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	523.7	443.7	50.2	29.8	768.4	522.3	206.5	39.7
Finished goods ---- mil dol	204.2	177.5	26.0	.7	381.2	250.3	121.1	9.8
Work in process ---- mil dol	128.4	105.8	5.2	17.3	170.9	123.8	35.7	11.3
Materials and supplies ---- mil dol	191.1	160.3	19.0	11.8	216.4	148.2	49.6	18.6
End of 1992 ---- mil dol	504.9	430.2	46.9	27.8	892.0	617.3	239.0	35.7
Finished goods ---- mil dol	185.7	161.6	22.6	1.4	480.3	320.3	148.4	11.5
Work in process ---- mil dol	117.6	97.1	5.2	15.3	190.7	141.6	37.9	11.2
Materials and supplies ---- mil dol	201.7	171.5	19.1	11.1	221.1	155.4	52.6	13.0

Item	Men's and boys' underwear and nightwear (SIC 2322)	Men's and boys' neckwear (SIC 2323)	Men's and boys' trousers and slacks (SIC 2325)			
			Total	Manufacturers (SIC 2325-11)	Jobbers (SIC 2325-22)	Contractors (SIC 2325-33)
Companies ---- number	66	132	278	131	28	135
All establishments ---- number	85	136	424	210	32	173
With 1 to 19 employees ---- number	23	56	64	26	13	25
With 20 to 99 employees ---- number	23	63	122	52	11	58
With 100 employees or more ---- number	39	17	238	132	8	90
Employment and labor costs:						
Employees ---- 1,000	12.8	7.5	78.3	45.5	5.0	24.9
Compensation, total ---- mil dol	212.6	153.9	1 412.3	832.3	142.2	394.3
Annual payroll ---- mil dol	172.0	130.2	1 098.5	636.8	114.1	311.3
Fringe benefits ---- mil dol	40.6	23.6	313.8	195.6	28.1	82.9
Social Security and other legally required payments ---- mil dol	17.6	14.1	173.1	112.1	15.8	40.7
Employer voluntary payments ---- mil dol	23.0	9.5	140.6	83.5	12.3	42.2
Production workers:						
Average for year ---- 1,000	11.8	5.8	69.2	40.7	3.0	22.6
March ---- 1,000	11.7	5.8	69.0	40.7	3.2	22.3
May ---- 1,000	11.9	5.8	69.1	40.7	3.0	22.6
August ---- 1,000	11.8	5.7	69.3	40.7	3.0	22.8
November ---- 1,000	11.8	5.7	69.4	40.9	3.0	22.8
Hours ---- millions	22.2	10.4	128.4	76.4	6.1	41.3
Wages ---- mil dol	149.1	76.9	881.0	531.2	47.7	269.0

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Men's and boys' underwear and nightwear (SIC 2322)	Men's and boys' neckwear (SIC 2323)	Men's and boys' trousers and slacks (SIC 2325)			
			Total	Manufacturers (SIC 2325-11)	Jobbers (SIC 2325-22)	Contractors (SIC 2325-33)
Cost of materials[1] mil dol	360.6	301.1	2 843.7	1 212.6	1 533.2	79.4
Materials, parts, containers, etc., consumed[2] mil dol	332.8	242.0	1 969.9	1 067.0	834.6	58.9
Resales mil dol	1.2	34.4	23.0	13.8	8.4	.8
Fuels mil dol	1.0	.5	13.8	7.3	1.6	4.5
Purchased electricity mil dol	4.0	2.4	38.9	20.8	6.2	10.7
Contract work mil dol	21.6	21.8	798.1	103.6	682.4	4.5
Quantity of electric energy used for heat and power:						
Purchased mil kWh	63.2	28.3	582.7	329.2	75.7	159.5
Generated less sold mil kWh	–	–	–	–	–	(D)
Total value of shipments mil dol	749.2	618.2	6 489.7	3 349.8	2 469.9	573.0
Value added mil dol	398.7	319.1	3 644.0	2 140.4	932.8	492.3
Inventories by stage of fabrication:						
Beginning of 1992 mil dol	102.7	112.6	580.3	281.4	258.3	35.0
Finished goods mil dol	50.3	54.5	246.9	114.3	128.1	2.4
Work in process mil dol	25.7	15.5	183.9	89.8	75.4	17.0
Materials and supplies mil dol	26.7	42.5	149.4	77.3	54.9	15.7
End of 1992 mil dol	112.9	111.7	590.0	285.6	270.9	29.0
Finished goods mil dol	60.3	57.1	276.5	126.4	145.8	2.0
Work in process mil dol	25.8	14.9	152.4	80.9	53.7	16.0
Materials and supplies mil dol	26.8	39.7	161.1	78.3	71.3	11.0

Item	Men's and boys' work clothing (SIC 2326)				Men's and boys' clothing, n.e.c. (SIC 2329)			
	Total	Manufacturers (SIC 2326-11)	Jobbers (SIC 2326-22)	Contractors (SIC 2326-33)	Total	Manufacturers (SIC 2329-11)	Jobbers (SIC 2329-22)	Contractors (SIC 2329-33)
Companies number	188	142	10	54	624	341	36	263
All establishments number	284	205	10	69	701	385	37	279
With 1 to 19 employees number	94	67	7	20	298	172	26	100
With 20 to 99 employees number	76	50	1	25	265	117	8	140
With 100 employees or more number	114	88	2	24	138	96	3	39
Employment and labor costs:								
Employees 1,000	32.6	25.5	.5	6.6	47.9	30.6	1.4	15.9
Compensation, total mil dol	506.7	408.0	7.3	91.5	784.3	527.7	24.8	231.9
Annual payroll mil dol	409.6	328.9	6.1	74.6	658.3	443.3	20.3	194.7
Fringe benefits mil dol	97.1	79.0	1.2	16.8	126.0	84.4	4.5	37.2
Social Security and other legally required payments mil dol	47.6	39.4	.5	7.7	65.7	45.1	2.4	18.2
Employer voluntary payments mil dol	49.4	39.7	.7	9.1	60.3	39.3	2.1	19.0
Production workers:								
Average for year 1,000	28.4	21.9	.4	6.0	40.7	25.4	1.0	14.3
March 1,000	27.9	21.6	.4	5.8	40.6	25.5	1.0	14.1
May 1,000	28.2	21.7	.4	6.0	40.6	25.4	1.0	14.2
August 1,000	28.8	22.3	.4	6.1	40.8	25.4	1.0	14.4
November 1,000	28.6	22.0	.4	6.1	40.7	25.3	1.0	14.4
Hours millions	52.9	41.1	.7	11.1	74.9	47.1	1.7	26.1
Wages mil dol	315.8	249.1	3.9	62.8	484.9	311.7	11.4	161.8
Cost of materials[1] mil dol	708.4	650.6	17.1	40.6	1 113.6	881.2	150.4	82.0
Materials, parts, containers, etc., consumed[2] mil dol	642.5	599.0	8.7	34.8	894.2	759.0	80.1	55.1
Resales mil dol	15.7	14.7	1.0	(Z)	78.8	48.4	20.0	10.4
Fuels mil dol	4.3	3.0	.1	1.2	7.9	3.2	.5	4.1
Purchased electricity mil dol	11.7	9.0	.1	2.6	22.8	12.8	.8	9.3
Contract work mil dol	34.1	24.9	7.2	2.0	109.8	57.7	49.0	3.0
Quantity of electric energy used for heat and power:								
Purchased mil kWh	192.0	149.9	1.3	40.7	339.0	191.0	11.3	136.7
Generated less sold mil kWh	–	–	–	–	–	–	(D)	–
Total value of shipments mil dol	1 572.5	1 390.0	31.1	151.4	2 588.8	1 845.6	244.3	498.9
Value added mil dol	860.3	734.7	14.5	111.2	1 514.8	994.2	101.8	418.9
Inventories by stage of fabrication:								
Beginning of 1992 mil dol	187.9	165.6	10.7	11.6	487.5	424.1	38.2	25.3
Finished goods mil dol	73.8	70.9	2.5	.4	225.2	200.1	22.1	3.0
Work in process mil dol	42.3	38.2	1.1	3.0	88.8	74.8	5.5	8.5
Materials and supplies mil dol	71.8	56.5	7.1	8.2	173.6	149.3	10.6	13.8
End of 1992 mil dol	191.3	169.4	11.5	10.4	531.3	454.0	49.4	28.0
Finished goods mil dol	67.7	64.3	2.9	.5	268.1	233.4	29.3	5.4
Work in process mil dol	44.5	40.0	1.1	3.3	85.5	71.2	6.2	8.1
Materials and supplies mil dol	79.1	65.1	7.4	6.6	177.7	149.4	13.9	14.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Men's and boys' suits and coats (SIC 2311)	Men's and boys' shirts (SIC 2321)	Men's and boys' underwear and nightwear (SIC 2322)	Men's and boys' neckwear (SIC 2323)	Men's and boys' trousers and slacks (SIC 2325)	Men's and boys' work clothing (SIC 2326)	Men's and boys' clothing, n.e.c. (SIC 2329)
Gross book value of depreciable assets:							
Total:							
Beginning of year	398.3	716.5	76.4	50.8	742.9	238.6	348.6
New capital expenditures[1]	22.2	84.5	6.9	6.0	92.0	24.9	36.4
Used capital expenditures	9.5	6.8	.5	(Z)	(D)	2.5	(D)
Retirements	17.4	16.6	2.8	.8	(D)	3.9	(D)
End of year	412.6	791.2	80.9	56.1	823.2	262.0	386.2
Buildings and other structures:							
Beginning of year	131.4	244.8	28.4	14.5	240.0	72.3	101.5
New capital expenditures	3.2	16.7	1.2	.8	35.5	2.3	11.4
Used capital expenditures	4.3	1.2	.1	–	(D)	.4	(D)
Retirements	3.2	2.4	.5	(Z)	(D)	.5	(D)
End of year	135.7	260.3	29.3	15.3	277.5	74.6	117.5
Machinery and equipment:							
Beginning of year	266.8	471.6	47.9	36.3	502.9	166.3	247.1
New capital expenditures[1]	19.0	67.8	5.7	5.3	56.5	22.6	25.0
Used capital expenditures	5.3	5.6	.3	(Z)	6.9	2.1	2.1
Retirements	14.2	14.1	2.3	.8	20.6	3.4	5.5
End of year	276.9	530.9	51.6	40.8	545.7	187.4	268.6
Depreciation charges during 1992:							
Total	34.9	60.1	7.0	5.2	54.9	18.9	30.5
Buildings and other structures	7.6	14.8	2.0	1.1	10.9	4.0	6.0
Machinery and equipment	27.3	45.2	5.0	4.0	44.0	14.9	24.5
Rental payments:							
Total	32.2	44.8	4.2	9.8	28.8	14.8	34.4
Buildings and other structures	22.6	31.0	3.0	6.4	19.1	9.7	21.7
Machinery and equipment	9.6	13.8	1.2	3.4	9.7	5.1	12.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Men's and boys' suits and coats (SIC 2311)		Men's and boys' shirts (SIC 2321)		Men's and boys' underwear and nightwear (SIC 2322)		Men's and boys' neckwear (SIC 2323)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	2.5	(X)	3.8	(X)	.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	74.2	(X)	68.2	(X)	66.3	(X)	(S)	(X)
Machinery	6.5	(X)	10.2	(X)	.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	73.9	(X)	68.1	(X)	66.3	(X)	(S)	(X)
Other purchased services:								
Communications	3.3	(X)	5.9	(X)	.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	69.7	(X)	66.9	(X)	57.6	(X)	(S)	(X)
Legal	2.1	(X)	3.9	(X)	(Z)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	74.6	(X)	67.8	(X)	66.3	(X)	(S)	(X)
Accounting and bookkeeping	2.4	(X)	6.4	(X)	(Z)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	74.0	(X)	68.7	(X)	66.3	(X)	(S)	(X)
Advertising	13.8	(X)	11.2	(X)	(Z)	(X)	(S)	(X)
Response coverage ratio (percent)[2]	73.9	(X)	68.0	(X)	66.3	(X)	(S)	(X)
Software and other data processing	1.2	(X)	1.5	(X)	.1	(X)	(S)	(X)
Response coverage ratio (percent)[2]	73.1	(X)	67.5	(X)	66.3	(X)	(S)	(X)
Refuse removal, including hazardous waste	.9	(X)	1.4	(X)	.2	(X)	(S)	(X)
Response coverage ratio (percent)[2]	73.1	(X)	66.8	(X)	66.3	(X)	(S)	(X)
New machinery and equipment expenditures	19.0	(X)	67.8	(X)	5.7	(X)	5.3	(X)
Automobiles, trucks, etc., for highway use	.1	4	1.8	26	.1	14	.3	36
Computers and peripheral data processing equipment	1.9	14	8.6	7	.2	9	.8	25
All other	17.0	2	57.4	2	5.4	1	4.2	7
Adjustment ratio[3]	1.2	(X)	1.1	(X)	1.1	(X)	1.7	(X)
Cost of materials, components, parts, etc., used	803.5	(X)	2 240.7	(X)	332.8	(X)	242.0	(X)
Materials purchased or transferred from foreign sources[4]	218.0	5	102.6	5	–	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	585.5	3	2 138.1	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.9	(X)	1.6	(X)	(S)	(X)	(S)	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Men's and boys' trousers and slacks (SIC 2325)		Men's and boys' work clothing (SIC 2326)		Men's and boys' clothing, n.e.c. (SIC 2329)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	4.8	(X)	1.8	(X)	2.4	(X)
Response coverage ratio (percent)[2]	82.5	(X)	57.1	(X)	74.9	(X)
Machinery	19.0	(X)	2.9	(X)	5.8	(X)
Response coverage ratio (percent)[2]	81.9	(X)	51.7	(X)	75.7	(X)
Other purchased services:						
Communications	4.5	(X)	(S)	(X)	3.7	(X)
Response coverage ratio (percent)[2]	76.8	(X)	(S)	(X)	74.2	(X)
Legal	2.5	(X)	.4	(X)	2.9	(X)
Response coverage ratio (percent)[2]	79.3	(X)	56.0	(X)	74.7	(X)
Accounting and bookkeeping	7.8	(X)	1.0	(X)	1.7	(X)
Response coverage ratio (percent)[2]	79.0	(X)	56.1	(X)	74.8	(X)
Advertising	28.4	(X)	.9	(X)	7.3	(X)
Response coverage ratio (percent)[2]	79.1	(X)	56.1	(X)	74.3	(X)
Software and other data processing	1.5	(X)	.4	(X)	.8	(X)
Response coverage ratio (percent)[2]	80.2	(X)	52.5	(X)	74.7	(X)
Refuse removal, including hazardous waste	1.7	(X)	.3	(X)	.6	(X)
Response coverage ratio (percent)[2]	81.4	(X)	52.9	(X)	74.7	(X)
New machinery and equipment expenditures	56.5	(X)	22.6	(X)	25.0	(X)
Automobiles, trucks, etc., for highway use	.3	12	.4	24	.8	30
Computers and peripheral data processing equipment	4.0	12	1.8	56	4.7	25
All other	52.3	1	20.4	6	19.5	7
Adjustment ratio[3]	1.1	(X)	1.5	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	1 969.9	(X)	642.5	(X)	894.2	(X)
Materials purchased or transferred from foreign sources[4]	64.7	5	(S)	(X)	17.1	10
Materials purchased or transferred from domestic sources	1 905.1	1	(S)	(X)	877.1	1
Adjustment ratio[3]	1.4	(X)	(S)	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS												
Total	**–**	**302**	**43.8**	**720.3**	**37.2**	**66.9**	**533.2**	**1 372.5**	**1 024.2**	**2 426.0**	**22.2**	**504.9**
Establishments with an average of–												
1 to 4 employees	E6	40	.1	1.4	.1	.1	1.0	3.6	2.0	5.5	(Z)	.6
5 to 9 employees	E1	26	.2	3.5	.1	.2	2.0	8.7	8.0	17.1	.1	2.9
10 to 19 employees	–	37	.5	10.9	.4	.7	6.0	24.8	34.1	58.8	.2	12.0
20 to 49 employees	–	46	1.5	21.2	1.3	2.2	14.2	49.8	41.9	91.7	.8	17.5
50 to 99 employees	–	41	3.0	44.9	2.5	4.4	30.6	83.6	85.3	172.3	1.3	42.0
100 to 249 employees	–	58	9.2	144.7	7.5	13.3	99.7	275.9	175.6	450.3	3.0	95.1
250 to 499 employees	–	33	11.3	181.7	9.8	17.7	139.8	393.9	327.8	720.1	4.5	90.8
500 to 999 employees	–	16	11.8	203.0	10.4	17.9	159.0	388.7	250.3	652.3	9.6	165.8
1,000 to 2,499 employees	–	5	6.2	109.0	5.1	10.3	80.9	143.7	99.2	257.8	2.6	78.3
Covered by administrative records[2]	E9	45	.3	2.8	.2	.4	2.1	6.6	2.6	9.2	(Z)	1.4
INDUSTRY 2321, MEN'S AND BOYS' SHIRTS												
Total	**–**	**658**	**84.4**	**1 205.9**	**74.3**	**136.0**	**930.7**	**3 181.2**	**2 853.3**	**5 915.5**	**84.5**	**892.0**
Establishments with an average of–												
1 to 4 employees	E3	72	.2	3.1	.1	.2	2.3	12.6	9.6	21.4	.2	4.3
5 to 9 employees	E4	46	.3	5.3	.2	.4	3.8	19.3	16.0	35.5	.3	3.7
10 to 19 employees	E1	61	.9	14.0	.7	1.3	9.2	36.5	48.7	84.3	.4	15.0
20 to 49 employees	–	127	4.2	58.3	3.6	6.1	39.2	146.0	185.8	334.5	2.0	42.1
50 to 99 employees	E3	102	7.2	88.1	6.1	10.9	66.3	208.6	192.3	404.4	4.6	45.4
100 to 249 employees	–	153	25.5	343.1	22.1	40.0	260.4	862.8	809.6	1 636.0	19.4	267.4
250 to 499 employees	–	76	26.9	383.2	24.0	44.0	301.3	934.2	834.7	1 705.8	25.2	277.4
500 to 999 employees	–	17	11.5	180.2	10.3	19.3	144.8	377.9	410.3	775.9	8.5	104.2
1,000 to 2,499 employees	–	3	7.7	130.7	7.1	13.6	103.5	583.2	346.4	917.7	24.0	132.5
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	125	1.2	12.3	1.1	1.6	10.2	21.1	10.2	31.3	.3	3.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR												
Total	**–**	**85**	**12.8**	**172.0**	**11.8**	**22.2**	**149.1**	**398.7**	**360.6**	**749.2**	**6.9**	**112.9**
Establishments with an average of—												
1 to 4 employees	E9	10	(Z)	.3	(Z)	(Z)	.3	.8	.7	1.4	(Z)	.2
5 to 9 employees	E3	5	(Z)	.4	(Z)	.1	.3	.9	.7	1.6	(Z)	.2
10 to 19 employees	E1	8	.1	2.0	.1	.2	1.0	4.8	6.3	11.1	(Z)	2.1
20 to 49 employees	–	11	.4	5.3	.3	.6	4.0	13.9	11.5	25.6	.4	3.6
50 to 99 employees	E1	12	.8	10.3	.8	1.4	8.8	23.6	14.6	37.5	.4	6.0
100 to 249 employees	E1	22	3.6	46.5	3.3	6.3	40.0	89.7	73.2	159.4	2.0	25.5
250 to 499 employees	–	14	7.7	107.1	7.3	13.6	94.6	265.1	253.5	512.5	4.1	75.3
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	16	.1	1.0	.1	.1	.9	2.1	1.8	3.9	(Z)	.6
INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR												
Total	**–**	**136**	**7.5**	**130.2**	**5.8**	**10.4**	**76.9**	**319.1**	**301.1**	**618.2**	**6.0**	**111.7**
Establishments with an average of—												
1 to 4 employees	E9	22	(Z)	.7	(Z)	.1	.6	1.6	1.4	3.0	(Z)	.5
5 to 9 employees	E4	13	.1	1.6	.1	.1	1.2	4.4	4.3	8.8	(Z)	1.5
10 to 19 employees	E1	21	.3	5.3	.2	.4	3.0	13.1	10.5	23.2	.1	2.8
20 to 49 employees	E1	34	1.1	21.5	.9	1.5	11.8	52.7	32.7	84.6	1.2	14.8
50 to 99 employees	–	29	2.0	36.2	1.4	2.9	21.9	78.1	86.4	165.0	.7	28.4
100 to 249 employees	–	12	1.9	27.4	1.6	2.6	18.8	65.6	76.5	141.6	.6	32.0
250 to 499 employees	–	3	2.1	37.6	1.5	2.8	19.7	103.5	89.3	192.0	3.4	31.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	33	.1	2.0	.1	.2	1.6	4.6	4.2	8.8	.1	1.3
INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS												
Total	**–**	**424**	**78.3**	**1 098.5**	**69.2**	**128.4**	**881.0**	**3 644.0**	**2 843.7**	**6 489.7**	**92.0**	**590.0**
Establishments with an average of—												
1 to 4 employees	–	20	2.7	42.4	2.2	3.8	27.1	469.2	763.7	1 231.4	.3	103.5
5 to 9 employees	E3	15	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	E1	29	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(D)
20 to 49 employees	E1	64	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	(D)
50 to 99 employees	–	58	4.1	55.1	3.5	6.4	39.9	139.6	176.6	307.9	2.5	43.5
100 to 249 employees	E1	137	22.6	263.8	20.0	35.4	217.2	495.7	249.5	741.1	6.7	74.7
250 to 499 employees	–	72	26.1	372.3	23.1	42.8	290.4	854.5	538.1	1 398.7	81.2	187.4
500 to 999 employees	–	26	22.8	365.0	20.4	40.0	306.3	1 685.0	1 115.8	2 810.5	(D)	180.8
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	34	.3	3.3	.3	.4	2.6	7.8	3.7	11.5	.1	1.6
INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING												
Total	**–**	**284**	**32.6**	**409.6**	**28.4**	**52.9**	**315.8**	**860.3**	**708.4**	**1 572.5**	**24.9**	**191.3**
Establishments with an average of—												
1 to 4 employees	E9	45	.1	1.3	.1	.1	1.0	3.1	1.3	4.5	(Z)	.3
5 to 9 employees	E6	27	.2	2.8	.1	.2	2.0	7.1	2.7	9.8	.1	.7
10 to 19 employees	E4	22	.3	4.4	.3	.5	3.4	8.4	4.6	13.0	.2	2.1
20 to 49 employees	–	29	1.0	12.5	.8	1.3	8.7	30.8	30.7	60.8	.2	8.8
50 to 99 employees	–	47	3.5	45.6	3.1	5.5	35.6	91.8	49.2	141.2	1.4	23.7
100 to 249 employees	E1	81	13.5	167.0	12.0	22.4	137.0	330.2	335.1	664.9	9.9	66.1
250 to 499 employees	–	28	10.0	122.8	8.8	16.6	96.6	295.7	212.0	512.9	9.9	50.5
500 to 999 employees	–	4	4.0	53.4	3.2	6.2	31.6	93.2	72.9	165.6	3.1	39.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	75	.4	4.9	.4	.6	3.9	10.4	4.3	14.7	.1	1.4
INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.												
Total	**–**	**701**	**47.9**	**658.3**	**40.7**	**74.9**	**484.9**	**1 514.8**	**1 113.6**	**2 588.8**	**36.4**	**531.3**
Establishments with an average of—												
1 to 4 employees	E5	132	.2	3.5	.2	.4	2.7	10.2	6.2	16.2	.1	2.2
5 to 9 employees	E3	81	.6	8.1	.5	.9	6.2	19.6	16.7	35.8	.3	5.4
10 to 19 employees	E2	85	1.2	18.1	.9	1.6	11.9	36.2	27.7	63.7	.4	17.4
20 to 49 employees	E1	132	4.5	58.8	3.9	7.0	43.0	112.9	65.2	178.4	2.1	30.7
50 to 99 employees	–	133	9.3	118.1	8.1	14.7	89.2	236.3	144.1	376.8	4.5	76.0
100 to 249 employees	–	101	15.4	210.3	13.4	24.5	158.2	487.8	371.6	848.4	11.9	160.2
250 to 499 employees	–	27	9.2	132.0	7.2	14.0	88.4	366.8	219.9	587.8	9.0	102.5
500 to 999 employees	–	8	7.4	109.3	6.4	11.8	85.3	245.0	262.2	481.8	8.1	137.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	175	.9	10.3	.8	1.4	8.4	19.5	9.1	28.5	.3	4.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2311	**Men's and boys' suits and coats:**										
	All establishments in industry	302	43.8	720.3	37.2	66.9	533.2	1 372.5	1 024.2	2 426.0	22.2
	Establishments with this product class primary:										
23115	Suits, including uniform	93	18.9	353.9	14.9	27.8	236.8	721.5	656.1	1 407.2	10.5
23116	Overcoats, topcoats, and tailored car and suburban coats (incl. uniform and wool water-repellent), excluding raincoats	13	.8	11.5	.7	1.3	8.9	26.9	22.2	50.1	.7
23117	Tailored dress and sport coats (including uniform and separate leisure type) and tailored vests	46	10.6	172.1	9.1	15.7	129.2	348.9	307.6	654.0	6.3
23119	Receipts for contract and commission work on men's and boys' suits and tailored coats and jackets	94	12.8	173.3	11.8	21.0	151.0	257.1	31.2	289.5	4.6
2321	**Men's and boys' shirts:**										
	All establishments in industry	658	84.4	1 205.9	74.3	136.0	930.7	3 181.2	2 853.3	5 915.5	84.5
	Establishments with this product class primary:										
23213	Men's and boys' knit shirts, dress and sport (including polo, tennis, sweat, tank-tops, T-shirts for outerwear, etc.)	200	43.4	653.0	38.9	72.6	516.9	1 847.4	1 922.0	3 729.9	57.2
23216	Men's and boys' woven dress and sport shirts (including military-type uniform shirts)	107	16.0	252.7	12.9	24.0	159.5	742.2	875.1	1 539.9	15.1
23219	Receipts for contract and commission work on men's and boys' shirts, except work shirts	229	23.7	282.8	21.4	37.2	240.1	557.6	37.2	593.2	11.7
2322	**Men's and boys' underwear and nightwear:**										
	All establishments in industry	85	12.8	172.0	11.8	22.2	149.1	398.7	360.6	749.2	6.9
	Establishments with this product class primary:										
23221	Men's and boys' underwear	39	9.4	130.2	8.9	16.9	115.4	307.1	278.6	577.5	4.5
23222	Men's and boys' nightwear	8	1.1	16.0	.9	1.6	11.8	48.1	62.5	109.1	1.4
23229	Receipts for contract and commission work on men's and boys' underwear and nightwear	21	2.1	23.2	1.9	3.4	19.9	40.0	16.9	56.4	.9
2323	**Men's and boys' neckwear:**										
	All establishments in industry	136	7.5	130.2	5.8	10.4	76.9	319.1	301.1	618.2	6.0
2325	**Men's and boys' trousers and slacks:**										
	All establishments in industry	424	78.3	1 098.5	69.2	128.4	881.0	3 644.0	2 843.7	6 489.7	92.0
	Establishments with this product class primary:										
23251	Men's and boys' separate dress and sport trousers, pants, and slacks	103	19.2	302.1	15.1	27.4	184.6	705.7	865.4	1 593.3	13.5
23252	Men's and boys' jeans (including dungarees and jean-cut casual slacks)	105	30.6	440.5	28.1	54.2	387.7	2 351.9	1 871.1	4 202.0	63.7
23259	Receipts for contract and commission work on men's and boys' trousers and slacks	169	27.6	345.2	25.2	45.5	299.9	568.1	96.7	665.7	14.5
2326	**Men's and boys' work clothing:**										
	All establishments in industry	284	32.6	409.6	28.4	52.9	315.8	860.3	708.4	1 572.5	24.9
	Establishments with this product class primary:										
23261	Men's and boys' work shirts	40	6.2	77.8	5.6	10.5	62.8	192.2	147.2	339.9	5.4
23262	Men's and boys' work clothing and washable service apparel	112	20.1	261.9	17.0	31.9	191.6	550.2	503.3	1 056.8	17.0
23269	Receipts for contract and commission work on men's and boys' work clothing	51	5.2	57.0	4.9	8.9	50.3	90.2	32.9	123.2	2.2
2329	**Men's and boys' clothing, n.e.c.:**										
	All establishments in industry	701	47.9	658.3	40.7	74.9	484.9	1 514.8	1 113.6	2 588.8	36.4
	Establishments with this product class primary:										
23291	Men's and boys' heavy nontailored outerwear coats, jackets, and vests, except ski wear	78	8.6	125.0	7.1	13.6	86.9	336.6	293.6	623.0	10.3
23293	Men's and boys' other outerwear made from purchased fabrics	187	22.0	323.9	18.1	33.1	223.4	726.3	716.5	1 411.7	20.3
23299	Receipts for contract and commission work on men's and boys' outerwear, n.e.c.	207	14.0	170.8	12.6	23.1	143.5	384.0	75.9	459.2	4.9

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS			
Total value of shipments	2 426.0	2 863.3	3 059.7
Primary products value of shipments	2 187.5	2 621.1	2 730.0
Secondary products value of shipments	170.6	(D)	232.1
Total miscellaneous receipts	67.9	(D)	97.6
Value of resales	66.9	(D)	84.9
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	93	(D)	92
Value of primary products shipments made in all industries	2 380.0	2 877.0	2 932.9
Value of primary products shipments made in this industry	2 187.5	2 621.1	2 730.0
Value of primary products shipments made in other industries	192.5	255.9	202.9
Coverage ratio	92	91	93
INDUSTRY 2321, MEN'S AND BOYS' SHIRTS			
Total value of shipments	5 915.5	4 075.0	(NA)
Primary products value of shipments	4 879.4	3 345.2	(NA)
Secondary products value of shipments	653.4	544.5	(NA)
Total miscellaneous receipts	382.8	185.2	(NA)
Value of resales	375.7	176.8	(NA)
Contract receipts	4.9	5.1	(NA)
Other miscellaneous receipts	2.2	3.3	(NA)
Primary products specialization ratio	88	86	(NA)
Value of primary products shipments made in all industries	5 311.1	3 842.2	(NA)
Value of primary products shipments made in this industry	4 879.4	3 345.2	(NA)
Value of primary products shipments made in other industries	431.7	496.9	(NA)
Coverage ratio	92	87	(NA)
INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR			
Total value of shipments	749.2	1 045.4	(NA)
Primary products value of shipments	671.9	872.1	(NA)
Secondary products value of shipments	75.3	169.1	(NA)
Total miscellaneous receipts	2.1	4.2	(NA)
Value of resales	1.7	2.3	(NA)
Contract receipts	(D)	1.8	(NA)
Other miscellaneous receipts	(D)	.1	(NA)
Primary products specialization ratio	90	84	(NA)
Value of primary products shipments made in all industries	808.0	996.5	(NA)
Value of primary products shipments made in this industry	671.9	872.1	(NA)
Value of primary products shipments made in other industries	136.1	124.5	(NA)
Coverage ratio	83	88	(NA)
INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR			
Total value of shipments	618.2	475.6	335.0
Primary products value of shipments	532.5	415.6	306.5
Secondary products value of shipments	7.5	5.5	9.7
Total miscellaneous receipts	78.2	54.5	18.9
Value of resales	54.9	25.3	12.4
Contract receipts	(D)	29.0	(D)
Other miscellaneous receipts	(D)	.2	(D)
Primary products specialization ratio	99	99	97
Value of primary products shipments made in all industries	539.9	421.5	310.4
Value of primary products shipments made in this industry	532.5	415.6	306.5
Value of primary products shipments made in other industries	7.5	5.9	4.0
Coverage ratio	99	99	99
INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS			
Total value of shipments	6 489.7	6 013.6	(NA)
Primary products value of shipments	5 504.4	5 039.2	(NA)
Secondary products value of shipments	956.5	938.7	(NA)
Total miscellaneous receipts	28.8	35.8	(NA)
Value of resales	28.2	24.3	(NA)
Contract receipts	(D)	10.9	(NA)
Other miscellaneous receipts	(D)	.5	(NA)
Primary products specialization ratio	85	84	(NA)
Value of primary products shipments made in all industries	6 058.3	5 474.4	(NA)
Value of primary products shipments made in this industry	5 504.4	5 039.2	(NA)
Value of primary products shipments made in other industries	553.9	435.2	(NA)
Coverage ratio	91	92	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING			
Total value of shipments	1 572.5	1 541.6	(NA)
Primary products value of shipments	1 399.0	1 282.1	(NA)
Secondary products value of shipments	143.3	228.1	(NA)
Total miscellaneous receipts	30.2	31.4	(NA)
Value of resales	27.9	26.0	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	91	85	(NA)
Value of primary products shipments made in all industries	1 515.6	1 419.9	(NA)
Value of primary products shipments made in this industry	1 399.0	1 282.1	(NA)
Value of primary products shipments made in other industries	116.6	137.9	(NA)
Coverage ratio	92	90	(NA)
INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.			
Total value of shipments	2 588.8	2 289.6	1 658.3
Primary products value of shipments	2 024.1	1 744.0	1 167.3
Secondary products value of shipments	448.0	(D)	225.8
Total miscellaneous receipts	116.6	(D)	265.2
Value of resales	99.1	(D)	45.0
Contract receipts	17.1	(D)	217.4
Other miscellaneous receipts	.4	(D)	2.8
Primary products specialization ratio	82	(D)	84
Value of primary products shipments made in all industries	2 619.2	2 256.4	1 623.4
Value of primary products shipments made in this industry	2 024.1	1 744.0	1 167.3
Value of primary products shipments made in other industries	595.1	512.4	456.1
Coverage ratio	77	77	72

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2311– —	**MEN'S AND BOYS' SUITS AND COATS**				
	Total	**(NA)**	**2 380.0**	**(NA)**	**2 877.0**
23115	Suits, including uniform	(NA)	1 165.2		
23115 00	Suits, including uniform[3]	98	1 165.2		
23116	Overcoats, topcoats, and tailored car and suburban coats (incl. uniform and wool water-repellent), excluding raincoats	(NA)	54.9		
23116 00	Overcoats, topcoats, and tailored car and suburban coats (incl. uniform and wool water-repellent), excluding raincoats[3]	28	54.9	(NA)	2 386.1
23117	Tailored dress and sport coats (including uniform and separate leisure type) and tailored vests	(NA)	856.5		
23117 00	Tailored dress and sport coats (including uniform and separate leisure type) and tailored vests[3]	90	856.5		
23119	Receipts for contract and commission work on men's and boys' suits and tailored coats and jackets[4]	(NA)	281.2	(NA)	430.2
23119 00	Receipts for contract and commission work on men's and boys' suits and tailored coats and jackets	96	278.6	115	424.1
23119 02	Receipts for contract and commission work on men's and boys' suits and tailored coats and jackets, n.s.k.	6	2.7	(NA)	6.2
23110	Men's and boys' suits and coats, n.s.k.	(NA)	22.2	(NA)	60.6
23110 00	Men's and boys' suits and coats, n.s.k.[5]	(NA)	14.9	(NA)	32.3
23110 02	Men's and boys' suits and coats, n.s.k.[6]	(NA)	7.3	(NA)	28.3

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2321– —	**MEN'S AND BOYS' SHIRTS**				
	Total	**(NA)**	**5 311.1**	**(NA)**	**3 842.2**
23213	Men's and boys' knit shirts, dress and sport (including polo, tennis, sweat, tank-tops, T-shirts for outerwear, etc.)	(NA)	3 545.7	(NA)	1 863.0
23213 00	Men's and boys' knit shirts, dress and sport (including polo, tennis, sweat, tank-tops, T-shirts for outerwear, etc.)[3 7]	227	3 545.7	178	1 863.0
23216	Men's and boys' woven dress and sport shirts (including military-type uniform shirts)	(NA)	1 109.4	(NA)	1 339.3
23216 00	Men's and boys' woven dress and sport shirts (including military-type uniform shirts)[3]	123	1 109.4	151	1 339.3
23219	Receipts for contract and commission work on men's and boys' shirts, except work shirts[4]	(NA)	603.7	(NA)	537.2
23219 00	Receipts for contract and commission work on men's and boys' shirts, except work shirts	239	597.3	209	529.8
23219 02	Receipts for contract and commission work on men's and boys' shirts, except work shirts, n.s.k.	21	6.4	(NA)	7.4
23210	Men's and boys' shirts, n.s.k.	(NA)	52.2	(NA)	102.7
23210 00	Men's and boys' shirts, n.s.k.[8]	(NA)	23.1	(NA)	59.4
23210 02	Men's and boys' shirts, n.s.k.[9]	(NA)	29.1	(NA)	43.3
2322– —	**MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR**				
	Total	**(NA)**	**808.0**	**(NA)**	**996.5**
23221	Men's and boys' underwear	(NA)	625.5	(NA)	768.3
23221 00	Men's and boys' underwear[3 7]	37	625.5	29	768.3
23222	Men's and boys' nightwear	(NA)	117.7	(NA)	148.3
23222 00	Men's and boys' nightwear (including pajamas, night shirts, etc.), excluding robes[3 7]	22	117.7	26	148.3
23229	Receipts for contract and commission work on men's and boys' underwear and nightwear[4]	(NA)	58.3	(NA)	60.7
23229 00	Receipts for contract and commission work on men's and boys' underwear and nightwear	20	58.3	(NA)	60.7
23220	Men's and boys' underwear and nightwear, n.s.k.	(NA)	6.5	(NA)	19.3
23220 00	Men's and boys' underwear and nightwear, n.s.k.[5]	(NA)	–	(NA)	–
23220 02	Men's and boys' underwear and nightwear, n.s.k.[6]	(NA)	6.5	(NA)	19.3

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2323– —	**MEN'S AND BOYS' NECKWEAR**						
	Total	**(NA)**	**(X)**	**539.9**	**(NA)**	**(X)**	**421.5**
23230	Men's and boys' neckwear	(NA)	(X)	539.9	(NA)	(X)	421.5
	Neckties made from woven fabrics (including prints):						
23230 21	All silk, 1,000 dozens	53	*3 423.3	335.7	41	**2 657.7	192.3
23230 27	All polyester, 1,000 dozens	39	*1 890.4	73.1	37	*1 323.0	46.4
23230 28	All other fabrics (including blends), 1,000 dozens	27	**851.1	48.2	37	**1 297.1	68.7
23230 49	All other men's and boys' neckwear (including leather neckties and knit or woven mufflers and scarves), 1,000 dozens	9	222.1	8.6	10	**141.8	5.9
23230 00	Men's and boys' neckwear, n.s.k.[10]	(NA)	(X)	63.2	(NA)	(X)	95.1
23230 02	Men's and boys' neckwear, n.s.k.[11]	(NA)	(X)	11.2	(NA)	(X)	13.1

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2325– —	**MEN'S AND BOYS' TROUSERS AND SLACKS**				
	Total	**(NA)**	**6 058.3**	**(NA)**	**5 474.4**
23251	Men's and boys' separate dress and sport trousers, pants, and slacks	(NA)	1 545.9	(NA)	1 639.5
23251 00	Separate dress and sport trousers, pants, and slacks (including military-type uniform pants), excluding jeans[3]	147	1 545.9	161	1 639.5
23252	Men's and boys' jeans (including dungarees and jean-cut casual slacks)	(NA)	3 863.0	(NA)	2 962.5
23252 00	Men's and boys' jeans (including dungarees and jean-cut casual slacks)[3]	82	3 863.0	79	2 962.5
23259	Receipts for contract and commission work on men's and boys' trousers and slacks	(NA)	628.3	(NA)	821.8
23259 00	Receipts for contract and commission work on men's and boys' trousers and slacks	160	627.2	(NA)	821.5
23259 02	Receipts for contract and commission work on men's and boys' trousers and slacks, n.s.k.	2	1.2	(NA)	.3
23250	Men's and boys' trousers and slacks, n.s.k.	(NA)	21.2	(NA)	50.5
23250 00	Men's and boys' trousers and slacks, n.s.k.[8]	(NA)	11.2	(NA)	25.6
23250 02	Men's and boys' trousers and slacks, n.s.k.[9]	(NA)	10.0	(NA)	24.9
2326– —	**MEN'S AND BOYS' WORK CLOTHING**				
	Total	**(NA)**	**1 515.6**	**(NA)**	**1 419.9**
23261	Men's and boys' work shirts	(NA)	391.5	(NA)	346.4
23261 00	Men's and boys' work shirts[3]	43	391.5	58	346.4
23262	Men's and boys' work clothing and washable service apparel	(NA)	980.8	(NA)	881.4
23262 00	Work clothing, except shirts and jeans, and washable service apparel (work pants, overalls, work jackets, etc.)[3]	88	980.8	99	881.4
23269	Receipts for contract and commission work on men's and boys' work clothing	(NA)	122.1	(NA)	151.3
23269 00	Receipts for contract and commission work on men's and boys' work clothing, except jeans and jean-cut casual slacks	36	121.1	57	149.4
23269 02	Receipts for contract and commission work on men's and boys' work clothing, n.s.k.	3	1.0	(NA)	1.8
23260	Men's and boys' work clothing, n.s.k.	(NA)	21.2	(NA)	40.8
23260 00	Men's and boys' work clothing, n.s.k.[8]	(NA)	1.8	(NA)	7.3
23260 02	Men's and boys' work clothing, n.s.k.[9]	(NA)	19.4	(NA)	33.5
2329– —	**MEN'S AND BOYS' CLOTHING, N.E.C.**				
	Total	**(NA)**	**2 619.2**	**(NA)**	**2 256.4**
23291	Men's and boys' heavy nontailored outerwear coats, jackets, and vests, except ski wear	(NA)	594.7	(NA)	518.6
23291 00	Heavy nontailored outerwear coats, jackets, and vests, except ski wear (mackinaws, meltons, lumber jackets, etc.)[3]	94	594.7	84	518.6
23293	Men's and boys' other outerwear made from purchased fabrics	(NA)	1 469.1	(NA)	1 342.1
23293 10	Swimwear and shorts[3]	108	623.3	92	456.6
23293 30	Athletic uniforms sold as such[3]	53	200.7	47	150.4
23293 60	Sweaters (including sweater vests)[3 7]	24	75.8	25	53.5
23293 80	Outerwear, n.e.c. (ski and snow pants, leggings, light outerwear jackets, etc.)[3]	137	558.2	155	666.3
23293 00	Men's and boys' other outerwear made from purchased fabrics, n.s.k.	(NA)	11.0	(NA)	15.4
23299	Receipts for contract and commission work on men's and boys' outerwear, n.e.c.	(NA)	476.9	(NA)	254.7
23299 00	Receipts for contract and commission work on men's and boys' outerwear, n.e.c.	206	473.9	(NA)	254.7
23299 02	Receipts for contract and commission work on men's and boys' outerwear, n.e.c., n.s.k.	13	3.0	(NA)	–
23290	Men's and boys' clothing, n.e.c., n.s.k.	(NA)	78.6	(NA)	141.0
23290 00	Men's and boys' clothing, n.e.c., n.s.k.[5]	(NA)	49.4	(NA)	103.5
23290 02	Men's and boys' clothing, n.e.c., n.s.k.[6]	(NA)	29.2	(NA)	37.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Data for this product class represent value of receipts rather than value of shipments.
[5]Typically for establishments with 10 employees or more.
[6]Typically for establishments with less than 10 employees.
[7]This product code is primary to more than one industry.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]Typically for establishments with 5 employees or more.
[11]Typically for establishments with less than 5 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Men's and boys' sweaters	(NA)	248.2	(NA)	442.2
22534 00	Made in knitting mills	41	172.4	51	388.7
23293 60	Made in cut-and-sew shops	24	75.8	25	53.5
	Men's and boys' knit shirts	(NA)	4 992.9	(NA)	2 588.9
2253A 00	Made in knitting mills	40	1 447.1	40	r725.9
23213 00	Made in cut-and-sew shops	227	3 545.7	178	1 863.0
	Men's and boys' knit underwear and nightwear	(NA)	(D)	(NA)	1 546.1
22541	Made in knitting mills	(NA)	(D)	(NA)	610.2
	Made in cut-and-sew shops	(NA)	749.7	(NA)	935.9
	Underwear	(NA)	1 351.4	(NA)	1 366.5
22541 11	Made in knitting mills	23	725.9	23	598.2
23221 00	Made in cut-and-sew shops	37	625.5	29	768.3
	Nightwear	(NA)	(D)	(NA)	160.3
22541 13	Made in knitting mills	2	(D)	4	12.0
23222 00	Made in cut-and-sew shops	22	117.7	26	148.3
	Men's and boys' knit underwear and nightwear, n.s.k.	(NA)	6.5	(NA)	19.3
22541 00	Made in knitting mills	(NA)	–	(NA)	–
23220 00	Made in cut-and-sew shops	(NA)	–	(NA)	–
23220 02	Made in cut-and-sew shops	(NA)	6.5	(NA)	19.3

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23115, SUITS, INCLUDING UNIFORM		
United States	**1 165.2**	**(NA)**
California	11.2	(NA)
Georgia	114.6	(NA)
Kentucky	18.1	(NA)
Maryland	72.9	(NA)
Massachusetts	161.5	(NA)
Missouri	19.0	(NA)
New Jersey	30.7	(NA)
New York	216.4	(NA)
North Carolina	8.7	(NA)
Pennsylvania	219.3	(NA)
Tennessee	52.0	(NA)
Texas	3.1	(NA)
23116, OVERCOATS, TOPCOATS, AND TAILORED CAR AND SUBURBAN COATS (INCL. UNIFORM AND WOOL WATER-REPELLENT), EXCLUDING RAINCOATS		
United States	**54.9**	**(NA)**
Pennsylvania	15.8	(NA)
23117, TAILORED DRESS AND SPORT COATS (INCLUDING UNIFORM AND SEPARATE LEISURE TYPE) AND TAILORED VESTS		
United States	**856.5**	**(NA)**
California	9.6	(NA)
Florida	10.2	(NA)
Georgia	50.6	(NA)
Illinois	23.3	(NA)
Maryland	30.5	(NA)
Massachusetts	116.1	(NA)
New Jersey	12.9	(NA)
New York	175.1	(NA)
Pennsylvania	118.7	(NA)
Tennessee	61.1	(NA)
23119, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' SUITS AND TAILORED COATS AND JACKETS		
United States	**281.2**	**430.2**
Alabama	12.9	20.9
California	9.1	6.4
Georgia	47.9	51.6
Kentucky	31.1	47.2
New Jersey	4.4	19.6
New York	27.8	56.0
Pennsylvania	61.0	65.0
23213, MEN'S AND BOYS' KNIT SHIRTS, DRESS AND SPORT (INCLUDING POLO, TENNIS, SWEAT, TANK-TOPS, T-SHIRTS FOR OUTERWEAR, ETC.)		
United States	**3 545.7**	**1 863.0**
Alabama	313.8	138.1
California	178.3	116.9
Florida	310.9	87.6
Georgia	246.9	90.2
Kentucky	470.4	37.9
Mississippi	73.0	(NA)
Missouri	50.3	(NA)
New York	66.4	88.3
North Carolina	572.6	514.3
Ohio	2.9	(NA)
Pennsylvania	152.6	123.4
South Carolina	463.2	204.2
Tennessee	105.4	91.5
Texas	5.5	(NA)
Virginia	255.7	129.0

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23216, MEN'S AND BOYS' WOVEN DRESS AND SPORT SHIRTS (INCLUDING MILITARY-TYPE UNIFORM SHIRTS)		
United States	**1 109.4**	**1 339.3**
Alabama	160.1	131.4
Arkansas	52.0	24.3
California	90.2	83.9
Florida	9.9	30.6
Georgia	186.5	249.8
Hawaii	14.1	15.7
Mississippi	4.0	12.9
New Jersey	66.3	75.6
New York	184.8	229.3
North Carolina	97.6	107.2
Pennsylvania	40.9	49.4
Tennessee	59.6	64.9
Texas	31.7	(NA)
23219, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' SHIRTS, EXCEPT WORK SHIRTS		
United States	**603.7**	**537.2**
Alabama	108.9	73.5
Arizona	2.9	(NA)
California	33.6	26.8
Florida	10.9	12.2
Georgia	60.2	72.8
Hawaii	3.9	4.3
Kentucky	2.1	(NA)
Mississippi	39.9	48.2
Missouri	2.4	(NA)
New York	11.4	5.6
North Carolina	88.9	75.1
Pennsylvania	44.2	51.0
South Carolina	32.8	14.4
Tennessee	61.7	52.6
Virginia	16.9	18.2
23221, MEN'S AND BOYS' UNDERWEAR		
United States	**625.5**	**768.3**
Alabama	9.1	(NA)
Georgia	127.9	135.2
New York	20.7	(NA)
Tennessee	53.3	(NA)
23222, MEN'S AND BOYS' NIGHTWEAR		
United States	**117.7**	**148.3**
New York	3.7	44.4
23229, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR		
United States	**58.3**	**60.7**
Florida	3.0	(NA)
Virginia	14.7	(NA)
23251, MEN'S AND BOYS' SEPARATE DRESS AND SPORT TROUSERS, PANTS, AND SLACKS		
United States	**1 545.9**	**1 639.5**
Alabama	67.1	119.4
California	47.8	50.1
Florida	57.2	50.4
Georgia	136.8	226.9
Kentucky	63.5	15.6
Maryland	20.3	(NA)
Massachusetts	34.9	31.9
Mississippi	47.1	116.4
Missouri	59.2	53.0
New Jersey	2.2	(NA)
New York	90.2	195.4
North Carolina	14.6	23.2
Ohio	28.3	(NA)
Pennsylvania	60.5	44.9
Tennessee	114.2	118.4
Texas	445.7	296.8
23252, MEN'S AND BOYS' JEANS (INCLUDING DUNGAREES AND JEAN-CUT CASUAL SLACKS)		
United States	**3 863.0**	**2 962.5**
Alabama	122.7	(NA)
Georgia	191.7	198.0
Kentucky	90.4	106.6
Mississippi	120.0	110.0
Missouri	13.9	36.5
Tennessee	367.5	(NA)
Texas	987.2	691.2
Virginia	174.3	157.8
23259, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' TROUSERS AND SLACKS		
United States	**628.3**	**821.8**
Alabama	114.4	117.8
California	43.1	40.7
Florida	14.4	(NA)
Georgia	60.6	85.4
Kentucky	17.1	25.9
Mississippi	50.8	44.7
New York	8.4	12.9
North Carolina	15.8	31.4
Pennsylvania	26.6	39.3
South Carolina	10.3	32.0
Tennessee	47.8	71.7
Texas	113.4	126.8
Virginia	11.7	21.2
Washington	5.3	(NA)
23261, MEN'S AND BOYS' WORK SHIRTS		
United States	**391.5**	**346.4**
California	5.7	(NA)
Kentucky	19.6	23.2
Mississippi	112.2	94.2
Tennessee	79.3	75.0
23262, MEN'S AND BOYS' WORK CLOTHING AND WASHABLE SERVICE APPAREL		
United States	**980.8**	**881.4**
Alabama	99.6	70.9
California	27.2	14.1
Georgia	92.7	92.0
Kentucky	135.4	110.5
Mississippi	152.6	120.7
Missouri	39.7	45.8
New York	2.1	23.4
Tennessee	144.9	108.2
23269, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' WORK CLOTHING		
United States	**122.1**	**151.3**
Alabama	7.3	11.3
Georgia	2.4	6.5
Mississippi	35.3	20.8
Tennessee	27.1	28.8
23291, MEN'S AND BOYS' HEAVY NONTAILORED OUTERWEAR COATS, JACKETS, AND VESTS, EXCEPT SKI WEAR		
United States	**594.7**	**518.6**
Alabama	43.3	18.8
California	43.8	85.2
Minnesota	3.5	(NA)
Mississippi	48.0	(NA)
Missouri	55.1	6.2
New York	41.2	60.8
Tennessee	72.7	70.0
Washington	25.7	4.9
Wisconsin	7.1	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23293, MEN'S AND BOYS' OTHER OUTERWEAR MADE FROM PURCHASED FABRICS		
United States	**1 469.1**	**1 342.1**
Alabama	81.3	(NA)
Arizona	4.5	(NA)
Arkansas	5.8	3.9
California	277.7	225.8
Colorado	7.8	(NA)
Florida	41.3	32.1
Georgia	92.2	58.6
Illinois	19.2	2.1
Indiana	3.0	(NA)
Iowa	43.3	20.4
Kansas	2.6	(NA)
Kentucky	24.2	17.9
Minnesota	6.8	14.5
Mississippi	37.1	5.3
Missouri	31.8	62.1
New Jersey	5.6	24.5
New York	126.4	144.0
North Carolina	87.0	56.5
Ohio	24.9	16.9
Oregon	10.3	8.0
Pennsylvania	25.3	40.4
Tennessee	234.0	126.1
Texas	47.6	36.2
Virginia	9.6	(NA)
Washington	17.4	17.2
Wisconsin	11.9	(NA)
23299, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON MEN'S AND BOYS' OUTERWEAR, N.E.C.		
United States	**476.9**	**254.7**
Alabama	7.6	12.4
Arkansas	5.5	4.6
California	21.5	29.9
Florida	23.6	5.4
Georgia	6.0	27.5
Kentucky	11.7	(NA)
Minnesota	2.9	2.8
Mississippi	7.6	(NA)
Missouri	4.0	9.9
New Jersey	6.8	(NA)
New York	24.6	11.6
North Carolina	78.6	18.0
Oklahoma	9.0	(NA)
Pennsylvania	20.0	12.4
South Carolina	9.4	11.3
Tennessee	21.4	12.3
Texas	5.7	(NA)
Virginia	146.5	(NA)
Washington	23.2	9.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2311-	**Men's and boys' suits and coats**	**2 380.0**	**2 450.0**	**2 632.8**	**2 914.7**	**2 976.9**	**2 877.0**	**2 932.9**	**2 719.2**
23115	Suits, including uniform	1 165.2							
23116	Overcoats, topcoats, and tailored car and suburban coats (incl. uniform and wool water-repellent), excluding raincoats	54.9	2 095.5	2 239.5	2 460.6	2 424.2	2 386.1	2 297.4	2 225.9
23117	Tailored dress and sport coats (including uniform and separate leisure type) and tailored vests	856.5							
23119	Receipts for contract and commission work on men's and boys' suits and tailored coats and jackets	281.2	313.3	364.5	422.6	483.8	430.2	493.6	371.5
23110	Men's and boys' suits and coats, n.s.k.	22.2	41.3	28.9	31.5	68.8	60.6	141.9	121.8
2321-	**Men's and boys' shirts**	**5 311.1**	**3 915.3**	**3 740.0**	**3 680.6**	**3 727.6**	**3 842.2**	**2 928.0**	**(NA)**
23213	Men's and boys' knit shirts, dress and sport (including polo, tennis, sweat, tank-tops, T-shirts for outerwear, etc.)	3 545.7	2 177.0	1 816.5	1 805.0	1 884.2	1 863.0	2 325.0	2 153.6
23216	Men's and boys' woven dress and sport shirts (including military-type uniform shirts)	1 109.4	1 173.1	1 303.1	1 295.1	1 300.7	1 339.3		
23219	Receipts for contract and commission work on men's and boys' shirts, except work shirts	603.7	513.6	582.4	554.0	505.8	537.2	435.9	(NA)
23210	Men's and boys' shirts, n.s.k.	52.2	51.6	38.0	26.6	37.0	102.7	167.1	(NA)
2322-	**Men's and boys' underwear and nightwear**	**808.0**	**744.1**	**738.1**	**778.6**	**1 000.6**	**996.5**	**656.0**	**(NA)**
23221	Men's and boys' underwear	625.5	473.5	511.8	547.2	775.6	768.3	418.2	350.0
23222	Men's and boys' nightwear	117.7	154.5	146.4	165.5	152.4	148.3	151.3	152.8
23229	Receipts for contract and commission work on men's and boys' underwear and nightwear	58.3	91.9	49.5	45.9	53.3	60.7	79.2	(NA)
23220	Men's and boys' underwear and nightwear, n.s.k.	6.5	24.1	30.3	20.0	19.3	19.3	7.3	(NA)
2323-	**Men's and boys' neckwear**	**539.9**	**525.4**	**498.2**	**526.4**	**457.2**	**421.5**	**310.4**	**211.3**
23230	Men's and boys' neckwear	539.9	525.4	498.2	526.4	457.2	421.5	310.4	211.3
2325-	**Men's and boys' trousers and slacks**	**6 058.3**	**5 911.4**	**5 544.3**	**5 888.6**	**5 474.8**	**5 474.4**	**4 860.6**	**(NA)**
23251	Men's and boys' separate dress and sport trousers, pants, and slacks	1 545.9	1 499.2	1 544.7	1 926.6	1 775.0	1 639.5	1 560.4	1 308.3
23252	Men's and boys' jeans (including dungarees and jean-cut casual slacks)	3 863.0	3 546.8	3 126.1	2 987.4	2 885.8	2 962.5	2 543.9	1 962.8
23259	Receipts for contract and commission work on men's and boys' trousers and slacks	628.3	839.5	821.6	924.2	755.1	821.8	664.5	(NA)
23250	Men's and boys' trousers and slacks, n.s.k.	21.2	25.8	51.8	50.4	59.0	50.5	91.8	58.6
2326-	**Men's and boys' work clothing**	**1 515.6**	**1 341.3**	**1 355.4**	**1 372.4**	**1 537.3**	**1 419.9**	**1 240.6**	**(NA)**
23261	Men's and boys' work shirts	391.5	356.9	349.8	341.6	376.0	346.4	242.5	191.6
23262	Men's and boys' work clothing and washable service apparel	980.8	841.5	850.6	887.6	951.8	881.4	767.0	729.6
23269	Receipts for contract and commission work on men's and boys' work clothing	122.1	139.2	141.1	134.0	161.5	151.3	137.5	(NA)
23260	Men's and boys' work clothing, n.s.k.	21.2	3.7	13.8	9.2	48.0	40.8	93.6	99.0

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2329-	**Men's and boys' clothing, n.e.c.**	**2 619.2**	**2 424.0**	**2 286.5**	**2 382.8**	**2 367.4**	**2 256.4**	**1 623.4**	**1 052.2**
23291	Men's and boys' heavy nontailored outerwear coats, jackets, and vests, except ski wear	594.7	438.1	499.7	498.1	546.6	518.6	449.8	397.3
23293	Men's and boys' other outerwear made from purchased fabrics	1 469.1	1 476.1	1 289.7	1 375.4	1 409.0	1 342.1	798.9	423.3
23299	Receipts for contract and commission work on men's and boys' outerwear, n.e.c.	476.9	496.1	419.7	433.6	264.8	254.7	217.4	126.6
23290	Men's and boys' clothing, n.e.c., n.s.k.	78.6	13.8	77.4	75.6	147.1	141.0	157.3	105.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2311, MEN'S AND BOYS' SUITS AND COATS		
	Materials, ingredients, containers, and supplies	**803.5**	**793.3**
220129	Broadwoven fabrics (piece goods)	602.7	598.8
224111	Narrow fabrics (12 inches or less in width)	30.4	(1)
225078	Knit fabrics	8.7	36.6
228015	Yarn, all fibers	6.6	(1)
396501	Buttons, zippers, and slide fasteners	21.7	(1)
970099	All other materials and components, parts, containers, and supplies	115.8	[1]131.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	17.6	26.0
	INDUSTRY 2321, MEN'S AND BOYS' SHIRTS		
	Materials, ingredients, containers, and supplies	**2 240.7**	**1 428.3**
220129	Broadwoven fabrics (piece goods)	464.0	417.8
224111	Narrow fabrics (12 inches or less in width)	30.2	(1)
225078	Knit fabrics	1 372.2	780.1
228015	Yarn, all fibers	88.6	(1)
396501	Buttons, zippers, and slide fasteners	39.5	(1)
970099	All other materials and components, parts, containers, and supplies	201.4	[1]161.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	44.8	68.5
	INDUSTRY 2322, MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR		
	Materials, ingredients, containers, and supplies	**332.8**	**364.6**
220129	Broadwoven fabrics (piece goods)	50.7	47.0
224111	Narrow fabrics (12 inches or less in width)	4.1	(1)
225078	Knit fabrics	222.6	278.7
228015	Yarn, all fibers	(D)	(1)
396501	Buttons, zippers, and slide fasteners	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	24.9	[1]29.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	4.0	9.8
	INDUSTRY 2323, MEN'S AND BOYS' NECKWEAR		
	Materials, ingredients, containers, and supplies	**242.0**	**184.5**
220129	Broadwoven fabrics (piece goods)	150.0	113.1
224111	Narrow woven fabrics, elastic and nonelastic	36.1	(1)
225078	Knit fabrics	2.8	7.3
228015	Yarn, all fibers	(D)	(1)
311100	Finished leather	(D)	(1)
396501	Buttons, zippers, and slide fasteners	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	18.9	[1]11.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	31.6	52.8
	INDUSTRY 2325, MEN'S AND BOYS' TROUSERS AND SLACKS		
	Materials, ingredients, containers, and supplies	**1 969.9**	**2 013.9**
220129	Broadwoven fabrics (piece goods)	1 539.3	1 560.8
224111	Narrow fabrics (12 inches or less in width)	61.6	(1)
225078	Knit fabrics	55.9	72.9
228015	Yarn, all fibers	43.7	(1)
396501	Buttons, zippers, and slide fasteners	45.6	(1)
970099	All other materials and components, parts, containers, and supplies	187.7	[1]277.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	36.3	102.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2326, MEN'S AND BOYS' WORK CLOTHING		
	Materials, ingredients, containers, and supplies	**642.5**	**585.9**
220129	Broadwoven fabrics (piece goods)	465.2	414.2
224111	Narrow fabrics (12 inches or less in width)	13.2	(1)
225078	Knit fabrics	36.8	17.3
228015	Yarn, all fibers	3.6	(1)
396501	Buttons, zippers, and slide fasteners	23.8	(1)
970099	All other materials and components, parts, containers, and supplies	51.7	[1]98.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	48.3	55.9
	INDUSTRY 2329, MEN'S AND BOYS' CLOTHING, N.E.C.		
	Materials, ingredients, containers, and supplies	**894.2**	**842.4**
220129	Broadwoven fabrics (piece goods)	395.3	409.6
224111	Narrow fabrics (12 inches or less in width)	62.7	(1)
225078	Knit fabrics	186.8	230.0
228015	Yarn, all fibers	42.2	(1)
396501	Buttons, zippers, and slide fasteners	30.6	(1)
970099	All other materials and components, parts, containers, and supplies	117.9	[1]123.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	58.6	79.3

[1]For 1987, data for these materials were not collected separately, but are included in material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
23115	23111	23117	23113	23299 00	23299 11	23924 94	23924 82
23115	23114	23117	23114	23299 00	23299 13	23924 94	23924 91
23115 00	23111 00	23117 00	23113 00	23910 23	23910 15	23924 94	23924 92
23115 00	23114 00	23117 00	23114 00	23910 23	23910 21	23924 94	23924 93
23116	23112	23229 00	23229 11	23910 63	23910 55	23924 94	23924 95
23116	23114	23229 00	23229 12	23910 63	23910 61	23924 94	23924 96
23116 00	23112 00	23259 00	23259 11	23921 13	23921 22	23940 64	23940 63
23116 00	23114 00	23259 00	23259 12	23921 13	23921 30	23940 64	23940 65
				23921 15	23921 24	23990 98	23990 26
				23921 15	23921 31	23990 98	23990 27
						23990 98	23990 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
23111	23115	23114	23117	23299 11	23299 00	23924 82	23924 94
23111 00	23115 00	23114 00	23115 00	23299 13	23299 00	23924 91	23924 94
23112	23116	23114 00	23116 00	23910 15	23910 23	23924 92	23924 94
23112 00	23116 00	23114 00	23117 00	23910 21	23910 23	23924 93	23924 94
23113	23117	23229 11	23229 00	23910 55	23910 63	23924 95	23924 94
23113 00	23117 00	23229 12	23229 00	23910 61	23910 63	23924 96	23924 94
23114	23115	23259 11	23259 00	23921 22	23921 13	23940 63	23940 64
23114	23116	23259 12	23259 00	23921 24	23921 15	23940 65	23940 64
				23921 30	23921 13	23990 26	23990 98
				23921 31	23921 15	23990 27	23990 98
						23990 99	23990 98

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2311500	MA23A, Apparel	2339500	MA23A, Apparel
2311600	MA23A, Apparel	2339730	MA23A, Apparel
2311700	MA23A, Apparel	2339760	MA23A, Apparel
2321300	MA23A, Apparel	2339780	MA23A, Apparel
2321600	MA23A, Apparel	2341200	MA23A, Apparel
2322100	MA23A, Apparel	2341300	MA23A, Apparel
2322200	MA23A, Apparel	2342100	MA23A, Apparel
2325100	MA23A, Apparel	2342210	MA23A, Apparel
2325200	MA23A, Apparel	2361300	MA23A, Apparel
2326100	MA23A, Apparel	2361400	MA23A, Apparel
2326200	MA23A, Apparel	2361500	MA23A, Apparel
2329100	MA23A, Apparel	2369200	MA23A, Apparel
2329310	MA23A, Apparel	2369340	MA23A, Apparel
2329330	MA23A, Apparel	2369370	MA23A, Apparel
2329360	MA23A, Apparel	2369380	MA23A, Apparel
2329380	MA23A, Apparel	2369393	MA23A, Apparel
2331300	MA23A, Apparel	2381300	MA23D, Gloves and Mittens
2331400	MA23A, Apparel	2381400	MA23D, Gloves and Mittens
2335300	MA23A, Apparel	2384011	MA23A, Apparel
2337100	MA23A, Apparel	2384021	MA23A, Apparel
2337200	MA23A, Apparel	2385140	MA23A, Apparel
2337410	MA23A, Apparel	2392200	MQ23X, Sheets, Pillowcases, and Towels
2337420	MA23A, Apparel	2392310	MQ23X, Sheets, Pillowcases, and Towels
2339200	MA23A, Apparel	2392313	MQ23X, Sheets, Pillowcases, and Towels
2339400	MA23A, Apparel		

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:13 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08130692.DAT;1 1/ 6/ 95 08:13:15 UTF:TIPS93-08130692.DAT;1 1/ 6/ 95 08:13:15 META:TIPS96-08130692.DAT;1 1/ 6/ 95 08:13:46

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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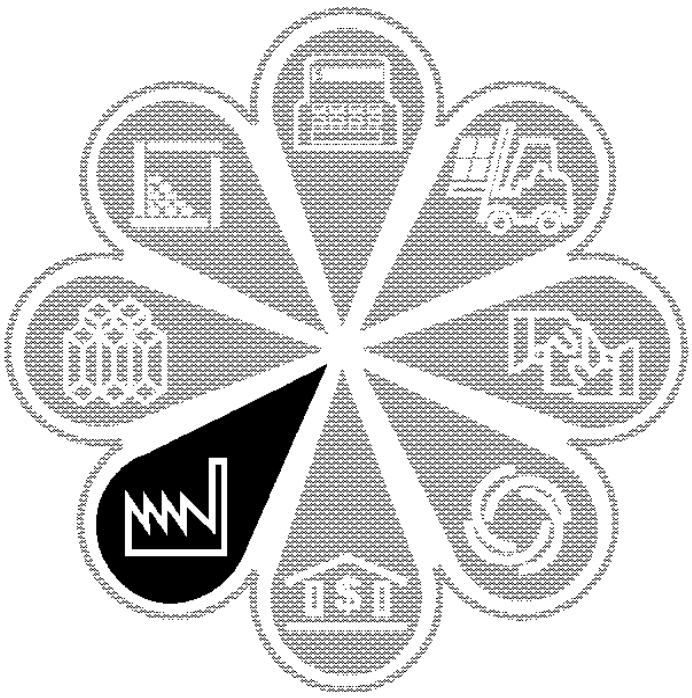
1992
Census of Manufactures

MC92-I-23B

INDUSTRY SERIES

Women's and Misses' Outerwear

Industries 2331, 2335, 2337, and 2339



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-23B

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2331	Women's, Misses', and Juniors' Blouses and Shirts
2335	Women's, Misses', and Juniors' Dresses
2337	Women's, Misses', and Juniors' Suits and Coats
2339	Women's, Misses', and Juniors' Outerwear, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2331, WOMEN'S, MISSES' AND JUNIORS' BLOUSES AND SHIRTS

This industry is made up of establishments primarily engaged in manufacturing women's, misses', and juniors' blouses and shirts from purchased woven or knit fabrics. Certain products primary to industry 2331 also are primary to industry 2253. Establishments primarily engaged in manufacturing girls', children's, and infants' blouses and shirts are classified in industry 2361. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2331, Women's, Misses', and Juniors' Blouses and Shirts, had employment of 56.2 thousand. The employment figure was 23 percent below the 73.4 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, Pennsylvania, and South Carolina, accounting for approximately 58 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 53 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2331 shipped $3.0 billion of women's, misses', and juniors' blouses and shirts products considered primary to the industry, $862.6 million of secondary products, and had $141.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 78 percent (specialization ratio). In 1987, the specialization ratio was 81 percent.

Establishments in this industry also accounted for 71 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 72 percent.

The products primary to industry 2331, no matter in what industry they were produced, appear in table 6a and aggregate to $4.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's, misses', and juniors' blouses and shirts industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES

This industry is made up of establishments primarily engaged in manufacturing women's, misses', and juniors' dresses (including ensemble dresses), from purchased woven or knit fabrics, including woven or knit fabrics of paper, whether sold by the piece or by the dozen. Certain products primary to industry 2335 also are primary to industry 2253. Establishments primarily engaged in manufacturing girls', children's, and infants' dresses are classified in industry 2361. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2335, Women's, Misses', and Juniors' Dresses, had employment of 83.3 thousand. The employment figure was 26 percent below the 112.7 thousand reported in 1987. Compared with 1991, employment decreased 19 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, New York, and Pennsylvania, accounting for approximately 74 percent of the industry's employment. This represents a shift from 1987 when New York, California, Pennsylvania, and New Jersey accounted for approximately 73 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2335 shipped $4.9 billion of women's, misses', and juniors' dress products considered primary to the industry, $366.2 million of secondary products, and had $124.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2335, no matter in what industry they were produced, appear in table 6a and aggregate to $5.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's, misses', and juniors' dresses industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 33 percent of the total value of shipments.

INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS

This industry is made up of establishments primarily engaged in manufacturing women's, misses', and juniors' suits, pantsuits, skirts, coats, except fur coats and raincoats, and tailored jackets and vests from purchased woven or knit fabrics. These garments are generally tailored and usually lined. Certain products primary to industry 2337 also are primary to industry 2253. Establishments primarily engaged in manufacturing fur clothing are classified in industry 2371; and those manufacturing raincoats are classified in industry 2385. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2337, Women's, Misses', and Juniors' Suits and Coats, had employment of 48.6 thousand. The employment figure was 12 percent below the 55.2 thousand reported in 1987.

The leading States in employment in 1992 were California, Massachusetts, New Jersey, and New York, accounting for approximately 59 percent of the industry's employment. This represents a shift from 1987 when New York, New Jersey, California, and Pennsylvania accounted for approximately 52 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2337 shipped $3.2 billion of women's, misses', and juniors' suit and coat products considered primary to the industry, $984.5 million of secondary products, and had $235.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 76 percent (specialization ratio). In 1987, the specialization ratio was 74 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 77 percent.

The products primary to industry 2337, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's, misses', and juniors' suits and coats industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing women's, misses', and juniors' outerwear, not elsewhere classified, from purchased woven or knit fabrics. Certain products primary to industry 2339 also are primary to industry 2253. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2339, Women's, Misses', and Juniors' Outerwear, N.E.C., had employment of 115.8 thousand. The employment figure was 8 percent above the 107.3 thousand reported in 1987. Compared with 1991, employment increased 19 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Georgia, and Mississippi, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when California, New York, Tennessee, and Pennsylvania accounted for approximately 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2339 shipped $5.8 billion of women's, misses', and juniors' outerwear, not elsewhere classified, products considered primary to the industry, $1.7 billion of secondary products, and had $203.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 77 percent (specialization ratio). In 1987, the specialization ratio was 80 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 74 percent.

The products primary to industry 2339, no matter in what industry they were produced, appear in table 6a and aggregate to $7.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's, misses', and juniors' outerwear, not elsewhere classified, industry amounted to $3.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS															
1992 Census	1 411	1 473	674	56.2	832.4	47.2	85.3	549.3	1 967.9	2 002.3	3 978.2	38.2	412.2	78	71
1991 ASM	(NA)	(NA)	(NA)	59.5	814.0	49.4	88.5	525.1	1 943.2	1 855.1	3 800.9	25.2	411.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	64.4	865.8	54.3	97.8	572.5	1 954.9	1 801.7	3 733.0	35.6	423.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	64.6	817.4	55.2	98.6	561.8	1 713.2	1 700.5	3 402.2	22.2	396.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	67.0	832.1	56.7	100.6	568.8	1 741.0	1 827.9	3 573.4	46.0	409.9	(NA)	(NA)
1987 Census	1 406	1 496	860	73.4	856.6	63.2	109.0	586.8	1 918.1	1 943.3	3 831.2	40.1	437.9	81	72
1986 ASM	(NA)	(NA)	(NA)	78.2	835.6	66.2	119.3	555.9	1 808.0	1 907.5	3 694.4	35.0	376.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	82.1	845.6	70.0	126.3	583.6	1 729.0	1 876.3	3 642.9	33.8	384.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	91.5	897.4	76.5	137.3	639.1	1 738.3	1 875.3	3 579.3	72.5	392.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	93.1	921.2	79.3	141.8	655.1	1 774.2	2 030.9	3 804.1	40.2	363.6	(NA)	(NA)
1982 Census	1 824	1 954	1 110	92.2	874.7	79.3	140.9	623.2	1 837.8	2 032.2	3 884.2	29.4	354.5	84	75
1981 ASM	(NA)	(NA)	(NA)	81.9	761.9	70.6	127.7	566.1	1 557.0	1 500.3	3 026.8	36.8	319.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	84.1	716.6	72.6	129.2	555.5	1 418.9	1 292.6	2 715.5	34.3	259.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	85.1	689.2	73.9	125.3	514.4	1 383.5	1 280.6	2 673.1	32.8	257.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	78.8	587.7	70.7	123.7	438.4	1 410.6	1 212.5	2 613.2	27.3	240.8	(NA)	(NA)
1977 Census	1 297	1 422	959	83.8	572.2	74.2	125.8	426.7	1 198.6	1 169.4	2 344.2	24.3	223.8	85	75
INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES															
1992 Census	3 938	3 996	1 187	83.3	1 204.3	71.0	120.0	816.8	2 813.5	2 608.6	5 352.0	42.3	520.4	93	93
1991 ASM	(NA)	(NA)	(NA)	102.3	1 342.3	89.6	148.8	937.3	3 019.3	2 673.9	5 664.8	30.8	533.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	106.4	1 359.8	93.3	159.9	948.6	3 346.8	2 593.6	5 914.5	59.0	468.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	104.7	1 335.9	89.2	148.7	906.7	2 860.1	2 485.0	5 365.8	48.2	457.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	115.1	1 454.9	91.8	136.9	876.7	3 093.1	2 920.3	6 037.2	23.8	644.5	(NA)	(NA)
1987 Census	5 398	5 471	1 720	112.7	1 359.5	91.5	141.5	859.9	2 889.6	2 582.7	5 447.8	31.4	586.6	95	95
1986 ASM	(NA)	(NA)	(NA)	111.8	1 240.1	94.5	144.2	861.8	2 664.3	2 851.2	5 504.2	36.6	434.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	121.0	1 254.9	105.2	152.3	901.6	2 576.6	2 716.1	5 277.2	58.4	483.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	124.3	1 253.3	107.0	169.0	911.6	2 640.8	2 415.0	4 995.9	52.8	473.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	139.5	1 543.0	121.7	225.0	1 165.2	2 548.3	2 328.0	4 858.9	34.8	435.1	(NA)	(NA)
1982 Census	5 489	5 627	2 055	137.9	1 268.3	120.0	210.7	960.9	2 413.2	2 210.7	4 623.3	68.1	389.6	94	94
1981 ASM	(NA)	(NA)	(NA)	166.0	1 377.2	144.7	254.1	1 033.4	2 519.0	2 063.8	4 569.6	110.0	417.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	176.3	1 359.8	152.0	264.7	1 023.1	2 472.5	1 947.0	4 405.6	50.5	372.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	162.8	1 218.2	139.8	245.3	904.3	2 256.0	1 826.0	4 081.5	38.5	358.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	159.8	1 178.4	137.7	235.4	872.3	2 330.9	2 024.1	4 371.4	38.1	410.4	(NA)	(NA)
1977 Census	5 924	6 112	2 448	168.6	1 153.4	146.8	250.6	849.3	2 152.3	1 912.5	4 047.5	43.9	370.0	93	94
INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS															
1992 Census	1 008	1 037	547	48.6	848.4	38.0	66.9	503.9	2 019.9	2 371.3	4 369.6	31.5	623.7	76	78
1991 ASM	(NA)	(NA)	(NA)	47.9	802.4	39.3	70.7	501.3	2 033.2	2 322.7	4 324.0	24.1	625.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	45.9	769.5	36.6	66.5	465.3	1 979.0	2 187.7	4 162.8	27.6	574.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	46.1	758.0	36.0	63.9	448.7	2 030.7	2 220.6	4 240.8	16.0	551.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	53.3	817.7	42.2	73.7	484.5	2 196.9	2 499.7	4 704.7	49.0	599.0	(NA)	(NA)
1987 Census	1 042	1 092	652	55.2	818.9	44.6	78.0	509.1	1 964.0	2 459.3	4 446.6	24.5	587.8	74	77
1986 ASM	(NA)	(NA)	(NA)	47.6	641.7	38.3	64.7	389.0	1 731.3	2 303.0	4 005.3	27.3	540.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	52.9	658.8	43.6	73.8	406.4	1 630.6	2 107.8	3 752.1	23.2	470.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	63.8	758.4	52.5	93.9	483.9	1 872.6	2 362.2	4 238.5	35.4	515.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	76.4	881.3	62.1	117.8	587.0	1 976.9	2 745.2	4 697.5	28.0	564.5	(NA)	(NA)
1982 Census	1 432	1 512	900	78.2	871.1	63.2	125.8	579.0	2 067.1	2 772.6	4 886.7	30.5	499.7	75	83
1981 ASM	(NA)	(NA)	(NA)	78.4	781.0	67.9	113.3	548.2	2 070.4	1 899.9	3 914.4	23.5	462.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	78.1	730.9	67.6	115.2	515.1	1 622.0	1 612.7	3 195.5	28.9	399.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	81.3	698.4	70.9	116.6	499.8	1 499.5	1 572.0	3 052.8	29.6	350.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	81.4	689.2	67.8	117.0	495.8	1 459.2	1 545.0	2 972.3	21.9	339.4	(NA)	(NA)
1977 Census	1 563	1 677	1 071	84.9	655.3	72.8	123.6	469.5	1 432.0	1 483.5	2 917.3	22.0	297.6	80	83
INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.															
1992 Census	2 917	3 015	1 164	115.8	1 666.8	97.7	177.7	1 168.2	3 929.3	3 851.7	7 766.6	88.8	1 059.1	77	81
1991 ASM	(NA)	(NA)	(NA)	97.7	1 284.9	83.6	155.4	924.5	2 957.1	2 667.4	5 643.2	46.0	776.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	101.5	1 320.6	87.4	163.3	966.5	2 911.7	2 562.7	5 528.4	56.6	719.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	102.0	1 285.9	87.3	156.3	924.1	2 892.4	2 821.3	5 671.2	141.1	864.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	102.3	1 224.9	87.0	148.5	860.7	2 745.4	2 696.1	5 435.7	52.5	745.2	(NA)	(NA)
1987 Census	2 087	2 198	985	107.3	1 261.7	90.9	156.3	887.8	2 914.3	2 790.7	5 663.4	65.0	767.9	80	74
1986 ASM	(NA)	(NA)	(NA)	92.3	1 081.8	77.7	135.7	737.8	2 503.9	2 424.3	4 911.2	49.3	687.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	98.7	1 106.0	84.0	140.5	770.4	2 348.9	2 460.2	4 816.2	47.3	645.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	108.3	1 151.1	92.1	161.3	781.5	2 597.6	2 689.3	5 239.0	50.2	687.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	108.2	1 109.9	90.8	162.2	742.4	2 365.7	2 493.0	4 847.5	51.9	603.7	(NA)	(NA)
1982 Census	1 592	1 745	1 038	110.7	1 096.3	93.2	163.1	765.0	2 257.9	2 559.8	4 830.4	85.2	560.8	82	75
1981 ASM	(NA)	(NA)	(NA)	117.5	1 000.9	99.6	176.1	733.9	2 418.0	2 184.3	4 582.2	50.1	623.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	117.9	960.0	102.6	183.3	712.0	2 004.4	2 015.9	3 994.3	52.4	530.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	109.4	827.4	94.6	165.9	605.7	1 679.7	1 741.8	3 399.6	44.9	472.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	106.4	777.7	92.3	154.4	556.2	1 855.0	1 737.7	3 573.1	42.3	487.8	(NA)	(NA)
1977 Census	1 634	1 802	1 072	104.4	735.3	88.3	152.1	530.8	1 579.5	1 732.6	3 294.7	42.4	433.8	80	81

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS								
1992 Census	14 811	84	1 807	6.44	50	71	35 016	42	23.07
1991 ASM	13 681	83	1 791	5.93	49	70	32 659	42	21.96
1990 ASM	13 444	84	1 801	5.85	48	71	30 356	44	19.99
1989 ASM	12 653	85	1 786	5.70	50	74	26 520	48	17.38
1988 ASM	12 419	85	1 774	5.65	51	74	25 985	48	17.31
1987 Census	11 670	86	1 725	5.38	51	73	26 132	45	17.60
1986 ASM	10 685	85	1 802	4.66	52	74	23 120	46	15.16
1985 ASM	10 300	85	1 804	4.62	52	75	21 060	49	13.69
1984 ASM	9 808	84	1 795	4.65	52	77	18 998	52	12.66
1983 ASM	9 895	85	1 788	4.62	53	78	19 057	52	12.51
1982 Census	9 487	86	1 777	4.42	52	75	19 933	48	13.04
1981 ASM	9 303	86	1 809	4.43	50	75	19 011	49	12.19
1980 ASM	8 521	86	1 780	4.30	48	74	16 872	51	10.98
1979 ASM	8 099	87	1 696	4.11	48	74	16 257	50	11.04
1978 ASM	7 458	90	1 750	3.54	46	69	17 901	42	11.40
1977 Census	6 828	89	1 695	3.39	50	74	14 303	48	9.53
	INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES								
1992 Census	14 457	85	1 690	6.81	49	71	33 776	43	23.45
1991 ASM	13 121	88	1 661	6.30	47	71	29 514	44	20.29
1990 ASM	12 780	88	1 714	5.93	44	67	31 455	41	20.93
1989 ASM	12 759	85	1 667	6.10	46	71	27 317	47	19.23
1988 ASM	12 640	80	1 491	6.40	48	72	26 873	47	22.59
1987 Census	12 063	81	1 546	6.08	47	72	25 640	47	20.42
1986 ASM	11 092	85	1 526	5.98	52	74	23 831	47	18.48
1985 ASM	10 371	87	1 448	5.92	51	75	21 294	49	16.92
1984 ASM	10 083	86	1 579	5.39	48	73	21 245	47	15.63
1983 ASM	11 061	87	1 849	5.18	48	80	18 267	61	11.33
1982 Census	9 197	87	1 756	4.56	48	75	17 500	53	11.45
1981 ASM	8 296	87	1 756	4.07	45	75	15 175	55	9.91
1980 ASM	7 713	86	1 741	3.87	44	75	14 024	55	9.34
1979 ASM	7 483	86	1 755	3.69	45	75	13 857	54	9.20
1978 ASM	7 374	86	1 710	3.71	46	73	14 586	51	9.90
1977 Census	6 841	87	1 707	3.39	47	76	12 766	54	8.59
	INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS								
1992 Census	17 457	78	1 761	7.53	54	74	41 562	42	30.19
1991 ASM	16 752	82	1 799	7.09	54	72	42 447	39	28.76
1990 ASM	16 765	80	1 817	7.00	53	71	43 115	39	29.76
1989 ASM	16 443	78	1 775	7.02	52	70	44 050	37	31.78
1988 ASM	15 341	79	1 746	6.57	53	71	41 218	37	29.81
1987 Census	14 835	81	1 749	6.53	55	74	35 580	42	25.18
1986 ASM	13 481	80	1 689	6.01	57	74	36 372	37	26.76
1985 ASM	12 454	82	1 693	5.51	56	74	30 824	40	22.09
1984 ASM	11 887	82	1 789	5.15	56	74	29 351	40	19.94
1983 ASM	11 535	81	1 897	4.98	58	77	25 876	45	16.78
1982 Census	11 139	81	1 991	4.60	57	75	26 434	42	16.43
1981 ASM	9 962	87	1 669	4.84	49	68	26 408	38	18.27
1980 ASM	9 359	87	1 704	4.47	50	73	20 768	45	14.08
1979 ASM	8 590	87	1 645	4.29	51	74	18 444	47	12.86
1978 ASM	8 467	83	1 726	4.24	52	75	17 926	47	12.47
1977 Census	7 718	86	1 698	3.80	51	73	16 867	46	11.59
	INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.								
1992 Census	14 394	84	1 819	6.57	50	71	33 932	42	22.11
1991 ASM	13 151	86	1 859	5.95	47	70	30 267	43	19.03
1990 ASM	13 011	86	1 868	5.92	46	70	28 687	45	17.83
1989 ASM	12 607	86	1 790	5.91	50	72	28 357	44	18.51
1988 ASM	11 974	85	1 707	5.80	50	72	26 837	45	18.49
1987 Census	11 759	85	1 719	5.68	49	72	27 160	43	18.65
1986 ASM	11 720	84	1 746	5.44	49	71	27 128	43	18.45
1985 ASM	11 206	85	1 673	5.48	51	74	23 798	47	16.72
1984 ASM	10 629	85	1 751	4.85	51	73	23 985	44	16.10
1983 ASM	10 258	84	1 786	4.58	51	74	21 864	47	14.59
1982 Census	9 903	84	1 750	4.69	53	76	20 397	49	13.84
1981 ASM	8 518	85	1 768	4.17	48	70	20 579	41	13.73
1980 ASM	8 142	87	1 787	3.88	50	75	17 001	48	10.94
1979 ASM	7 563	86	1 754	3.65	51	76	15 354	49	10.12
1978 ASM	7 309	87	1 673	3.60	49	70	17 434	42	12.01
1977 Census	7 043	85	1 723	3.49	53	75	15 129	47	10.38

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS														
United States	**E1**	**1 473**	**674**	**56.2**	**832.4**	**47.2**	**85.3**	**549.3**	**1 967.9**	**2 002.3**	**3 978.2**	**38.2**	**73.4**	**1 918.1**
Alabama	–	23	20	2.1	22.8	1.9	3.6	18.2	84.3	18.1	104.3	.7	3.2	46.7
Arizona	E1	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E1	566	213	16.0	294.6	12.5	22.8	158.6	764.1	988.8	1 750.5	16.7	15.0	590.2
Colorado	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	87	31	2.6	33.7	2.2	3.9	24.8	76.8	58.8	136.0	3.4	2.3	58.3
Georgia	–	18	14	1.3	14.3	1.1	1.9	10.8	24.8	11.4	36.1	(D)	3.1	64.0
Illinois	–	10	6	.2	3.4	.2	.4	2.5	11.4	7.3	18.9	.1	E	(D)
Indiana	–	5	3	.4	4.7	.4	.6	3.9	8.2	.9	9.2	(D)	(NA)	(NA)
Kansas	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	8	6	.8	8.8	.8	1.5	6.9	14.6	10.8	24.6	.5	G	(D)
Maryland	E7	6	2	.1	1.3	.1	.2	1.1	2.6	.2	2.8	(Z)	.3	4.3
Massachusetts	E2	21	9	.7	11.3	.6	1.0	9.0	24.6	11.3	36.0	.2	G	(D)
Michigan	–	4	3	.1	1.7	.1	.1	1.0	4.1	2.6	6.5	(D)	(NA)	(NA)
Mississippi	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	67	27	3.0	54.0	2.5	4.8	34.3	131.1	170.1	302.0	1.6	2.1	61.3
New York	E2	289	112	6.9	97.8	6.0	10.1	64.0	272.0	261.3	537.4	2.9	7.2	338.6
North Carolina	E4	43	35	3.6	49.0	3.2	5.6	40.7	90.3	69.9	159.5	3.1	4.6	87.2
Pennsylvania	E2	117	74	5.3	67.3	4.5	8.3	49.1	157.6	100.2	260.4	(D)	10.2	174.3
South Carolina	E2	34	29	4.2	51.3	3.5	6.8	37.4	79.4	63.2	141.0	2.2	6.6	80.5
Tennessee	–	40	29	2.4	25.6	2.1	3.7	19.5	34.6	22.0	57.7	.6	4.3	60.6
Texas	E2	43	17	1.1	17.2	.9	1.6	12.3	36.3	33.2	69.9	1.1	G	(D)
Utah	–	5	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	16.3
Virginia	–	20	17	2.8	36.7	2.5	4.4	32.3	80.4	105.5	185.6	.9	4.2	155.9
West Virginia	E8	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES														
United States	**E3**	**3 996**	**1 187**	**83.3**	**1 204.3**	**71.0**	**120.0**	**816.8**	**2 813.5**	**2 608.6**	**5 352.0**	**42.3**	**112.7**	**2 889.6**
Alabama	E2	32	10	1.4	13.7	1.3	2.3	12.1	14.3	4.5	18.8	.5	.8	8.6
Arizona	E4	13	3	.3	2.6	.2	.4	2.2	3.3	1.4	4.7	.1	.3	4.5
Arkansas	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	1 339	361	23.8	363.1	20.5	35.1	239.9	858.5	835.0	1 680.0	15.6	31.5	769.3
Connecticut	E7	15	7	.3	2.6	.3	.4	2.3	4.4	1.4	5.7	.1	F	(D)
Florida	E3	236	50	2.8	32.8	2.6	4.2	26.8	61.9	29.6	88.6	2.6	4.8	98.0
Georgia	E2	28	14	1.6	16.3	1.3	2.1	11.4	17.0	10.2	27.3	.3	1.5	21.1
Hawaii	E2	42	7	.6	7.2	.5	.9	5.2	12.0	7.3	19.5	.3	.9	22.5
Illinois	E1	59	19	1.5	22.3	1.2	2.1	14.9	59.6	41.9	101.1	.5	G	(D)
Kansas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E1	8	3	.3	2.8	.2	.4	2.3	5.0	3.1	7.8	(D)	(NA)	(NA)
Louisiana	E2	9	2	.2	2.2	.2	.3	1.8	3.9	1.2	5.1	(Z)	E	(D)
Massachusetts	E1	37	10	.9	13.9	.8	1.5	10.1	22.6	13.1	35.7	.2	G	(D)
Michigan	E2	19	4	.2	2.5	.2	.3	2.0	4.3	.7	5.0	.1	(NA)	(NA)
Mississippi	E1	14	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	3.1
Missouri	E5	11	4	.3	3.5	.2	.4	2.5	9.6	5.0	14.6	(D)	.9	25.8
New Jersey	E4	155	36	2.2	29.2	1.9	3.4	23.0	53.5	37.1	90.2	.8	5.5	135.6
New York	E4	1 310	409	27.1	456.5	21.9	36.5	279.1	1 150.9	1 269.0	2 409.1	13.3	32.8	1 157.3
North Carolina	E4	52	24	2.2	24.3	1.9	3.6	19.4	32.0	14.4	46.5	.6	2.9	46.4
Ohio	E4	18	4	.3	2.7	.3	.4	2.2	4.4	1.8	6.2	.1	E	(D)
Oklahoma	E5	13	3	.1	1.1	.1	.2	1.0	1.9	.4	2.3	(Z)	C	(D)
Pennsylvania	E1	215	105	8.0	95.3	7.2	12.1	74.4	265.9	178.4	403.5	3.1	13.0	250.1
South Carolina	E1	27	12	1.0	10.6	.8	1.3	7.8	12.7	3.8	16.5	.2	1.5	27.8
Tennessee	E5	34	21	1.5	15.1	1.4	2.3	13.7	22.7	3.7	26.3	.3	1.8	21.5
Texas	E2	141	32	2.7	44.6	2.3	4.0	30.2	98.7	91.1	188.2	2.3	H	(D)
Utah	E7	10	3	.2	1.5	.2	.2	1.3	2.4	.6	3.0	(D)	C	(D)
Virginia	E1	30	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
West Virginia	E3	10	7	.5	4.4	.5	.6	3.6	6.4	3.0	9.4	.1	C	(D)
INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS														
United States	**E1**	**1 037**	**547**	**48.6**	**848.4**	**38.0**	**66.9**	**503.9**	**2 019.9**	**2 371.3**	**4 369.6**	**31.5**	**55.2**	**1 964.0**
Alabama	E5	19	17	1.7	21.6	1.5	2.6	17.3	34.7	11.1	46.3	.5	1.9	30.4
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	203	84	5.6	103.1	4.2	7.2	59.5	286.8	300.3	587.4	3.3	6.2	242.8
Connecticut	E1	8	7	.4	4.4	.3	.7	3.9	5.3	.4	5.7	(Z)	F	(D)
Florida	E3	32	18	1.6	21.8	1.3	1.9	16.1	43.7	29.3	72.8	.6	1.9	40.3
Georgia	–	13	10	1.2	21.5	.9	1.5	13.1	47.7	115.8	157.3	(D)	1.8	51.4
Illinois	E2	13	5	.3	4.9	.3	.4	3.4	8.7	4.0	12.6	(Z)	F	(D)
Indiana	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	F	(D)
Iowa	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	7	5	1.0	11.3	.9	1.6	9.2	16.5	24.4	37.1	(D)	1.4	20.2
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E1	50	34	4.0	84.7	3.1	5.5	42.8	184.4	259.7	440.6	1.7	4.2	129.2
Mississippi	–	3	3	.4	6.6	.3	.7	5.3	10.1	.7	10.7	(D)	F	(D)
Missouri	–	10	5	.6	7.1	.5	1.0	5.3	18.3	8.7	27.0	(D)	.8	17.5

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/12/95 10:25 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:23B_92.DAT;1 5/11/95 13:37:59 UTF:23B_93.DAT;2 5/12/95 10:23:03 META:TIPS96-10242504.DAT;1 5/12/95 10:24:59

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS—Con.														
Nebraska	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	4	3	.2	2.4	.2	.3	1.9	3.4	.3	3.7	(D)	(NA)	(NA)
New Jersey	E1	140	89	6.3	104.9	5.4	9.8	74.2	228.6	175.0	418.2	2.5	7.2	245.9
New York	E2	339	157	12.7	253.9	9.4	16.5	131.0	617.6	816.7	1 435.5	5.9	9.9	564.5
North Carolina	–	17	13	2.0	30.2	1.6	2.8	20.2	54.8	56.4	114.9	1.3	G	(D)
Ohio	E2	5	4	.1	1.6	.1	.2	1.4	1.2	.6	2.7	(Z)	E	(D)
Pennsylvania	–	50	35	3.0	64.6	2.3	4.3	30.5	176.9	312.2	463.5	(D)	5.6	216.7
South Carolina	E3	7	7	.5	5.4	.5	.8	4.8	8.0	.7	8.7	(Z)	.8	19.0
Tennessee	E1	16	12	2.5	30.2	1.8	3.0	17.7	74.7	45.2	115.0	1.6	2.3	46.6
Texas	–	38	13	1.0	14.3	.8	1.3	10.2	30.2	33.7	65.1	.4	G	(D)
Vermont	–	5	4	.2	3.0	.2	.3	2.0	9.2	6.6	15.6	(D)	(NA)	(NA)
Virginia	E8	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	9.3
Wisconsin	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.														
United States	**E1**	**3 015**	**1 164**	**115.8**	**1 666.8**	**97.7**	**177.7**	**1 168.2**	**3 929.3**	**3 851.7**	**7 766.6**	**88.8**	**107.3**	**2 914.3**
Alabama	E1	22	11	2.5	35.3	2.2	3.9	28.5	53.3	73.3	121.5	1.2	3.8	51.0
Arizona	–	7	3	.1	1.2	.1	.2	.8	3.5	3.7	7.1	(D)	.2	3.6
Arkansas	E1	6	3	.4	5.0	.4	.6	4.4	6.2	3.2	9.7	.2	F	(D)
California	E1	1 289	397	33.4	509.1	27.7	49.8	327.6	1 108.5	1 121.3	2 245.2	36.0	22.4	661.7
Colorado	E1	10	3	.2	2.7	.2	.3	1.9	4.6	2.6	7.3	.1	(NA)	(NA)
Connecticut	–	9	5	.5	11.5	.3	.6	6.9	25.6	26.1	49.9	(D)	F	(D)
Florida	E2	156	55	4.0	54.8	3.1	5.6	34.8	110.3	117.1	230.8	2.2	3.6	113.2
Georgia	–	69	52	6.6	93.1	5.3	10.5	59.1	222.5	319.4	541.5	3.1	5.9	159.5
Hawaii	E4	16	2	.1	1.3	.1	.2	1.1	2.4	1.2	3.6	.1	.3	5.8
Illinois	–	20	6	.7	9.9	.6	1.0	7.5	19.4	6.5	25.8	.3	E	(D)
Indiana	–	7	3	.2	2.6	.2	.3	1.7	11.9	9.6	20.4	(Z)	C	(D)
Iowa	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	E1	21	17	3.3	42.2	3.0	5.9	38.2	80.7	54.1	136.3	4.4	H	(D)
Louisiana	E4	8	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	12.9
Maryland	–	10	7	.4	6.4	.3	.5	3.4	8.0	21.5	30.2	.2	E	(D)
Massachusetts	–	32	18	1.1	19.5	1.0	1.8	14.0	41.3	34.4	76.0	.4	2.0	72.2
Minnesota	E5	15	5	.3	3.4	.3	.5	2.7	5.0	2.8	7.8	.1	E	(D)
Mississippi	E1	30	20	4.6	53.1	4.0	6.9	40.1	161.8	132.8	287.1	2.3	H	(D)
Missouri	–	14	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	25.0
Nebraska	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	E1	10	5	.5	6.8	.5	.8	5.9	11.5	1.1	12.6	(D)	E	(D)
New Jersey	–	101	46	3.5	57.5	2.5	4.4	35.5	273.4	359.3	626.8	2.4	3.5	131.6
New York	E1	617	215	13.4	232.3	11.1	19.9	147.3	566.7	661.3	1 221.8	9.1	12.8	499.0
North Carolina	E2	53	38	4.1	47.6	3.7	6.9	38.9	72.4	37.9	110.1	2.5	H	(D)
Ohio	–	11	3	.4	5.1	.3	.6	3.6	8.2	6.1	14.9	(Z)	E	(D)
Oklahoma	–	9	3	.3	2.9	.3	.5	2.7	4.4	4.8	9.2	(D)	.4	6.7
Oregon	–	14	3	.6	8.0	.5	.9	6.6	14.7	5.5	20.1	.2	.6	9.1
Pennsylvania	–	118	65	6.7	93.7	5.6	10.4	69.2	193.0	140.5	335.0	4.0	6.9	129.1
South Carolina	E4	42	30	3.9	45.9	3.3	5.6	33.5	97.7	72.2	169.9	1.5	4.3	57.1
Tennessee	E5	59	45	7.5	100.1	6.7	13.1	84.5	279.7	178.0	457.9	4.1	8.8	202.7
Texas	–	130	42	7.3	90.2	6.2	11.1	67.3	266.9	206.0	472.3	5.8	6.4	182.7
Utah	–	6	3	.3	4.2	.3	.6	3.8	14.2	5.7	19.6	.2	1.0	28.5
Vermont	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	27	20	3.5	49.8	3.1	5.8	40.5	121.6	126.8	245.9	5.2	4.9	151.2
Washington	–	22	6	.9	13.0	.8	1.5	10.3	35.4	23.7	53.1	(D)	G	(D)
West Virginia	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E3	9	2	.2	2.4	.2	.3	1.6	3.5	2.0	5.5	(D)	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/12/95 10:25 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's, misses', and juniors' blouses and shirts (SIC 2331)				Women's, misses', and juniors' dresses (SIC 2335)			
	Total	Manufacturers (SIC 2331-11)	Jobbers (SIC 2331-22)	Contractors (SIC 2331-33)	Total	Manufacturers (SIC 2335-11)	Jobbers (SIC 2335-22)	Contractors (SIC 2335-33)
Companies ---- number	1 411	394	107	926	3 938	1 078	379	2 495
All establishments ---- number	1 473	412	110	951	3 996	1 086	383	2 527
With 1 to 19 employees ---- number	799	238	67	494	2 809	818	313	1 678
With 20 to 99 employees ---- number	530	123	29	378	1 055	226	58	771
With 100 employees or more ---- number	144	51	14	79	132	42	12	78
Employment and labor costs:								
Employees ---- 1,000	56.2	19.1	4.0	33.0	83.3	22.5	5.5	55.3
Compensation, total ---- mil dol	969.7	420.7	135.1	414.0	1 369.7	496.8	218.6	654.3
Annual payroll ---- mil dol	832.4	355.7	118.9	357.9	1 204.3	430.8	192.4	581.1
Fringe benefits ---- mil dol	137.3	65.0	16.2	56.1	165.4	66.0	26.2	73.2
Social Security and other legally required payments ---- mil dol	73.5	33.3	9.3	31.0	93.4	34.9	13.8	44.7
Employer voluntary payments ---- mil dol	63.8	31.7	6.9	25.1	72.0	31.1	12.4	28.5
Production workers:								
Average for year ---- 1,000	47.2	15.3	1.8	30.0	71.0	17.3	2.4	51.4
March ---- 1,000	47.9	15.5	1.9	30.6	71.8	17.4	2.4	52.1
May ---- 1,000	47.8	15.5	1.9	30.5	71.8	17.3	2.4	52.1
August ---- 1,000	46.8	15.2	1.8	29.7	71.0	17.2	2.3	51.5
November ---- 1,000	46.2	15.1	1.8	29.2	69.5	17.1	2.3	50.1
Hours ---- millions	85.3	28.7	4.0	52.6	120.0	30.6	4.9	84.5
Wages ---- mil dol	549.3	214.5	34.3	300.5	816.8	247.9	58.1	510.8
Cost of materials[1] ---- mil dol	2 002.3	1 113.3	802.5	86.5	2 608.6	1 159.0	1 261.6	188.1
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 336.6	840.3	439.4	56.9	1 667.4	753.2	807.4	106.8
Resales ---- mil dol	104.1	34.0	68.2	2.0	52.8	44.6	7.4	.8
Fuels ---- mil dol	11.1	4.6	1.5	5.0	28.9	7.9	2.3	18.7
Purchased electricity ---- mil dol	26.1	12.1	3.0	11.0	66.6	18.4	6.9	41.3
Contract work ---- mil dol	524.4	222.3	290.4	11.6	793.0	334.8	437.7	20.5
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	327.9	149.4	31.9	146.6	756.2	204.5	68.1	483.5
Generated less sold ---- mil kWh	–	–	–	–	–	–	–	–
Total value of shipments ---- mil dol	3 978.2	1 993.0	1 256.0	729.1	5 352.0	2 301.9	1 936.8	1 113.4
Value added ---- mil dol	1 967.9	883.7	441.7	642.5	2 813.5	1 148.5	700.4	964.6
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	429.2	246.4	151.3	31.5	440.5	215.1	191.0	34.4
Finished goods ---- mil dol	175.4	103.5	64.4	7.6	156.1	77.2	71.0	7.8
Work in process ---- mil dol	99.1	51.7	37.3	10.1	101.0	47.4	49.3	4.3
Materials and supplies ---- mil dol	154.7	91.3	49.6	13.9	183.5	90.6	70.6	22.3
End of 1992 ---- mil dol	412.2	249.8	136.3	26.1	520.4	227.4	225.4	67.6
Finished goods ---- mil dol	168.4	104.3	56.0	8.1	184.1	80.9	88.7	14.5
Work in process ---- mil dol	98.1	54.9	33.9	9.4	143.0	49.3	56.8	36.9
Materials and supplies ---- mil dol	145.7	90.6	46.4	8.7	193.3	97.2	79.9	16.2

Item	Women's, misses', and juniors' suits and coats (SIC 2337)				Women's, misses', and juniors' outerwear, n.e.c. (SIC 2339)			
	Total	Manufacturers (SIC 2337-11)	Jobbers (SIC 2337-22)	Contractors (SIC 2337-33)	Total	Manufacturers (SIC 2339-11)	Jobbers (SIC 2339-22)	Contractors (SIC 2339-33)
Companies ---- number	1 008	311	112	600	2 917	900	241	1 795
All establishments ---- number	1 037	320	115	602	3 015	958	241	1 816
With 1 to 19 employees ---- number	490	183	67	240	1 851	612	157	1 082
With 20 to 99 employees ---- number	417	92	31	294	900	222	70	608
With 100 employees or more ---- number	130	45	17	68	264	124	14	126
Employment and labor costs:								
Employees ---- 1,000	48.6	16.4	6.1	26.1	115.8	50.2	7.5	58.1
Compensation, total ---- mil dol	988.6	433.0	178.5	377.1	1 978.8	976.9	218.4	783.6
Annual payroll ---- mil dol	848.4	369.0	154.8	324.6	1 666.8	816.0	184.1	666.7
Fringe benefits ---- mil dol	140.1	63.9	23.6	52.6	312.0	160.9	34.3	116.8
Social Security and other legally required payments ---- mil dol	77.2	34.1	12.9	30.1	172.8	91.0	18.0	63.8
Employer voluntary payments ---- mil dol	63.0	29.8	10.7	22.4	139.2	69.9	16.3	53.1
Production workers:								
Average for year ---- 1,000	38.0	11.4	3.0	23.7	97.7	41.4	3.5	52.7
March ---- 1,000	37.4	11.3	3.0	23.1	98.8	42.0	3.5	53.3
May ---- 1,000	38.0	11.5	3.0	23.6	98.0	41.4	3.5	53.0
August ---- 1,000	39.4	11.7	3.1	24.6	96.4	41.0	3.5	51.9
November ---- 1,000	37.4	11.0	3.0	23.4	97.7	41.4	3.5	52.7
Hours ---- millions	66.9	21.7	5.4	39.8	177.7	79.3	6.8	91.6
Wages ---- mil dol	503.9	175.2	51.7	277.0	1 168.2	548.2	53.9	566.1
Cost of materials[1] ---- mil dol	2 371.3	1 317.0	991.0	63.3	3 851.7	2 019.7	1 563.8	268.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 454.1	874.9	542.7	36.5	2 441.6	1 449.2	823.9	168.6
Resales ---- mil dol	188.1	143.1	43.7	1.3	199.0	47.2	143.5	8.3
Fuels ---- mil dol	7.8	2.5	1.0	4.3	40.6	14.0	3.6	23.1
Purchased electricity ---- mil dol	21.4	10.0	2.9	8.5	89.7	34.6	7.1	48.0
Contract work ---- mil dol	699.8	286.5	400.7	12.6	1 080.7	474.7	585.7	20.3
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	259.7	122.6	33.1	104.0	1 155.0	482.8	81.2	591.0
Generated less sold ---- mil kWh	–	–	–	(D)	–	–	–	–
Total value of shipments ---- mil dol	4 369.6	2 184.4	1 614.3	570.8	7 766.6	4 064.0	2 407.7	1 295.
Value added ---- mil dol	2 019.9	897.7	615.2	507.0	3 929.3	2 052.9	846.5	1 029.9

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's, misses', and juniors' suits and coats (SIC 2337)				Women's, misses', and juniors' outerwear, n.e.c. (SIC 2339)			
	Total	Manufacturers (SIC 2337-11)	Jobbers (SIC 2337-22)	Contractors (SIC 2337-33)	Total	Manufacturers (SIC 2339-11)	Jobbers (SIC 2339-22)	Contractors (SIC 2339-33)
Inventories by stage of fabrication:								
Beginning of 1992 ---mil dol---	611.6	327.7	254.6	29.4	1 019.7	613.0	362.7	44.0
Finished goods ---mil dol---	270.8	142.7	121.6	6.4	471.9	273.9	189.0	9.0
Work in process ---mil dol---	117.0	52.5	57.6	6.8	237.1	145.1	80.8	11.2
Materials and supplies ---mil dol---	223.9	132.4	75.3	16.2	310.6	193.9	92.9	23.8
End of 1992 ---mil dol---	623.7	353.0	243.8	27.0	1 059.1	645.3	375.2	38.7
Finished goods ---mil dol---	271.4	148.1	116.8	6.5	479.9	280.5	188.7	10.6
Work in process ---mil dol---	137.9	77.3	54.4	6.2	243.5	147.2	83.6	12.8
Materials and supplies ---mil dol---	214.4	127.5	72.6	14.3	335.7	217.6	102.8	15.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's, misses', and juniors' blouses and shirts (SIC 2331)	Women's, misses', and juniors' dresses (SIC 2335)	Women's, misses', and juniors' suits and coats (SIC 2337)	Women's, misses', and juniors' outerwear, n.e.c. (SIC 2339)
Gross book value of depreciable assets:				
Total:				
Beginning of year	277.2	325.9	287.4	647.9
New capital expenditures[1]	38.2	42.3	31.5	88.8
Used capital expenditures	4.8	4.6	1.6	7.5
Retirements	15.1	10.7	18.6	35.8
End of year	305.0	362.1	301.9	708.3
Buildings and other structures:				
Beginning of year	85.1	91.3	85.6	200.0
New capital expenditures	7.9	9.9	8.8	18.4
Used capital expenditures	1.0	2.2	.3	2.1
Retirements	1.7	.9	3.7	16.3
End of year	92.2	102.5	91.1	204.2
Machinery and equipment:				
Beginning of year	192.1	234.6	201.7	447.9
New capital expenditures[1]	30.3	32.4	22.7	70.4
Used capital expenditures	3.8	2.4	1.3	5.4
Retirements	13.4	9.7	14.9	19.5
End of year	212.8	259.7	210.8	504.1
Depreciation charges during 1992:				
Total	35.6	52.1	37.3	67.0
Buildings and other structures	5.3	5.2	8.3	12.0
Machinery and equipment	30.3	46.9	29.0	55.0
Rental payments:				
Total	59.3	89.0	62.4	116.8
Buildings and other structures	39.3	65.7	41.8	86.9
Machinery and equipment	20.1	23.2	20.6	30.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's, misses', and juniors' blouses and shirts (SIC 2331)		Women's, misses', and juniors' dresses (SIC 2335)		Women's, misses', and juniors' suits and coats (SIC 2337)		Women's, misses', and juniors' outerwear, n.e.c. (SIC 2339)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	(S)	(X)	(S)	(X)	3.4	(X)	7.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(S)	(X)	53.7	(X)	51.0	(X)
Machinery	3.9	(X)	(S)	(X)	3.6	(X)	12.7	(X)
Response coverage ratio (percent)[2]	54.5	(X)	(S)	(X)	54.9	(X)	52.2	(X)
Other purchased services:								
Communications	3.6	(X)	(S)	(X)	6.1	(X)	8.6	(X)
Response coverage ratio (percent)[2]	53.3	(X)	(S)	(X)	50.3	(X)	51.3	(X)
Legal	1.7	(X)	(S)	(X)	3.6	(X)	10.6	(X)
Response coverage ratio (percent)[2]	50.8	(X)	(S)	(X)	53.9	(X)	50.6	(X)
Accounting and bookkeeping	2.7	(X)	(S)	(X)	5.3	(X)	5.4	(X)
Response coverage ratio (percent)[2]	54.8	(X)	(S)	(X)	55.1	(X)	51.6	(X)
Advertising	3.0	(X)	(S)	(X)	14.9	(X)	46.0	(X)
Response coverage ratio (percent)[2]	50.9	(X)	(S)	(X)	54.2	(X)	51.8	(X)
Software and other data processing	1.2	(X)	(S)	(X)	3.7	(X)	(S)	(X)
Response coverage ratio (percent)[2]	51.6	(X)	(S)	(X)	52.2	(X)	(S)	(X)
Refuse removal, including hazardous waste	(S)	(X)	(S)	(X)	.8	(X)	1.9	(X)
Response coverage ratio (percent)[2]	(S)	(X)	(S)	(X)	50.1	(X)	50.4	(X)
New machinery and equipment expenditures	30.3	(X)	32.4	(X)	22.7	(X)	70.4	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	(S)	(X)	1.3	20	1.0	13
Computers and peripheral data processing equipment	(S)	(X)	(S)	(X)	6.9	14	9.9	7
All other	(S)	(X)	(S)	(X)	14.5	7	59.5	2
Adjustment ratio[3]	(S)	(X)	(S)	(X)	1.8	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	1 336.6	(X)	1 667.4	(X)	1 454.1	(X)	2 441.6	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	(S)	(X)	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	(S)	(X)	(S)	(X)	(S)	(X)
Adjustment ratio[3]	(S)	(X)	(S)	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS												
Total	**E1**	**1 473**	**56.2**	**832.4**	**47.2**	**85.3**	**549.3**	**1 967.9**	**2 002.3**	**3 978.2**	**38.2**	**412.2**
Establishments with an average of–												
1 to 4 employees	E4	302	.7	9.5	.6	1.0	6.8	37.3	21.6	59.1	.4	4.0
5 to 9 employees	E1	216	1.4	18.9	1.2	1.9	12.7	50.8	50.1	99.1	.8	10.0
10 to 19 employees	–	281	3.8	55.4	3.2	5.3	34.9	151.8	176.6	330.2	2.2	31.3
20 to 49 employees	E1	350	10.9	142.8	9.5	16.7	101.4	335.4	232.3	568.9	5.4	54.0
50 to 99 employees	E1	180	12.6	175.0	10.7	19.0	121.9	383.1	405.3	792.2	5.8	83.8
100 to 249 employees	E3	119	17.3	261.0	14.2	26.3	164.1	583.0	653.1	1 238.8	14.9	133.8
250 to 499 employees	–	22	7.1	122.7	5.8	10.8	70.0	325.9	320.4	646.1	4.5	65.5
500 to 999 employees	E2	3	2.3	47.1	2.0	4.2	37.5	100.6	142.9	243.6	4.2	29.7
Covered by administrative records[2]	E9	334	1.7	16.1	1.5	2.3	12.8	44.0	8.8	52.8	.6	1.6
INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES												
Total	**E3**	**3 996**	**83.3**	**1 204.3**	**71.0**	**120.0**	**816.8**	**2 813.5**	**2 608.6**	**5 352.0**	**42.3**	**520.4**
Establishments with an average of–												
1 to 4 employees	E4	1 513	2.4	33.2	2.4	4.0	24.6	107.3	82.5	188.8	1.7	13.4
5 to 9 employees	E3	662	4.4	52.1	4.0	6.2	40.9	128.0	80.9	208.0	2.3	14.2
10 to 19 employees	E2	634	8.7	113.6	7.7	12.5	86.5	237.0	201.4	436.1	3.4	39.3
20 to 49 employees	E2	757	23.6	322.7	20.7	34.3	232.6	768.5	650.3	1 410.1	8.6	106.9
50 to 99 employees	E4	298	20.5	303.8	17.6	29.8	210.6	608.7	645.6	1 254.0	10.9	117.5
100 to 249 employees	E4	111	16.1	240.4	13.2	23.1	150.8	594.1	498.3	1 054.0	7.1	119.0
250 to 499 employees	E1	19	7.5	138.5	5.5	10.0	70.8	369.9	449.6	801.1	8.4	110.1
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 462	5.0	49.0	4.7	7.4	41.1	110.1	52.8	162.9	2.5	6.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS												
Total	**E1**	**1 037**	**48.6**	**848.4**	**38.0**	**66.9**	**503.9**	**2 019.9**	**2 371.3**	**4 369.6**	**31.5**	**623.7**
Establishments with an average of—												
1 to 4 employees	E3	209	.4	8.5	.4	.7	5.4	29.6	31.4	61.6	.3	7.2
5 to 9 employees	E2	119	.8	15.3	.6	1.0	8.6	53.6	51.9	105.1	.7	13.9
10 to 19 employees	–	162	2.3	42.4	1.8	3.1	25.2	137.0	134.3	270.9	.9	29.0
20 to 49 employees	–	264	8.5	128.3	7.3	12.7	93.8	275.0	231.2	501.8	3.0	63.3
50 to 99 employees	E2	153	10.3	179.4	8.4	14.7	109.2	392.8	333.8	730.0	4.4	91.6
100 to 249 employees	E1	102	15.4	265.8	11.7	20.2	155.1	567.7	586.9	1 149.2	6.8	132.9
250 to 499 employees	E2	21	6.4	114.1	5.0	9.1	64.0	293.0	490.8	798.1	5.9	135.6
500 to 999 employees	–	7	4.5	94.5	2.8	5.4	42.5	271.2	511.0	752.9	9.5	150.2
Covered by administrative records[2]	E9	208	.9	10.9	.9	1.4	9.3	27.8	7.2	35.0	.3	7.5
INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.												
Total	**E1**	**3 015**	**115.8**	**1 666.8**	**97.7**	**177.7**	**1 168.2**	**3 929.3**	**3 851.7**	**7 766.6**	**88.8**	**1 059.1**
Establishments with an average of—												
1 to 4 employees	E3	840	1.6	23.1	1.5	2.8	17.3	64.3	59.3	122.8	1.1	13.2
5 to 9 employees	E3	483	3.3	43.5	2.8	4.8	33.2	109.3	70.2	178.0	1.5	18.1
10 to 19 employees	E1	528	7.3	89.5	6.3	10.3	67.5	187.2	153.5	338.4	3.9	37.0
20 to 49 employees	E1	608	19.2	246.3	16.5	27.2	177.7	588.1	554.8	1 138.6	9.0	109.4
50 to 99 employees	–	292	20.2	283.0	17.0	30.0	190.8	584.2	572.3	1 142.6	12.3	159.9
100 to 249 employees	E1	189	29.9	435.8	25.5	48.4	310.5	963.8	957.8	1 931.8	17.2	240.3
250 to 499 employees	E2	50	17.7	250.6	15.4	29.7	194.2	671.6	555.8	1 220.8	12.7	167.4
500 to 999 employees	E1	22	13.4	223.4	10.6	20.7	152.3	543.0	638.1	1 172.9	31.1	202.6
1,000 to 2,499 employees	–	3	3.2	71.6	2.1	3.8	24.7	217.8	289.9	520.7	(D)	111.3
Covered by administrative records[2]	E9	735	3.1	31.7	2.8	4.5	26.4	53.9	30.9	84.8	1.1	4.6

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2331	**Women's, misses', and juniors' blouses and shirts:**										
	All establishments in industry	1 473	56.2	832.4	47.2	85.3	549.3	1 967.9	2 002.3	3 978.2	38.2
	Establishments with this product class primary:										
23313	Women's, misses', and juniors' knit shirts and blouses	229	11.7	201.8	9.2	17.6	120.9	553.7	851.5	1 410.5	10.5
23314	Women's, misses', and juniors' woven shirts and blouses	156	9.9	252.9	6.7	12.9	114.5	711.2	1 018.6	1 733.2	16.4
23319	Receipts for contract and commission work on women's, misses', and juniors' shirts and blouses	744	30.7	336.5	27.8	49.2	282.0	604.5	96.5	700.9	9.8
2335	**Women's, misses', and juniors' dresses:**										
	All establishments in industry	3 996	83.3	1 204.3	71.0	120.0	816.8	2 813.5	2 608.6	5 352.0	42.3
	Establishments with this product class primary:										
23353	Women's, misses', and juniors' dresses	504	21.8	553.5	14.2	26.8	254.4	1 685.7	2 294.8	3 950.2	21.8
23359	Receipts for contract and commission work on women's, misses', and juniors' dresses	1 582	48.9	523.5	45.2	74.7	456.1	860.6	181.2	1 002.6	15.5
2337	**Women's, misses', and juniors' suits and coats:**										
	All establishments in industry	1 037	48.6	848.4	38.0	66.9	503.9	2 019.9	2 371.3	4 369.6	31.5
	Establishments with this product class primary:										
23371	Women's, misses', and juniors' coats and capes (except fur, leather, down- and feather-filled, and ski)	72	3.2	74.9	2.3	4.4	35.3	196.8	279.0	475.0	2.9
23372	Women's, misses', and juniors' suits	42	1.5	37.9	.9	1.7	15.6	119.5	138.4	256.7	1.0
23374	Women's, misses', and juniors' skirts, tailored jackets, and vests	197	16.1	383.0	9.8	18.5	155.2	1 138.3	1 836.1	2 957.9	20.2
23379	Receipts for contract and commission work on women's, misses', and juniors' coats, suits, skirts, and jackets	514	25.4	318.8	23.1	38.9	271.9	495.4	62.3	558.3	6.2

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2339	**Women's, misses', and juniors' outerwear, n.e.c.:**										
	All establishments in industry	3 015	115.8	1 666.8	97.7	177.7	1 168.2	3 929.3	3 851.7	7 766.6	88.8
	Establishments with this product class primary:										
23392	Women's, misses', and juniors' washable service apparel	52	2.8	37.7	2.0	3.6	22.1	171.3	161.2	325.8	2.3
23394	Women's, misses', and juniors' bathing suits	65	6.3	111.6	4.8	9.6	69.2	268.7	337.4	596.9	3.1
23395	Women's, misses', and juniors' slacks (including jeans and jean-cut casual slacks)	196	31.1	541.9	24.6	47.9	334.9	1 774.9	2 143.4	3 923.8	47.2
23397	Women's, misses', and juniors' outerwear, n.e.c.	244	11.8	229.0	8.7	16.9	119.0	501.3	788.4	1 290.4	9.8
23399	Receipts for contract and commission work on women's, misses', and juniors' outerwear, n.e.c.	1 187	51.4	603.4	46.6	81.8	510.0	953.3	242.6	1 193.1	21.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS			
Total value of shipments	3 978.2	3 831.2	3 884.2
Primary products value of shipments	2 973.7	3 022.7	3 191.2
Secondary products value of shipments	862.6	713.9	584.5
Total miscellaneous receipts	141.9	94.5	108.5
Value of resales	136.5	89.4	84.8
Contract receipts	4.6	5.0	21.5
Other miscellaneous receipts	.7	.2	2.2
Primary products specialization ratio	78	81	84
Value of primary products shipments made in all industries	4 190.6	4 178.1	4 258.2
Value of primary products shipments made in this industry	2 973.7	3 022.7	3 191.2
Value of primary products shipments made in other industries	1 216.8	1 155.4	1 067.0
Coverage ratio	71	72	75
INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES			
Total value of shipments	5 352.0	5 447.8	4 623.3
Primary products value of shipments	4 861.3	5 076.8	4 282.4
Secondary products value of shipments	366.2	275.7	252.2
Total miscellaneous receipts	124.5	95.3	86.5
Value of resales	81.0	78.0	14.6
Contract receipts	41.7	16.9	65.5
Other miscellaneous receipts	1.8	.4	4.3
Primary products specialization ratio	93	95	94
Value of primary products shipments made in all industries	5 205.6	5 346.9	4 534.7
Value of primary products shipments made in this industry	4 861.3	5 076.8	4 282.4
Value of primary products shipments made in other industries	344.3	270.1	252.3
Coverage ratio	93	95	94
INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS			
Total value of shipments	4 369.6	4 446.6	4 886.7
Primary products value of shipments	3 150.1	2 999.6	3 544.7
Secondary products value of shipments	984.5	1 079.1	1 174.8
Total miscellaneous receipts	235.1	367.9	167.1
Value of resales	234.5	362.7	143.6
Contract receipts	.5	4.6	23.3
Other miscellaneous receipts	(Z)	.6	.3
Primary products specialization ratio	76	74	75
Value of primary products shipments made in all industries	4 055.8	3 884.9	4 288.9
Value of primary products shipments made in this industry	3 150.1	2 999.6	3 544.7
Value of primary products shipments made in other industries	905.7	885.2	744.2
Coverage ratio	78	77	83

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.			
Total value of shipments	7 766.6	5 663.4	4 830.4
Primary products value of shipments	5 815.6	4 426.9	3 865.2
Secondary products value of shipments	1 747.8	1 117.4	817.9
Total miscellaneous receipts	203.3	119.1	147.3
Value of resales	165.3	112.4	115.6
Contract receipts	36.3	6.1	26.9
Other miscellaneous receipts	1.7	.6	4.9
Primary products specialization ratio	77	80	82
Value of primary products shipments made in all industries	7 155.4	5 952.6	5 159.5
Value of primary products shipments made in this industry	5 815.6	4 426.9	3 865.2
Value of primary products shipments made in other industries	1 339.8	1 525.7	1 294.3
Coverage ratio	81	74	75

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2331– —	**WOMEN'S, MISSES', AND JUNIORS' SHIRTS AND BLOUSES**				
	Total	**(NA)**	**4 190.6**	**(NA)**	**4 178.1**
23313	Women's, misses', and juniors' knit shirts and blouses	(NA)	1 485.9	(NA)	1 070.3
23313 00	Women's, misses', and juniors' knit shirts and blouses (polo, tennis, cowal, tank, T-shirts, sweat, etc.)[2 3]	407	1 485.9	281	1 070.3
23314	Women's, misses', and juniors' woven shirts and blouses	(NA)	1 859.9	(NA)	2 175.8
23314 00	Women's, misses', and juniors' woven shirts and blouses[2]	349	1 859.9	435	2 175.8
23319	Receipts for contract and commission work on women's, misses', and juniors' shirts and blouses[4]	(NA)	730.0	(NA)	684.9
23319 00	Receipts for contract and commission work on women's, misses', and juniors' shirts and blouses	728	721.0	806	667.8
23319 02	Receipts for contract and commission work on women's, misses', and juniors' shirts and blouses, n.s.k.	39	9.0	(NA)	17.1
23310	Women's, misses', and juniors' shirts and blouses, n.s.k.	(NA)	114.8	(NA)	247.1
23310 00	Women's, misses', and juniors' shirts and blouses, n.s.k.[5]	(NA)	71.2	(NA)	190.5
23310 02	Women's, misses', and juniors' shirts and blouses, n.s.k.[6]	(NA)	43.5	(NA)	56.6
2335– —	**WOMEN'S, MISSES', AND JUNIORS' DRESSES**				
	Total	**(NA)**	**5 205.6**	**(NA)**	**5 346.9**
23353	Women's, misses', and juniors' dresses	(NA)	3 928.3	(NA)	3 719.1
23353 00	Women's, misses', and juniors' dresses[2]	616	3 928.3	(NA)	3 719.1
23359	Receipts for contract and commission work on women's, misses', and juniors' dresses[4]	(NA)	1 005.8	(NA)	1 150.8
23359 00	Receipts for contract and commission work on women's, misses', and juniors' dresses	1 247	987.7	(NA)	1 132.2
23359 02	Receipts for contract and commission work on women's, misses', and juniors' dresses, n.s.k.	63	18.0	(NA)	18.6
23350	Women's, misses', and juniors' dresses, n.s.k.	(NA)	271.6	(NA)	477.0
23350 00	Women's, misses', and juniors' dresses, n.s.k.[5]	(NA)	122.4	(NA)	160.5
23350 02	Women's, misses', and juniors' dresses, n.s.k.[6]	(NA)	149.2	(NA)	316.5

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2337– —	**WOMEN'S, MISSES', AND JUNIORS' SUITS, SKIRTS, AND COATS**				
	Total	**(NA)**	**4 055.8**	**(NA)**	**3 884.9**
23371	Women's, misses', and juniors' coats and capes (except fur, leather, down- and feather-filled, and ski)	(NA)	540.6	(NA)	666.4
23371 00	Women's, misses', and juniors' coats and capes (except fur, leather, down- and feather-filled, and ski)[2]	126	540.6	129	666.4
23372	Women's, misses', and juniors' suits	(NA)	336.6	(NA)	298.0
23372 00	Women's, misses', and juniors' suits, pantsuits, and military-type uniform jackets, except ski and snowsuits[2]	112	336.6	108	298.0
23374	Women's, misses', and juniors' skirts, tailored jackets, and vests	(NA)	2 575.1	(NA)	2 203.8
23374 10	Separate skirts (including military-type uniform skirts)[2]	316	1 484.8	360	1 552.2
23374 20	Jackets and vests, tailored (including military-type uniform jackets), excluding fur and leather[2]	234	1 073.1	192	630.0
23374 00	Women's, misses', and juniors' skirts, tailored jackets, and vests, n.s.k.	(NA)	17.2	(NA)	21.6
23379	Receipts for contract and commission work on women's, misses', and juniors' coats, suits, skirts, and jackets[4]	(NA)	575.7	(NA)	509.2
23379 00	Receipts for contract and commission work on women's, misses', and juniors' coats, suits, skirts, and jackets	537	569.2	542	500.8
23379 02	Receipts for contract and commission work on women's, misses', and juniors' coats, suits, skirts, and jackets, n.s.k.	22	6.5	(NA)	8.4
23370	Women's, misses', and juniors' suits, skirts, and coats, n.s.k.	(NA)	27.9	(NA)	207.4
23370 00	Women's, misses', and juniors' suits, skirts, and coats, n.s.k.[7]	(NA)	1.1	(NA)	148.5
23370 02	Women's, misses', and juniors' suits, skirts, and coats, n.s.k.[8]	(NA)	26.8	(NA)	58.9
2339– —	**WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.**				
	Total	**(NA)**	**7 155.4**	**(NA)**	**5 952.6**
23392	Women's, misses', and juniors' washable service apparel	(NA)	264.6	(NA)	282.3
23392 00	Washable service apparel (aprons; smocks; hoovers; uniforms for maids, nurses, etc.; and hospital patient wear)[2]	66	264.6	51	282.3
23394	Women's, misses', and juniors' bathing suits	(NA)	584.5	(NA)	471.4
23394 00	Women's, misses', and juniors' bathing suits[2]	73	584.5	60	471.4
23395	Women's, misses', and juniors' slacks (including jeans and jean-cut casual slacks)	(NA)	3 418.8	(NA)	2 649.0
23395 00	Women's, misses', and juniors' slacks (including jeans and jean-cut casual slacks)[2]	372	3 418.8	337	2 649.0
23397	Women's, misses', and juniors' outerwear, n.e.c.	(NA)	1 389.5	(NA)	1 085.5
23397 20	Athletic uniforms, sold as such	29	28.8	35	32.9
23397 30	Sweaters (including sweater vests)[2 3]	49	188.9	77	240.0
23397 60	Play garments (including shorts, pedal pushers, bermudas, and jamaicas)[2]	180	599.7	126	241.1
23397 70	Scarfs, dickies, and other neckwear	18	29.2	14	18.1
23397 80	Other outerwear (including jogging pants and suits, ski suits and jackets, leotards, nontailored jackets, etc.)[2]	214	488.6	165	499.8
23397 00	Women's, misses', and juniors' outerwear, n.e.c., n.s.k.	(NA)	54.3	(NA)	53.7
23399	Receipts for contract and commission work on women's, misses', and juniors' outerwear, n.e.c.[4]	(NA)	1 186.9	(NA)	907.6
23399 00	Receipts for contract and commission work on women's, misses', and juniors' outerwear, n.e.c.	1 029	1 172.6	801	888.6
23399 02	Receipts for contract and commission work on women's, misses', and juniors' outerwear, n.e.c., n.s.k.	50	14.4	(NA)	19.0
23390	Women's, misses', and juniors' outerwear, n.e.c., n.s.k.	(NA)	311.0	(NA)	556.9
23390 00	Women's, misses', and juniors' outerwear, n.e.c., n.s.k.[5]	(NA)	236.7	(NA)	412.1
23390 02	Women's, misses', and juniors' outerwear, n.e.c., n.s.k.[6]	(NA)	74.2	(NA)	144.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]This product code is primary to more than one industry.
[4]Data for this product class represent value of receipts rather than value of shipments.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Women's, misses', and juniors' sweaters	(NA)	490.8	(NA)	687.4
22535 00	Made in knitting mills	61	301.9	79	447.4
23397 30	Made in cut-and-sew shops	49	188.9	77	240.0
	Women's, misses', and juniors' knit shirts and blouses	(NA)	1 665.1	(NA)	1 255.1
2253B 00	Made in knitting mills	26	179.2	28	184.8
23313 00	Made in cut-and-sew shops	407	1 485.9	281	1 070.3

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23313, WOMEN'S, MISSES', AND JUNIORS' KNIT SHIRTS AND BLOUSES		
United States	**1 485.9**	**1 070.3**
Alabama	22.9	18.5
California	462.2	293.3
Florida	75.9	57.8
Georgia	7.3	53.3
Indiana	2.3	(NA)
Kansas	4.8	(NA)
Massachusetts	19.3	7.5
Michigan	6.2	(NA)
New Jersey	157.5	87.6
New York	172.0	162.7
North Carolina	70.9	68.5
Ohio	2.2	(NA)
Pennsylvania	81.5	100.4
South Carolina	97.9	26.8
Tennessee	34.4	10.4
Texas	17.9	11.3
Virginia	140.2	(NA)
23314, WOMEN'S, MISSES', AND JUNIORS' WOVEN SHIRTS AND BLOUSES		
United States	**1 859.9**	**2 175.8**
California	919.1	820.7
Florida	15.5	37.5
Georgia	30.2	48.7
Hawaii	2.3	5.5
Illinois	8.2	8.4
Massachusetts	62.4	33.0
New Jersey	117.0	66.8
New York	371.1	616.1
North Carolina	65.6	102.6
Pennsylvania	104.7	140.9
South Carolina	21.4	48.5
Tennessee	2.9	29.6
Texas	42.3	50.6
23319, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' SHIRTS AND BLOUSES		
United States	**730.0**	**684.9**
Alabama	58.7	23.6
California	160.1	132.4
Florida	36.8	17.7
Georgia	18.7	25.7
Illinois	2.5	(NA)
23319, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' SHIRTS AND BLOUSES—Con.		
Kentucky	7.0	13.4
Massachusetts	14.1	14.1
New Jersey	23.1	19.2
New York	107.5	53.3
North Carolina	38.3	36.4
Pennsylvania	65.8	107.7
South Carolina	38.5	56.4
Tennessee	34.4	59.1
Texas	12.3	6.2
Utah	5.0	11.3
Virginia	75.5	43.2
23353, WOMEN'S, MISSES', AND JUNIORS' DRESSES		
United States	**3 928.3**	**3 719.1**
Alabama	2.9	4.3
California	1 172.7	1 001.9
Florida	37.3	101.9
Hawaii	9.2	27.8
Illinois	69.0	87.5
Massachusetts	31.5	47.9
Missouri	14.2	(NA)
New Jersey	48.3	198.6
New York	1 982.5	1 751.6
North Carolina	30.5	19.1
Pennsylvania	259.7	238.2
South Carolina	9.4	21.8
Texas	143.8	119.6
23359, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' DRESSES		
United States	**1 005.8**	**1 150.8**
Alabama	14.1	7.4
Arizona	2.3	(NA)
California	309.2	318.0
Connecticut	3.7	7.0
Florida	35.9	49.4
Georgia	22.2	18.4
Hawaii	6.9	4.8
Illinois	9.9	13.7
Massachusetts	6.0	26.2
Michigan	3.8	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23359, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' DRESSES—Con.		
New Jersey	42.1	57.2
New York	301.4	328.6
North Carolina	25.2	27.9
Oklahoma	2.0	(NA)
Pennsylvania	113.8	149.9
South Carolina	12.0	15.7
Tennessee	23.9	21.7
Texas	29.7	21.5
Virginia	16.9	23.8
West Virginia	4.7	(NA)
23371, WOMEN'S, MISSES', AND JUNIORS' COATS AND CAPES (EXCEPT FUR, LEATHER, DOWN- AND FEATHER-FILLED, AND SKI)		
United States	**540.6**	**666.4**
California	29.1	27.4
Massachusetts	39.1	60.7
New Jersey	96.1	98.0
New York	327.6	372.1
North Carolina	4.0	(NA)
23372, WOMEN'S, MISSES', AND JUNIORS' SUITS		
United States	**336.6**	**298.0**
Alabama	9.4	(NA)
California	45.3	18.6
Florida	30.8	9.3
Massachusetts	21.6	31.9
New York	191.3	136.0
Pennsylvania	5.7	30.1
23374, WOMEN'S, MISSES', AND JUNIORS' SKIRTS, TAILORED JACKETS, AND VESTS		
United States	**2 575.1**	**2 203.8**
Alabama	18.2	10.2
California	457.4	454.1
Florida	21.7	27.1
Georgia	65.2	85.6
Illinois	10.7	11.3
Kentucky	12.5	(NA)
Massachusetts	229.4	117.6
Mississippi	12.9	17.6
New Jersey	358.6	259.9
New York	610.5	537.5
North Carolina	46.5	48.3
South Carolina	5.8	22.6
Texas	47.6	65.3
Washington	2.6	(NA)
23379, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' COATS, SUITS, SKIRTS, AND JACKETS		
United States	**575.7**	**509.2**
Alabama	18.8	24.1
California	65.3	39.0
Connecticut	5.2	4.5
Florida	30.3	20.2
Georgia	12.6	13.8
Illinois	2.7	8.3
Kentucky	8.2	15.3
Massachusetts	43.8	41.9
Mississippi	6.8	10.8
Missouri	2.8	3.5
New Hampshire	5.3	(NA)
New Jersey	108.0	85.4
New York	136.1	89.1
North Carolina	14.2	13.4
Pennsylvania	39.9	50.5
South Carolina	5.7	8.1
Tennessee	26.6	14.8
Texas	7.4	32.5
Virginia	9.7	4.3
23392, WOMEN'S, MISSES', AND JUNIORS' WASHABLE SERVICE APPAREL		
United States	**264.6**	**282.3**
Alabama	19.0	(NA)
California	34.9	32.3
Florida	2.7	(NA)
Georgia	15.4	46.5
Mississippi	13.0	(NA)
New York	15.9	72.5
Pennsylvania	2.2	3.1
Texas	6.8	(NA)
23394, WOMEN'S, MISSES', AND JUNIORS' BATHING SUITS		
United States	**584.5**	**471.4**
California	306.6	198.3
Florida	10.6	11.5
New Jersey	19.7	(NA)
New York	76.2	80.7
23395, WOMEN'S, MISSES', AND JUNIORS' SLACKS (INCLUDING JEANS AND JEAN-CUT CASUAL SLACKS)		
United States	**3 418.8**	**2 649.0**
California	770.8	509.0
Florida	54.1	43.8
Georgia	374.5	251.4
Illinois	2.3	5.5
Kentucky	52.7	(NA)
Massachusetts	38.3	64.4
Mississippi	174.1	88.3
New Jersey	260.2	63.6
New York	447.2	464.5
North Carolina	94.7	103.6
Pennsylvania	56.7	94.4
South Carolina	156.2	17.9
Tennessee	348.3	253.4
Texas	313.2	204.1
Virginia	19.1	(NA)
23397, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.		
United States	**1 389.5**	**1 085.5**
California	381.9	227.1
Colorado	3.2	(NA)
Florida	88.4	48.0
Georgia	69.6	41.7
Indiana	13.6	10.2
Iowa	5.6	(NA)
Kentucky	9.6	(NA)
Massachusetts	27.9	22.5
Mississippi	49.1	(NA)
Missouri	6.1	(NA)
New Jersey	98.1	53.2
New York	280.4	238.0
North Carolina	22.4	38.7
Oregon	18.1	2.9
Pennsylvania	123.6	52.4
South Carolina	18.9	12.5
Tennessee	27.1	30.8
Texas	14.4	19.9
Vermont	15.8	(NA)
Virginia	8.4	(NA)
Washington	21.2	30.7
Wisconsin	16.5	(NA)
23399, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.		
United States	**1 186.9**	**907.6**
Alabama	60.0	65.6
California	320.0	149.7
Florida	23.1	17.6
Georgia	27.7	29.2
Hawaii	2.7	4.7
Illinois	11.8	(NA)
Kentucky	21.4	25.1
Louisiana	2.7	(NA)
Maryland	3.2	(NA)
Massachusetts	23.9	17.6

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23399, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.—Con.			**23399, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.**—Con.		
Minnesota	3.6	2.6			
Mississippi	22.2	14.0			
New Hampshire	8.9	5.3			
New Jersey	37.4	21.1			
New York	140.8	113.3	Tennessee	65.6	71.1
North Carolina	61.1	45.9	Texas	72.7	57.0
Pennsylvania	91.5	66.2	Virginia	98.4	69.1
South Carolina	43.0	38.4	Washington	7.6	5.3

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2331-	**Women's, misses', and juniors' shirts and blouses**	**4 190.6**	**3 617.7**	**3 660.3**	**3 634.9**	**3 982.8**	**4 178.1**	**4 258.2**	**2 555.7**
23313	Women's, misses', and juniors' knit shirts and blouses	1 485.9	1 044.6	916.0	979.6	928.8	1 070.3	(NA)	(NA)
23314	Women's, misses', and juniors' woven shirts and blouses	1 859.9	1 829.8	1 840.1	1 762.5	2 121.4	2 175.8	(NA)	(NA)
23319	Receipts for contract and commission work on women's, misses', and juniors' shirts and blouses	730.0	660.2	780.3	730.6	683.6	684.9	713.4	487.7
23310	Women's, misses', and juniors' shirts and blouses, n.s.k.	114.8	83.2	123.9	162.2	248.9	247.1	332.7	135.4
2335-	**Women's, misses', and juniors' dresses**	**5 205.6**	**5 442.6**	**5 746.4**	**5 244.8**	**5 810.4**	**5 346.9**	**4 534.7**	**3 993.0**
23353	Women's, misses', and juniors' dresses	3 928.3	4 004.0	4 380.4	3 851.7	3 958.6	3 719.1	2 988.6	2 468.9
23359	Receipts for contract and commission work on women's, misses', and juniors' dresses	1 005.8	1 195.9	1 080.8	1 001.8	1 156.6	1 150.8	1 029.1	764.8
23350	Women's, misses', and juniors' dresses, n.s.k.	271.6	242.7	285.2	391.2	695.2	477.0	517.0	759.3
2337-	**Women's, misses', and juniors' suits, skirts, and coats**	**4 055.8**	**3 744.8**	**3 409.9**	**3 620.0**	**4 133.5**	**3 884.9**	**4 288.9**	**2 734.8**
23371	Women's, misses', and juniors' coats and capes (except fur, leather, down- and feather-filled, and ski)	540.6	509.9	524.7	569.9	730.6	666.4	621.9	612.1
23372	Women's, misses', and juniors' suits	336.6	305.8	296.9	319.4	326.0	298.0	407.1	671.9
23374	Women's, misses', and juniors' skirts, tailored jackets, and vests	2 575.1	2 289.3	2 020.6	2 114.1	2 219.7	2 203.8	2 351.2	741.0
23379	Receipts for contract and commission work on women's, misses', and juniors' coats, suits, skirts, and jackets	575.7	566.2	493.7	473.0	577.7	509.2	513.7	423.9
23370	Women's, misses', and juniors' suits, skirts, and coats, n.s.k.	27.9	73.6	74.1	143.7	279.6	207.4	395.1	285.9
2339-	**Women's, misses', and juniors' outerwear, n.e.c.**	**7 155.4**	**6 135.6**	**5 932.6**	**5 689.5**	**5 688.5**	**5 952.6**	**5 159.5**	**3 175.3**
23392	Women's, misses', and juniors' washable service apparel	264.6	233.7	235.6	235.7	261.9	282.3	250.4	194.7
23394	Women's, misses', and juniors' bathing suits	584.5	542.5	522.2	518.2	445.9	471.4	387.1	165.4
23395	Women's, misses', and juniors' slacks (including jeans and jean-cut casual slacks)	3 418.8	2 896.3	2 587.4	2 537.3	2 286.9	2 649.0	2 591.2	1 465.4
23397	Women's, misses', and juniors' outerwear, n.e.c.	1 389.5	1 118.2	1 232.0	1 146.7	1 206.5	1 085.5	643.7	458.1
23399	Receipts for contract and commission work on women's, misses', and juniors' outerwear, n.e.c.	1 186.9	1 075.2	1 016.9	908.3	895.7	907.6	780.9	501.1
23390	Women's, misses', and juniors' outerwear, n.e.c., n.s.k.	311.0	269.7	338.5	343.3	591.6	556.9	506.3	390.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2331, WOMEN'S, MISSES', AND JUNIORS' BLOUSES AND SHIRTS		
	Materials, ingredients, containers, and supplies	**1 336.6**	**1 258.1**
220129	Broadwoven fabrics (piece goods)	552.3	675.5
224111	Narrow fabrics (12 inches or less in width)	39.9	(1)
225078	Knit fabrics	462.5	322.8
228015	Yarn, all fibers	17.9	(1)
396501	Buttons, zippers, and slide fasteners	31.9	(1)
970099	All other materials and components, parts, containers, and supplies	72.5	[1]96.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	159.7	163.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2335, WOMEN'S, MISSES', AND JUNIORS' DRESSES		
	Materials, ingredients, containers, and supplies	**1 667.4**	**1 755.7**
220129	Broadwoven fabrics (piece goods)	758.4	884.9
224111	Narrow fabrics (12 inches or less in width)	57.4	(1)
225078	Knit fabrics	114.1	170.4
228015	Yarn, all fibers	28.7	(1)
396501	Buttons, zippers, and slide fasteners	77.3	(1)
970099	All other materials and components, parts, containers, and supplies	78.7	[1]119.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	552.9	581.2
	INDUSTRY 2337, WOMEN'S, MISSES', AND JUNIORS' SUITS AND COATS		
	Materials, ingredients, containers, and supplies	**1 454.1**	**1 463.5**
220129	Broadwoven fabrics (piece goods)	1 037.8	1 088.1
224111	Narrow fabrics (12 inches or less in width)	85.2	(1)
225078	Knit fabrics	80.8	120.8
228015	Yarn, all fibers	23.7	(1)
396501	Buttons, zippers, and slide fasteners	75.7	(1)
970099	All other materials and components, parts, containers, and supplies	60.4	[1]108.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	90.5	145.9
	INDUSTRY 2339, WOMEN'S, MISSES', AND JUNIORS' OUTERWEAR, N.E.C.		
	Materials, ingredients, containers, and supplies	**2 441.6**	**1 900.3**
220129	Broadwoven fabrics (piece goods)	1 275.0	971.4
224111	Narrow fabrics (12 inches or less in width)	146.7	(1)
225078	Knit fabrics	444.7	367.3
228015	Yarn, all fibers	35.5	(1)
396501	Buttons, zippers, and slide fasteners	114.0	(1)
970099	All other materials and components, parts, containers, and supplies	154.4	[1]221.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	271.9	340.1

[1]For 1987, data for these materials were not collected separately, but are included in material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2311500	MA23A, Apparel	2339500	MA23A, Apparel
2311600	MA23A, Apparel	2339730	MA23A, Apparel
2311700	MA23A, Apparel	2339760	MA23A, Apparel
2321300	MA23A, Apparel	2339780	MA23A, Apparel
2321600	MA23A, Apparel	2341200	MA23A, Apparel
2322100	MA23A, Apparel	2341300	MA23A, Apparel
2322200	MA23A, Apparel	2342100	MA23A, Apparel
2325100	MA23A, Apparel	2342210	MA23A, Apparel
2325200	MA23A, Apparel	2361300	MA23A, Apparel
2326100	MA23A, Apparel	2361400	MA23A, Apparel
2326200	MA23A, Apparel	2361500	MA23A, Apparel
2329100	MA23A, Apparel	2369200	MA23A, Apparel
2329310	MA23A, Apparel	2369340	MA23A, Apparel
2329330	MA23A, Apparel	2369370	MA23A, Apparel
2329360	MA23A, Apparel	2369380	MA23A, Apparel
2329380	MA23A, Apparel	2369393	MA23A, Apparel
2331300	MA23A, Apparel	2381300	MA23D, Gloves and Mittens
2331400	MA23A, Apparel	2381400	MA23D, Gloves and Mittens
2335300	MA23A, Apparel	2384011	MA23A, Apparel
2337100	MA23A, Apparel	2384021	MA23A, Apparel
2337200	MA23A, Apparel	2385140	MA23A, Apparel
2337410	MA23A, Apparel	2392200	MQ23X, Sheets, Pillowcases, and Towels
2337420	MA23A, Apparel	2392310	MQ23X, Sheets, Pillowcases, and Towels
2339200	MA23A, Apparel	2392313	MQ23X, Sheets, Pillowcases, and Towels
2339400	MA23A, Apparel		

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-23C

INDUSTRY SERIES

Women's and Children's Underwear; Headwear; Children's Outerwear

Industries 2341, 2342, 2353, 2361, and 2369

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4651.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2341	Women's and Children's Underwear
2342	Brassieres, Girdles, and Allied Garments
2353	Hats, Caps, and Millinery
2361	Girls' and Children's Dresses and Blouses
2369	Girls' and Children's Outerwear, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR

This industry is made up of establishments primarily engaged in manufacturing women's, misses', children's, and infants' underwear and nightwear from purchased woven or knit fabrics. Knitting mills primarily engaged in manufacturing underwear and nightwear are classified in industry 2254. Establishments primarily engaged in manufacturing women's and misses' robes and dressing gowns are classified in industry 2384, and those manufacturing children's and infants' robes are classified in industry 2369. Establishments primarily engaged in manufacturing brassieres, girdles, and allied garments are classified in industry 2342. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2341, Women's and Children's Underwear, had employment of 41.5 thousand. The employment figure was 23 percent below the 53.7 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama, Georgia, North Carolina, and Pennsylvania, accounting for approximately 51 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 53 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2341 shipped $1.9 billion of women's and children's underwear products considered primary to the industry, $333.9 million of secondary products, and had $113.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary

and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2341, no matter in what industry they were produced, appear in table 6a and aggregate to $2.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's and children's underwear industry amounted to $1.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS

This industry is made up of establishments primarily engaged in manufacturing brassieres, girdles, corsets, corset accessories, and allied garments. Establishments primarily engaged in manufacturing surgical and orthopedic appliances are classified in industry 3842. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2342, Brassieres, Girdles, and Allied Garments, had employment of 12.1 thousand. The employment figure was 12 percent below the 13.8 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, New Jersey, and Pennsylvania, accounting for approximately 58 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 58 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2342 shipped $1.4 billion of brassieres, girdles, and allied garments products considered primary to the industry, $111.9 million of secondary products, and had $36.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2342, no matter in what industry they were produced, appear in table 6a and aggregate to $1.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the brassieres, girdles, and allied garments industry amounted to $701.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2353, HATS, CAPS, AND MILLINERY

This industry is made up of establishments primarily engaged in manufacturing hats, caps, millinery, and hat bodies. Establishments primarily engaged in manufacturing millinery trimmings are classified in industry 2396. Establishments primarily engaged in manufacturing hats and caps of paper are classified in industry 2679; those manufacturing caps of rubber are classified in industry 3069; those manufacturing caps of plastics are classified in industry 3089; and those manufacturing fur hats are classified in industry 2371.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2353, Hats, Caps, and Millinery, had employment of 18.8 thousand. The employment figure was 9 percent above the 17.2 thousand reported in 1987. Compared with 1991, employment increased 18 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Missouri, New York, Pennsylvania, and Texas, accounting for approximately 49 percent of the industry's employment.

This represents a shift from 1987 when New York, Missouri, Texas, and California accounted for approximately 55 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $978.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2353 shipped $855.7 million of hats, caps, and millinery products considered primary to the industry, $20.7 million of secondary products, and had $102.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2353, no matter in what industry they were produced, appear in table 6a and aggregate to $867.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hats, caps, and millinery industry amounted to $436.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES

This industry is made up of establishments primarily engaged in manufacturing girls' and children's dresses, blouses, and shirts from purchased woven or knit fabrics. Knitting mills primarily engaged in manufacturing outerwear are classified in industry 2253. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2361, Girls' and Children's Dresses and Blouses, had employment of 24.2 thousand. The employment figure was 22 percent below the 30.9 thousand reported in 1987. Compared with 1991, employment decreased 20 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, North Carolina, and Pennsylvania, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Virginia, New York, and South Carolina accounted for approximately 49 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2361 shipped $1.3 billion of girls' and children's dresses and blouses products considered primary to the industry, $313.9 million of secondary products, and had $50.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 80 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 73 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 2361, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the girls' and children's dresses and blouses industry amounted to $803.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing girls' and children's outerwear, not elsewhere classified, from purchased woven or knit fabrics. Knitting mills primarily engaged in manufacturing outerwear are classified in industry 2253. Products of this

industry also are collected in the Current Industrial Report (CIR) MQ-23A, Apparel. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2369, Girls' and Children's Outerwear, N.E.C., had employment of 29.5 thousand. The employment figure was 28 percent below the 40.8 thousand reported in 1987.

The leading States in employment in 1992 were Alabama, California, North Carolina, and Virginia. This represents a shift from 1987 when North Carolina, South Carolina, Virginia, and Georgia were the leading States.

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2369 shipped $1.2 billion of girls' and children's outerwear, not elsewhere classified, products considered primary to the industry, $287.8 million of secondary products, and had $27.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 81 percent (specialization ratio). In 1987, the specialization ratio was 73 percent.

Establishments in this industry also accounted for 68 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 2369, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the girls' and children's outerwear, not elsewhere classified, industry amounted to $678.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR															
1992 Census	264	354	266	41.5	578.3	35.8	65.5	423.0	1 306.7	1 054.6	2 364.6	29.1	432.7	85	86
1991 ASM	(NA)	(NA)	(NA)	46.9	619.2	40.7	77.3	471.6	1 362.5	1 033.0	2 386.1	20.2	483.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	48.7	610.4	42.3	76.9	458.1	1 298.4	1 035.0	2 337.4	25.6	454.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	49.4	614.3	43.2	80.0	454.4	1 256.9	1 048.4	2 301.1	18.3	431.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	53.9	664.9	46.7	85.9	501.6	1 426.4	1 215.6	2 621.3	36.0	472.5	(NA)	(NA)
1987 Census	330	434	334	53.7	644.9	46.5	85.4	488.6	1 429.6	1 229.6	2 658.3	44.9	443.9	88	88
1986 ASM	(NA)	(NA)	(NA)	58.6	662.3	51.1	91.2	501.8	1 335.9	1 254.4	2 588.1	29.9	402.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	59.4	658.7	51.7	92.1	492.7	1 357.0	1 344.2	2 715.2	34.8	432.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	66.2	700.2	56.9	102.0	520.7	1 427.5	1 418.2	2 827.1	34.7	460.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	66.7	677.4	57.2	105.1	506.3	1 359.7	1 373.0	2 734.9	34.2	457.1	(NA)	(NA)
1982 Census	477	604	422	67.8	640.8	57.4	104.0	478.1	1 350.8	1 247.5	2 602.4	30.4	407.0	91	97
1981 ASM	(NA)	(NA)	(NA)	77.4	650.6	66.6	120.0	486.3	1 411.1	1 216.3	2 599.3	27.7	425.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	79.6	633.9	68.1	121.1	472.4	1 317.5	1 133.3	2 428.6	29.3	394.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	78.0	571.8	66.2	121.0	424.8	1 163.8	1 032.5	2 187.8	22.3	347.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.6	514.6	63.0	113.3	394.9	1 042.9	944.5	1 966.6	21.8	316.3	(NA)	(NA)
1977 Census	548	698	479	72.9	472.1	63.4	112.6	359.8	915.3	878.2	1 780.8	18.7	275.9	95	94
INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS															
1992 Census	106	125	78	12.1	219.8	9.7	17.3	134.7	887.5	701.1	1 579.3	12.9	261.9	93	90
1991 ASM	(NA)	(NA)	(NA)	10.6	191.2	7.8	14.0	98.1	809.9	552.3	1 297.0	7.7	323.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.6	187.5	8.5	15.6	98.9	560.6	517.1	1 086.9	7.6	276.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.8	181.9	8.4	14.7	90.5	541.1	529.5	1 064.4	11.1	282.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.9	192.2	9.3	17.2	103.8	663.4	596.6	1 262.6	13.2	251.8	(NA)	(NA)
1987 Census	109	128	88	13.8	198.8	9.7	18.2	102.4	576.3	514.4	1 079.9	6.7	207.7	87	91
1986 ASM	(NA)	(NA)	(NA)	15.2	193.4	11.7	21.7	113.6	476.4	458.0	944.7	8.9	209.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.9	169.5	10.9	20.1	105.7	402.1	378.0	775.2	12.3	201.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.8	163.6	11.3	20.4	107.8	459.7	380.1	811.1	8.1	205.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.7	151.5	11.1	19.3	94.1	434.4	355.7	770.2	4.8	161.8	(NA)	(NA)
1982 Census	134	151	97	13.8	142.3	11.3	19.5	89.3	370.8	334.5	720.3	7.5	141.7	93	92
1981 ASM	(NA)	(NA)	(NA)	14.6	143.5	12.0	21.2	94.5	325.1	293.7	617.7	6.0	135.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	14.6	133.2	11.9	20.8	88.4	304.3	270.0	566.5	6.2	116.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.6	139.5	13.2	22.9	87.5	330.2	308.9	634.2	6.5	129.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	18.8	151.9	15.1	26.9	95.5	368.5	324.0	689.8	6.5	133.8	(NA)	(NA)
1977 Census	150	180	116	18.9	141.1	15.2	27.0	89.1	334.4	318.2	650.0	4.2	121.9	92	99
INDUSTRY 2353, HATS, CAPS, AND MILLINERY															
1992 Census	346	370	170	18.8	281.4	15.6	29.6	209.7	573.5	436.3	978.4	21.5	180.1	98	99
1991 ASM	(NA)	(NA)	(NA)	15.9	228.2	13.6	26.0	157.3	455.3	347.0	800.5	10.3	124.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.5	227.3	14.4	25.4	160.8	424.3	316.8	736.6	7.3	122.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.0	210.4	13.8	24.3	148.8	418.9	310.0	722.4	6.5	125.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.4	208.8	14.0	24.3	148.5	377.5	297.7	671.4	7.2	124.3	(NA)	(NA)
1987 Census	441	462	170	17.2	204.4	14.6	26.5	148.4	368.0	294.6	662.7	7.2	122.8	96	99
1986 ASM	(NA)	(NA)	(NA)	14.1	165.1	11.9	21.0	112.7	319.4	284.5	604.1	7.5	118.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	14.2	166.7	12.2	21.0	119.4	297.4	291.3	595.0	17.7	119.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.5	166.7	13.7	24.8	124.2	303.6	290.0	611.0	6.4	105.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.4	158.4	13.9	24.4	118.5	298.9	238.8	529.3	10.7	109.5	(NA)	(NA)
1982 Census	(NA)	419	172	15.7	156.7	14.0	24.4	117.6	285.3	235.9	522.3	8.1	129.7	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	20.0	175.0	17.7	31.0	126.4	348.1	299.2	634.7	(S)	115.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.0	162.2	17.6	32.3	120.4	331.2	287.8	613.8	(S)	105.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.6	124.6	14.6	27.0	93.1	212.4	211.8	419.2	4.1	66.9	(NA)	(NA)
1977 Census	(NA)	409	199	15.1	105.3	13.3	23.8	79.0	185.5	179.3	359.9	4.1	57.5	(NA)	(NA)
INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES															
1992 Census	364	397	249	24.2	367.3	19.4	36.9	239.5	826.7	803.6	1 625.9	13.2	242.3	80	73
1991 ASM	(NA)	(NA)	(NA)	30.2	394.6	25.6	46.4	275.6	943.4	851.6	1 799.8	20.9	243.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	29.0	370.7	24.2	43.7	253.3	903.8	821.0	1 724.5	15.3	226.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.6	372.7	25.6	45.1	254.4	866.6	809.9	1 670.6	9.8	230.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	28.9	360.0	23.7	43.2	246.2	831.1	778.5	1 603.6	12.5	220.7	(NA)	(NA)
1987 Census	401	454	307	30.9	350.4	26.2	45.0	257.0	790.4	736.0	1 518.6	12.5	199.3	83	78
1986 ASM	(NA)	(NA)	(NA)	25.6	287.2	21.3	37.4	202.2	685.2	564.1	1 247.3	6.8	167.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.7	291.9	22.3	37.1	204.8	678.6	579.6	1 268.7	13.2	162.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	31.4	327.4	26.4	45.5	230.7	682.7	655.8	1 332.0	11.3	175.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	36.0	342.1	30.9	54.9	233.4	762.9	673.1	1 400.9	7.6	186.4	(NA)	(NA)
1982 Census	490	556	391	37.7	357.3	32.4	57.5	259.7	745.9	667.6	1 417.7	11.6	165.9	90	87
1981 ASM	(NA)	(NA)	(NA)	34.6	292.4	29.6	53.2	214.0	672.7	490.1	1 132.6	5.8	157.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	37.0	288.2	31.7	55.6	208.6	553.3	430.3	968.5	7.0	133.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	36.9	267.6	31.8	56.5	194.5	504.9	394.9	895.8	7.3	120.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	35.5	248.6	30.8	54.3	185.9	476.5	408.8	896.0	7.1	106.7	(NA)	(NA)
1977 Census	455	519	374	35.2	228.4	30.4	52.5	169.7	444.6	388.8	824.7	6.4	106.5	89	87
INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.															
1992 Census	323	362	230	29.5	413.4	24.6	45.2	282.9	849.9	678.9	1 533.5	10.7	224.3	81	68
1991 ASM	(NA)	(NA)	(NA)	28.6	396.5	24.1	48.5	267.2	963.7	792.9	1 779.3	15.2	300.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	31.9	440.8	26.5	56.6	300.6	1 141.9	835.8	1 973.2	24.6	350.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	36.1	455.6	30.9	59.1	334.0	1 181.6	878.2	2 020.2	22.9	369.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	40.0	467.2	33.9	62.4	340.0	1 070.5	972.1	2 069.7	18.0	312.5	(NA)	(NA)
1987 Census	312	381	265	40.8	475.4	34.7	62.0	352.5	1 193.3	1 052.6	2 234.5	22.1	381.2	73	82
1986 ASM	(NA)	(NA)	(NA)	29.7	327.6	25.1	44.2	233.0	805.3	686.4	1 477.1	11.9	256.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	33.2	356.3	28.5	50.5	259.0	791.7	659.0	1 472.2	13.4	253.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.5	340.6	29.0	51.7	251.5	771.5	601.4	1 362.7	10.8	239.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	33.2	313.6	27.3	49.3	223.2	706.9	563.5	1 279.4	14.6	155.7	(NA)	(NA)
1982 Census	(NA)	412	266	33.7	313.9	28.6	51.5	232.7	699.9	589.8	1 293.7	18.5	188.6	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	34.7	275.6	29.8	51.3	213.7	532.1	470.4	1 010.5	10.9	188.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.3	266.2	29.4	52.6	201.4	582.7	479.1	1 061.7	13.9	171.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.0	231.2	28.4	49.9	176.3	459.2	437.3	898.7	11.1	143.0	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	38.9	258.0	34.5	61.1	198.9	527.9	465.0	972.6	6.5	163.9	(NA)	(NA)
1977 Census	(NA)	483	312	36.0	230.7	30.8	55.1	179.2	434.6	450.4	892.6	8.0	139.2	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR								
1992 Census	13 935	86	1 830	6.46	45	69	31 487	44	19.95
1991 ASM	13 203	87	1 899	6.10	43	69	29 051	45	17.63
1990 ASM	12 534	87	1 818	5.96	44	70	26 661	47	16.88
1989 ASM	12 435	87	1 852	5.68	46	72	25 443	49	15.71
1988 ASM	12 336	87	1 839	5.84	46	72	26 464	47	16.61
1987 Census	12 009	87	1 837	5.72	46	71	26 622	45	16.74
1986 ASM	11 302	87	1 785	5.50	48	74	22 797	50	14.65
1985 ASM	11 089	87	1 781	5.35	50	74	22 845	49	14.73
1984 ASM	10 577	86	1 793	5.10	50	75	21 563	49	14.00
1983 ASM	10 156	86	1 837	4.82	50	75	20 385	50	12.94
1982 Census	9 451	85	1 812	4.60	48	73	19 923	47	12.99
1981 ASM	8 406	86	1 802	4.05	47	72	18 231	46	11.76
1980 ASM	7 964	86	1 778	3.90	47	73	16 552	48	10.88
1979 ASM	7 331	85	1 828	3.51	47	73	14 921	49	9.62
1978 ASM	7 088	87	1 798	3.49	48	74	14 365	49	9.20
1977 Census	6 476	87	1 776	3.20	49	76	12 556	52	8.13
	INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS								
1992 Census	18 165	80	1 784	7.79	44	58	73 347	25	51.30
1991 ASM	18 038	74	1 795	7.01	43	57	76 406	24	57.85
1990 ASM	16 164	73	1 835	6.34	48	65	48 328	33	35.94
1989 ASM	15 415	71	1 750	6.16	50	67	45 856	34	36.81
1988 ASM	14 899	72	1 849	6.03	47	62	51 426	29	38.57
1987 Census	14 406	70	1 876	5.63	48	66	41 761	34	31.66
1986 ASM	12 724	77	1 855	5.24	48	69	31 342	41	21.95
1985 ASM	12 194	78	1 844	5.26	49	71	28 928	42	20.00
1984 ASM	11 855	82	1 805	5.28	47	67	33 312	36	22.53
1983 ASM	11 058	81	1 739	4.88	46	66	31 708	35	22.51
1982 Census	10 312	82	1 726	4.58	46	66	26 870	38	19.02
1981 ASM	9 829	82	1 767	4.46	48	71	22 267	44	15.33
1980 ASM	9 123	82	1 748	4.25	48	71	20 842	44	14.63
1979 ASM	8 404	80	1 735	3.82	49	71	19 892	42	14.42
1978 ASM	8 080	80	1 781	3.55	47	69	19 601	41	13.70
1977 Census	7 466	80	1 776	3.30	49	71	17 693	42	12.39
	INDUSTRY 2353, HATS, CAPS, AND MILLINERY								
1992 Census	14 968	83	1 897	7.08	45	73	30 505	49	19.37
1991 ASM	14 352	86	1 912	6.05	43	72	28 635	50	17.51
1990 ASM	13 776	87	1 764	6.33	43	74	25 715	54	16.70
1989 ASM	13 150	86	1 761	6.12	43	72	26 181	50	17.24
1988 ASM	12 732	85	1 736	6.11	44	75	23 018	55	15.53
1987 Census	11 884	85	1 815	5.60	44	75	21 395	56	13.89
1986 ASM	11 709	84	1 765	5.37	47	74	22 652	52	15.21
1985 ASM	11 739	86	1 721	5.69	49	77	20 944	56	14.16
1984 ASM	10 755	88	1 810	5.01	47	75	19 587	55	12.24
1983 ASM	10 286	90	1 755	4.86	45	75	19 409	53	12.25
1982 Census	9 981	89	1 743	4.82	45	75	18 172	55	11.69
1981 ASM	8 750	89	1 751	4.08	47	75	17 405	50	11.23
1980 ASM	8 110	88	1 835	3.73	47	73	16 560	49	10.25
1978 ASM	7 506	88	1 849	3.45	51	80	12 795	59	7.87
1977 Census	6 974	88	1 789	3.32	50	79	12 285	57	7.79

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES								
1992 Census	15 178	80	1 902	6.49	49	72	34 161	44	22.40
1991 ASM	13 066	85	1 813	5.94	47	69	31 238	42	20.33
1990 ASM	12 783	83	1 806	5.80	48	69	31 166	41	20.68
1989 ASM	12 180	84	1 762	5.64	48	71	28 320	43	19.22
1988 ASM	12 457	82	1 823	5.70	49	71	28 758	43	19.24
1987 Census	11 340	85	1 718	5.71	48	72	25 579	44	17.56
1986 ASM	11 219	83	1 756	5.41	45	68	26 766	42	18.32
1985 ASM	10 933	84	1 664	5.52	46	69	25 416	43	18.29
1984 ASM	10 427	84	1 723	5.07	49	74	21 742	48	15.00
1983 ASM	9 503	86	1 777	4.25	48	72	21 192	45	13.90
1982 Census	9 477	86	1 775	4.52	47	72	19 785	48	12.97
1981 ASM	8 451	86	1 797	4.02	43	69	19 442	43	12.64
1980 ASM	7 789	86	1 754	3.75	44	74	14 954	52	9.95
1979 ASM	7 252	86	1 777	3.44	44	74	13 683	53	8.94
1978 ASM	7 003	87	1 763	3.42	46	73	13 423	52	8.78
1977 Census	6 489	86	1 727	3.23	47	75	12 631	51	8.47
	INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.								
1992 Census	14 014	83	1 837	6.26	44	71	28 810	49	18.80
1991 ASM	13 864	84	2 012	5.51	45	67	33 696	41	19.87
1990 ASM	13 818	83	2 136	5.31	42	65	35 796	39	20.17
1989 ASM	12 621	86	1 913	5.65	43	66	32 731	39	19.99
1988 ASM	11 680	85	1 841	5.45	47	70	26 763	44	17.16
1987 Census	11 652	85	1 787	5.69	47	68	29 248	40	19.25
1986 ASM	11 030	85	1 761	5.27	46	69	27 114	41	18.22
1985 ASM	10 732	86	1 772	5.13	45	69	23 846	45	15.68
1984 ASM	10 167	87	1 783	4.86	44	69	23 030	44	14.92
1983 ASM	9 446	82	1 806	4.53	44	69	21 292	44	14.34
1982 Census	9 315	85	1 801	4.52	46	70	20 769	45	13.59
1981 ASM	7 942	86	1 721	4.17	47	74	15 334	52	10.37
1980 ASM	7 541	83	1 789	3.83	45	70	16 507	46	11.08
1979 ASM	7 006	86	1 757	3.53	49	74	13 915	50	9.20
1978 ASM	6 632	89	1 771	3.26	48	74	13 571	49	8.64
1977 Census	6 408	86	1 789	3.25	50	76	12 072	53	7.89

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR														
United States	**E1**	**354**	**266**	**41.5**	**578.3**	**35.8**	**65.5**	**423.0**	**1 306.7**	**1 054.6**	**2 364.6**	**29.1**	**53.7**	**1 429.6**
Alabama	–	13	13	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Arizona	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	E1	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	8.8
California	–	40	25	2.0	37.2	1.5	3.1	20.2	87.9	86.8	177.4	(D)	2.1	98.8
Connecticut	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	12	9	1.5	18.4	1.4	2.3	14.5	43.3	24.4	66.0	.4	1.0	15.5
Georgia	E2	29	29	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Illinois	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E3	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	7	7	.8	12.6	.7	1.3	8.8	21.4	7.5	29.2	.2	F	(D)
Minnesota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Mississippi	E1	15	14	2.3	30.7	2.1	3.7	23.9	85.6	31.8	116.0	1.6	H	(D)
Missouri	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E4	20	11	.9	14.2	.8	1.5	10.8	18.0	11.4	29.3	(D)	1.8	40.5
New York	E2	55	25	2.8	45.4	2.1	3.6	24.4	133.5	134.1	268.8	1.9	4.1	169.0
North Carolina	–	31	26	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Oklahoma	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	E2	56	46	5.3	67.5	4.8	8.6	54.0	139.7	130.4	265.9	1.6	7.7	208.5
South Carolina	E2	8	8	1.4	17.0	1.3	2.2	13.7	28.2	19.6	47.6	(D)	F	(D)
Tennessee	–	10	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	19.5
Texas	E1	9	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	15.0
Virginia	E2	6	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	F	(D)
Wisconsin	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS														
United States	**E1**	**125**	**78**	**12.1**	**219.8**	**9.7**	**17.3**	**134.7**	**887.5**	**701.1**	**1 579.3**	**12.9**	**13.8**	**576.3**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	22	12	1.5	26.5	1.1	2.0	16.0	86.7	71.8	158.1	(D)	2.8	78.3
Connecticut	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E4	3	3	.3	4.5	.3	.6	3.6	8.3	5.4	13.7	.2	.5	8.3
Georgia	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	E3	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E4	5	4	.3	4.8	.3	.5	3.7	11.8	10.6	22.5	.2	F	(D)
New Jersey	–	12	8	1.5	37.7	1.2	2.1	15.0	119.1	115.6	237.5	(D)	1.6	79.7
New York	E3	41	19	2.9	59.8	2.4	4.4	39.1	262.1	161.3	422.5	2.5	2.3	148.7
North Carolina	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	7	7	1.1	15.2	1.0	1.4	12.6	35.6	15.1	50.5	.3	1.3	38.3
Tennessee	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2353, HATS, CAPS, AND MILLINERY														
United States	**–**	**370**	**170**	**18.8**	**281.4**	**15.6**	**29.6**	**209.7**	**573.5**	**436.3**	**978.4**	**21.5**	**17.2**	**368.0**
Arizona	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E2	36	13	1.1	12.7	.9	1.5	9.1	22.3	16.9	39.9	(D)	G	(D)
Colorado	E1	12	4	.6	5.4	.5	.6	4.2	18.6	5.9	24.1	(D)	C	(D)
Florida	E2	19	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Georgia	E2	13	12	1.0	10.1	.8	1.3	8.0	19.4	10.4	28.8	1.0	F	(D)
Illinois	–	6	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	6.9
Indiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	C	(D)
Iowa	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	E5	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	7	5	.5	8.7	.4	.8	5.8	10.4	13.7	24.0	.8	E	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	9	2	.1	1.8	.1	.2	1.3	4.8	2.9	7.7	(D)	C	(D)
Minnesota	–	4	3	.2	2.7	.2	.3	2.1	6.9	4.6	11.5	(D)	(NA)	(NA)
Mississippi	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	36	28	3.4	44.6	2.9	6.0	35.3	122.1	58.9	178.0	3.1	2.5	72.7
New Jersey	–	17	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
New York	–	95	24	2.7	45.6	2.3	4.3	33.5	102.2	89.5	173.2	3.8	H	(D)
North Carolina	–	7	5	.3	4.3	.3	.6	3.2	7.9	4.3	12.1	.2	(NA)	(NA)
Pennsylvania	–	15	8	1.6	35.6	1.4	2.8	26.9	67.5	37.3	102.9	2.6	1.2	30.7
Tennessee	–	10	6	.4	4.3	.3	.4	3.2	9.0	6.2	15.0	.6	E	(D)
Texas	–	22	14	1.6	24.9	1.4	3.2	19.1	55.1	49.0	98.3	2.0	1.9	34.7
Utah	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E1	10	6	.9	15.3	.8	1.6	11.5	19.0	41.8	59.8	(D)	F	(D)
Wisconsin	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES														
United States	**–**	**397**	**249**	**24.2**	**367.3**	**19.4**	**36.9**	**239.5**	**826.7**	**803.6**	**1 625.9**	**13.2**	**30.9**	**790.4**
Alabama	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	3	3	.3	3.9	.3	.6	3.3	8.9	5.8	14.1	(D)	(NA)	(NA)
California	–	77	42	3.5	69.4	2.9	5.7	44.5	128.0	195.9	321.8	1.8	G	(D)
Florida	E3	19	10	1.0	13.9	.9	1.6	9.3	23.7	27.9	50.9	.2	1.9	45.5
Georgia	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	18	10	.5	11.4	.3	.6	4.1	37.1	70.6	106.9	.8	1.2	28.4
New York	–	78	42	2.7	59.7	1.9	3.5	27.7	168.8	260.8	428.9	1.9	3.4	161.1
North Carolina	–	27	27	2.9	38.8	2.3	4.2	25.3	91.8	50.3	143.0	(D)	G	(D)
Ohio	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oklahoma	–	9	6	.6	6.1	.6	1.1	5.7	9.3	1.7	10.8	(D)	F	(D)
Pennsylvania	E2	47	35	2.9	41.4	2.5	4.8	31.2	65.8	55.1	124.4	1.7	4.8	103.1
Rhode Island	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	9	8	1.2	14.8	.9	1.7	9.5	23.8	20.0	43.8	.3	2.4	69.8
Tennessee	E1	9	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	21.8
Texas	E3	9	5	.7	8.2	.5	1.0	5.5	15.2	12.7	29.0	(D)	F	(D)
Utah	–	8	8	.8	8.7	.6	1.0	5.9	17.5	15.9	32.8	(D)	E	(D)
Virginia	E3	24	20	2.2	25.9	1.9	3.7	21.0	35.1	5.3	40.4	.4	G	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.														
United States	**E1**	**362**	**230**	**29.5**	**413.4**	**24.6**	**45.2**	**282.9**	**849.9**	**678.9**	**1 533.5**	**10.7**	**40.8**	**1 193.3**
Alabama	–	14	13	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
California	–	57	19	2.5	33.4	2.0	4.2	18.6	64.1	65.7	130.7	.7	G	(D)
Colorado	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	26	14	1.1	15.2	.9	1.5	9.3	32.9	25.3	57.4	.5	.9	30.2
Georgia	E3	16	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
Kansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E2	6	5	.4	7.5	.4	.7	6.1	13.7	8.8	22.7	(D)	E	(D)
Michigan	E2	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E2	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	7	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	17	8	.7	17.6	.5	.9	10.1	43.0	66.8	108.7	.4	1.3	52.2
New York	E1	50	24	1.5	31.6	1.1	2.1	18.4	64.1	94.1	159.6	.9	2.9	131.1
North Carolina	E2	38	33	3.6	46.0	3.2	6.2	34.9	61.7	38.9	102.9	(D)	5.5	142.1
Pennsylvania	E3	32	22	1.9	25.8	1.6	2.8	18.4	59.4	33.6	92.5	.1	2.1	47.6
South Carolina	–	9	8	.7	8.8	.6	1.2	6.2	17.1	9.8	26.8	(Z)	5.4	82.5
Tennessee	E1	9	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	73.8
Texas	E1	13	4	.3	2.7	.2	.4	2.2	4.1	2.2	6.3	(D)	G	(D)
Virginia	–	16	15	2.9	37.6	2.6	4.8	30.7	47.7	95.2	144.0	.8	H	(D)
Wisconsin	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's and children's underwear (SIC 2341)				Brassieres, girdles, and allied garments (SIC 2342)	Hats, caps, and millinery (SIC 2353)
	Total	Manufacturers (SIC 2341-11)	Jobbers (SIC 2341-22)	Contractors (SIC 2341-33)		
Companies ---- number	264	143	25	122	106	346
All establishments ---- number	354	189	25	140	125	370
With 1 to 19 employees ---- number	88	50	11	27	47	200
With 20 to 99 employees ---- number	132	48	11	73	44	121
With 100 employees or more ---- number	134	91	3	40	34	49
Employment and labor costs:						
Employees ---- 1,000	41.5	29.9	1.1	10.6	12.1	18.8
Compensation, total ---- mil dol	692.2	523.4	24.3	144.5	260.4	334.3
Annual payroll ---- mil dol	578.3	433.8	20.9	123.6	219.8	281.4
Fringe benefits ---- mil dol	113.9	89.5	3.5	20.9	40.6	52.9
Social Security and other legally required payments ---- mil dol	54.8	42.4	2.0	10.4	21.9	28.3
Employer voluntary payments ---- mil dol	59.1	47.1	1.5	10.5	18.7	24.7
Production workers:						
Average for year ---- 1,000	35.8	26.0	.6	9.2	9.7	15.6
March ---- 1,000	36.0	26.1	.5	9.4	9.7	15.0
May ---- 1,000	35.6	25.7	.6	9.3	9.5	15.5
August ---- 1,000	36.0	26.3	.6	9.2	9.7	16.1
November ---- 1,000	35.6	25.9	.6	9.2	9.8	15.8
Hours ---- millions	65.5	48.6	.9	16.0	17.3	29.6
Wages ---- mil dol	423.0	322.1	6.0	95.0	134.7	209.7
Cost of materials[1] ---- mil dol	1 054.6	869.2	133.0	52.5	701.1	436.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	830.1	721.6	70.3	38.2	552.1	353.4
Resales ---- mil dol	86.9	70.7	13.8	2.3	22.8	64.1
Fuels ---- mil dol	7.3	4.2	.3	2.7	1.2	4.1
Purchased electricity ---- mil dol	22.0	14.3	.8	6.9	5.9	6.8
Contract work ---- mil dol	108.3	58.4	47.7	2.3	119.1	7.8
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	326.9	220.0	8.7	98.1	75.1	107.5
Generated less sold ---- mil kWh	–	–	–	–	(D)	–
Total value of shipments ---- mil dol	2 364.6	1 881.8	247.6	235.2	1 579.3	978.4
Value added ---- mil dol	1 306.7	1 007.8	114.4	184.4	887.5	573.5
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	438.1	377.1	34.7	26.3	252.3	145.7
Finished goods ---- mil dol	185.1	166.8	16.2	2.1	120.1	57.8
Work in process ---- mil dol	77.6	64.0	8.0	5.6	54.0	23.1
Materials and supplies ---- mil dol	175.4	146.3	10.4	18.7	78.2	64.9
End of 1992 ---- mil dol	432.7	371.8	35.9	25.0	261.9	180.1
Finished goods ---- mil dol	183.2	162.5	17.0	3.8	126.9	82.8
Work in process ---- mil dol	76.1	63.5	7.0	5.6	56.5	29.6
Materials and supplies ---- mil dol	173.3	145.8	11.9	15.6	78.4	67.8

Item	Girls' and children's dresses and blouses (SIC 2361)				Girls' and children's outerwear, n.e.c. (SIC 2369)			
	Total	Manufacturers (SIC 2361-11)	Jobbers (SIC 2361-22)	Contractors (SIC 2361-33)	Total	Manufacturers (SIC 2369-11)	Jobbers (SIC 2369-22)	Contractors (SIC 2369-33)
Companies ---- number	364	147	52	174	323	147	32	150
All establishments ---- number	397	156	52	189	362	174	33	155
With 1 to 19 employees ---- number	148	66	26	56	132	62	19	51
With 20 to 99 employees ---- number	181	53	23	105	149	62	12	75
With 100 employees or more ---- number	68	37	3	28	81	50	2	29
Employment and labor costs:								
Employees ---- 1,000	24.2	11.9	1.8	10.6	29.5	18.7	1.0	9.8
Compensation, total ---- mil dol	432.8	223.7	62.0	147.2	498.6	333.9	28.2	136.5
Annual payroll ---- mil dol	367.3	189.6	52.8	124.8	413.4	273.8	24.1	115.5
Fringe benefits ---- mil dol	65.5	34.1	9.2	22.3	85.2	60.1	4.1	21.0
Social Security and other legally required payments ---- mil dol	35.7	19.1	4.6	12.1	43.0	30.1	1.8	11.1
Employer voluntary payments ---- mil dol	29.8	15.0	4.6	10.2	42.2	30.1	2.3	9.9
Production workers:								
Average for year ---- 1,000	19.4	9.2	.8	9.3	24.6	15.5	.5	8.7
March ---- 1,000	19.7	9.4	.8	9.4	25.3	15.9	.5	8.9
May ---- 1,000	19.5	9.4	.8	9.3	24.8	15.5	.5	8.8
August ---- 1,000	19.6	9.3	.8	9.4	24.5	15.5	.5	8.6
November ---- 1,000	18.8	8.9	.8	9.1	24.0	15.2	.5	8.4
Hours ---- millions	36.9	17.6	1.8	17.6	45.2	28.4	1.0	15.8
Wages ---- mil dol	239.5	125.7	15.4	98.4	282.9	185.2	6.9	90.8
Cost of materials[1] ---- mil dol	803.6	407.3	353.0	43.2	678.9	495.7	154.3	29.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	484.3	296.0	170.5	17.9	511.8	407.9	85.9	18.0
Resales ---- mil dol	50.1	14.9	24.0	11.3	20.6	17.3	3.3	(Z)
Fuels ---- mil dol	5.0	2.2	.8	2.0	6.6	3.7	.2	2.7
Purchased electricity ---- mil dol	14.7	8.3	1.2	5.2	17.0	10.1	.8	6.0
Contract work ---- mil dol	249.5	86.0	156.6	6.9	123.0	56.7	64.0	2.2
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	212.1	122.0	12.3	77.8	248.9	145.0	12.3	91.6
Generated less sold ---- mil kWh	(D)	–	–	(D)	–	–	–	–
Total value of shipments ---- mil dol	1 625.9	891.4	501.6	233.0	1 533.5	1 067.2	273.6	192.7
Value added ---- mil dol	826.7	492.1	145.7	188.9	849.9	571.2	116.2	162.4

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Girls' and children's dresses and blouses (SIC 2361)				Girls' and children's outerwear, n.e.c. (SIC 2369)			
	Total	Manufacturers (SIC 2361-11)	Jobbers (SIC 2361-22)	Contractors (SIC 2361-33)	Total	Manufacturers (SIC 2369-11)	Jobbers (SIC 2369-22)	Contractors (SIC 2369-33)
Inventories by stage of fabrication:								
Beginning of 1992 ---mil dol---	243.2	138.6	84.3	20.3	237.9	175.3	31.6	31.1
Finished goods ---mil dol---	90.8	55.8	31.9	3.2	69.0	52.2	13.9	2.9
Work in process ---mil dol---	56.5	28.1	24.8	3.5	72.1	58.9	6.6	6.5
Materials and supplies ---mil dol---	96.0	54.7	27.6	13.6	96.9	64.2	11.1	21.6
End of 1992 ---mil dol---	242.3	146.2	81.6	14.5	224.3	173.5	29.7	21.1
Finished goods ---mil dol---	94.9	61.3	31.1	2.5	71.9	56.4	12.3	3.2
Work in process ---mil dol---	56.8	30.6	22.8	3.4	64.5	54.4	5.1	4.9
Materials and supplies ---mil dol---	90.6	54.3	27.7	8.6	88.0	62.7	12.3	13.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's and children's underwear (SIC 2341)	Brassieres, girdles, and allied garments (SIC 2342)	Hats, caps, and millinery (SIC 2353)	Girls' and children's dresses and blouses (SIC 2361)	Girls' and children's outerwear, n.e.c. (SIC 2369)
Gross book value of depreciable assets:					
Total:					
Beginning of year	349.0	82.4	158.0	142.8	178.7
New capital expenditures[1]	29.1	12.9	21.5	13.2	10.7
Used capital expenditures	2.8	1.0	3.0	1.6	2.2
Retirements	18.3	4.2	7.1	5.6	7.8
End of year	362.7	92.1	175.5	152.0	183.8
Buildings and other structures:					
Beginning of year	114.8	21.5	57.7	41.4	54.3
New capital expenditures	3.7	3.2	6.2	2.8	1.9
Used capital expenditures	.9	.4	1.3	.4	.1
Retirements	1.9	.1	.6	.5	2.0
End of year	117.5	25.0	64.6	44.1	54.2
Machinery and equipment:					
Beginning of year	234.2	60.9	100.3	101.4	124.4
New capital expenditures[1]	25.4	9.7	15.4	10.4	8.9
Used capital expenditures	2.0	.7	1.7	1.2	2.1
Retirements	16.4	4.1	6.5	5.0	5.8
End of year	245.2	67.2	110.9	107.9	129.6
Depreciation charges during 1992:					
Total	27.4	11.4	15.0	21.0	17.9
Buildings and other structures	5.3	2.0	2.8	4.0	3.7
Machinery and equipment	22.1	9.5	12.2	17.0	14.2
Rental payments:					
Total	23.5	24.0	14.4	26.6	21.8
Buildings and other structures	17.1	20.2	8.5	17.1	14.6
Machinery and equipment	6.5	3.8	5.9	9.5	7.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Women's and children's underwear (SIC 2341)		Brassieres, girdles, and allied garments (SIC 2342)		Hats, caps, and millinery (SIC 2353)		Girls' and children's dresses and blouses (SIC 2361)		Girls' and children's outerwear, n.e.c. (SIC 2369)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.2	(X)	.1	(X)	1.9	(X)	3.3	(X)	1.6	(X)
Response coverage ratio (percent)[2]	69.9	(X)	66.3	(X)	66.6	(X)	60.8	(X)	75.6	(X)
Machinery	2.7	(X)	.5	(X)	3.2	(X)	3.5	(X)	2.6	(X)
Response coverage ratio (percent)[2]	75.2	(X)	66.3	(X)	66.6	(X)	68.6	(X)	76.1	(X)
Other purchased services:										
Communications	3.1	(X)	1.1	(X)	1.8	(X)	12.7	(X)	1.4	(X)
Response coverage ratio (percent)[2]	68.4	(X)	61.3	(X)	77.1	(X)	59.9	(X)	69.0	(X)
Legal	1.3	(X)	.1	(X)	5.0	(X)	1.3	(X)	.7	(X)
Response coverage ratio (percent)[2]	73.8	(X)	66.3	(X)	76.4	(X)	68.3	(X)	57.8	(X)
Accounting and bookkeeping	7.6	(X)	.4	(X)	1.2	(X)	4.1	(X)	.8	(X)
Response coverage ratio (percent)[2]	74.5	(X)	66.3	(X)	77.1	(X)	67.5	(X)	71.4	(X)
Advertising	4.6	(X)	2.1	(X)	1.9	(X)	4.0	(X)	1.9	(X)
Response coverage ratio (percent)[2]	74.5	(X)	66.3	(X)	76.4	(X)	64.2	(X)	69.5	(X)
Software and other data processing	1.1	(X)	1.0	(X)	.7	(X)	2.0	(X)	.4	(X)
Response coverage ratio (percent)[2]	74.5	(X)	66.3	(X)	74.9	(X)	62.3	(X)	70.5	(X)
Refuse removal, including hazardous waste	.6	(X)	.2	(X)	.5	(X)	.4	(X)	.7	(X)
Response coverage ratio (percent)[2]	72.1	(X)	62.8	(X)	77.1	(X)	66.3	(X)	73.6	(X)
New machinery and equipment expenditures	25.4	(X)	9.7	(X)	15.4	(X)	10.4	(X)	8.9	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	(S)	(X)	.1	20	.6	11	.1	58
Computers and peripheral data processing equipment	(S)	(X)	(S)	(X)	3.1	5	2.6	17	1.7	19
All other	(S)	(X)	(S)	(X)	12.1	2	7.2	7	7.1	5
Adjustment ratio[3]	(S)	(X)	(S)	(X)	1.6	(X)	1.4	(X)	.9	(X)
Cost of materials, components, parts, etc., used	830.1	(X)	552.1	(X)	353.4	(X)	484.3	(X)	511.8	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	(S)	(X)	17.8	25	(S)	(X)	3.2	32
Materials purchased or transferred from domestic sources	(S)	(X)	(S)	(X)	335.6	2	(S)	(X)	508.6	1
Adjustment ratio[3]	(S)	(X)	(S)	(X)	1.9	(X)	(S)	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR												
Total	**E1**	**354**	**41.5**	**578.3**	**35.8**	**65.5**	**423.0**	**1 306.7**	**1 054.6**	**2 364.6**	**29.1**	**432.7**
Establishments with an average of–												
1 to 4 employees	E5	36	.1	1.3	.1	.1	.9	4.3	1.5	5.9	(Z)	1.1
5 to 9 employees	E1	22	.1	3.3	.1	.2	1.5	10.0	20.7	30.5	.1	6.2
10 to 19 employees	E2	30	.4	7.9	.3	.5	3.7	25.1	20.0	44.7	.2	8.6
20 to 49 employees	–	75	2.6	33.7	2.0	3.4	21.4	83.1	95.5	183.5	1.2	28.1
50 to 99 employees	–	57	3.8	55.6	3.1	5.4	33.7	107.6	86.5	194.8	1.1	31.3
100 to 249 employees	E1	85	13.0	171.8	11.2	20.4	127.9	346.0	286.0	629.5	5.5	123.0
250 to 499 employees	E1	38	13.3	178.4	11.9	22.3	140.9	423.9	287.5	707.5	7.7	122.7
500 to 999 employees	–	10	8.2	126.3	7.1	13.3	92.8	306.6	256.9	568.3	13.4	111.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	57	.6	6.9	.6	.8	5.2	11.2	5.3	16.5	.1	3.9
INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS												
Total	**E1**	**125**	**12.1**	**219.8**	**9.7**	**17.3**	**134.7**	**887.5**	**701.1**	**1 579.3**	**12.9**	**261.9**
Establishments with an average of–												
1 to 4 employees	E9	17	(Z)	.8	(Z)	.1	.6	2.3	2.2	4.5	(Z)	1.0
5 to 9 employees	E6	12	.1	1.5	.1	.1	.9	2.9	3.4	6.1	(Z)	1.5
10 to 19 employees	E6	18	.3	5.3	.2	.4	3.3	12.5	12.0	24.4	.1	5.4
20 to 49 employees	E5	24	.8	10.8	.7	1.1	8.3	22.4	18.5	40.7	.2	8.5
50 to 99 employees	E2	20	1.4	21.9	1.1	1.9	14.2	47.2	67.7	113.5	.8	19.5
100 to 249 employees	–	18	2.8	46.2	2.4	4.5	31.7	119.6	81.1	199.0	1.6	31.7
250 to 499 employees	–	11	3.7	56.1	3.0	5.2	37.9	368.1	288.8	654.1	6.6	82.4
500 to 999 employees	E1	5	3.0	77.2	2.2	4.0	37.9	312.6	227.4	537.0	3.5	111.8
Covered by administrative records[2]	E9	37	.3	3.5	.3	.4	2.6	8.3	7.9	16.2	.1	3.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2353, HATS, CAPS, AND MILLINERY												
Total	**–**	**370**	**18.8**	**281.4**	**15.6**	**29.6**	**209.7**	**573.5**	**436.3**	**978.4**	**21.5**	**180.1**
Establishments with an average of—												
1 to 4 employees	E7	89	.2	2.3	.1	.2	1.7	4.6	3.7	8.3	.1	1.4
5 to 9 employees	E3	51	.4	5.9	.3	.5	4.2	12.7	8.3	21.0	.3	3.2
10 to 19 employees	E1	60	.8	12.0	.7	1.2	8.7	24.4	21.1	43.9	.5	10.1
20 to 49 employees	–	75	2.4	36.7	2.0	3.6	25.6	72.9	53.8	126.8	1.5	19.5
50 to 99 employees	E1	46	3.2	45.8	2.7	4.9	31.0	82.7	49.8	132.2	3.7	19.5
100 to 249 employees	–	35	5.1	69.2	4.3	8.3	54.7	128.8	118.2	242.1	4.1	35.5
250 to 499 employees	–	11	3.5	48.0	3.0	6.0	37.9	137.4	83.1	211.8	3.4	37.0
500 to 999 employees	–	2	3.3	61.5	2.5	4.8	46.0	110.1	98.3	192.2	7.8	53.9
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	94	.3	3.2	.2	.4	2.4	6.3	4.1	10.5	.2	1.7
INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES												
Total	**–**	**397**	**24.2**	**367.3**	**19.4**	**36.9**	**239.5**	**826.7**	**803.6**	**1 625.9**	**13.2**	**242.3**
Establishments with an average of—												
1 to 4 employees	E3	58	.1	1.9	.1	.2	1.0	7.0	9.2	16.0	.1	2.5
5 to 9 employees	–	47	.3	6.4	.2	.5	3.5	19.8	20.3	40.4	.2	9.4
10 to 19 employees	E1	43	.6	10.4	.4	.8	5.6	37.7	34.1	71.3	.3	9.9
20 to 49 employees	E1	98	3.2	48.1	2.5	4.4	29.6	126.3	133.4	259.6	2.2	42.2
50 to 99 employees	E1	83	5.8	87.2	4.7	8.6	53.9	160.4	182.9	342.2	2.8	47.4
100 to 249 employees	–	51	8.0	117.2	6.4	12.4	80.0	231.2	236.3	463.6	4.2	78.5
250 to 499 employees	–	15	6.1	96.0	5.0	10.1	66.0	244.3	187.4	432.7	3.5	52.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	59	.2	2.1	.2	.3	1.5	5.7	2.7	8.4	.1	1.5
INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.												
Total	**E1**	**362**	**29.5**	**413.4**	**24.6**	**45.2**	**282.9**	**849.9**	**678.9**	**1 533.5**	**10.7**	**224.3**
Establishments with an average of—												
1 to 4 employees	E3	58	.1	1.9	.1	.1	1.1	4.7	6.7	11.4	(Z)	.8
5 to 9 employees	E1	39	.3	5.7	.2	.3	2.3	13.5	24.5	37.8	.3	6.4
10 to 19 employees	E2	35	.5	7.1	.4	.7	4.5	16.2	12.8	28.8	.2	4.5
20 to 49 employees	E1	84	2.7	43.6	2.1	3.9	28.7	83.9	79.4	163.5	1.1	32.8
50 to 99 employees	–	65	4.8	68.2	4.0	7.3	45.9	159.6	167.9	328.1	1.4	31.5
100 to 249 employees	E1	52	8.2	108.6	6.9	12.8	80.3	181.5	125.8	310.9	3.4	62.6
250 to 499 employees	–	22	7.7	111.6	6.4	12.0	76.0	249.2	164.2	417.1	3.0	44.7
500 to 999 employees	E2	6	5.3	66.8	4.5	8.0	44.2	141.4	97.7	236.0	1.3	41.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	83	.6	5.9	.5	.8	4.0	8.1	5.0	13.1	.1	1.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2341	**Women's and children's underwear:**										
	All establishments in industry	354	41.5	578.3	35.8	65.5	423.0	1 306.7	1 054.6	2 364.6	29.1
	Establishments with this product class primary:										
23412	Women's, children's, and infants' underwear	72	17.2	245.0	15.2	28.3	190.7	639.4	442.5	1 078.9	17.4
23413	Women's, children's, and infants' nightwear	89	13.0	199.9	10.7	20.2	130.5	460.8	543.5	1 012.9	9.0
23419	Receipts for contract and commission work on women's and children's underwear and nightwear	139	10.6	123.5	9.2	16.0	94.9	184.5	52.0	234.7	2.5

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2342	**Brassieres, girdles, and allied garments:**										
	All establishments in industry	125	12.1	219.8	9.7	17.3	134.7	887.5	701.1	1 579.3	12.9
	Establishments with this product class primary:										
23421	Brassieres	45	7.0	141.2	5.3	9.8	74.7	577.2	583.8	1 153.8	11.1
23422	Corsets, girdles, combinations, and accessories	20	3.6	56.4	3.1	5.1	43.6	269.6	88.7	356.2	1.1
23429	Receipts for contract and commission work on brassieres, corsets, and allied garments	9	.7	10.2	.6	1.0	7.9	15.7	8.0	23.3	(D)
2353	**Hats, caps, and millinery:**										
	All establishments in industry	370	18.8	281.4	15.6	29.6	209.7	573.5	436.3	978.4	21.5
	Establishments with this product class primary:										
23531	Hats and hat bodies, except cloth and millinery	33	2.9	53.1	2.5	5.1	42.6	105.6	94.3	192.4	3.8
23532	Cloth hats and caps	124	12.0	168.0	9.9	18.7	124.6	349.4	249.6	577.2	15.6
23533	Millinery (women's, children's, and infants' trimmed hats made from hat bodies or other millinery materials)	42	1.4	24.5	1.1	2.1	15.8	50.7	49.4	97.6	.5
2361	**Girls' and children's dresses and blouses:**										
	All establishments in industry	397	24.2	367.3	19.4	36.9	239.5	826.7	803.6	1 625.9	13.2
	Establishments with this product class primary:										
23613	Girls', children's, and infants' knit blouses and shirts	38	5.7	100.4	4.4	8.5	61.3	318.9	302.5	617.1	5.8
23614	Girls', children's, and infants' woven blouses and shirts	13	.9	20.3	.6	1.2	9.4	47.7	103.0	150.7	.4
23615	Girls', children's, and infants' dresses	98	6.3	111.7	4.4	8.4	64.0	252.9	340.6	592.7	4.1
23619	Receipts for contract and commission work on girls', children's, and infants' dresses, blouses, and shirts	169	10.4	122.3	9.2	17.2	97.0	185.9	42.7	229.4	2.4
2369	**Girls' and children's outerwear, n.e.c.:**										
	All establishments in industry	362	29.5	413.4	24.6	45.2	282.9	849.9	678.9	1 533.5	10.7
	Establishments with this product class primary:										
23692	Girls', children's, and infants' coats, jackets, suits, snowsuits, and coat-and-legging sets	17	1.3	25.3	.9	1.7	13.5	53.3	36.7	89.9	.6
23693	Girls', children's, and infants' play garments and sweaters	121	17.6	262.6	14.4	26.4	171.9	614.3	602.1	1 219.9	8.1
23699	Receipts for contract and commission work on girls', children's, and infants' outerwear, n.e.c.	130	9.4	112.6	8.4	15.4	88.7	159.4	27.3	188.0	1.8

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR			
Total value of shipments	2 364.6	2 658.3	2 602.4
Primary products value of shipments	1 916.9	2 287.2	2 277.1
Secondary products value of shipments	333.9	314.2	218.5
Total miscellaneous receipts	113.9	57.0	106.8
Value of resales	113.9	52.9	81.7
Contract receipts	–	3.0	23.2
Other miscellaneous receipts	–	1.0	1.9
Primary products specialization ratio	85	88	91
Value of primary products shipments made in all industries	2 232.1	2 591.4	2 356.3
Value of primary products shipments made in this industry	1 916.9	2 287.2	2 277.1
Value of primary products shipments made in other industries	315.3	304.2	79.2
Coverage ratio	86	88	97
INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS			
Total value of shipments	1 579.3	1 079.9	720.3
Primary products value of shipments	1 431.2	892.3	615.1
Secondary products value of shipments	111.9	136.1	45.2
Total miscellaneous receipts	36.3	51.5	60.1
Value of resales	(D)	51.5	58.1
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	93	87	93
Value of primary products shipments made in all industries	1 587.6	983.1	666.7
Value of primary products shipments made in this industry	1 431.2	892.3	615.1
Value of primary products shipments made in other industries	156.4	90.8	51.6
Coverage ratio	90	91	92

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2353, HATS, CAPS, AND MILLINERY			
Total value of shipments	978.4	662.7	522.3
Primary products value of shipments	855.7	598.5	(NA)
Secondary products value of shipments	20.7	27.0	(NA)
Total miscellaneous receipts	102.0	37.1	(NA)
Value of resales	83.4	28.9	(NA)
Contract receipts	17.5	7.0	(NA)
Other miscellaneous receipts	1.1	1.2	(NA)
Primary products specialization ratio	98	96	(NA)
Value of primary products shipments made in all industries	867.1	604.1	504.5
Value of primary products shipments made in this industry	855.7	598.5	(NA)
Value of primary products shipments made in other industries	11.4	5.6	(NA)
Coverage ratio	99	99	(NA)
INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES			
Total value of shipments	1 625.9	1 518.6	1 417.7
Primary products value of shipments	1 261.2	1 257.0	1 253.7
Secondary products value of shipments	313.9	250.0	142.9
Total miscellaneous receipts	50.9	11.7	21.1
Value of resales	50.4	11.7	6.4
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	80	83	90
Value of primary products shipments made in all industries	1 726.2	1 607.5	1 443.2
Value of primary products shipments made in this industry	1 261.2	1 257.0	1 253.7
Value of primary products shipments made in other industries	465.0	350.5	189.5
Coverage ratio	73	78	87
INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.			
Total value of shipments	1 533.5	2 234.5	1 295.5
Primary products value of shipments	1 217.9	1 615.1	(NA)
Secondary products value of shipments	287.8	595.6	(NA)
Total miscellaneous receipts	27.7	23.7	(NA)
Value of resales	26.4	22.6	(NA)
Contract receipts	1.0	(D)	(NA)
Other miscellaneous receipts	.3	(D)	(NA)
Primary products specialization ratio	81	73	(NA)
Value of primary products shipments made in all industries	1 789.7	1 959.8	1 407.2
Value of primary products shipments made in this industry	1 217.9	1 615.1	(NA)
Value of primary products shipments made in other industries	571.8	344.7	(NA)
Coverage ratio	68	82	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2341– —	**WOMEN'S, CHILDREN'S, AND INFANTS' UNDERWEAR AND NIGHTWEAR**				
	Total	**(NA)**	**2 232.1**	**(NA)**	**2 591.4**
23412	Women's, children's, and infants' underwear	(NA)	997.0	(NA)	1 019.2
23412 00	Women's, children's, and infants' underwear, except brassieres, corsets, and girdles, (including slips, teddies, etc.)[3 4]	76	997.0	112	1 019.2
23413	Women's, children's, and infants' nightwear	(NA)	955.7	(NA)	1 180.0
23413 00	Women's, children's, infants' nightwear (including pajamas, gowns, etc.) except robes intended for separate sale[3 4]	93	955.7	124	1 180.0
23419	Receipts for contract and commission work on women's and children's underwear and nightwear[5]	(NA)	240.4	(NA)	322.6
23419 00	Receipts for contract and commission work on women's and children's underwear and nightwear	115	236.5	118	314.9
23419 02	Receipts for contract and commission work on women's and children's underwear and nightwear, n.s.k.	8	3.9	(NA)	7.7
23410	Women's, children's, and infants' underwear and nightwear, n.s.k.	(NA)	39.0	(NA)	69.6
23410 00	Women's, children's, and infants' underwear and nightwear, n.s.k.[6]	(NA)	29.3	(NA)	7.3
23410 02	Women's, children's, and infants' underwear and nightwear, n.s.k.[7]	(NA)	9.7	(NA)	62.3
2342– —	**BRASSIERES, GIRDLES, AND ALLIED GARMENTS**				
	Total	**(NA)**	**1 587.6**	**(NA)**	**983.1**
23421	Brassieres	(NA)	1 185.3	(NA)	713.5
23421 00	Brassieres (including maternity), bra-lettes, and bandeaux[3]	49	1 185.3	54	713.5
23422	Corsets, girdles, combinations, and accessories	(NA)	335.2	(NA)	143.1
23422 10	Corsets, girdles (including maternity and panty girdles, and combinations), except surgical corsets[3]	27	335.2	(NA)	143.1
23422 81	Corset accessories (clasps, stays, etc.)	(NA)	–		
23422 00	Corsets, girdles, combinations, and accessories, n.s.k.	(NA)	–	(NA)	–
23429	Receipts for contract and commission work on brassieres, corsets, and allied garments	(NA)	22.3	(NA)	74.2
23429 00	Receipts for contract and commission work on brassieres, corsets, and allied garments[8]	8	22.3	16	74.2
23420	Brassieres, girdles, and allied garments, n.s.k.	(NA)	44.7	(NA)	52.2
23420 00	Brassieres, girdles, and allied garments, n.s.k.[9]	(NA)	28.5	(NA)	32.5
23420 02	Brassieres, girdles, and allied garments, n.s.k.[10]	(NA)	16.2	(NA)	19.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2353– —	**HATS, CAPS, AND MILLINERY**						
	Total	**(NA)**	**(X)**	**867.1**	**(NA)**	**(X)**	**604.1**
23531	Hats and hat bodies, except cloth and millinery	(NA)	(X)	178.6	(NA)	(X)	78.7
23531 01	Finished straw hats, except harvest hats, men's and boys' 1,000 dozen	28	*343.8	55.9	20	236.6	28.3
23531 03	Wool-felt finished hats, excluding millinery 1,000 dozen	14	309.2	34.7	14	401.0	23.8
23531 05	Fur-felt finished hats, excluding millinery 1,000 dozen	11	102.2	44.5	12	63.1	14.1
23531 09	Hat bodies, except hat bodies finished into hats or millinery in the same plant 1,000 dozen	8	**619.4	43.5	4	250.1	12.5
23531 00	Hats and hat bodies, except cloth and millinery, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
23532	Cloth hats and caps	(NA)	(X)	489.9	(NA)	(X)	307.9
	Men's and boys' hats and caps:						
23532 01	Cloth hats, except uniform 1,000 dozen	34	(S)	73.1	22	1 748.1	63.9
23532 03	Caps, except uniform 1,000 dozen	62	*7 944.8	337.4	54	*7 544.6	184.9
23532 05	Uniform hats and caps 1,000 dozen	30	(S)	44.0	21	(S)	34.3
23532 09	All other hats and caps; harvest hats, women's uniform hats and caps, headwear made from purchased knit fabrics, etc. 1,000 dozen	16	**772.5	25.7	18	(S)	23.1
23532 00	Cloth hats and caps, n.s.k.	(NA)	(X)	9.7	(NA)	(X)	1.6

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2353– —	**HATS, CAPS, AND MILLINERY**—Con.						
23533	Millinery (women's, children's, and infants' trimmed hats made from hat bodies or other millinery materials)	(NA)	(X)	94.6	(NA)	(X)	105.5
23533 01	Fur-felt and wool-felt millinery ---- 1,000 dozen	20	258.3	31.8	17	*248.6	21.2
23533 03	Fabrics millinery, made from all types of fabrics (including ribbon and pile fabrics) ---- 1,000 dozen	15	(S)	28.4	21	(S)	29.2
23533 09	All other millinery, including flowered millinery, straw (natural or synthetic), whimseys, miniatures, and hat frames ---- 1,000 dozen	25	(S)	31.2	24	*828.2	35.6
23533 00	Millinery (women's, children's, and infants' trimmed hats made from hat bodies or other millinery materials), n.s.k.	(NA)	(X)	3.3	(NA)	(X)	19.5
23530	Hats, caps, and millinery, n.s.k.	(NA)	(X)	103.9	(NA)	(X)	112.0
23530 00	Hats, caps, and millinery, n.s.k.[11]	(NA)	(X)	93.0	(NA)	(X)	87.2
23530 02	Hats, caps, and millinery, n.s.k.[12]	(NA)	(X)	10.9	(NA)	(X)	24.8

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2361– —	**GIRLS', CHILDREN'S, AND INFANTS' DRESSES, BLOUSES, AND SHIRTS**				
	Total	**(NA)**	**1 726.2**	**(NA)**	**1 607.5**
23613	Girls', children's, and infants' knit blouses and shirts	(NA)	635.0	(NA)	557.9
23613 00	Girls', children's, and infants' knit blouses and shirts (polo, tennis, tank, sweat, T-shirts for outerwear, etc.)[3 4]	108	635.0	106	557.9
23614	Girls', children's, and infants' woven blouses and shirts	(NA)	218.5	(NA)	187.9
23614 00	Girls', children's, and infants' woven blouses and shirts[3]	56	218.5	89	187.9
23615	Girls', children's, and infants' dresses	(NA)	615.1	(NA)	572.3
23615 00	Girls', children's, and infants' dresses[3]	143	615.1	157	572.3
23619	Receipts for contract and commission work on girls', children's, and infants' dresses, blouses, and shirts[5]	(NA)	229.4	(NA)	225.8
23619 00	Receipts for contract and commission work on girls', children's, and infants' dresses, blouses, and shirts	174	228.6	185	223.0
23619 02	Receipts for contract and commission work on girls', children's, and infants' dresses, blouses, and shirts, n.s.k.	3	.8	(NA)	2.8
23610	Girls', children's, and infants' dresses, blouses, and shirts, n.s.k.	(NA)	28.3	(NA)	63.5
23610 00	Girls', children's, and infants' dresses, blouses, and shirts, n.s.k.[11]	(NA)	21.8	(NA)	39.5
23610 02	Girls', children's, and infants' dresses, blouses, and shirts, n.s.k.[12]	(NA)	6.5	(NA)	24.1
2369– —	**GIRLS', CHILDREN'S, AND INFANTS' OTHER OUTERWEAR, N.E.C.**				
	Total	**(NA)**	**1 789.7**	**(NA)**	**1 959.8**
23692	Girls', children's, and infants' coats, jackets, suits, snowsuits, and coat-and-legging sets	(NA)	105.1	(NA)	142.6
23692 00	Coats, jackets, suits, snowsuits, and coat-and-legging sets, excluding raincoats and wash suits[3]	42	105.1	37	142.6
23693	Girls', children's, and infants' play garments and sweaters	(NA)	1 460.3	(NA)	1 519.7
23693 40	Play garments (including playsuits, playshorts, dungarees, jeans, slacks, halter tops, creepers, rompers, and overalls)[3]	135	1 190.1	138	1 130.6
23693 70	Sweaters (including sweater vests)[3 4]	14	29.8	18	40.0
23693 80	Robes and dressing gowns[3]	12	9.1	12	24.8
23693 93	Other outerwear (neckwear, headwear, swimwear, skirts, leotards, sweatpants, etc.)[3]	67	210.0	80	324.1
23693 00	Girls', children's, and infants' play garments and sweaters, n.s.k.	(NA)	21.3	(NA)	–
23699	Receipts for contract and commission work on girls', children's, and infants' outerwear, n.e.c.[5]	(NA)	189.1	(NA)	229.4
23699 00	Receipts for contract and commission work on girls', children's, and infants' outerwear, n.e.c.	141	187.0	111	227.4
23699 02	Receipts for contract and commission work on girls', children's, and infants' outerwear, n.e.c., n.s.k.	10	2.1	(NA)	2.0
23690	Girls', children's, and infants' other outerwear, n.e.c., n.s.k.	(NA)	35.2	(NA)	68.2
23690 00	Girls', children's, and infants' other outerwear, n.e.c., n.s.k.[9]	(NA)	24.8	(NA)	47.1
23690 02	Girls', children's, and infants' other outerwear, n.e.c., n.s.k.[10]	(NA)	10.3	(NA)	21.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]This product code is primary to more than one industry.
[5]Data for this product class represent value of receipts rather than value of shipments.
[6]Typically for establishments with 25 employees or more.
[7]Typically for establishments with less than 25 employees.
[8]Data for this product code represent value of receipts rather than value of shipments.
[9]Typically for establishments with 15 employees or more.
[10]Typically for establishments with less than 15 employees.
[11]Typically for establishments with 5 employees or more.
[12]Typically for establishments with less than 5 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Girls', children's, and infants' sweaters	(NA)	55.6	(NA)	99.1
22536 00	Made in knitting mills	11	25.8	19	59.1
23693 70	Made in cut-and-sew shops	14	29.8	18	40.0
	Girls', children's, and infants' knit shirts and blouses	(NA)	699.0	(NA)	608.9
2253C 00	Made in knitting mills	9	64.0	8	51.0
23613 00	Made in cut-and-sew shops	108	635.0	106	557.9
	Women's and children's knit underwear and nightwear	(NA)	2 396.9	(NA)	2 452.5
22544	Made in knitting mills	(NA)	405.2	(NA)	183.6
	Made in cut-and-sew shops	(NA)	1 991.7	(NA)	2 268.9
	Underwear	(NA)	1 348.4	(NA)	1 161.6
22544 11	Made in knitting mills	31	351.4	25	142.4
23412 00	Made in cut-and-sew shops	76	997.0	112	1 019.2
	Nightwear	(NA)	1 009.5	(NA)	1 221.2
22544 13	Made in knitting mills	13	53.8	11	41.2
23413 00	Made in cut-and-sew shops	93	955.7	124	1 180.0
	Women's and childrens knit underwear and nightwear, n.s.k.	(NA)	39.0	(NA)	69.6
22544 00	Made in knitting mills	(NA)	–	(NA)	–
23410 00	Made in cut-and-sew shops	(NA)	29.3	(NA)	7.3
23410 02	Made in cut-and-sew shops	(NA)	9.7	(NA)	62.3

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23412, WOMEN'S, CHILDREN'S, AND INFANTS' UNDERWEAR			**23413, WOMEN'S, CHILDREN'S, AND INFANTS' NIGHTWEAR**		
United States	**997.0**	**1 019.2**	**United States**	**955.7**	**1 180.0**
			Alabama	96.9	(NA)
			California	106.8	92.7
California	40.0	79.1	Florida	21.3	(NA)
Georgia	167.7	158.0	Georgia	58.2	45.4
New York	28.8	106.4	Mississippi	45.2	(NA)
North Carolina	83.7	139.7	New Jersey	5.6	21.2
Pennsylvania	100.5	81.3	New York	207.3	220.7
South Carolina	12.3	11.6	North Carolina	89.7	168.5
Texas	27.6	24.4	Pennsylvania	49.8	119.8

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23413, WOMEN'S, CHILDREN'S, AND INFANTS' NIGHTWEAR—Con.		
South Carolina	27.2	23.9
Texas	61.4	78.0
23419, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON WOMEN'S AND CHILDREN'S UNDERWEAR AND NIGHTWEAR		
United States	**240.4**	**322.6**
Alabama	3.6	(NA)
California	7.3	3.6
Florida	9.8	11.2
Georgia	37.5	16.5
Massachusetts	13.9	13.2
Mississippi	15.0	(NA)
Missouri	2.9	5.9
New Jersey	16.9	19.1
New York	16.6	11.3
North Carolina	11.3	32.0
Pennsylvania	65.8	78.5
South Carolina	11.3	9.1
Tennessee	4.6	7.5
Virginia	9.3	(NA)
23421, BRASSIERES		
United States	**1 185.3**	**713.5**
Florida	19.4	(NA)
New Jersey	157.9	114.4
New York	223.3	193.1
Pennsylvania	31.6	12.1
23422, CORSETS, GIRDLES, COMBINATIONS, AND ACCESSORIES		
United States	**335.2**	**143.1**
New York	131.5	29.0
Pennsylvania	15.1	33.6
23429, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON BRASSIERES, CORSETS, AND ALLIED GARMENTS		
United States	**22.3**	**74.2**
23531, HATS AND HAT BODIES, EXCEPT CLOTH AND MILLINERY		
United States	**178.6**	**78.7**
California	2.8	8.0
Missouri	33.4	16.7
New Jersey	8.6	(NA)
New York	6.8	2.6
Texas	57.6	18.3
23532, CLOTH HATS AND CAPS		
United States	**489.9**	**307.9**
California	16.1	18.5
Florida	7.4	6.1
Georgia	25.0	10.4
Kentucky	9.3	10.0
Missouri	138.4	79.2
New York	85.3	34.7
North Carolina	9.2	(NA)
Pennsylvania	10.7	9.2
Tennessee	7.1	(NA)
Texas	27.1	29.6
Virginia	26.7	10.8
23533, MILLINERY (WOMEN'S, CHILDREN'S, AND INFANTS' TRIMMED HATS MADE FROM HAT BODIES OR OTHER MILLINERY MATERIALS)		
United States	**94.6**	**105.5**
California	9.3	6.9
New York	39.3	59.6
23613, GIRLS', CHILDREN'S, AND INFANTS' KNIT BLOUSES AND SHIRTS		
United States	**635.0**	**557.9**
California	93.4	29.6
Florida	7.0	16.4
Georgia	9.1	27.1
New Jersey	40.2	8.3
New York	144.0	84.9
Pennsylvania	48.3	25.8
23614, GIRLS', CHILDREN'S, AND INFANTS' WOVEN BLOUSES AND SHIRTS		
United States	**218.5**	**187.9**
California	96.3	48.2
New York	55.5	46.8
Ohio	2.0	(NA)
Pennsylvania	4.8	12.4
23615, GIRLS', CHILDREN'S, AND INFANTS' DRESSES		
United States	**615.1**	**572.3**
California	146.1	97.8
Florida	33.3	25.9
New Jersey	42.2	37.9
New York	178.7	217.3
North Carolina	32.3	(NA)
Pennsylvania	52.7	90.0
Texas	20.0	16.1
23619, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON GIRLS', CHILDREN'S, AND INFANTS' DRESSES, BLOUSES, AND SHIRTS		
United States	**229.4**	**225.8**
California	49.5	9.3
Florida	6.7	9.5
Mississippi	3.7	3.9
New Jersey	4.9	9.9
New York	13.1	13.1
North Carolina	22.5	21.5
Pennsylvania	29.2	40.7
South Carolina	11.1	32.6
Virginia	30.7	29.6
23692, GIRLS', CHILDREN'S, AND INFANTS' COATS, JACKETS, SUITS, SNOWSUITS, AND COAT-AND-LEGGING SETS		
United States	**105.1**	**142.6**
California	24.8	11.5
New York	24.4	39.6
23693, GIRLS', CHILDREN'S, AND INFANTS' PLAY GARMENTS AND SWEATERS		
United States	**1 460.3**	**1 519.7**
Alabama	155.4	78.0
California	223.1	126.9
Florida	45.7	56.5
Georgia	40.9	106.1
Louisiana	18.5	(NA)
Mississippi	53.0	(NA)
Missouri	14.9	(NA)
New Jersey	116.0	101.9
New York	158.1	247.6
North Carolina	109.4	126.8
Pennsylvania	69.2	54.9
Virginia	118.5	97.1
23699, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON GIRLS', CHILDREN'S, AND INFANTS' OUTERWEAR, N.E.C.		
United States	**189.1**	**229.4**
Alabama	29.1	23.4
California	11.5	15.9
Florida	6.0	2.6
Georgia	18.3	(NA)
Louisiana	5.3	(NA)
Massachusetts	11.2	(NA)
Mississippi	7.1	3.0
New Jersey	3.9	3.5
New York	16.1	13.4
North Carolina	21.7	35.4
Pennsylvania	17.4	23.5
South Carolina	8.1	16.0
Virginia	13.3	10.6

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2341-	**Women's, children's, and infants' underwear and nightwear**	**2 232.1**	**2 260.1**	**2 118.8**	**2 302.8**	**2 513.3**	**2 591.4**	**2 356.3**	**1 750.0**
23412	Women's, children's, and infants' underwear	997.0	1 054.3	862.8	971.6	1 041.3	1 019.2	831.0	585.8
23413	Women's, children's, and infants' nightwear	955.7	915.4	952.6	1 008.8	1 121.7	1 180.0	1 127.4	852.2
23419	Receipts for contract and commission work on women's and children's underwear and nightwear	240.4	255.8	267.3	289.7	284.6	322.6	314.5	247.1
23410	Women's, children's, and infants' underwear and nightwear, n.s.k.	39.0	34.6	36.1	32.8	65.8	69.6	83.3	64.9
2342-	**Brassieres, girdles, and allied garments**	**1 587.6**	**1 399.9**	**1 202.8**	**1 061.9**	**1 130.8**	**983.1**	**666.7**	**546.6**
23421	Brassieres	1 185.3	1 034.2	862.0	745.1	795.0	713.5	450.8	346.1
23422	Corsets, girdles, combinations, and accessories	335.2	285.8	279.1	269.3	228.0	143.1	159.1	153.3
23429	Receipts for contract and commission work on brassieres, corsets, and allied garments	22.3	56.5	54.2	43.8	38.3	74.2	19.8	23.6
23420	Brassieres, girdles, and allied garments, n.s.k.	44.7	23.4	7.5	3.7	69.5	52.2	37.1	23.6
2353-	**Hats, caps, and millinery**	**867.1**	**722.9**	**658.1**	**644.8**	**623.0**	**604.1**	**504.5**	**344.6**
23531	Hats and hat bodies, except cloth and millinery	178.6	93.6	85.1	84.1	94.3	78.7	83.2	66.4
23532	Cloth hats and caps	489.9	367.5	301.2	298.9	308.6	307.9	272.0	176.6
23533	Millinery (women's, children's, and infants' trimmed hats made from hat bodies or other millinery materials)	94.6	189.9	199.4	152.0	113.8	105.5	87.7	74.2
23530	Hats, caps, and millinery, n.s.k.	103.9	71.9	72.4	109.9	106.2	112.0	61.6	27.4
2361-	**Girls', children's, and infants' dresses, blouses, and shirts**	**1 726.2**	**1 812.0**	**1 812.2**	**1 764.8**	**1 621.5**	**1 607.5**	**1 443.2**	**839.1**
23613	Girls', children's, and infants' knit blouses and shirts	635.0	655.8	702.1	688.4	533.2	557.9	(NA)	(NA)
23614	Girls', children's, and infants' woven blouses and shirts	218.5	207.9	233.7	183.6	173.5	187.9	(NA)	(NA)
23615	Girls', children's, and infants' dresses	615.1	685.5	628.7	624.1	613.5	572.3	(NA)	(NA)
23619	Receipts for contract and commission work on girls', children's, and infants' dresses, blouses, and shirts	229.4	207.0	191.8	207.7	239.7	225.8	208.7	134.5
23610	Girls', children's, and infants' dresses, blouses, and shirts, n.s.k.	28.3	55.7	55.7	60.9	61.7	63.6	77.4	79.5
2369-	**Girls', children's, and infants' other outerwear, n.e.c.**	**1 789.7**	**1 779.9**	**1 835.3**	**1 842.0**	**1 911.7**	**1 959.8**	**1 407.2**	**957.4**
23692	Girls', children's, and infants' coats, jackets, suits, snowsuits, and coat-and-legging sets	105.1	89.6	116.1	114.5	148.8	142.6	171.5	171.5
23693	Girls', children's, and infants' play garments and sweaters	1 460.3	1 411.4	1 457.2	1 419.4	1 500.1	1 519.7	1 012.1	612.6
23699	Receipts for contract and commission work on girls', children's, and infants' outerwear, n.e.c.	189.1	189.3	176.9	177.2	172.1	229.4	155.6	97.9
23690	Girls', children's, and infants' other outerwear, n.e.c., n.s.k.	35.2	89.7	85.1	131.0	90.7	68.2	68.0	75.4

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2341, WOMEN'S AND CHILDREN'S UNDERWEAR		
	Materials, ingredients, containers, and supplies	**830.1**	**925.6**
220129	Broadwoven fabrics (piece goods)	177.3	181.7
224111	Narrow fabrics (12 inches or less in width)	37.1	(1)
225078	Knit fabrics	419.5	491.7
228015	Yarn, all fibers	38.3	(1)
396501	Buttons, zippers, and slide fasteners	35.9	(1)
970099	All other materials and components, parts, containers, and supplies	97.4	[1]193.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	24.6	58.7
	INDUSTRY 2342, BRASSIERES, GIRDLES, AND ALLIED GARMENTS		
	Materials, ingredients, containers, and supplies	**552.1**	**346.8**
220129	Broadwoven fabrics (piece goods)	45.8	85.1
224111	Narrow woven fabrics, elastic and nonelastic	41.3	(1)
225078	Knit fabrics	354.3	199.9
228015	Yarn, all fibers	1.2	(1)
396501	Buttons, zippers, and slide fasteners	4.2	(1)
970099	All other materials and components, parts, containers, and supplies	73.4	[1]44.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	31.9	17.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2353, HATS, CAPS, AND MILLINERY		
	Materials, ingredients, containers, and supplies	**353.4**	**245.4**
220129	Broadwoven fabrics (piece goods)	95.1	(NA)
224111	Narrow fabrics (12 inches or less in width)	40.8	(NA)
229911	Wool felt	6.7	(NA)
235311	Hat bodies	71.7	(NA)
970099	All other materials and components, parts, containers, and supplies	72.8	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	66.5	(NA)
	INDUSTRY 2361, GIRLS' AND CHILDREN'S DRESSES AND BLOUSES		
	Materials, ingredients, containers, and supplies	**484.3**	**493.4**
220129	Broadwoven fabrics (piece goods)	196.2	220.4
224111	Narrow fabrics (12 inches or less in width)	(D)	(1)
225078	Knit fabrics	138.4	147.9
228015	Yarn, all fibers	(D)	(1)
396501	Buttons, zippers, and slide fasteners	30.2	(1)
970099	All other materials and components, parts, containers, and supplies	31.4	[1]40.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	68.9	84.7
	INDUSTRY 2369, GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.		
	Materials, ingredients, containers, and supplies	**511.8**	**822.4**
220129	Broadwoven fabrics (piece goods)	151.3	386.5
224111	Narrow fabrics (12 inches or less in width)	37.0	(1)
225078	Knit fabrics	191.8	234.4
228015	Yarn, all fibers	6.1	(1)
396501	Buttons, zippers, and slide fasteners	22.6	(1)
970099	All other materials and components, parts, containers, and supplies	39.8	[1]97.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	63.3	104.5

[1]For 1987, data for these materials were not collected separately, but are included in material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2311500	MA23A, Apparel	2339500	MA23A, Apparel
2311600	MA23A, Apparel	2339730	MA23A, Apparel
2311700	MA23A, Apparel	2339760	MA23A, Apparel
2321300	MA23A, Apparel	2339780	MA23A, Apparel
2321600	MA23A, Apparel	2341200	MA23A, Apparel
2322100	MA23A, Apparel	2341300	MA23A, Apparel
2322200	MA23A, Apparel	2342100	MA23A, Apparel
2325100	MA23A, Apparel	2342210	MA23A, Apparel
2325200	MA23A, Apparel	2361300	MA23A, Apparel
2326100	MA23A, Apparel	2361400	MA23A, Apparel
2326200	MA23A, Apparel	2361500	MA23A, Apparel
2329100	MA23A, Apparel	2369200	MA23A, Apparel
2329310	MA23A, Apparel	2369340	MA23A, Apparel
2329330	MA23A, Apparel	2369370	MA23A, Apparel
2329360	MA23A, Apparel	2369380	MA23A, Apparel
2329380	MA23A, Apparel	2369393	MA23A, Apparel
2331300	MA23A, Apparel	2381300	MA23D, Gloves and Mittens
2331400	MA23A, Apparel	2381400	MA23D, Gloves and Mittens
2335300	MA23A, Apparel	2384011	MA23A, Apparel
2337100	MA23A, Apparel	2384021	MA23A, Apparel
2337200	MA23A, Apparel	2385140	MA23A, Apparel
2337410	MA23A, Apparel	2392200	MQ23X, Sheets, Pillowcases, and Towels
2337420	MA23A, Apparel	2392310	MQ23X, Sheets, Pillowcases, and Towels
2339200	MA23A, Apparel	2392313	MQ23X, Sheets, Pillowcases, and Towels
2339400	MA23A, Apparel		

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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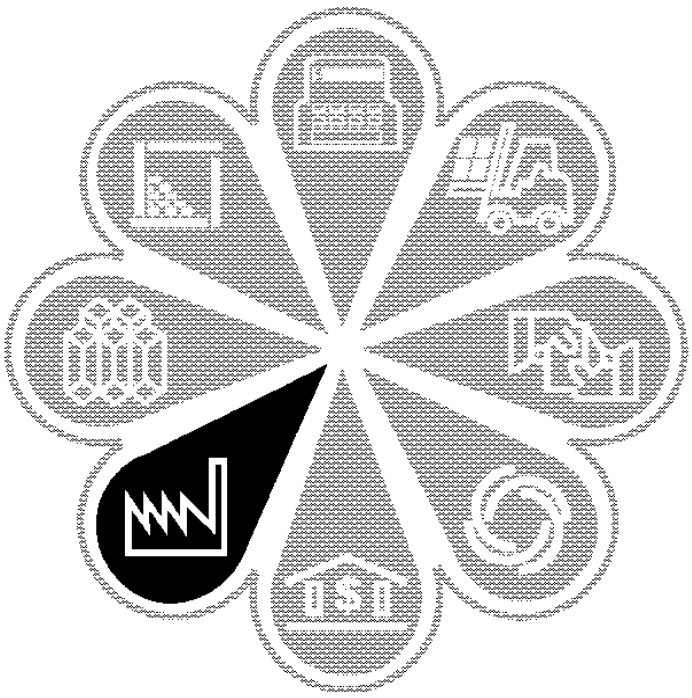
1992 Census of Manufactures

MC92-I-23D

INDUSTRY SERIES

Miscellaneous Apparel and Accessories

Industries 2371, 2381, 2384, 2385, 2386, 2387, and 2389



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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MC92-I-23D

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Judy Dodds,** Chief, Food, Textiles, and Apparel Branch, assisted by **Robert Reinard**, Section Chief, with primary staff assistance by **Maria Dixon.**

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Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2371	Fur Goods
2381	Fabrics Dress and Work Gloves
2384	Robes and Dressing Gowns
2385	Waterproof Outerwear
2386	Leather and Sheep-Lined Clothing
2387	Apparel Belts
2389	Apparel and Accessories, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2371, FUR GOODS

This industry is made up of establishments primarily engaged in manufacturing fur coats and other clothing, accessories, and trimmings made of fur. Establishments primarily engaged in manufacturing sheep-lined clothing are classified in industry 2386. Establishments primarily engaged in dyeing and dressing of furs are classified in industry 3999.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2371, Fur Goods, had employment of 1.0 thousand. The employment figure was 55 percent below the 2.2 thousand reported in 1987. Compared with 1991, employment decreased 33 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California and New York. The leading State in 1987 was New York.

The total value of shipments for establishments classified in this industry was $205.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2371 shipped $196.4 million of fur goods products considered primary to the industry.

Establishments in this industry accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 100 percent.

The products primary to industry 2371, no matter in what industry they were produced, appear in table 6a and aggregate to $199.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fur goods industry amounted to $123.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 65 percent of the total value of shipments.

INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES

This industry is made up of establishments primarily engaged in manufacturing dress, semidress, and work gloves and mittens from purchased woven or knit fabrics, or from these materials combined with leather or plastics. Knitting mills primarily engaged in manufacturing gloves and mittens are classified in industry 2259. Establishments primarily engaged in manufacturing leather gloves are classified in industry 3151; those manufacturing sporting and athletic gloves are classified in industry 3949; and those manufacturing safety gloves are classified in industry 3842.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2381, Fabrics Dress and Work Gloves, had employment of 3.9 thousand. The employment figure was 19 percent below the 4.8 thousand reported in 1987.

The leading States in employment in 1992 were Mississippi, North Carolina, and New York, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when Mississippi, North Carolina, and Alabama were the leading States.

The total value of shipments for establishments classified in this industry was $278.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2381 shipped $197.2 million of fabrics dress and work gloves products considered primary to the industry.

Establishments in this industry accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 84 percent.

The products primary to industry 2381, no matter in what industry they were produced, appear in table 6a and aggregate to $210.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabrics dress and work gloves industry amounted to $127.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 2384, ROBES AND DRESSING GOWNS

This industry is made up of establishments primarily engaged in manufacturing men's, boys', and women's robes and dressing gowns from purchased woven or knit fabrics. Establishments primarily engaged in manufacturing girls', children's, and infants' robes from purchased fabrics are classified in industry 2369. Knitting mills primarily engaged in manufacturing knit robes and dressing gowns are classified in industry 2253.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2384, Robes and Dressing Gowns, had employment of 6.8 thousand. The employment figure was 22 percent below the 8.7 thousand reported in 1987. Compared with 1991, employment increased 66 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, Oklahoma, Tennessee, and California. This represents a shift from 1987 when New York, California, Tennessee, and California were the leading States.

The total value of shipments for establishments classified in this industry was $373.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2384 shipped $300.0 million of robes and dressing gowns products considered primary to the industry, $11.1 million of secondary products, and had $62.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 73 percent.

The products primary to industry 2384, no matter in what industry they were produced, appear in table 6a and aggregate to $386.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the robes and dressing gowns industry amounted to 192.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2385, WATERPROOF OUTERWEAR

This industry is made up of establishments primarily engaged in manufacturing raincoats and other waterproof outerwear from purchased rubberized fabrics, plastics, and similar materials. Also included in this industry are establishments primarily engaged in manufacturing waterproof or water-repellent outerwear from purchased woven or knit fabrics other than wool. Establishments primarily engaged in manufacturing men's and boys' oiled-fabrics work clothing are classified in industry 2326, and those manufacturing vulcanized rubber clothing and clothing made from rubberized fabrics produced in the same establishment are classified in industry 3069.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2385, Waterproof Outerwear, had employment of 4.1 thousand. The employment figure was 36 percent below the 6.4 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama, Maryland, New Jersey, and Virginia, accounting for approximately 63 percent of the industry's employment. The leading States in 1987 were Maryland, Massachusetts, and New Jersey.

The total value of shipments for establishments classified in this industry was $268.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2385 shipped $221.7 million of waterproof outerwear products considered primary to the industry, $22.6 million of secondary products, and had $24.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio also was 91 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 2385, no matter in what industry they were produced, appear in table 6a and aggregate to $246.5 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the waterproof outerwear industry amounted to $110.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING

This industry is made up of establishments primarily engaged in manufacturing leather and sheep-lined clothing. Establishments primarily engaged in manufacturing leather gloves and mittens are classified in industry 3151. Establishments primarily engaged in manufacturing fur clothing are classified in industry 2371.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2386, Leather and Sheep-Lined Clothing, had employment of 2.5 thousand. The employment figure was 19 percent above the 2.1 thousand reported in 1987.

The leading States in employment in 1992 were California and New York, accounting for approximately 48 percent of the industry's employment. The leading States in 1987 were California, New Jersey, and New York.

The total value of shipments for establishments classified in this industry was $209.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2386 shipped $193.2 million of leather and sheep-lined clothing products considered primary to the industry.

Establishments in this industry accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 97 percent.

The products primary to industry 2386, no matter in what industry they were produced, appear in table 6a and aggregate to $199.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the leather and sheep-lined clothing industry amounted to $123.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2387, APPAREL BELTS

This industry is made up of establishments primarily engaged in manufacturing apparel belts of any material.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2387, Apparel Belts, had employment of 8.0 thousand. The employment figure was 24 percent below the 10.5 thousand reported in 1987. Compared with 1991, employment decreased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New York, and Texas. This represents a shift from 1987 when California, Connecticut, New York, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $639.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2387 shipped $514.1 million of apparel belts products considered primary to the industry, $42.4 million of secondary products, and had $83.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2387, no matter in what industry they were produced, appear in table 6a and aggregate to $547.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the apparel belts industry amounted to $305.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing suspenders, garters, handkerchiefs, and other apparel, not elsewhere classified, such as academic caps and gowns, vestments, and theatrical costumes. Also included in this industry are establishments primarily engaged in manufacturing clothing by cutting and joining (for example, by adhesives) materials such as paper and nonwoven textiles.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2389, Apparel and Accessories, N.E.C., had employment of 10.4 thousand. The employment figure was 25 percent above the 8.3 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, and Pennsylvania, accounting for approximately 56 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 55 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $552.9 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2389 shipped $431.1 million of apparel and accessories, not elsewhere classified, products considered primary to the industry, $46.2 million of secondary products, and had $75.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total

of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 67 percent.

The products primary to industry 2389, no matter in what industry they were produced, appear in table 6a and aggregate to $476.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the apparel and accessories, not elsewhere classified, industry amounted to $240.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 25 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2371, FUR GOODS															
1992 Census	211	211	9	1.0	23.5	.7	1.3	14.9	81.4	123.7	205.4	1.9	28.6	(D)	99
1991 ASM	(NA)	(NA)	(NA)	1.5	29.2	1.0	1.6	14.8	69.9	189.5	257.4	(Z)	43.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.2	46.2	1.5	2.5	26.6	103.6	263.3	378.7	1.9	63.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.2	47.7	1.5	2.6	27.9	127.7	277.8	402.4	.6	83.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.1	44.1	1.4	2.6	26.3	129.4	277.4	407.1	.2	82.5	(NA)	(NA)
1987 Census	380	380	17	2.2	48.2	1.5	2.7	28.1	131.2	292.6	422.6	1.2	79.6	100	100
1986 ASM	(NA)	(NA)	(NA)	2.2	44.4	1.6	3.2	29.8	104.7	251.2	360.4	.5	72.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.5	46.4	1.7	3.4	30.7	108.0	273.9	383.7	.5	79.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.5	50.5	1.7	3.6	31.8	124.6	274.5	398.1	1.0	76.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.4	63.5	2.6	5.7	42.3	156.4	283.4	444.5	1.1	74.6	(NA)	(NA)
1982 Census	503	504	43	3.4	59.6	2.5	4.5	41.2	131.6	287.2	419.3	.3	74.5	99	99
1981 ASM	(NA)	(NA)	(NA)	4.2	67.7	3.2	6.0	44.8	160.2	390.1	533.6	.3	97.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	4.4	68.2	3.4	5.9	45.0	156.1	398.1	541.8	1.0	93.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	4.8	62.9	3.8	6.4	44.6	147.1	356.2	488.5	4.1	76.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	3.9	51.6	3.1	5.2	34.3	116.1	293.1	404.1	.8	54.3	(NA)	(NA)
1977 Census	620	620	48	4.0	51.5	3.2	5.1	36.2	112.8	273.3	383.4	.5	46.5	99	99
INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES															
1992 Census	58	70	39	3.9	57.9	3.2	6.0	37.7	148.1	127.0	278.7	2.8	57.3	(D)	94
1991 ASM	(NA)	(NA)	(NA)	4.5	72.0	3.6	6.6	44.5	165.6	160.4	324.4	2.0	70.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.2	72.8	4.3	7.7	46.3	212.4	143.2	340.8	4.7	73.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.8	48.8	4.1	6.9	34.2	119.5	86.0	197.9	1.3	43.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.8	46.6	4.2	6.9	35.4	99.7	84.2	185.1	1.1	32.4	(NA)	(NA)
1987 Census	63	82	58	4.8	47.9	4.3	7.3	37.4	98.2	80.8	180.8	1.5	32.6	96	84
1986 ASM	(NA)	(NA)	(NA)	5.7	48.3	5.2	8.2	39.3	100.6	86.2	190.5	1.0	29.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.6	58.5	6.0	10.1	47.7	138.2	126.0	261.3	1.5	49.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.2	67.1	6.3	10.6	51.8	143.2	130.3	269.8	2.7	56.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.9	61.3	6.1	9.5	47.6	126.7	103.3	229.9	3.1	51.1	(NA)	(NA)
1982 Census	78	102	64	6.8	51.2	6.1	9.2	41.6	104.7	98.9	208.4	3.4	40.9	89	85
1981 ASM	(NA)	(NA)	(NA)	8.6	65.8	7.9	12.7	53.4	131.3	132.8	265.0	2.3	39.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.6	64.0	8.7	14.0	52.5	137.9	143.4	280.7	3.6	40.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.3	76.3	10.4	18.2	65.0	173.4	166.8	337.2	2.0	41.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.9	81.9	11.0	19.9	68.2	171.2	178.1	347.1	4.7	46.9	(NA)	(NA)
1977 Census	100	132	92	10.9	69.0	9.9	18.0	56.3	160.9	153.2	312.4	3.5	42.1	91	92
INDUSTRY 2384, ROBES AND DRESSING GOWNS															
1992 Census	70	81	54	6.8	85.9	5.7	10.2	60.0	182.8	192.8	373.5	2.2	62.8	96	78
1991 ASM	(NA)	(NA)	(NA)	4.1	62.9	4.1	8.0	42.4	176.0	197.5	383.3	2.9	37.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.9	58.0	3.8	7.5	39.2	119.7	173.3	306.3	3.2	38.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.1	87.3	5.7	10.9	61.3	237.0	239.7	484.2	4.4	60.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.7	110.5	7.0	12.7	70.3	240.5	319.7	552.6	5.0	82.0	(NA)	(NA)
1987 Census	84	96	74	8.7	101.4	7.3	13.1	70.2	228.0	278.3	502.6	3.3	67.1	89	73
1986 ASM	(NA)	(NA)	(NA)	8.1	85.3	6.6	12.0	55.3	198.7	225.8	422.6	2.2	69.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.6	83.5	6.9	12.4	55.8	185.8	198.2	386.8	2.4	56.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.8	91.1	7.3	13.6	61.1	199.9	201.4	407.0	2.1	62.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.1	85.1	6.7	12.3	58.1	163.4	216.0	381.4	2.8	65.4	(NA)	(NA)
1982 Census	129	135	83	9.3	88.0	8.1	14.8	64.4	193.1	205.6	403.6	3.9	56.0	94	81
1981 ASM	(NA)	(NA)	(NA)	9.9	92.4	8.7	16.0	69.8	197.9	161.1	356.0	4.6	49.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.6	104.5	9.4	17.1	72.7	218.7	223.3	441.6	6.2	64.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.6	85.2	9.2	16.7	61.5	175.3	180.2	355.3	4.7	46.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.4	74.0	8.9	15.6	54.0	155.5	174.4	326.7	9.8	50.4	(NA)	(NA)
1977 Census	136	152	99	9.6	65.1	8.3	14.9	48.6	141.9	155.7	293.6	3.3	44.6	89	93
INDUSTRY 2385, WATERPROOF OUTERWEAR															
1992 Census	61	71	37	4.1	64.5	3.2	5.6	40.5	146.0	110.5	268.4	2.5	28.5	91	90
1991 ASM	(NA)	(NA)	(NA)	4.5	64.5	3.7	6.9	50.5	100.5	124.8	231.8	1.2	36.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.5	63.9	3.7	6.7	49.7	113.0	108.5	219.3	.7	35.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.7	65.3	3.8	7.1	48.6	99.1	108.5	208.8	2.7	31.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.0	96.5	4.8	9.0	69.6	157.5	161.7	317.8	3.0	58.1	(NA)	(NA)
1987 Census	58	67	39	6.4	85.5	5.3	9.5	60.9	172.5	162.5	333.0	3.2	53.8	91	86
1986 ASM	(NA)	(NA)	(NA)	8.1	93.4	7.1	12.5	71.6	159.2	188.3	360.5	2.7	66.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.3	95.6	7.3	12.6	75.5	182.9	193.7	386.1	5.0	77.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.1	107.6	7.9	14.4	81.8	241.7	208.3	439.3	4.0	76.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.0	95.1	7.7	13.6	71.4	247.2	213.7	449.5	3.7	63.5	(NA)	(NA)
1982 Census	98	112	76	9.3	101.1	8.0	13.9	74.5	246.0	205.8	449.2	4.6	51.8	89	88
1981 ASM	(NA)	(NA)	(NA)	7.0	68.3	5.7	13.2	45.2	188.1	190.6	377.5	4.1	55.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.3	102.3	9.8	16.4	79.5	216.7	163.3	376.5	3.6	49.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.7	91.0	9.0	16.0	63.0	198.0	156.4	357.4	2.4	50.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.0	91.5	10.4	18.6	67.3	191.9	184.1	373.7	1.6	59.5	(NA)	(NA)
1977 Census	155	167	105	12.0	89.4	10.1	17.9	61.6	194.4	157.4	348.8	5.6	59.6	91	90
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING															
1992 Census	116	117	32	2.5	45.9	2.0	3.7	28.6	92.2	123.8	209.2	1.3	42.4	(D)	97
1991 ASM	(NA)	(NA)	(NA)	2.1	31.2	1.8	3.2	20.7	70.7	87.5	158.6	.3	29.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.2	32.8	1.8	3.2	21.8	73.0	91.4	166.6	.4	29.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.0	30.4	1.6	2.9	20.1	72.8	90.9	163.0	.8	28.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.3	35.9	1.8	3.2	23.4	97.1	123.1	220.4	.5	32.8	(NA)	(NA)
1987 Census	130	131	32	2.1	33.8	1.7	2.9	22.4	92.1	110.3	201.8	.9	30.9	96	97
1986 ASM	(NA)	(NA)	(NA)	1.7	29.8	1.3	2.3	19.6	56.0	102.6	161.4	.4	35.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.0	31.0	1.5	2.8	22.1	58.3	107.5	164.3	.8	38.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.9	39.0	2.4	4.2	28.1	84.9	113.6	194.4	1.1	39.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.5	47.4	3.0	5.4	35.1	91.8	118.3	212.8	.4	39.7	(NA)	(NA)
1982 Census	186	186	52	4.3	48.9	3.6	6.4	36.4	95.7	122.9	221.3	.9	40.2	92	94
1981 ASM	(NA)	(NA)	(NA)	7.5	64.1	6.8	11.4	49.6	103.4	105.0	203.4	2.2	43.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.0	63.5	7.2	11.8	48.6	100.8	119.1	215.3	.7	40.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.0	56.3	6.3	10.4	44.3	93.4	120.6	210.4	1.1	34.0	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING—Con.															
1978 ASM	(NA)	(NA)	(NA)	5.8	50.2	5.1	8.2	38.2	74.1	145.9	222.9	2.6	32.2	(NA)	(NA)
1977 Census	236	239	80	6.7	54.7	5.9	10.4	41.1	94.8	122.2	214.1	1.6	32.3	97	91
INDUSTRY 2387, APPAREL BELTS															
1992 Census	245	245	85	8.0	150.6	6.1	11.3	81.3	343.8	305.3	639.6	5.2	113.1	92	94
1991 ASM	(NA)	(NA)	(NA)	9.6	160.4	7.2	13.5	88.3	344.8	269.0	603.2	3.0	138.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.1	175.4	8.4	15.4	97.1	386.1	296.7	673.4	3.5	141.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.1	165.0	8.6	16.5	100.2	371.3	268.0	634.5	4.5	126.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.1	153.6	7.7	15.1	88.2	337.3	285.7	618.6	2.8	111.8	(NA)	(NA)
1987 Census	263	265	126	10.5	151.0	7.8	14.8	85.6	339.5	294.5	627.8	3.1	111.2	93	94
1986 ASM	(NA)	(NA)	(NA)	8.8	116.5	6.9	12.9	70.4	293.7	229.2	521.0	2.5	84.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.5	120.5	7.5	13.8	70.7	278.3	223.4	504.9	2.2	84.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.1	136.6	8.9	17.3	80.2	299.8	252.5	551.7	5.6	101.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.1	138.2	8.7	17.1	81.4	318.2	245.3	568.8	6.9	92.5	(NA)	(NA)
1982 Census	317	319	143	11.7	137.1	9.2	17.2	81.5	305.4	250.6	556.5	8.3	92.8	89	95
1981 ASM	(NA)	(NA)	(NA)	10.6	128.9	8.6	19.2	81.5	306.0	250.0	534.9	2.8	89.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.5	102.5	7.7	17.5	67.0	235.7	195.3	422.4	1.6	71.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.0	93.8	8.0	15.9	59.0	213.9	180.4	388.4	2.9	65.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.7	82.8	7.9	13.6	49.2	176.2	178.8	349.9	2.7	60.3	(NA)	(NA)
1977 Census	281	284	119	9.4	76.1	7.3	12.6	44.6	150.3	141.2	286.9	2.5	50.9	88	96
INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.															
1992 Census	403	407	123	10.4	149.2	8.5	14.7	101.9	316.5	240.6	552.9	5.4	144.7	90	90
1991 ASM	(NA)	(NA)	(NA)	11.8	154.7	9.9	17.7	103.0	309.8	230.9	542.3	4.5	129.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.5	143.4	9.6	16.4	94.2	333.8	227.1	550.1	4.1	136.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.6	141.0	8.9	15.6	95.1	293.2	221.8	503.3	2.7	117.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.4	117.9	7.5	13.1	75.2	262.4	191.8	454.0	3.0	101.5	(NA)	(NA)
1987 Census	330	340	105	8.3	98.1	6.5	11.5	64.5	220.8	166.9	383.4	2.9	89.9	91	67
1986 ASM	(NA)	(NA)	(NA)	7.4	85.2	6.4	12.1	64.8	190.5	153.4	344.0	2.5	80.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.5	81.7	6.4	11.9	63.1	193.6	161.3	350.0	1.7	78.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.9	83.2	6.5	12.2	60.2	200.0	162.7	340.3	5.8	78.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.8	89.1	7.0	12.8	62.1	153.9	130.2	283.5	1.2	50.9	(NA)	(NA)
1982 Census	362	369	109	8.7	86.2	7.1	12.6	59.5	152.7	125.6	279.2	3.6	49.5	91	91
1981 ASM	(NA)	(NA)	(NA)	10.8	106.8	9.1	16.6	74.9	206.2	148.1	346.6	7.7	55.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.4	98.6	9.3	16.4	67.5	173.1	164.7	332.7	4.3	54.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.1	86.1	7.8	13.9	55.7	151.7	137.7	283.8	4.1	45.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.7	65.0	7.5	12.3	48.1	119.4	101.8	218.7	5.9	47.1	(NA)	(NA)
1977 Census	304	312	100	8.1	56.7	6.7	11.6	38.6	109.7	96.4	199.0	4.2	45.7	90	95

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2371, FUR GOODS									
1992 Census	23 500	70	1 857	11.46	60	72	81 400	29	62.62
1991 ASM	19 467	67	1 600	9.25	74	85	46 600	42	43.69
1990 ASM	21 000	68	1 667	10.64	70	82	47 091	45	41.44
1989 ASM	21 682	68	1 733	10.73	69	81	58 045	37	49.12
1988 ASM	21 000	67	1 857	10.12	68	79	61 619	34	49.77
1987 Census	21 909	68	1 800	10.41	69	81	59 636	37	48.59
1986 ASM	20 182	73	2 000	9.31	70	82	47 591	42	32.72
1985 ASM	18 560	68	2 000	9.03	71	83	43 200	43	31.76
1984 ASM	20 200	68	2 118	8.83	69	82	49 840	41	34.61
1983 ASM	18 676	76	2 192	7.42	64	78	46 000	41	27.44
1982 Census	17 529	74	1 800	9.16	68	83	38 706	45	29.24
1981 ASM	16 119	76	1 875	7.47	73	86	38 143	42	26.70
1980 ASM	15 500	77	1 735	7.63	73	86	35 477	44	26.46
1979 ASM	13 104	79	1 684	6.97	73	86	30 646	43	22.98
1978 ASM	13 231	79	1 677	6.60	73	85	29 769	44	22.33
1977 Census	12 875	80	1 594	7.10	71	85	28 200	46	22.12

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES									
1992 Census	14 846	82	1 875	6.28	46	66	37 974	39	24.68
1991 ASM	16 000	80	1 833	6.74	49	72	36 800	43	25.09
1990 ASM	14 000	83	1 791	6.01	42	63	40 846	34	27.58
1989 ASM	10 167	85	1 683	4.96	43	68	24 896	41	17.32
1988 ASM	9 708	87	1 643	5.13	45	71	20 771	47	14.45
1987 Census	9 979	90	1 698	5.12	45	71	20 458	49	13.45
1986 ASM	8 474	91	1 577	4.79	45	71	17 649	48	12.27
1985 ASM	8 864	91	1 683	4.72	48	71	20 939	42	13.68
1984 ASM	9 319	88	1 683	4.89	48	73	19 889	47	13.51
1983 ASM	8 884	88	1 557	5.01	45	72	18 362	48	13.34
1982 Census	7 529	90	1 508	4.52	47	72	15 397	49	11.38
1981 ASM	7 651	92	1 608	4.20	50	75	15 267	50	10.34
1980 ASM	6 667	91	1 609	3.75	51	74	14 365	46	9.85
1979 ASM	6 752	92	1 750	3.57	49	72	15 345	44	9.53
1978 ASM	6 882	92	1 809	3.43	51	75	14 387	48	8.60
1977 Census	6 330	91	1 818	3.13	49	71	14 761	43	8.94
INDUSTRY 2384, ROBES AND DRESSING GOWNS									
1992 Census	12 632	84	1 789	5.88	52	75	26 882	47	17.92
1991 ASM	15 341	100	1 951	5.30	52	68	42 927	36	22.00
1990 ASM	14 872	97	1 974	5.23	57	76	30 692	48	15.96
1989 ASM	14 311	93	1 912	5.62	50	68	38 852	37	21.74
1988 ASM	12 701	80	1 814	5.54	58	78	27 644	46	18.94
1987 Census	11 655	84	1 795	5.36	55	76	26 207	44	17.40
1986 ASM	10 531	81	1 818	4.61	53	74	24 531	43	16.56
1985 ASM	9 709	80	1 797	4.50	51	73	21 605	45	14.98
1984 ASM	10 352	83	1 863	4.49	49	72	22 716	46	14.70
1983 ASM	10 506	83	1 836	4.72	57	79	20 173	52	13.28
1982 Census	9 462	87	1 827	4.35	51	73	20 763	46	13.05
1981 ASM	9 333	88	1 839	4.36	45	71	19 990	47	12.37
1980 ASM	9 009	81	1 819	4.25	51	74	18 853	48	12.79
1979 ASM	8 038	87	1 815	3.68	51	75	16 538	49	10.50
1978 ASM	7 115	86	1 753	3.46	53	76	14 952	48	9.97
1977 Census	6 781	86	1 795	3.26	53	75	14 781	46	9.52
INDUSTRY 2385, WATERPROOF OUTERWEAR									
1992 Census	15 732	78	1 750	7.23	41	65	35 610	44	26.07
1991 ASM	14 333	82	1 865	7.32	54	82	22 333	64	14.57
1990 ASM	14 200	82	1 811	7.42	49	79	25 111	57	16.87
1989 ASM	13 894	81	1 868	6.85	52	83	21 085	66	13.96
1988 ASM	16 083	80	1 875	7.73	51	81	26 250	61	17.50
1987 Census	13 359	83	1 792	6.41	49	74	26 953	50	18.16
1986 ASM	11 531	88	1 761	5.73	52	78	19 654	59	12.74
1985 ASM	11 518	88	1 726	5.99	50	75	22 036	52	14.52
1984 ASM	11 824	87	1 823	5.68	47	72	26 560	45	16.78
1983 ASM	10 567	86	1 766	5.25	48	69	27 467	38	18.18
1982 Census	10 871	86	1 738	5.36	46	68	26 452	41	17.70
1981 ASM	9 757	81	2 316	3.42	50	69	26 871	36	14.25
1980 ASM	9 053	87	1 673	4.85	43	71	19 177	47	13.21
1979 ASM	8 505	84	1 778	3.94	44	69	18 505	46	12.38
1978 ASM	7 625	87	1 788	3.62	49	74	15 992	48	10.32
1977 Census	7 450	84	1 772	3.44	45	71	16 200	46	10.86
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING									
1992 Census	18 360	80	1 850	7.73	59	81	36 880	50	24.92
1991 ASM	14 857	86	1 778	6.47	55	75	33 667	44	22.09
1990 ASM	14 909	82	1 778	6.81	55	75	33 182	45	22.81
1989 ASM	15 200	80	1 813	6.93	56	74	36 400	42	25.10
1988 ASM	15 609	78	1 778	7.31	56	72	42 217	37	30.34
1987 Census	16 095	81	1 706	7.72	55	71	43 857	37	31.76
1986 ASM	17 529	76	1 769	8.52	64	82	32 941	53	24.35
1985 ASM	15 500	75	1 867	7.89	65	84	29 150	53	20.82
1984 ASM	13 448	83	1 750	6.69	58	78	29 276	46	20.21
1983 ASM	13 543	86	1 800	6.50	56	78	26 229	52	17.00
1982 Census	11 372	84	1 778	5.69	56	78	22 256	51	14.95
1981 ASM	8 547	91	1 676	4.35	52	83	13 787	62	9.07
1980 ASM	7 938	90	1 639	4.12	55	85	12 600	63	8.54
1979 ASM	8 043	90	1 651	4.26	57	84	13 343	60	8.98
1978 ASM	8 655	88	1 608	4.66	65	88	12 776	68	9.04
1977 Census	8 164	88	1 763	3.95	57	83	14 149	58	9.12
INDUSTRY 2387, APPAREL BELTS									
1992 Census	18 825	76	1 852	7.19	48	71	42 975	44	30.42
1991 ASM	16 708	75	1 875	6.54	45	71	35 917	47	25.54
1990 ASM	15 802	76	1 833	6.31	44	70	34 784	45	25.07
1989 ASM	14 865	77	1 919	6.07	42	68	33 450	44	22.50
1988 ASM	15 208	76	1 961	5.84	46	71	33 396	46	22.34
1987 Census	14 381	74	1 897	5.78	47	71	32 333	44	22.94
1986 ASM	13 239	78	1 870	5.46	44	66	33 375	40	22.77
1985 ASM	12 684	79	1 840	5.12	44	68	29 295	43	20.17
1984 ASM	12 306	80	1 944	4.64	46	71	27 009	46	17.33
1983 ASM	12 450	78	1 966	4.76	43	67	28 667	43	18.61
1982 Census	11 718	79	1 870	4.74	45	70	26 103	45	17.76
1981 ASM	12 160	81	2 233	4.24	47	71	28 868	42	15.94
1980 ASM	10 789	81	2 273	3.83	46	71	24 811	43	13.47
1979 ASM	9 380	80	1 988	3.71	46	71	21 390	44	13.45
1978 ASM	8 536	81	1 722	3.62	51	75	18 165	47	12.96
1977 Census	8 096	78	1 726	3.54	49	76	15 989	51	11.93

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.								
1992 Census	14 346	82	1 729	6.93	44	71	30 433	47	21.53
1991 ASM	13 110	84	1 788	5.82	43	71	26 254	50	17.50
1990 ASM	12 470	83	1 708	5.74	41	67	29 026	43	20.35
1989 ASM	13 302	84	1 753	6.10	44	72	27 660	48	18.79
1988 ASM	12 543	80	1 747	5.74	42	68	27 915	45	20.03
1987 Census	11 819	78	1 769	5.61	44	69	26 602	44	19.20
1986 ASM	11 514	86	1 891	5.36	45	69	25 743	45	15.74
1985 ASM	10 893	85	1 859	5.30	46	69	25 813	42	16.27
1984 ASM	10 532	82	1 877	4.93	48	72	25 316	42	16.39
1983 ASM	10 125	80	1 829	4.85	46	77	17 489	58	12.02
1982 Census	9 908	82	1 775	4.72	45	76	17 552	56	12.12
1981 ASM	9 889	84	1 824	4.51	43	74	19 093	52	12.42
1980 ASM	8 649	82	1 763	4.12	50	79	15 184	57	10.55
1979 ASM	8 525	77	1 782	4.01	49	79	15 020	57	10.91
1978 ASM	7 471	86	1 640	3.91	47	76	13 724	54	9.71
1977 Census	7 000	83	1 731	3.33	48	77	13 543	52	9.46

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2371, FUR GOODS														
United States	**E6**	**211**	**9**	**1.0**	**23.5**	**.7**	**1.3**	**14.9**	**81.4**	**123.7**	**205.4**	**1.9**	**2.2**	**131.2**
California	E8	13	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E5	166	4	.6	15.7	.4	.8	9.7	53.1	82.8	136.8	1.4	1.7	110.4
INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES														
United States	**E1**	**70**	**39**	**3.9**	**57.9**	**3.2**	**6.0**	**37.7**	**148.1**	**127.0**	**278.7**	**2.8**	**4.8**	**98.2**
Alabama	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
Georgia	E1	4	2	.2	1.6	.1	.2	1.2	2.9	2.8	5.8	(D)	.2	3.2
Mississippi	E1	7	7	.9	12.2	.9	1.7	9.9	23.2	20.9	44.4	(D)	G	(D)
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	12	4	.3	3.6	.2	.4	2.5	3.9	6.9	10.8	.3	C	(D)
North Carolina	E2	11	9	.9	12.7	.7	1.3	9.1	22.7	26.7	52.3	.5	.8	15.9
Ohio	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	5	3	.2	2.6	.2	.3	1.8	4.8	3.9	9.0	(D)	C	(D)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2384, ROBES AND DRESSING GOWNS														
United States	**–**	**81**	**54**	**6.8**	**85.9**	**5.7**	**10.2**	**60.0**	**182.8**	**192.8**	**373.5**	**2.2**	**8.7**	**228.0**
Alabama	–	6	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	6.6
California	–	13	4	.7	9.0	.5	1.0	4.5	15.1	16.8	31.9	(D)	G	(D)
Florida	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	9.6
Georgia	–	3	3	.3	2.7	.2	.3	2.1	3.0	5.0	7.9	(D)	.3	6.8
Michigan	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Jersey	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	20	6	.8	12.5	.6	1.3	7.9	32.6	50.4	83.2	.6	1.5	58.4
North Carolina	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	E1	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	5	5	.2	2.0	.2	.3	1.8	2.5	.3	2.8	(D)	.6	13.1
South Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	23.6
Tennessee	–	9	9	1.4	16.8	1.1	2.0	10.5	30.7	24.1	54.2	.1	1.1	30.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2385, WATERPROOF OUTERWEAR														
United States	–	**71**	**37**	**4.1**	**64.5**	**3.2**	**5.6**	**40.5**	**146.0**	**110.5**	**268.4**	**2.5**	**6.4**	**172.5**
Alabama	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	9	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	9	5	.3	5.3	.2	.4	3.3	8.7	7.8	16.2	(D)	E	(D)
Pennsylvania	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING														
United States	–	**117**	**32**	**2.5**	**45.9**	**2.0**	**3.7**	**28.6**	**92.2**	**123.8**	**209.2**	**1.3**	**2.1**	**92.1**
California	–	24	10	.9	16.9	.7	1.4	11.3	28.3	38.2	62.1	.5	.4	18.7
Illinois	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E1	50	6	.4	7.5	.3	.6	4.4	15.4	18.6	33.4	(D)	F	(D)
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
Texas	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2387, APPAREL BELTS														
United States	**E1**	**245**	**85**	**8.0**	**150.6**	**6.1**	**11.3**	**81.3**	**343.8**	**305.3**	**639.6**	**5.2**	**10.5**	**339.5**
Arizona	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	–	44	20	2.0	43.0	1.6	3.2	23.6	92.7	58.7	149.5	2.4	1.2	37.6
Connecticut	E3	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E7	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	116	34	2.2	37.5	1.7	3.1	22.5	81.4	82.7	160.1	.7	4.8	124.3
North Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	9	3	.3	4.7	.2	.4	3.2	11.3	13.8	25.6	.1	.6	17.3
Rhode Island	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	18	9	1.0	13.4	.7	1.4	7.7	29.5	26.0	56.0	.1	G	(D)
INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.														
United States	**E2**	**407**	**123**	**10.4**	**149.2**	**8.5**	**14.7**	**101.9**	**316.5**	**240.6**	**552.9**	**5.4**	**8.3**	**220.8**
Alabama	E3	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E4	71	21	1.8	25.0	1.5	2.6	15.6	49.6	42.5	92.2	.5	F	(D)
Connecticut	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	18	8	.6	9.3	.5	1.0	6.3	21.0	17.9	36.6	(D)	E	(D)
Georgia	E1	9	4	.4	4.6	.4	.6	3.5	6.3	6.8	13.2	(D)	C	(D)
Illinois	E4	20	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E8	12	3	.2	2.7	.2	.3	1.8	6.2	5.3	11.0	.1	(NA)	(NA)
Mississippi	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
New Jersey	E1	17	6	.4	5.5	.3	.4	2.7	7.4	8.1	15.5	(Z)	.3	8.0
New York	E4	66	17	1.1	17.3	.9	1.6	13.3	32.7	29.1	61.4	.2	1.2	26.0
North Carolina	E3	16	3	.2	3.8	.2	.4	2.7	7.0	10.4	17.2	(D)	(NA)	(NA)
Ohio	E3	13	5	.3	2.5	.2	.3	1.8	4.8	3.1	8.0	(Z)	E	(D)
Pennsylvania	–	32	12	1.3	20.0	1.0	1.7	14.7	49.0	44.5	94.1	.3	1.5	51.1
South Carolina	E1	11	7	.8	12.0	.7	1.3	7.9	31.0	19.7	47.4	.5	E	(D)
Tennessee	E2	9	4	.6	8.0	.5	1.1	7.1	10.7	2.6	13.4	(D)	C	(D)
Texas	E2	23	5	.3	2.9	.3	.3	2.0	5.3	4.8	10.4	.2	E	(D)
Virginia	–	7	4	.3	5.1	.2	.4	3.0	9.4	5.5	15.5	(D)	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fur goods (SIC 2371)	Fabrics dress and work gloves (SIC 2381)	Robes and dressing gowns (SIC 2384)			
			Total	Manufacturers (SIC 2384-11)	Jobbers (SIC 2384-22)	Contractors (SIC 2384-33)
Companies ---- number	211	58	70	33	7	34
All establishments ---- number	211	70	81	38	7	36
With 1 to 19 employees ---- number	202	31	27	10	5	12
With 20 to 99 employees ---- number	8	28	34	14	2	18
With 100 employees or more ---- number	1	11	20	14	–	6
Employment and labor costs:						
Employees ---- 1,000	1.0	3.9	6.8	4.3	.1	2.4
Compensation, total ---- mil dol	26.2	72.6	102.3	69.3	3.9	29.1
Annual payroll ---- mil dol	23.5	57.9	85.9	57.7	3.3	24.9
Fringe benefits ---- mil dol	2.6	14.7	16.4	11.6	.6	4.2
Social Security and other legally required payments ---- mil dol	1.6	5.8	10.8	7.7	.4	2.7
Employer voluntary payments ---- mil dol	1.1	8.9	5.6	3.8	.1	1.6
Production workers:						
Average for year ---- 1,000	.7	3.2	5.7	3.7	.1	2.0
March ---- 1,000	.7	3.2	5.9	3.8	.1	2.0
May ---- 1,000	.7	3.3	5.5	3.5	.1	1.9
August ---- 1,000	.7	3.3	5.8	3.7	.1	2.0
November ---- 1,000	.7	3.2	5.8	3.7	.1	2.0
Hours ---- millions	1.3	6.0	10.2	6.8	.1	3.3
Wages ---- mil dol	14.9	37.7	60.0	40.8	.9	18.2
Cost of materials[1] ---- mil dol	123.7	127.0	192.8	131.5	55.9	5.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	107.9	81.5	135.9	96.3	36.3	3.4
Resales ---- mil dol	1.7	35.9	20.8	19.8	–	.9
Fuels ---- mil dol	1.2	.6	1.2	.9	(Z)	.3
Purchased electricity ---- mil dol	1.7	1.9	2.9	2.0	.2	.7
Contract work ---- mil dol	11.2	7.1	31.9	12.4	19.4	.1
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	16.1	31.4	44.8	30.8	2.5	11.5
Generated less sold ---- mil kWh	–	–	–	–	–	–
Total value of shipments ---- mil dol	205.4	278.7	373.5	257.3	70.6	45.6
Value added ---- mil dol	81.4	148.1	182.8	128.0	14.9	39.9
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	28.8	61.1	62.4	48.3	7.8	6.3
Finished goods ---- mil dol	12.2	35.5	25.1	19.1	3.4	2.6
Work in process ---- mil dol	9.8	10.8	9.1	7.2	1.2	.8
Materials and supplies ---- mil dol	6.8	14.8	28.2	22.0	3.3	2.9
End of 1992 ---- mil dol	28.6	57.3	62.8	47.5	8.5	6.9
Finished goods ---- mil dol	11.5	32.5	27.5	21.4	3.8	2.3
Work in process ---- mil dol	10.2	10.3	8.8	7.0	.9	.9
Materials and supplies ---- mil dol	6.8	14.6	26.5	19.1	3.8	3.7

Item	Waterproof outerwear (SIC 2385)				Leather and sheep-lined clothing (SIC 2386)	Apparel belts (SIC 2387)	Apparel and accessories, n.e.c. (SIC 2389)
	Total	Manufacturers (SIC 2385-11)	Jobbers (SIC 2385-22)	Contractors (SIC 2385-33)			
Companies ---- number	61	38	4	21	116	245	403
All establishments ---- number	71	46	4	21	117	245	407
With 1 to 19 employees ---- number	34	18	3	13	85	160	284
With 20 to 99 employees ---- number	25	18	1	6	25	68	103
With 100 employees or more ---- number	12	10	–	2	7	17	20
Employment and labor costs:							
Employees ---- 1,000	4.1	3.3	(D)	(D)	2.5	8.0	10.4
Compensation, total ---- mil dol	81.9	64.4	(D)	(D)	52.9	179.5	179.7
Annual payroll ---- mil dol	64.5	50.3	(D)	(D)	45.9	150.6	149.2
Fringe benefits ---- mil dol	17.4	14.2	(D)	(D)	7.0	28.9	30.5
Social Security and other legally required payments ---- mil dol	6.4	5.1	(D)	(D)	4.0	14.1	14.7
Employer voluntary payments ---- mil dol	11.0	9.1	(D)	(D)	3.0	14.7	15.8
Production workers:							
Average for year ---- 1,000	3.2	2.6	(D)	(D)	2.0	6.1	8.5
March ---- 1,000	3.4	2.8	(D)	(D)	1.9	6.0	8.6
May ---- 1,000	3.3	2.7	(D)	(D)	2.0	6.1	8.7
August ---- 1,000	3.2	2.5	(D)	(D)	2.1	6.1	8.6
November ---- 1,000	3.0	2.3	(D)	(D)	2.1	6.1	8.1
Hours ---- millions	5.6	4.5	(D)	(D)	3.7	11.3	14.7
Wages ---- mil dol	40.5	31.1	(D)	(D)	28.6	81.3	101.9
Cost of materials[1] ---- mil dol	110.5	101.9	(D)	(D)	123.8	305.3	240.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	88.1	82.4	(D)	(D)	107.5	229.7	184.8
Resales ---- mil dol	10.5	10.5	(D)	(D)	4.1	56.8	28.0
Fuels ---- mil dol	.9	.7	(D)	(D)	.3	1.0	1.1
Purchased electricity ---- mil dol	2.2	1.7	(D)	(D)	.9	2.7	3.0
Contract work ---- mil dol	8.8	6.6	(D)	(D)	11.0	15.2	23.6
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	30.3	24.8	(D)	(D)	9.7	28.4	40.1
Generated less sold ---- mil kWh	–	–	–	–	–	–	–
Total value of shipments ---- mil dol	268.4	236.6	(D)	(D)	209.2	639.6	552.9
Value added ---- mil dol	146.0	122.5	(D)	(D)	92.2	343.8	316.5

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Waterproof outerwear (SIC 2385)				Leather and sheep-lined clothing (SIC 2386)	Apparel belts (SIC 2387)	Apparel and accessories, n.e.c. (SIC 2389)
	Total	Manufacturers (SIC 2385-11)	Jobbers (SIC 2385-22)	Contractors (SIC 2385-33)			
Inventories by stage of fabrication:							
Beginning of 1992 ---mil dol---	47.1	42.9	(D)	(D)	40.2	98.4	138.9
Finished goods ---mil dol---	19.9	19.2	(D)	(D)	19.8	46.2	81.4
Work in process ---mil dol---	8.6	7.7	(D)	(D)	3.8	13.1	20.3
Materials and supplies ---mil dol---	18.5	16.0	(D)	(D)	16.6	39.1	37.2
End of 1992 ---mil dol---	28.5	25.4	(D)	(D)	42.4	113.1	144.7
Finished goods ---mil dol---	9.9	8.9	(D)	(D)	24.5	56.2	84.5
Work in process ---mil dol---	6.7	5.7	(D)	(D)	5.8	12.6	21.4
Materials and supplies ---mil dol---	11.9	10.8	(D)	(D)	12.1	44.3	38.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fur goods (SIC 2371)	Fabrics dress and work gloves (SIC 2381)	Robes and dressing gowns (SIC 2384)	Waterproof outerwear (SIC 2385)	Leather and sheep-lined clothing (SIC 2386)	Apparel belts (SIC 2387)	Apparel and accessories, n.e.c. (SIC 2389)
Gross book value of depreciable assets:							
Total:							
Beginning of year	8.8	36.6	37.6	32.7	12.1	38.9	53.9
New capital expenditures[1]	1.9	2.8	2.2	2.5	1.3	5.2	5.4
Used capital expenditures	(Z)	(D)	(D)	.1	.1	.3	.7
Retirements	.4	(D)	(D)	4.8	.6	1.9	2.1
End of year	10.3	37.4	38.0	30.5	12.9	42.5	57.8
Buildings and other structures:							
Beginning of year	2.6	9.8	13.6	10.4	2.9	10.3	14.9
New capital expenditures	.3	.5	.5	.4	(D)	.1	(D)
Used capital expenditures	–	–	(D)	(D)	(D)	(D)	(D)
Retirements	(Z)	(Z)	(D)	(D)	(Z)	(D)	(Z)
End of year	2.9	10.4	14.1	8.8	2.9	10.0	15.5
Machinery and equipment:							
Beginning of year	6.2	26.8	23.9	22.3	9.2	28.6	38.9
New capital expenditures[1]	1.6	2.2	1.8	2.0	(D)	5.1	(D)
Used capital expenditures	(Z)	(D)	(D)	(D)	(D)	(D)	(D)
Retirements	.4	(D)	(D)	(D)	.6	(D)	2.1
End of year	7.4	27.0	23.9	21.7	10.1	32.5	42.2
Depreciation charges during 1992:							
Total	1.5	15.4	3.2	4.5	2.4	4.7	7.3
Buildings and other structures	.3	2.7	.6	1.0	.4	.7	1.2
Machinery and equipment	1.3	12.7	2.6	3.5	2.0	4.0	6.1
Rental payments:							
Total	5.0	1.8	4.8	2.6	3.6	11.1	9.7
Buildings and other structures	3.7	1.2	3.4	2.0	2.8	7.9	6.0
Machinery and equipment	1.3	.6	1.3	.7	.8	3.2	3.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fur goods (SIC 2371)		Fabrics dress and work gloves (SIC 2381)		Robes and dressing gowns (SIC 2384)		Waterproof outerwear (SIC 2385)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	(S)	(X)	.3	(X)	.2	(X)	.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
Machinery	(S)	(X)	2.4	(X)	.5	(X)	.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
Other purchased services:								
Communications	(S)	(X)	1.1	(X)	.6	(X)	.4	(X)
Response coverage ratio (percent)[2]	(S)	(X)	66.8	(X)	61.1	(X)	100.0	(X)
Legal	(S)	(X)	.3	(X)	.2	(X)	.3	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	63.7	(X)	100.0	(X)
Accounting and bookkeeping	(S)	(X)	.2	(X)	.4	(X)	.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
Advertising	(S)	(X)	2.0	(X)	.2	(X)	1.0	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
Software and other data processing	(S)	(X)	.2	(X)	.3	(X)	.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
Refuse removal, including hazardous waste	(S)	(X)	.3	(X)	.1	(X)	.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	70.1	(X)	68.7	(X)	100.0	(X)
New machinery and equipment expenditures	1.6	(X)	2.2	(X)	1.8	(X)	2.0	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	(Z)	(X)	(Z)	(X)	.1	76
Computers and peripheral data processing equipment	–	(X)	.3	4	.4	49	.2	11
All other	–	(X)	2.0	1	1.3	17	1.8	5
Adjustment ratio[3]	(S)	(X)	1.1	(X)	1.0	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	107.9	(X)	81.5	(X)	135.9	(X)	88.1	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	4.6	26	–	(X)	11.6	7
Materials purchased or transferred from domestic sources	(S)	(X)	76.9	3	135.9	1	76.5	1
Adjustment ratio[3]	(S)	(X)	1.0	(X)	1.5	(X)	1.4	(X)

Item	Leather and sheep-lined clothing (SIC 2386)		Apparel belts (SIC 2387)		Apparel and accessories, n.e.c. (SIC 2389)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	(Z)	(X)	(S)	(X)	.4	(X)
Response coverage ratio (percent)[2]	56.0	(X)	(S)	(X)	78.7	(X)
Machinery	.2	(X)	(S)	(X)	1.1	(X)
Response coverage ratio (percent)[2]	56.0	(X)	(S)	(X)	78.7	(X)
Other purchased services:						
Communications	.1	(X)	1.0	(X)	.7	(X)
Response coverage ratio (percent)[2]	54.8	(X)	57.2	(X)	60.1	(X)
Legal	.3	(X)	1.1	(X)	.8	(X)
Response coverage ratio (percent)[2]	56.0	(X)	68.3	(X)	71.9	(X)
Accounting and bookkeeping	.4	(X)	4.6	(X)	1.9	(X)
Response coverage ratio (percent)[2]	56.0	(X)	68.6	(X)	78.7	(X)
Advertising	.8	(X)	2.5	(X)	1.4	(X)
Response coverage ratio (percent)[2]	56.0	(X)	58.2	(X)	71.9	(X)
Software and other data processing	.1	(X)	.7	(X)	.4	(X)
Response coverage ratio (percent)[2]	56.0	(X)	52.0	(X)	71.9	(X)
Refuse removal, including hazardous waste	.1	(X)	.1	(X)	.2	(X)
Response coverage ratio (percent)[2]	56.0	(X)	52.0	(X)	78.7	(X)
New machinery and equipment expenditures	(D)	(X)	5.1	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	(D)	(X)	2.1	35	–	(X)
Computers and peripheral data processing equipment	.4	39	1.4	46	(S)	(X)
All other	.8	25	1.6	45	(S)	(X)
Adjustment ratio[3]	1.2	(X)	.8	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	107.5	(X)	229.7	(X)	184.8	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	31.8	24	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	197.9	5	(S)	(X)
Adjustment ratio[3]	(S)	(X)	1.8	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2371, FUR GOODS												
Total	**E6**	**211**	**1.0**	**23.5**	**.7**	**1.3**	**14.9**	**81.4**	**123.7**	**205.4**	**1.9**	**28.6**
Establishments with an average of—												
1 to 4 employees	E8	151	.3	5.1	.2	.3	3.5	20.3	29.7	49.2	.8	6.7
5 to 9 employees	E4	37	.3	6.6	.2	.3	3.6	23.2	31.4	54.5	.5	9.8
10 to 19 employees	E3	14	.2	3.5	.1	.2	2.1	7.2	15.6	23.9	.1	4.2
20 to 49 employees	E5	8	.3	8.2	.2	.5	5.7	30.7	47.0	77.8	.4	7.9
100 to 249 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	135	.2	4.0	.2	.3	2.8	15.6	24.8	40.4	.8	4.0
INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES												
Total	**E1**	**70**	**3.9**	**57.9**	**3.2**	**6.0**	**37.7**	**148.1**	**127.0**	**278.7**	**2.8**	**57.3**
Establishments with an average of—												
1 to 4 employees	E9	15	(Z)	.5	(Z)	(Z)	.3	1.0	1.1	2.2	(Z)	.3
5 to 9 employees	E9	7	.1	.6	(Z)	.1	.4	1.1	1.1	2.2	(Z)	.3
10 to 19 employees	–	9	.1	1.4	.1	.2	1.1	10.5	2.8	13.4	(Z)	1.3
20 to 49 employees	–	17	.6	6.6	.5	.9	5.1	13.0	12.1	24.9	.2	4.1
50 to 99 employees	E2	11	.8	9.9	.6	1.2	6.2	14.0	15.4	32.5	.5	7.3
100 to 249 employees	E2	8	2.3	38.8	1.9	3.6	24.5	108.5	94.4	203.6	2.0	43.9
250 to 499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	19	.1	1.0	.1	.1	.6	2.0	2.2	4.2	(Z)	.6
INDUSTRY 2384, ROBES AND DRESSING GOWNS												
Total	**–**	**81**	**6.8**	**85.9**	**5.7**	**10.2**	**60.0**	**182.8**	**192.8**	**373.5**	**2.2**	**62.8**
Establishments with an average of—												
1 to 4 employees	E1	10	(Z)	.3	(Z)	(Z)	.2	1.0	1.5	2.4	.6	.3
5 to 9 employees	E1	6	(Z)	.5	(Z)	(Z)	.3	.8	.8	1.6	(D)	.3
10 to 19 employees	E1	11	.1	2.6	.1	.2	1.1	9.5	34.7	44.4	(D)	4.0
20 to 49 employees	–	17	.5	6.9	.4	.6	4.4	17.6	14.0	31.6	.1	7.0
50 to 99 employees	–	17	1.2	13.3	1.0	1.6	9.6	23.7	31.9	54.7	.5	10.0
100 to 249 employees	–	12	2.0	21.7	1.5	2.5	14.1	29.2	27.1	55.3	.2	16.8
250 to 499 employees	–	8	3.0	40.6	2.7	5.2	30.4	101.0	82.9	183.4	.8	24.5
Covered by administrative records[2]	E5	12	.1	.8	.1	.1	.5	.7	.6	1.3	(Z)	.2
INDUSTRY 2385, WATERPROOF OUTERWEAR												
Total	**–**	**71**	**4.1**	**64.5**	**3.2**	**5.6**	**40.5**	**146.0**	**110.5**	**268.4**	**2.5**	**28.5**
Establishments with an average of—												
1 to 4 employees	E2	18	(Z)	.6	(Z)	(Z)	.2	2.9	2.7	5.5	(Z)	.8
5 to 9 employees	E5	7	(Z)	.7	(Z)	.1	.4	1.1	.9	2.1	(Z)	.2
10 to 19 employees	–	9	.1	2.1	.1	.2	1.7	3.9	2.2	6.1	.1	.9
20 to 49 employees	–	17	.5	8.0	.4	.7	4.8	15.0	10.7	26.2	.2	2.9
50 to 99 employees	–	8	.5	10.4	.3	.7	6.1	45.3	45.2	94.6	(D)	4.3
100 to 249 employees	–	6	.8	11.8	.6	1.1	7.6	20.9	19.5	40.0	2.1	11.3
250 to 499 employees	–	5	2.1	30.9	1.7	2.9	19.8	56.8	29.3	94.1	(D)	8.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E6	23	.1	.8	.1	.1	.5	1.7	1.5	3.2	(Z)	.4
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING												
Total	**–**	**117**	**2.5**	**45.9**	**2.0**	**3.7**	**28.6**	**92.2**	**123.8**	**209.2**	**1.3**	**42.4**
Establishments with an average of—												
1 to 4 employees	E5	45	.1	1.1	.1	.1	.6	3.0	3.3	6.2	(Z)	1.0
5 to 9 employees	E3	27	.2	2.6	.2	.3	1.7	5.3	5.8	10.8	.1	1.8
10 to 19 employees	–	13	.2	3.0	.1	.3	2.0	5.6	5.6	11.5	(Z)	2.0
20 to 49 employees	–	21	.6	10.3	.5	.8	6.2	18.9	20.0	38.0	.2	5.4
50 to 99 employees	–	4	.3	7.3	.2	.4	3.9	19.5	35.1	52.1	.4	13.9
100 to 249 employees	–	6	1.1	21.5	1.0	1.9	14.2	39.9	53.9	90.6	.6	18.3
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	35	.1	.8	.1	.1	.5	2.0	2.2	4.2	(Z)	.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2387, APPAREL BELTS												
Total	**E1**	**245**	**8.0**	**150.6**	**6.1**	**11.3**	**81.3**	**343.8**	**305.3**	**639.6**	**5.2**	**113.1**
Establishments with an average of—												
1 to 4 employees	E6	62	.1	2.0	.1	.1	1.2	5.1	5.4	10.5	.1	1.5
5 to 9 employees	E5	46	.3	4.4	.2	.4	2.5	9.9	10.1	19.6	.1	3.0
10 to 19 employees	E2	52	.7	9.8	.6	1.0	6.6	20.6	18.1	39.0	1.0	7.4
20 to 49 employees	E2	45	1.4	24.4	1.1	2.0	15.5	47.2	38.4	85.5	.4	10.8
50 to 99 employees	E1	23	1.5	23.2	1.3	2.2	14.7	46.1	47.3	91.4	.3	21.8
100 to 249 employees	E2	12	1.9	36.7	1.4	2.8	20.6	78.8	75.3	153.3	1.7	26.2
250 to 499 employees	–	3	2.1	50.1	1.4	2.8	20.3	136.1	110.8	240.3	1.6	42.4
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	81	.3	3.6	.3	.4	2.4	8.2	8.9	17.1	.1	2.6
INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.												
Total	**E2**	**407**	**10.4**	**149.2**	**8.5**	**14.7**	**101.9**	**316.5**	**240.6**	**552.9**	**5.4**	**144.7**
Establishments with an average of—												
1 to 4 employees	E6	151	.3	3.4	.2	.3	2.4	8.7	9.9	18.7	.1	4.3
5 to 9 employees	E5	69	.4	5.5	.4	.6	3.7	12.9	10.7	23.4	.2	4.4
10 to 19 employees	E2	64	.9	13.0	.7	1.2	8.7	21.7	21.8	43.8	.2	7.4
20 to 49 employees	E2	75	2.5	35.5	2.0	3.3	22.1	70.0	53.6	123.9	1.1	26.6
50 to 99 employees	E3	28	1.9	28.4	1.5	2.6	18.3	70.7	52.0	121.0	.6	25.2
100 to 249 employees	E3	15	2.3	30.6	1.9	3.5	23.4	56.3	44.3	98.2	1.3	25.7
250 to 499 employees	–	4	2.2	32.7	1.7	3.2	23.3	76.2	48.4	123.8	1.9	51.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	138	.3	3.2	.3	.3	2.2	7.3	8.0	15.3	.1	3.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2371	**Fur goods:**										
	All establishments in industry	211	1.0	23.5	.7	1.3	14.9	81.4	123.7	205.4	1.9
2381	**Fabrics dress and work gloves:**										
	All establishments in industry	70	3.9	57.9	3.2	6.0	37.7	148.1	127.0	278.7	2.8
	Establishments with this product class primary:										
23813	Gloves and mittens made from purchased fabrics	37	3.6	53.6	2.9	5.4	34.4	141.4	119.9	264.9	2.7
23814	Gloves and mittens made from leather-and-fabrics combinations	13	.3	3.2	.2	.4	2.5	4.5	4.7	9.3	(Z)
2384	**Robes and dressing gowns:**										
	All establishments in industry	81	6.8	85.9	5.7	10.2	60.0	182.8	192.8	373.5	2.2
2385	**Waterproof outerwear:**										
	All establishments in industry	71	4.1	64.5	3.2	5.6	40.5	146.0	110.5	268.4	2.5
	Establishments with this product class primary:										
23851	Raincoats and other waterproof outergarments	37	3.3	52.0	2.6	4.5	31.9	126.9	106.5	245.3	2.2
23859	Receipts for contract and commission work on raincoats and other waterproof outergarments	15	.7	11.9	.6	1.1	8.2	17.6	2.6	20.3	(D)
2386	**Leather and sheep-lined clothing:**										
	All establishments in industry	117	2.5	45.9	2.0	3.7	28.6	92.2	123.8	209.2	1.3
2387	**Apparel belts:**										
	All establishments in industry	245	8.0	150.6	6.1	11.3	81.3	343.8	305.3	639.6	5.2
	Establishments with this product class primary:										
23871	Leather belts	62	4.7	95.5	3.4	6.6	47.5	232.5	197.5	424.1	3.3
23872	Belts other than leather	67	2.6	44.9	2.1	3.7	27.5	89.6	86.8	173.0	1.6
2389	**Apparel and accessories, n.e.c.:**										
	All establishments in industry	407	10.4	149.2	8.5	14.7	101.9	316.5	240.6	552.9	5.4

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2371, FUR GOODS			
Total value of shipments	205.4	422.6	419.3
Primary products value of shipments	196.4	398.9	395.6
Secondary products value of shipments	(D)	1.0	.2
Total miscellaneous receipts	(D)	22.7	23.5
Value of resales	(D)	14.8	(D)
Contract receipts	4.6	7.0	11.6
Other miscellaneous receipts	.1	.9	(D)
Primary products specialization ratio	(D)	100	99
Value of primary products shipments made in all industries	199.4	399.2	397.9
Value of primary products shipments made in this industry	196.4	398.9	395.6
Value of primary products shipments made in other industries	3.0	.3	2.2
Coverage ratio	99	100	99
INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES			
Total value of shipments	278.7	180.8	208.4
Primary products value of shipments	197.2	161.6	175.8
Secondary products value of shipments	(D)	7.6	22.5
Total miscellaneous receipts	(D)	11.6	10.1
Value of resales	39.2	8.0	8.1
Contract receipts	(D)	3.4	(D)
Other miscellaneous receipts	.5	.2	(D)
Primary products specialization ratio	(D)	96	89
Value of primary products shipments made in all industries	210.7	192.4	206.6
Value of primary products shipments made in this industry	197.2	161.6	175.8
Value of primary products shipments made in other industries	13.5	30.7	30.8
Coverage ratio	94	84	85
INDUSTRY 2384, ROBES AND DRESSING GOWNS			
Total value of shipments	373.5	502.6	403.6
Primary products value of shipments	300.0	367.4	335.6
Secondary products value of shipments	11.1	45.6	21.8
Total miscellaneous receipts	62.3	89.7	46.2
Value of resales	(D)	38.0	(D)
Contract receipts	22.6	51.7	30.7
Other miscellaneous receipts	(D)	(Z)	(D)
Primary products specialization ratio	96	89	94
Value of primary products shipments made in all industries	386.0	502.3	416.0
Value of primary products shipments made in this industry	300.0	367.4	335.6
Value of primary products shipments made in other industries	86.0	134.9	80.4
Coverage ratio	78	73	81
INDUSTRY 2385, WATERPROOF OUTERWEAR			
Total value of shipments	268.4	333.0	449.2
Primary products value of shipments	221.7	273.9	376.5
Secondary products value of shipments	22.6	27.8	45.1
Total miscellaneous receipts	24.1	31.4	27.6
Value of resales	24.0	31.1	15.9
Contract receipts	(D)	.1	11.6
Other miscellaneous receipts	(D)	.2	(Z)
Primary products specialization ratio	91	91	89
Value of primary products shipments made in all industries	246.5	318.1	429.7
Value of primary products shipments made in this industry	221.7	273.9	376.5
Value of primary products shipments made in other industries	24.8	44.2	53.1
Coverage ratio	90	86	88
INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING			
Total value of shipments	209.2	201.8	221.3
Primary products value of shipments	193.2	169.8	194.2
Secondary products value of shipments	(D)	7.9	17.6
Total miscellaneous receipts	(D)	24.2	9.5
Value of resales	6.4	20.6	4.8
Contract receipts	5.4	3.5	(D)
Other miscellaneous receipts	(D)	(Z)	(D)
Primary products specialization ratio	(D)	96	92
Value of primary products shipments made in all industries	199.0	175.1	207.3
Value of primary products shipments made in this industry	193.2	169.8	194.2
Value of primary products shipments made in other industries	5.8	5.4	13.1
Coverage ratio	97	97	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2387, APPAREL BELTS			
Total value of shipments	639.6	627.8	556.5
Primary products value of shipments	514.1	513.6	452.5
Secondary products value of shipments	42.4	39.6	54.6
Total miscellaneous receipts	83.0	74.5	49.4
Value of resales	76.0	61.4	38.3
Contract receipts	6.4	13.1	11.0
Other miscellaneous receipts	.6	(Z)	.1
Primary products specialization ratio	92	93	89
Value of primary products shipments made in all industries	547.9	546.8	474.2
Value of primary products shipments made in this industry	514.1	513.6	452.5
Value of primary products shipments made in other industries	33.8	33.2	21.7
Coverage ratio	94	94	95
INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.			
Total value of shipments	552.9	383.4	279.2
Primary products value of shipments	431.1	308.7	222.0
Secondary products value of shipments	46.2	29.6	21.8
Total miscellaneous receipts	75.5	45.0	35.4
Value of resales	43.8	22.9	24.2
Contract receipts	29.9	21.8	9.4
Other miscellaneous receipts	1.8	.3	1.6
Primary products specialization ratio	90	91	91
Value of primary products shipments made in all industries	476.6	458.5	243.2
Value of primary products shipments made in this industry	431.1	308.7	222.0
Value of primary products shipments made in other industries	45.5	149.8	21.2
Coverage ratio	90	67	91

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2371– —	**FUR GOODS**				
	Total	**(NA)**	**199.4**	**(NA)**	**399.2**
23710	Fur goods	(NA)	199.4	(NA)	399.2
23710 00	Fur coats, capes, jackets, neck pieces, fur linings, and other fur garments, accessories, and trimmings	72	159.0	124	320.8
23710 02	Fur goods, n.s.k.[3]	(NA)	40.4	(NA)	78.4
2381– —	**DRESS AND WORK GLOVES AND MITTENS**				
	Total	**(NA)**	**210.7**	**(NA)**	**192.4**
23813	Gloves and mittens made from purchased fabrics	(NA)	184.3	(NA)	139.6
23813 00	Gloves and mittens made from woven or purchased knit fabrics[4 5]	34	184.3	30	139.6
23814	Gloves and mittens made from leather-and-fabrics combinations	(NA)	22.2	(NA)	43.0
23814 00	Gloves and mittens made from leather-and-fabrics combinations[4 5]	24	22.2	32	43.0
23810	Dress and work gloves and mittens, n.s.k.	(NA)	4.2	(NA)	9.7
23810 00	Dress and work gloves and mittens, n.s.k.[6]	(NA)	–	(NA)	–
23810 02	Dress and work gloves and mittens, n.s.k.[3]	(NA)	4.2	(NA)	9.7
2384– —	**ROBES AND DRESSING GOWNS**				
	Total	**(NA)**	**386.0**	**(NA)**	**502.3**
23840	Robes and dressing gowns (including brunch coats and housecoats)	(NA)	386.0	(NA)	502.3
23840 11	Men's and boys' robes and dressing gowns (including smoking jackets)[4]	14	78.0	25	149.1
23840 21	Women's, misses', and juniors' robes and dressing gowns[4]	45	302.5	47	335.4
23840 00	Robes and dressing gowns, n.s.k.[7]	(NA)	4.7	(NA)	12.9
23840 02	Robes and dressing gowns, n.s.k.[8]	(NA)	.8	(NA)	4.9

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2385– —	**WATERPROOF OUTERWEAR**				
	Total	**(NA)**	**246.5**	**(NA)**	**318.1**
23851	Raincoats and other waterproof outergarments	(NA)	223.5	(NA)	288.9
23851 40	Raincoats and raincapes[4]	29	175.4	35	256.0
23851 71	Baby pants and diaper covers, plastics and rubberized	3	13.3	3	4.7
23851 98	All other plastics or rubberized waterproof outergarments (including aprons, smocks, bibs, dress shields, etc.)	15	34.8	13	28.3
23851 00	Raincoats and other waterproof outergarments, n.s.k.	(NA)	–	(NA)	–
23859	Receipts for contract and commission work on raincoats and other waterproof outergarments	(NA)	20.4	(NA)	11.5
23859 00	Receipts for contract and commission work on raincoats and other waterproof outergarments	11	20.1	9	11.5
23850	Waterproof outerwear, n.s.k.	(NA)	2.7	(NA)	17.7
23850 00	Waterproof outerwear, n.s.k.[9]	(NA)	–	(NA)	7.0
23850 02	Waterproof outerwear, n.s.k.[10]	(NA)	2.7	(NA)	10.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2386– —	**LEATHER AND SHEEP-LINED CLOTHING**						
	Total	**(NA)**	**(X)**	**199.0**	**(NA)**	**(X)**	**175.1**
23860	Leather and sheep-lined clothing	(NA)	(X)	199.0	(NA)	(X)	175.1
	Leather coats and jackets:						
23860 15	Men's and boys' 1,000 dozens	27	88.5	98.3	32	67.3	68.3
23860 53	Women's, misses', and juniors' 1,000 dozens	28	70.7	60.4	34	62.1	58.8
23860 98	All other leather clothing and sheep-lined clothing, including children's 1,000 dozens	18	*43.6	27.9	21	66.5	36.3
23860 00	Leather and sheep-lined clothing, n.s.k.[6]	(NA)	(X)	8.2	(NA)	(X)	3.4
23860 02	Leather and sheep-lined clothing, n.s.k.[3]	(NA)	(X)	4.2	(NA)	(X)	8.4
2387– —	**APPAREL BELTS**						
	Total	**(NA)**	**(X)**	**547.9**	**(NA)**	**(X)**	**546.8**
23871	Leather belts	(NA)	(X)	348.2	(NA)	(X)	329.4
	Women's and children's:						
23871 13	Made for sale to apparel firms 1,000 dozens	33	(S)	74.5	53	(S)	83.1
23871 15	Made for sale separately 1,000 dozens	24	1 353.2	43.5	29	1 620.8	55.6
	Men's and boys':						
23871 53	Made for sale to apparel firms 1,000 dozens	25	*1 981.0	86.5	35	**1 989.7	83.1
23871 55	Made for sale separately 1,000 dozens	22	2 373.1	141.7	25	(S)	106.1
23871 00	Leather belts, n.s.k.	(NA)	(X)	2.0	(NA)	(X)	1.6
23872	Belts other than leather	(NA)	(X)	164.7	(NA)	(X)	177.7
	Women's and children's:						
23872 13	Made for sale to apparel firms 1,000 dozens	42	*3 214.1	55.6	43	**3 548.6	53.8
23872 15	Made for sale separately 1,000 dozens	17	2 672.7	41.4	28	**4 048.5	46.4
	Men's and boys':						
23872 53	Made for sale to apparel firms 1,000 dozens	21	*1 192.8	33.7	34	(S)	49.2
23872 55	Made for sale separately 1,000 dozens	19	1 540.1	28.0	17	2 055.2	28.3
23872 00	Belts other than leather, n.s.k.	(NA)	(X)	6.0	(NA)	(X)	(Z)
23870	Apparel belts, n.s.k.	(NA)	(X)	35.1	(NA)	(X)	39.7
23870 00	Apparel belts, n.s.k.[6]	(NA)	(X)	18.0	(NA)	(X)	23.7
23870 02	Apparel belts, n.s.k.[3]	(NA)	(X)	17.1	(NA)	(X)	16.0
2389– —	**APPAREL AND ACCESSORIES, N.E.C.**						

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2389– —	**APPAREL AND ACCESSORIES, N.E.C.**—Con.						
	Total	**(NA)**	**(X)**	**476.6**	**(NA)**	**(X)**	**458.5**
23890	Apparel, n.e.c.	(NA)	(X)	476.6	(NA)	(X)	458.5
23890 31	Garters, hose supporters, arm bands, and suspenders—1,000 dozens	15	(S)	33.5	20	**1 428.2	32.9
23890 53	Men's and boys' handkerchiefs—1,000 dozens	7	(D)	(D)	(NA)	(S)	51.8
23890 57	Women's and children's handkerchiefs—1,000 dozens	2					
23890 71	Garter belts	5	(X)	14.9	3	(X)	9.4
23890 81	Burial garments—1,000 dozens	7	(D)	(D)	8	(S)	10.5
23890 91	Academic caps and gowns, and costumes, including theatrical	61	(X)	197.8	48	(X)	138.1
23890 98	Ecclesiastical vestments, special garments for fraternal orders, except tailored clothing and military-type uniforms	47	(X)	59.6	37	(X)	164.6
23890 00	Apparel and accessories, n.e.c., n.s.k.[6]	(NA)	(X)	105.7	(NA)	(X)	27.2
23890 02	Apparel and accessories, n.e.c., n.s.k.[3]	(NA)	(X)	15.5	(NA)	(X)	24.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with less than 5 employees.
[4]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[5]This product code is primary to more than one industry.
[6]Typically for establishments with 5 employees or more.
[7]Typically for establishments with 15 employees or more.
[8]Typically for establishments with less than 15 employees.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Gloves and mittens	(NA)	427.3	(NA)	402.4
22590 20	Made in knitting mills	14	108.0	17	86.1
23813 00	Made from purchased knit fabrics	34	184.3	30	139.6
23814 00	Made from purchased leather-and-fabric (combinations)	24	22.2	32	43.0
31510 00	Gloves and mittens, all leather	50	112.8	48	133.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23813, GLOVES AND MITTENS MADE FROM PURCHASED FABRICS		
United States	**184.3**	**139.6**
Mississippi	40.5	51.2
North Carolina	48.5	34.0
Pennsylvania	6.2	(NA)
23814, GLOVES AND MITTENS MADE FROM LEATHER-AND-FABRICS COMBINATIONS		
United States	**22.2**	**43.0**
New York	3.9	5.8
23851, RAINCOATS AND OTHER WATERPROOF OUTERGARMENTS		
United States	**223.5**	**288.9**
Missouri	3.1	(NA)
New York	15.0	23.7
Oregon	5.9	(NA)
23859, RECEIPTS FOR CONTRACT AND COMMISSION WORK ON RAINCOATS AND OTHER WATERPROOF OUTERGARMENTS		
United States	**20.4**	**11.5**
23871, LEATHER BELTS		
United States	**348.2**	**329.4**
California	106.1	46.0
Louisiana	5.1	3.1
New York	57.2	108.2
Rhode Island	5.0	(NA)
Texas	24.9	29.2
23872, BELTS OTHER THAN LEATHER		
United States	**164.7**	**177.7**
California	32.4	10.8
Massachusetts	12.7	(NA)
New York	75.7	103.0
Pennsylvania	6.6	17.6
Texas	10.8	8.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2371-	**Fur goods**	**199.4**	**240.6**	**359.3**	**382.0**	**379.5**	**399.2**	**397.9**	**358.5**
23710	Fur goods	199.4	240.6	359.3	382.0	379.5	399.2	397.9	358.5
2381-	**Dress and work gloves and mittens**	**210.7**	**182.9**	**252.8**	**162.1**	**180.3**	**192.4**	**206.6**	**278.3**
23813	Gloves and mittens made from purchased fabrics	184.3	154.3	196.6	106.6	122.1	139.6	195.0	262.3
23814	Gloves and mittens made from leather-and-fabrics combinations	22.2	19.1	43.1	44.6	44.9	43.0		
23810	Dress and work gloves and mittens, n.s.k.	4.2	9.5	13.0	10.8	13.3	9.7	11.6	16.0
2384-	**Robes and dressing gowns**	**386.0**	**379.2**	**339.4**	**449.3**	**524.6**	**502.3**	**416.0**	**243.3**
23840	Robes and dressing gowns (including brunch coats and housecoats)	386.0	379.2	339.4	449.3	524.6	502.3	416.0	243.3
2385-	**Waterproof outerwear**	**246.5**	**275.0**	**254.8**	**209.6**	**265.0**	**318.1**	**429.7**	**338.9**
23851	Raincoats and other waterproof outergarments	223.5	239.3	214.2	170.7	227.4	288.9	357.0	285.8
23859	Receipts for contract and commission work on raincoats and other waterproof outergarments	20.4	20.6	24.7	22.5	13.3	11.5	37.7	25.8
23850	Waterproof outerwear, n.s.k.	2.7	15.0	15.8	16.4	24.3	17.7	35.0	27.3
2386-	**Leather and sheep-lined clothing**	**199.0**	**201.3**	**161.2**	**158.2**	**191.7**	**175.1**	**207.3**	**210.6**
23860	Leather and sheep-lined clothing	199.0	201.3	161.2	158.2	191.7	175.1	207.3	210.6
2387-	**Apparel belts**	**547.9**	**553.5**	**604.6**	**601.3**	**558.3**	**546.8**	**474.2**	**244.3**
23871	Leather belts	348.2	304.3	309.7	296.4	325.8	329.4	261.5	155.5
23872	Belts other than leather	164.7	199.1	242.9	266.9	182.6	177.7	164.7	58.2
23870	Apparel belts, n.s.k.	35.1	50.1	52.0	38.0	49.9	39.7	48.0	30.6
2389-	**Apparel and accessories, n.e.c.**	**476.6**	**382.6**	**420.5**	**432.3**	**432.6**	**458.5**	**243.2**	**175.7**
23890	Apparel, n.e.c.	476.6	382.6	420.5	432.3	432.6	458.5	243.2	175.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 2371, FUR GOODS				
	(Material data were not collected for this industry.)				
	INDUSTRY 2381, FABRICS DRESS AND WORK GLOVES				
	Materials, ingredients, containers, and supplies	**(X)**	**81.5**	**(X)**	**72.9**
220129	Broadwoven fabrics (piece goods) mil lin yd	491.8	17.1	(S)	29.9
225078	Knit fabrics mil lb	**4.3	10.1	(S)	19.2
228015	Yarn, all fibers mil lb	9.1	13.3	(S)	1.7
306990	Rubber compounds or mixtures mil lb	(D)	[3]	(NA)	[4]
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	2.4	2.5	(NA)	[4]
311100	Finished leather mil sq ft	(S)	5.5	(NA)	9.3
970099	All other materials and components, parts, containers, and supplies	(X)	[3]22.2	(X)	[4]8.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	10.9	(X)	4.4

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2384, ROBES AND DRESSING GOWNS		
	Materials, ingredients, containers, and supplies	**135.9**	**206.9**
220129	Broadwoven fabrics (piece goods)	52.9	91.8
224111	Narrow woven fabrics, elastic and nonelastic	[3]	[4]
225078	Knit fabrics	58.2	95.6
228015	Yarn, all fibers	7.7	[4]
311100	Finished leather	–	[4]
396501	Buttons, zippers, and slide fasteners	[3]	[4]
970099	All other materials and components, parts, containers, and supplies	[3]12.4	[4]10.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	4.8	9.2
	INDUSTRY 2385, WATERPROOF OUTERWEAR		
	Materials, ingredients, containers, and supplies	**88.1**	**132.5**
220129	Broadwoven fabrics (piece goods)	(D)	78.4
225078	Knit fabrics		
224111	Narrow woven fabrics, elastic and nonelastic	.6	[4]
228015	Yarn, all fibers	[3]	[4]
311100	Finished leather	–	[4]
396501	Buttons, zippers, and slide fasteners	7.6	[4]
970099	All other materials and components, parts, containers, and supplies	[3]16.7	[4]46.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	1.5	7.9
	INDUSTRY 2386, LEATHER AND SHEEP-LINED CLOTHING		
	Materials, ingredients, containers, and supplies	**107.5**	**82.4**
220129	Broadwoven fabrics (piece goods)	(D)	11.3
225078	Knit fabrics		
224111	Narrow woven fabrics, elastic and nonelastic	1.5	[4]
228015	Yarn, all fibers	[3]	[4]
311100	Finished leather	80.1	52.7
396501	Buttons, zippers, and slide fasteners	4.6	[4]
970099	All other materials and components, parts, containers, and supplies	[3]6.6	[4]10.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	7.2	7.8
	INDUSTRY 2387, APPAREL BELTS		
	Materials, ingredients, containers, and supplies	**229.7**	**225.7**
220129	Broadwoven fabrics (piece goods)	14.6	19.7
224111	Narrow woven fabrics, elastic and nonelastic	5.4	[4]
225078	Knit fabrics	7.2	13.6
228015	Yarn, all fibers	[3]	[4]
311100	Finished leather	100.4	90.5
396501	Buttons, zippers, and slide fasteners	6.9	[4]
970099	All other materials and components, parts, containers, and supplies	[3]74.9	[4]79.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	20.4	22.5
	INDUSTRY 2389, APPAREL AND ACCESSORIES, N.E.C.		
	Materials, ingredients, containers, and supplies	**184.8**	**137.3**
220129	Broadwoven fabrics (piece goods)	41.9	52.9
224111	Narrow woven fabrics, elastic and nonelastic	9.3	[4]
225078	Knit fabrics	13.7	24.7
228015	Yarn, all fibers	[3]	[4]
311100	Finished leather	1.3	[4]
396501	Buttons, zippers, and slide fasteners	2.3	[4]
970099	All other materials and components, parts, containers, and supplies	[3]40.9	[4]34.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	75.3	25.1

See footnotes at end of table.

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[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1992, data are included with material code 970099, All other materials and components, parts, containers, and supplies, to comply with disclosure constraints.
[4]For 1987, data are included with material code 970099, All other materials and components, parts, containers, and supplies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2311500	MA23A, Apparel	2339500	MA23A, Apparel
2311600	MA23A, Apparel	2339730	MA23A, Apparel
2311700	MA23A, Apparel	2339760	MA23A, Apparel
2321300	MA23A, Apparel	2339780	MA23A, Apparel
2321600	MA23A, Apparel	2341200	MA23A, Apparel
2322100	MA23A, Apparel	2341300	MA23A, Apparel
2322200	MA23A, Apparel	2342100	MA23A, Apparel
2325100	MA23A, Apparel	2342210	MA23A, Apparel
2325200	MA23A, Apparel	2361300	MA23A, Apparel
2326100	MA23A, Apparel	2361400	MA23A, Apparel
2326200	MA23A, Apparel	2361500	MA23A, Apparel
2329100	MA23A, Apparel	2369200	MA23A, Apparel
2329310	MA23A, Apparel	2369340	MA23A, Apparel
2329330	MA23A, Apparel	2369370	MA23A, Apparel
2329360	MA23A, Apparel	2369380	MA23A, Apparel
2329380	MA23A, Apparel	2369393	MA23A, Apparel
2331300	MA23A, Apparel	2381300	MA23D, Gloves and Mittens
2331400	MA23A, Apparel	2381400	MA23D, Gloves and Mittens
2335300	MA23A, Apparel	2384011	MA23A, Apparel
2337100	MA23A, Apparel	2384021	MA23A, Apparel
2337200	MA23A, Apparel	2385140	MA23A, Apparel
2337410	MA23A, Apparel	2392200	MQ23X, Sheets, Pillowcases, and Towels
2337420	MA23A, Apparel	2392310	MQ23X, Sheets, Pillowcases, and Towels
2339200	MA23A, Apparel	2392313	MQ23X, Sheets, Pillowcases, and Towels
2339400	MA23A, Apparel		

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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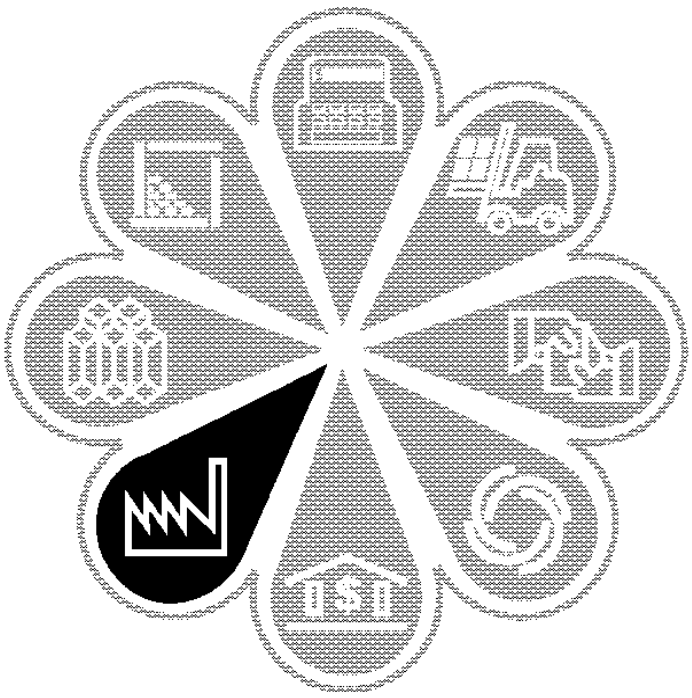
1992 Census of Manufactures

MC92-I-23E

INDUSTRY SERIES

Miscellaneous Fabricated Textile Products

Industries 2391, 2392, 2393, 2394, 2395, 2396, 2397, and 2399



U.S. Department of Commerce
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BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-23E

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Everett M. Ehrlich, Under Secretary for Economic Affairs

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-14183660.DAT;1 5/18/95 14:18:42 UTF:TIPS93-14183660.DAT;1 5/18/95 14:18:42 META:TIPS96-14183660.DAT;1 5/18/95 14:18:55

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2391	Curtains and Draperies
2392	Housefurnishings, N.E.C.
2393	Textile Bags
2394	Canvas and Related Products
2395	Pleating and Stitching
2396	Automotive and Apparel Trimmings
2397	Schiffli Machine Embroideries
2399	Fabricated Textile Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2391, CURTAINS AND DRAPERIES

This industry is made up of establishments primarily engaged in manufacturing curtains and draperies from purchased materials. Establishments primarily engaged in manufacturing lace curtains on lace machines are classified in industry 2258. Establishments primarily engaged in manufacturing shower curtains are classified in industry 2392.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2391, Curtains and Draperies, had employment of 21.8 thousand. The employment figure was 20 percent below the 27.1 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Massachusetts, Texas, and Georgia, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when North Carolina, California, Massachusetts, and New York accounted for approximately 49 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2391 shipped $1.0 billion of curtains and draperies products considered primary to the industry, $86.1 million of secondary products, and had $153.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2391, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the curtains and draperies industry amounted to $690.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of the total value of shipments.

INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing housefurnishings, such as blankets, bedspreads, sheets, tablecloths, towels, and shower curtains from purchased materials. Establishments primarily engaged in manufacturing curtains and draperies are classified in industry 2391. Certain products primary to industry 2392 are also primary to industries 2211, 2221, and 2231. Establishments engaged in producing housefurnishings primarily of fabrics woven at the same establishment are classified in industries 2211, 2221, 2231, or 2299 according to fiber. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-23X, Bed and Bath Furnishings. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2392, Housefurnishings, N.E.C., had employment of 52.0 thousand. The employment figure was 3 percent above the 50.5 thousand reported in 1987. Compared with 1991, employment increased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, South Carolina, Georgia, and California, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when California, New York, Georgia, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $5.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2392 shipped $5.1 billion of housefurnishings, not elsewhere classified, considered primary to the industry, $334.8 million of secondary products, and had $187.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2392, no matter in what industry they were produced, appear in table 6a and aggregate to $5.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the housefurnishings, not elsewhere classified, industry amounted to $3.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2393, TEXTILE BAGS

This industry is made up of establishments primarily engaged in manufacturing shipping and other industrial bags from purchased fabrics. Establishments primarily engaged in manufacturing plastics bags are classified in industry 2673. Establishments primarily engaged in manufacturing laundry, wardrobe, shoe, and other textile housefurnishing bags are classified in industry 2392; and those manufacturing luggage are classified in industry 3161.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2393, Textile Bags, had employment of 11.9 thousand. The employment figure was 35 percent above the 8.8 thousand reported in 1987. Compared with 1991, employment increased 105 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Georgia, North Carolina, and Texas, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, New Jersey, North Carolina, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $778.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2393 shipped $675.4 million of textile bags products considered primary to the industry, $52.9 million of secondary products, and had $50.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 2393, no matter in what industry they were produced, appear in table 6a and aggregate to $734.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the textile bags industry amounted to $443.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2394, CANVAS AND RELATED PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing awnings, tents, and related products from purchased fabrics. Establishments primarily engaged in manufacturing canvas bags are classified in industry 2393.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2394, Canvas and Related Products, had employment of 14.2 thousand. The employment figure was 15 percent below the 16.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, Indiana, and New York, accounting for approximately 67 percent of the industry's employment. This represents a shift from 1987 when California, Florida, New York, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2394 shipped $990.2 million of canvas and related products considered primary to the industry, $49.9 million of secondary products, and had $67.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2394, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the canvas and related products industry amounted to $538.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

INDUSTRY 2395, PLEATING AND STITCHING

This industry is made up of establishments primarily engaged in pleating, decorative and novelty stitching, and tucking for the trade. Establishments primarily engaged in performing similar services for individuals are classified in service industries. Establishments primarily engaged in manufacturing trimmings are classified in industry 2396.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2395, Pleating and Stitching, had employment of 13.7 thousand. The employment figure was 7 percent below the 14.1 thousand reported in 1987.

The leading States in employment in 1992 were California, New Jersey, New York, and North Carolina, accounting for approximately 47 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 60 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $726.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2395 shipped $638.4 million of pleating and stitching products considered primary to the industry, $45.5 million of secondary products, and had $42.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2395, no matter in what industry they were produced, appear in table 6a and aggregate to $786.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pleating and stitching industry amounted to $355.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 35 percent of the total value of shipments.

INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS

This industry is made up of establishments primarily engaged in manufacturing automotive trimmings, apparel findings, and related products. Also included in this industry are establishments primarily engaged in printing and stamping on fabric articles.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2396, Automotive and Apparel Trimmings, had employment of 57.1 thousand. The employment figure was 29 percent above the 44.2 thousand reported in 1987. Compared with 1991, employment increased 27 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, New York, California, and Ohio, accounting for approximately 51 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $6.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2396 shipped $5.7 billion of automotive and apparel trimmings products considered primary to the industry, $189.8 million of secondary products, and had $214.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2396, no matter in what industry they were produced, appear in table 6a and aggregate to $5.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the automotive and apparel trimmings industry amounted to $3.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES

This industry is made up of establishments primarily engaged in manufacturing schiffli machine embroideries.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2397, Schiffli Machine Embroideries, had employment of 5.5 thousand. The employment figure was 7 percent below the 5.9 thousand reported in 1987.

The leading States in employment in 1992 were New Jersey, South Carolina, and North Carolina. The leading State in 1987 was New Jersey.

The total value of shipments for establishments classified in this industry was $311.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

2397 shipped $238.5 million of schiffli machine embroideries products considered primary to the industry, $22.5 million of secondary products, and had $50.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2397, no matter in what industry they were produced, appear in table 6a and aggregate to $250.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the schiffli machine embroideries industry amounted to $124.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing fabricated textile products, not elsewhere classified. Certain products primary to industry 2399 also are primary to industry 2211.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2399, Fabricated Textile Products, N.E.C., had employment of 34.3 thousand. The employment figure was 12 percent above the 30.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Georgia, and South Carolina, accounting for approximately 27 percent of the industry's employment. The leading States in 1987 were California, Georgia, New York, and Alabama.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2399 shipped $2.8 billion of fabricated textile products, not elsewhere classified, products considered primary to the industry, $134.9 million of secondary products, and had $258.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2399, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated textile products, not elsewhere classified, industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2391, CURTAINS AND DRAPERIES															
1992 Census	1 004	1 040	177	21.8	337.3	16.7	31.2	218.9	593.3	690.2	1 284.1	16.1	198.6	92	88
1991 ASM	(NA)	(NA)	(NA)	21.7	320.7	17.0	31.4	209.7	677.3	789.6	1 461.9	14.7	224.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.4	329.5	18.5	34.4	216.1	685.4	824.8	1 499.2	10.5	226.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.4	331.7	19.4	35.9	223.1	653.8	867.4	1 502.7	12.0	224.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.3	338.1	21.0	37.5	222.3	700.3	809.1	1 496.1	10.4	213.2	(NA)	(NA)
1987 Census	1 215	1 250	239	27.1	342.7	21.4	39.3	230.0	720.1	823.6	1 539.6	14.9	203.4	94	93
1986 ASM	(NA)	(NA)	(NA)	27.8	323.5	22.6	43.6	226.1	685.6	852.9	1 530.7	10.4	196.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	25.6	300.3	20.5	38.4	201.7	589.1	785.4	1 379.0	6.8	175.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.2	272.4	21.0	35.6	193.3	562.0	727.4	1 282.7	7.5	175.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.0	232.5	19.8	34.4	168.2	462.0	644.8	1 098.0	4.0	166.6	(NA)	(NA)
1982 Census	1 328	1 371	254	24.1	233.7	19.7	33.8	170.5	442.1	614.9	1 062.0	6.3	159.7	94	91
1981 ASM	(NA)	(NA)	(NA)	23.3	221.5	19.1	35.0	151.5	456.5	622.4	1 077.2	8.0	169.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.4	228.5	23.7	42.2	164.3	444.0	584.5	1 053.4	11.8	158.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.3	245.3	27.2	48.3	179.0	488.3	544.5	1 050.2	15.7	149.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.5	247.7	29.1	51.7	177.2	425.6	654.0	1 081.4	15.7	160.3	(NA)	(NA)
1977 Census	1 650	1 712	324	31.7	224.7	27.2	47.9	163.6	407.3	605.5	1 013.1	7.2	151.2	95	93
INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.															
1992 Census	791	868	353	52.0	870.3	44.3	87.8	643.5	2 374.2	3 269.6	5 614.3	83.6	891.4	94	95
1991 ASM	(NA)	(NA)	(NA)	45.4	714.6	38.3	77.8	515.8	2 007.2	3 028.7	5 021.0	63.7	797.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	44.8	672.4	37.7	73.9	480.0	1 967.3	2 904.3	4 871.9	66.7	793.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	45.2	673.1	38.2	75.2	483.2	1 934.0	2 780.9	4 665.2	63.6	753.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	50.5	723.3	42.6	82.0	515.0	1 839.7	2 766.2	4 625.9	46.3	754.2	(NA)	(NA)
1987 Census	860	944	402	50.5	713.7	42.8	83.8	518.6	1 759.3	2 816.4	4 530.0	44.2	737.1	94	90
1986 ASM	(NA)	(NA)	(NA)	48.5	649.6	39.8	78.6	452.2	1 412.0	2 622.5	4 035.7	43.5	608.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	47.5	612.2	39.3	74.5	427.4	1 405.2	2 537.4	3 951.4	38.7	600.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.8	588.4	38.7	74.3	417.8	1 371.5	2 383.7	3 800.0	57.7	577.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	46.8	503.8	37.8	76.9	356.4	1 307.4	2 223.5	3 440.6	25.0	639.4	(NA)	(NA)
1982 Census	880	958	399	49.3	518.2	39.8	77.6	369.0	1 249.0	1 994.3	3 262.2	38.8	581.5	92	87
1981 ASM	(NA)	(NA)	(NA)	43.2	457.3	35.6	68.9	314.5	1 127.2	1 750.8	2 846.3	18.8	507.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	44.0	416.7	36.7	71.0	299.1	969.2	1 641.8	2 600.1	16.4	464.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.4	407.5	38.8	74.2	293.3	916.4	1 616.5	2 502.4	27.9	455.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	50.2	411.4	42.4	79.1	296.4	827.3	1 597.1	2 417.6	28.1	401.4	(NA)	(NA)
1977 Census	980	1 051	403	47.5	366.4	39.8	75.4	260.0	782.9	1 541.4	2 294.0	26.9	393.0	89	87
INDUSTRY 2393, TEXTILE BAGS															
1992 Census	298	311	131	11.9	185.9	9.6	19.0	123.2	336.2	443.4	778.5	12.0	121.1	93	92
1991 ASM	(NA)	(NA)	(NA)	5.8	104.8	4.7	8.9	69.7	239.4	299.3	537.6	6.1	78.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.7	98.6	4.6	8.7	64.2	230.0	288.3	513.0	5.6	79.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.4	108.4	5.2	9.3	67.4	238.5	291.3	528.6	5.0	82.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.2	133.7	7.4	14.8	84.7	266.8	361.3	626.0	6.2	118.6	(NA)	(NA)
1987 Census	252	262	116	8.8	118.0	7.3	13.5	76.3	239.9	336.4	571.5	5.8	107.5	91	87
1986 ASM	(NA)	(NA)	(NA)	6.9	86.4	5.8	10.6	56.7	207.3	296.3	499.8	4.2	88.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.1	87.9	6.0	10.5	58.8	219.0	291.6	502.0	4.6	83.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.4	92.6	6.3	11.9	64.0	209.4	279.0	487.9	5.4	69.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.2	94.6	7.0	13.0	67.3	175.4	276.3	455.7	5.3	77.0	(NA)	(NA)
1982 Census	233	249	108	7.7	89.5	6.5	12.2	64.8	167.8	252.7	421.8	5.9	73.0	88	83
1981 ASM	(NA)	(NA)	(NA)	6.6	71.0	5.7	11.1	52.5	157.5	239.4	396.7	6.5	67.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.6	64.0	5.6	10.2	45.1	138.6	205.1	346.9	16.3	62.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.3	63.5	6.3	11.7	44.5	157.1	189.6	345.3	7.7	63.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.9	73.6	7.3	14.1	54.7	146.0	219.2	362.0	2.5	63.4	(NA)	(NA)
1977 Census	211	228	90	8.2	66.7	6.8	12.9	46.8	122.2	200.5	321.8	5.8	59.4	82	84
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS															
1992 Census	1 291	1 307	179	14.2	275.3	10.4	19.7	166.6	578.8	538.6	1 107.8	19.2	157.0	95	94
1991 ASM	(NA)	(NA)	(NA)	16.7	304.2	13.3	23.2	186.4	517.6	548.4	1 063.8	19.2	144.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.3	306.0	13.8	24.8	187.0	531.1	605.3	1 134.9	21.5	157.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.1	291.6	13.9	24.3	180.4	524.2	562.3	1 094.8	22.5	162.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.3	296.8	12.9	24.6	187.2	564.7	549.7	1 118.6	9.5	194.6	(NA)	(NA)
1987 Census	1 251	1 274	197	16.7	271.0	12.6	23.9	171.5	550.7	525.8	1 066.2	20.1	170.7	94	96
1986 ASM	(NA)	(NA)	(NA)	17.5	263.0	13.8	27.9	180.8	474.3	536.4	1 019.9	23.7	155.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.2	247.7	13.6	29.4	173.8	462.2	546.6	1 013.8	19.8	174.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.9	230.3	12.9	28.2	158.9	507.1	468.3	953.0	20.8	188.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.2	197.1	11.8	22.5	126.5	391.8	409.7	791.9	12.6	146.7	(NA)	(NA)
1982 Census	1 108	1 128	162	14.8	181.2	11.3	21.1	117.8	367.7	384.5	752.3	17.8	131.9	94	93
1981 ASM	(NA)	(NA)	(NA)	12.5	159.5	10.0	19.3	101.9	332.2	329.6	658.1	10.7	125.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.1	130.1	8.6	17.6	80.6	259.5	254.1	517.2	6.6	99.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.0	132.4	9.5	18.8	83.2	267.8	276.1	542.3	6.6	104.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.4	140.2	12.4	21.9	91.6	299.4	290.4	578.6	13.1	109.6	(NA)	(NA)
1977 Census	987	1 003	148	13.9	121.6	11.0	19.3	75.1	237.4	254.2	486.8	8.4	101.0	93	92
INDUSTRY 2395, PLEATING AND STITCHING															
1992 Census	747	756	148	13.7	205.0	11.0	20.7	138.8	383.3	355.4	726.6	22.8	102.3	93	81
1991 ASM	(NA)	(NA)	(NA)	14.0	189.0	12.0	22.0	132.0	426.0	307.2	725.9	16.4	108.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.2	186.0	12.1	22.0	131.1	388.1	360.9	742.7	17.3	94.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.7	181.8	11.7	21.4	128.1	359.4	333.1	691.2	15.6	94.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.7	173.6	11.3	20.0	123.1	383.0	338.8	723.6	7.4	106.9	(NA)	(NA)
1987 Census	682	685	169	14.1	174.4	11.8	20.9	120.1	396.8	346.1	728.0	12.1	113.5	84	97

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS														
1992 Census	2 419	2 469	484	57.1	1 334.3	44.5	84.5	941.8	2 721.2	3 399.2	6 093.1	139.7	624.1	97	98
1991 ASM	(NA)	(NA)	(NA)	45.0	1 083.1	35.7	66.8	803.7	2 179.0	2 555.7	4 753.2	131.4	505.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	47.1	1 119.9	37.7	68.8	837.4	2 267.4	2 862.8	5 104.8	141.6	504.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	44.0	1 056.7	35.6	64.8	793.5	2 110.2	2 685.2	4 762.5	134.5	454.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	45.1	1 053.2	36.9	69.5	794.3	1 906.2	2 673.4	4 564.6	79.1	423.4	(NA)	(NA)
1987 Census	1 535	1 558	338	44.2	994.4	35.5	66.9	737.3	2 023.7	2 568.4	4 564.5	111.9	396.0	99	96
	INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES														
1992 Census	220	221	44	5.5	100.2	4.6	8.6	73.0	186.0	124.6	311.3	6.7	31.6	91	95
1991 ASM	(NA)	(NA)	(NA)	5.6	93.0	4.8	9.0	68.2	168.4	125.7	293.1	8.0	38.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.9	97.0	5.1	9.3	72.0	172.9	135.8	309.2	6.4	41.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.0	95.3	5.2	9.5	71.1	175.7	139.3	314.4	4.6	39.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.7	95.1	4.9	9.1	70.8	166.5	122.2	283.9	3.3	43.0	(NA)	(NA)
1987 Census	266	271	53	5.9	98.2	5.0	9.6	71.3	167.0	137.6	302.0	5.9	38.2	94	98
1986 ASM	(NA)	(NA)	(NA)	5.3	81.2	4.5	8.8	60.9	149.8	105.8	254.8	5.4	31.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.7	90.4	4.8	9.4	67.4	159.2	95.7	252.8	6.0	26.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.5	95.0	5.5	10.5	70.9	181.7	116.0	291.7	7.6	29.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.8	90.4	5.6	10.8	67.0	170.9	98.6	268.5	3.0	27.9	(NA)	(NA)
1982 Census	356	366	75	7.0	97.4	5.8	11.2	73.4	188.9	116.4	303.3	7.4	29.7	95	96
1981 ASM	(NA)	(NA)	(NA)	5.3	71.9	4.6	8.9	53.8	146.0	103.2	243.4	6.6	22.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.8	68.3	4.8	9.8	51.8	124.0	92.2	214.5	2.4	16.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	4.9	46.4	4.1	7.8	37.0	76.4	58.7	134.2	5.5	10.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.0	70.5	6.1	11.5	53.4	102.3	87.3	187.0	5.3	14.4	(NA)	(NA)
1977 Census	357	363	58	6.0	56.3	5.3	10.4	42.5	96.7	62.0	158.0	3.3	10.1	97	98
	INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.														
1992 Census	1 140	1 182	337	34.3	606.7	27.2	52.6	398.0	1 408.4	1 786.3	3 195.0	59.4	410.8	95	92
1991 ASM	(NA)	(NA)	(NA)	31.9	564.1	25.9	50.1	382.3	1 412.2	1 629.7	3 037.4	57.8	371.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	31.1	513.9	25.4	48.5	353.8	1 376.6	1 548.3	2 910.3	61.1	349.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	31.6	493.1	25.5	47.4	332.8	1 300.0	1 468.3	2 779.7	51.8	324.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	29.6	437.4	23.9	43.6	299.9	1 062.3	1 325.4	2 393.8	28.4	334.7	(NA)	(NA)
1987 Census	885	916	311	30.5	430.2	25.0	46.7	290.1	1 097.2	1 346.8	2 442.1	33.1	331.0	96	92
1986 ASM	(NA)	(NA)	(NA)	25.7	379.8	21.3	40.3	260.4	921.2	1 242.0	2 152.0	39.4	308.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	25.4	370.5	21.1	40.6	259.9	934.7	1 331.1	2 265.7	62.5	290.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.6	353.2	22.3	41.0	245.9	876.8	1 288.2	2 147.9	55.0	272.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.3	327.3	21.7	39.7	219.7	763.2	986.7	1 747.5	80.8	236.5	(NA)	(NA)
1982 Census	770	801	259	25.1	290.7	20.5	36.8	197.7	629.9	841.7	1 475.9	23.5	216.9	93	91
1981 ASM	(NA)	(NA)	(NA)	24.7	279.6	20.3	36.9	190.0	561.1	688.9	1 232.8	30.3	190.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	26.1	265.0	21.7	38.7	180.6	566.8	642.0	1 204.9	25.7	196.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.3	258.1	22.6	40.3	175.3	579.7	653.2	1 219.5	20.6	189.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.4	260.6	25.9	45.9	190.0	522.0	566.5	1 086.9	36.6	187.0	(NA)	(NA)
1977 Census	845	877	271	30.8	261.4	25.7	46.5	185.2	525.9	628.2	1 148.4	19.0	164.8	94	89

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2391, CURTAINS AND DRAPERIES								
1992 Census	15 472	77	1 868	7.02	54	80	27 216	57	19.02
1991 ASM	14 779	78	1 847	6.68	54	76	31 212	47	21.57
1990 ASM	14 081	79	1 859	6.28	55	77	29 291	48	19.92
1989 ASM	13 594	80	1 851	6.21	58	80	26 795	51	18.21
1988 ASM	12 856	80	1 786	5.93	54	77	26 627	48	18.67
1987 Census	12 646	79	1 836	5.85	53	76	26 572	48	18.32
1986 ASM	11 637	81	1 929	5.19	56	77	24 662	47	15.72
1985 ASM	11 730	80	1 873	5.25	57	79	23 012	51	15.34
1984 ASM	10 810	83	1 695	5.43	57	78	22 302	48	15.79
1983 ASM	9 688	83	1 737	4.89	59	80	19 250	50	13.43
1982 Census	9 697	82	1 716	5.04	58	80	18 344	53	13.08
1981 ASM	9 506	82	1 832	4.33	58	78	19 592	49	13.04
1980 ASM	8 339	86	1 781	3.89	55	77	16 204	51	10.52
1979 ASM	7 837	87	1 776	3.71	52	75	15 601	50	10.11
1978 ASM	7 180	84	1 777	3.43	60	83	12 336	58	8.23
1977 Census	7 088	86	1 761	3.42	60	82	12 849	55	8.50

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.									
1992 Census	16 737	85	1 982	7.33	58	74	45 658	37	27.04
1991 ASM	15 740	84	2 031	6.63	60	75	44 211	36	25.80
1990 ASM	15 009	84	1 960	6.50	60	73	43 913	34	26.62
1989 ASM	14 892	85	1 969	6.43	60	74	42 788	35	25.72
1988 ASM	14 323	84	1 925	6.28	60	75	36 430	39	22.44
1987 Census	14 133	85	1 958	6.19	62	78	34 838	41	20.99
1986 ASM	13 394	82	1 975	5.75	65	81	29 113	46	17.96
1985 ASM	12 888	83	1 896	5.74	64	80	29 583	44	18.86
1984 ASM	12 573	83	1 920	5.62	63	78	29 306	43	18.46
1983 ASM	10 765	81	2 034	4.63	65	79	27 936	39	17.00
1982 Census	10 511	81	1 950	4.76	61	77	25 335	41	16.10
1981 ASM	10 586	82	1 935	4.56	62	78	26 093	41	16.36
1980 ASM	9 470	83	1 935	4.21	63	79	22 027	43	13.65
1979 ASM	8 782	84	1 912	3.95	65	81	19 750	44	12.35
1978 ASM	8 195	84	1 866	3.75	66	83	16 480	50	10.46
1977 Census	7 714	84	1 894	3.45	67	83	16 482	47	10.38
INDUSTRY 2393, TEXTILE BAGS									
1992 Census	15 622	81	1 979	6.48	57	81	28 252	55	17.69
1991 ASM	18 069	81	1 894	7.83	56	75	41 276	44	26.90
1990 ASM	17 298	81	1 891	7.38	56	75	40 351	43	26.44
1989 ASM	16 938	81	1 788	7.25	55	76	37 266	45	25.65
1988 ASM	14 533	80	2 000	5.72	58	79	29 000	50	18.03
1987 Census	13 409	83	1 849	5.65	59	80	27 261	49	17.77
1986 ASM	12 522	84	1 828	5.35	59	77	30 043	42	19.56
1985 ASM	12 380	85	1 750	5.60	58	76	30 845	40	20.86
1984 ASM	12 514	85	1 889	5.38	57	76	28 297	44	17.60
1983 ASM	11 537	85	1 857	5.18	61	81	21 390	54	13.49
1982 Census	11 623	84	1 877	5.31	60	81	21 792	53	13.75
1981 ASM	10 758	86	1 947	4.73	60	78	23 864	45	14.19
1980 ASM	9 697	85	1 821	4.42	59	78	21 000	46	13.59
1979 ASM	8 699	86	1 857	3.80	55	73	21 521	40	13.43
1978 ASM	8 270	82	1 932	3.88	61	81	16 404	50	10.35
1977 Census	8 134	83	1 897	3.63	62	83	14 902	55	9.47
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS									
1992 Census	19 387	73	1 894	8.46	49	73	40 761	48	29.38
1991 ASM	18 216	80	1 744	8.03	52	80	30 994	59	22.31
1990 ASM	17 688	80	1 797	7.54	53	80	30 699	58	21.42
1989 ASM	17 053	81	1 748	7.42	51	78	30 655	56	21.57
1988 ASM	17 156	75	1 907	7.61	49	76	32 642	53	22.96
1987 Census	16 228	75	1 897	7.18	49	75	32 976	49	23.04
1986 ASM	15 029	79	2 022	6.48	53	78	27 103	55	17.00
1985 ASM	14 401	79	2 162	5.91	54	78	26 872	54	15.72
1984 ASM	13 627	76	2 186	5.63	49	73	30 006	45	17.98
1983 ASM	12 967	78	1 907	5.62	52	77	25 776	50	17.41
1982 Census	12 243	76	1 867	5.58	51	75	24 845	49	17.43
1981 ASM	12 760	80	1 930	5.28	50	74	26 576	48	17.21
1980 ASM	11 721	77	2 047	4.58	49	74	23 378	50	14.74
1979 ASM	11 033	79	1 979	4.43	51	75	22 317	49	14.24
1978 ASM	9 104	81	1 766	4.18	50	74	19 442	47	13.67
1977 Census	8 748	79	1 755	3.89	52	77	17 079	51	12.30
INDUSTRY 2395, PLEATING AND STITCHING									
1992 Census	14 964	80	1 882	6.71	49	77	27 978	53	18.52
1991 ASM	13 500	86	1 833	6.00	42	68	30 429	44	19.36
1990 ASM	13 099	85	1 818	5.96	49	74	27 331	48	17.64
1989 ASM	13 270	85	1 829	5.99	48	74	26 234	51	16.79
1988 ASM	12 672	82	1 770	6.16	47	71	27 956	45	19.15
1987 Census	12 369	84	1 771	5.75	48	71	28 142	44	18.99
INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS									
1992 Census	23 368	78	1 899	11.15	56	78	47 657	49	32.20
1991 ASM	24 069	79	1 871	12.03	54	77	48 422	50	32.62
1990 ASM	23 777	80	1 825	12.17	56	78	48 140	49	32.96
1989 ASM	24 016	81	1 820	12.25	56	79	47 959	50	32.56
1988 ASM	23 353	82	1 883	11.43	59	82	42 266	55	27.43
1987 Census	22 498	80	1 885	11.02	56	78	45 785	49	30.25
INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES									
1992 Census	18 218	84	1 870	8.49	40	72	33 818	54	21.63
1991 ASM	16 607	86	1 875	7.58	43	75	30 071	55	18.71
1990 ASM	16 441	86	1 824	7.74	44	75	29 305	56	18.59
1989 ASM	15 883	87	1 827	7.48	44	75	29 283	54	18.49
1988 ASM	16 684	86	1 857	7.78	43	77	29 211	57	18.30
1987 Census	16 644	85	1 920	7.43	46	78	28 305	59	17.40
1986 ASM	15 321	85	1 956	6.92	42	73	28 264	54	17.02
1985 ASM	15 860	84	1 958	7.17	38	74	27 930	57	16.94
1984 ASM	14 615	85	1 909	6.75	40	72	27 954	52	17.30
1983 ASM	13 294	82	1 929	6.20	37	70	25 132	53	15.82
1982 Census	13 914	83	1 931	6.55	38	70	26 986	52	16.87
1981 ASM	13 566	87	1 935	6.04	42	72	27 547	49	16.40
1980 ASM	11 776	83	2 042	5.29	43	75	21 379	55	12.65
1979 ASM	9 469	84	1 902	4.74	44	78	15 592	61	9.79
1978 ASM	10 071	87	1 885	4.64	47	84	14 614	69	8.90
1977 Census	9 383	88	1 962	4.09	39	75	16 117	58	9.30

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.								
1992 Census	17 688	79	1 934	7.57	56	75	41 061	43	26.78
1991 ASM	17 683	81	1 934	7.63	54	72	44 270	40	28.19
1990 ASM	16 524	82	1 909	7.29	53	71	44 264	37	28.38
1989 ASM	15 604	81	1 859	7.02	53	71	41 139	38	27.43
1988 ASM	14 777	81	1 824	6.88	55	74	35 889	41	24.36
1987 Census	14 105	82	1 868	6.21	55	73	35 974	39	23.49
1986 ASM	14 778	83	1 892	6.46	58	75	35 844	41	22.86
1985 ASM	14 587	83	1 924	6.40	59	75	36 799	40	23.02
1984 ASM	13 278	84	1 839	6.00	60	76	32 962	40	21.39
1983 ASM	12 445	83	1 829	5.53	56	75	29 019	43	19.22
1982 Census	11 582	82	1 795	5.37	57	77	25 096	46	17.12
1981 ASM	11 320	82	1 818	5.15	56	79	22 717	50	15.21
1980 ASM	10 153	83	1 783	4.67	53	75	21 716	47	14.65
1979 ASM	9 454	83	1 783	4.35	54	75	21 234	45	14.38
1978 ASM	8 572	85	1 772	4.14	52	76	17 171	50	11.37
1977 Census	8 487	83	1 809	3.98	55	77	17 075	50	11.31

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2391, CURTAINS AND DRAPERIES														
United States	**E1**	**1 040**	**177**	**21.8**	**337.3**	**16.7**	**31.2**	**218.9**	**593.3**	**690.2**	**1 284.1**	**16.1**	**27.1**	**720.1**
Alabama	–	13	4	.5	7.7	.4	.8	5.1	13.5	15.7	30.6	.1	E	(D)
Arizona	E5	23	3	.3	4.0	.2	.4	2.9	6.6	6.9	13.5	.1	.3	6.2
California	E2	187	16	1.5	25.0	1.2	2.3	16.0	37.3	47.4	84.5	.4	3.6	99.4
Colorado	E1	24	2	.2	2.5	.1	.2	1.6	4.3	4.5	8.8	.1	C	(D)
Connecticut	E1	8	4	.3	4.7	.2	.5	2.7	7.1	6.9	14.0	(Z)	E	(D)
Florida	E1	59	3	.5	6.6	.4	.8	4.7	15.4	15.7	31.4	.1	.9	17.9
Georgia	E2	45	11	1.7	24.1	1.0	2.0	12.2	35.7	35.9	71.3	1.4	2.0	44.5
Hawaii	–	5	2	.1	2.0	.1	.1	1.2	2.7	3.1	5.8	(Z)	(NA)	(NA)
Illinois	E2	50	4	.3	5.2	.3	.5	3.5	8.4	9.2	17.5	(D)	E	(D)
Indiana	E6	22	9	.8	12.7	.6	1.2	7.9	16.0	24.7	41.1	.2	1.1	23.1
Kentucky	–	10	3	.2	2.2	.2	.3	1.7	3.4	5.2	8.5	(D)	(NA)	(NA)
Maryland	E1	21	2	.5	5.9	.4	.5	3.7	21.3	13.5	34.9	(D)	(NA)	(NA)
Massachusetts	E1	40	19	2.5	39.2	2.1	3.4	25.7	58.4	120.3	178.6	1.0	3.6	129.0
Minnesota	E3	23	1	.2	2.0	.1	.2	1.4	2.9	2.2	5.1	(Z)	C	(D)
New Jersey	E6	25	3	.5	10.0	.4	.8	7.9	18.5	12.5	31.0	.1	.8	19.9
New York	E2	66	19	1.2	21.7	.9	1.7	14.1	43.9	48.4	92.8	.8	2.3	72.2
North Carolina	E1	40	16	4.5	72.8	3.3	6.2	46.4	134.6	111.9	247.1	7.6	3.8	100.2
Ohio	–	27	4	.4	6.8	.3	.5	4.0	14.0	13.7	26.8	(D)	E	(D)
Oklahoma	–	7	4	.3	4.1	.3	.6	3.4	9.1	12.8	21.9	(D)	E	(D)
Oregon	E2	20	5	.2	4.4	.2	.3	2.4	6.5	7.0	13.5	.1	.2	4.7
Pennsylvania	E1	39	4	.4	6.2	.4	.7	4.2	10.9	9.6	20.7	.1	.6	12.0
Rhode Island	E4	8	2	.2	3.0	.1	.2	1.8	5.3	6.7	12.1	(Z)	E	(D)
South Carolina	E3	24	9	.9	10.7	.8	1.4	8.0	19.0	22.0	41.1	.2	.7	25.8
Tennessee	E1	19	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	78	9	2.1	30.8	1.7	3.3	21.7	53.2	86.2	137.5	(D)	G	(D)
Virginia	–	24	4	.3	4.5	.2	.3	2.3	9.3	11.0	20.2	(Z)	C	(D)
Washington	E2	16	4	.2	2.9	.1	.2	1.7	4.3	4.4	8.7	(D)	C	(D)
West Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	14	1	.1	2.0	.1	.1	1.3	3.9	5.4	9.7	(D)	C	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.														
United States	**E1**	**868**	**353**	**52.0**	**870.3**	**44.3**	**87.8**	**643.5**	**2 374.2**	**3 269.6**	**5 614.3**	**83.6**	**50.5**	**1 759.3**
Alabama	E2	20	11	3.8	61.8	3.4	6.4	52.9	207.2	350.8	538.1	(D)	3.4	145.2
Arizona	E9	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	5.3
Arkansas	E5	10	6	.7	8.6	.6	1.1	6.5	23.0	22.7	45.7	(D)	F	(D)
California	E2	125	46	4.3	72.2	3.6	7.1	51.5	204.0	215.1	408.8	3.0	4.3	158.9
Florida	E2	47	15	1.5	23.0	1.3	2.4	17.5	47.8	67.5	116.1	(D)	1.1	40.9
Georgia	–	47	26	4.7	75.8	4.1	8.7	57.6	217.1	228.5	455.3	10.9	4.1	119.0
Illinois	–	35	14	1.4	27.3	1.1	2.2	15.9	73.9	70.5	143.9	.9	1.6	58.4
Indiana	E2	14	8	1.0	15.1	.9	1.8	12.1	31.2	50.0	80.1	.4	1.1	23.6
Kansas	–	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kentucky	–	11	7	1.0	16.9	.9	1.7	14.6	51.1	67.6	117.5	(D)	F	(D)
Louisiana	E7	8	4	.2	2.9	.2	.3	1.8	6.2	8.6	14.0	(D)	.2	3.1
Massachusetts	–	19	6	.8	12.9	.6	1.1	7.9	25.0	31.3	56.2	.4	F	(D)
Michigan	E1	7	1	.1	2.2	.1	.2	1.5	4.6	6.2	10.8	(D)	(NA)	(NA)
Minnesota	E2	10	6	.5	6.5	.4	.7	4.6	8.8	12.9	21.7	(D)	E	(D)
Mississippi	–	10	5	1.8	26.1	1.5	2.8	19.8	79.4	82.0	155.0	6.5	G	(D)
Missouri	E2	14	3	.2	2.6	.1	.3	1.7	5.5	7.9	13.4	(D)	C	(D)
New Hampshire	E8	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Jersey	E2	38	23	2.0	34.2	1.7	3.4	23.8	74.7	97.5	171.5	1.5	3.4	111.0
New York	E3	109	30	2.4	43.8	1.9	3.8	22.3	86.0	143.1	222.4	1.7	4.3	149.9
North Carolina	E1	64	33	10.2	172.8	8.7	18.4	137.8	538.7	619.1	1 177.9	11.9	H	(D)
Ohio	E2	20	11	1.9	32.2	1.4	3.2	19.2	75.2	103.4	171.0	1.6	G	(D)
Pennsylvania	E2	37	17	2.1	36.6	1.8	3.4	25.7	94.8	92.7	186.7	1.3	2.0	65.9
South Carolina	–	40	26	6.3	103.0	5.7	10.5	85.1	304.5	558.8	861.8	17.4	3.2	141.0
South Dakota	–	5	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	17	4	.6	7.5	.4	.8	5.2	10.4	37.4	48.4	(D)	.4	15.9
Texas	–	39	15	1.1	19.4	.9	1.8	14.4	63.2	146.4	204.1	2.6	G	(D)
Utah	–	5	2	.1	1.3	.1	.2	.9	4.2	6.2	9.6	(D)	(NA)	(NA)
Virginia	–	12	7	1.0	18.2	.8	1.5	11.1	29.8	136.7	165.6	(D)	G	(D)
Washington	E4	12	4	.4	7.4	.3	.5	4.5	16.6	24.7	41.6	(D)	E	(D)
Wisconsin	–	9	4	.5	13.4	.4	.8	9.2	38.6	23.2	66.1	(D)	E	(D)
INDUSTRY 2393, TEXTILE BAGS														
United States	**E1**	**311**	**131**	**11.9**	**185.9**	**9.6**	**19.0**	**123.2**	**336.2**	**443.4**	**778.5**	**12.0**	**8.8**	**239.9**
California	–	38	10	1.3	22.9	1.1	2.2	14.0	39.1	63.2	101.1	1.3	G	(D)
Colorado	E6	8	4	.3	4.2	.2	.5	3.1	8.3	9.3	17.5	.3	(NA)	(NA)
Florida	E1	11	4	.6	7.7	.5	1.0	5.7	12.6	10.1	22.8	(D)	C	(D)
Georgia	E2	18	10	1.3	21.0	1.0	2.1	13.1	38.8	43.4	82.2	1.2	.5	15.8
Idaho	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Illinois	–	12	3	.4	7.3	.3	.7	4.0	10.0	11.8	21.8	.7	(NA)	(NA)
Iowa	–	7	4	.3	5.2	.3	.6	3.0	8.2	9.8	18.3	(D)	C	(D)
Louisiana	–	7	3	.3	4.2	.3	.6	3.2	10.6	14.3	23.9	(D)	.2	6.5
Michigan	E3	6	3	.2	3.3	.2	.3	2.7	5.9	8.1	14.0	.3	.2	5.0
Missouri	–	8	6	.6	9.6	.5	1.1	5.9	25.2	60.2	85.0	(D)	E	(D)
Nebraska	E2	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	9	4	.5	7.6	.4	.7	4.9	11.3	20.8	31.4	.2	.7	25.1
New York	E2	18	5	.4	6.7	.3	.5	4.2	13.4	11.6	25.5	(D)	F	(D)
North Carolina	–	13	7	.7	11.2	.6	1.2	7.6	18.9	24.7	43.7	.7	.7	11.8
Ohio	E4	9	6	.3	5.3	.2	.4	3.1	8.4	9.2	17.8	.3	(NA)	(NA)
Oregon	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	11	6	.4	6.9	.3	.7	4.9	13.4	15.2	29.0	.5	.6	19.5
South Dakota	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	9	5	.3	4.3	.2	.4	2.9	10.5	13.6	24.2	.3	.3	8.9
Texas	E1	26	11	.9	11.6	.7	1.4	8.7	21.7	23.9	45.3	.3	C	(D)
Utah	E2	11	4	.4	5.2	.3	.6	3.6	9.1	6.2	15.3	(D)	.3	6.7
Washington	–	10	5	.4	5.8	.4	.7	4.4	10.5	12.1	22.2	.2	(NA)	(NA)
Wisconsin	–	6	4	.4	9.2	.4	.8	6.5	11.9	13.3	25.2	.5	C	(D)
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS														
United States	**E1**	**1 307**	**179**	**14.2**	**275.3**	**10.4**	**19.7**	**166.6**	**578.8**	**538.6**	**1 107.8**	**19.2**	**16.7**	**550.7**
Alabama	E1	16	2	.2	2.6	.1	.2	1.5	4.3	3.4	7.7	.1	(NA)	(NA)
Arizona	–	15	3	.2	4.9	.2	.4	2.9	8.4	7.6	15.7	.1	.4	9.5
California	E4	127	14	1.2	25.7	.9	1.6	15.3	45.3	40.3	85.9	1.1	1.7	52.6
Colorado	–	21	3	.3	6.6	.2	.4	3.5	15.6	14.8	30.5	.4	E	(D)
Connecticut	E1	27	2	.3	7.9	.2	.4	3.9	18.2	14.2	32.4	.5	E	(D)
Florida	E3	143	13	.9	16.5	.7	1.3	10.4	27.7	23.2	51.0	.7	1.8	65.2
Georgia	–	25	6	.6	10.7	.5	.9	7.2	22.8	22.3	44.2	(D)	.6	22.7
Illinois	E1	45	11	.8	17.4	.5	1.0	9.8	35.7	32.1	67.7	.9	F	(D)
Indiana	–	29	7	.9	17.4	.7	1.3	11.1	31.0	28.6	59.3	.7	F	(D)
Iowa	–	14	2	.1	2.1	.1	.2	1.2	3.7	3.1	6.8	.1	C	(D)
Kentucky	E3	10	5	.3	4.8	.3	.4	3.0	9.4	12.5	21.7	(D)	(NA)	(NA)
Louisiana	–	10	2	.1	1.9	.1	.2	1.2	4.1	2.9	7.0	.1	(NA)	(NA)
Maine	E1	19	2	.1	2.7	.1	.2	1.8	6.3	4.1	10.4	.1	(NA)	(NA)
Maryland	E1	43	7	.3	6.9	.2	.4	3.6	13.7	11.4	25.0	.2	F	(D)
Massachusetts	E1	33	2	.3	6.1	.2	.3	2.9	13.0	12.7	25.6	.3	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS—Con.														
Michigan	E2	51	10	.6	10.7	.4	.8	6.6	21.8	18.6	40.3	.6	F	(D)
Minnesota	E3	21	–	.1	2.3	.1	.1	1.4	3.6	3.3	6.9	.1	C	(D)
Mississippi	–	10	3	.1	1.6	.1	.2	1.1	3.5	5.3	8.5	.1	(NA)	(NA)
Missouri	E2	24	7	.5	9.0	.4	.7	5.7	17.2	15.4	30.6	.5	.8	29.9
Montana	–	6	3	.2	2.2	.1	.2	1.3	4.7	1.8	6.5	(D)	(NA)	(NA)
New Jersey	E2	46	–	.2	3.7	.2	.3	2.7	7.4	6.4	13.7	.2	.4	9.5
New York	E1	90	11	1.1	23.6	.8	1.5	13.6	54.9	60.6	113.3	1.4	1.1	44.6
North Carolina	E1	28	2	.2	4.5	.1	.3	2.3	7.7	7.1	14.1	.2	C	(D)
Ohio	E3	64	9	.6	11.3	.5	.9	7.0	24.4	27.2	50.1	.9	F	(D)
Oklahoma	E6	16	2	.1	1.4	.1	.2	.9	3.3	2.8	6.1	.1	(NA)	(NA)
Oregon	–	19	1	.2	3.1	.1	.2	2.0	5.5	5.7	11.1	.1	.2	5.1
Pennsylvania	–	54	6	.4	7.5	.3	.6	5.4	15.6	12.4	28.0	.3	.5	12.3
South Carolina	–	16	5	.2	3.8	.2	.4	2.6	8.4	8.9	17.3	(D)	.2	4.3
Tennessee	–	19	8	.6	9.6	.4	.9	6.4	25.6	22.2	48.8	.2	.8	26.7
Texas	–	55	8	.8	14.4	.6	1.1	8.7	43.7	33.0	75.4	.8	F	(D)
Utah	E1	12	4	.2	4.1	.1	.2	1.9	11.2	8.8	20.0	(D)	(NA)	(NA)
Virginia	E3	22	2	.2	2.7	.1	.2	1.6	4.8	4.8	9.6	.1	C	(D)
Washington	E1	50	4	.4	7.2	.3	.5	4.6	17.8	11.8	29.5	.3	.3	11.1
Wisconsin	–	34	6	.4	7.4	.3	.5	4.2	17.6	29.6	46.9	.9	E	(D)
INDUSTRY 2395, PLEATING AND STITCHING														
United States	**E3**	**756**	**148**	**13.7**	**205.0**	**11.0**	**20.7**	**138.8**	**383.3**	**355.4**	**726.6**	**22.8**	**14.1**	**396.8**
California	E2	116	23	2.4	38.0	2.0	3.8	25.1	59.5	64.8	121.9	3.4	2.6	58.7
Colorado	E2	10	1	.1	2.1	.1	.2	1.4	4.5	3.9	8.3	.4	(NA)	(NA)
Florida	E3	43	9	1.0	11.6	.8	1.3	7.2	23.7	21.5	44.6	1.4	.5	43.9
Georgia	E2	16	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
Illinois	E8	22	5	.7	12.1	.5	1.0	8.3	21.9	23.8	45.6	.8	F	(D)
Iowa	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E5	14	2	.2	3.0	.1	.2	2.1	5.0	4.1	9.1	.3	E	(D)
Missouri	E7	15	8	.4	7.0	.4	.6	4.4	20.0	17.7	37.7	.9	.5	19.1
New Jersey	E3	116	13	1.5	22.7	1.0	1.8	14.2	40.1	41.7	80.6	2.2	1.4	41.0
New York	E2	126	23	1.5	24.4	1.2	2.3	16.1	50.3	42.2	91.0	2.3	2.0	47.0
North Carolina	E1	38	14	1.9	24.4	1.7	3.1	19.0	42.4	24.3	67.0	3.2	2.2	41.6
Ohio	–	17	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E3	18	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	.7	20.8
South Carolina	E3	16	8	.8	11.3	.6	1.3	6.7	13.8	9.7	25.1	1.3	.3	6.0
Tennessee	E1	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Texas	E3	36	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Virginia	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Washington	E3	14	4	.2	2.4	.1	.2	1.4	3.7	3.4	7.1	.2	(NA)	(NA)
Wisconsin	E3	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS														
United States	**E1**	**2 469**	**484**	**57.1**	**1 334.3**	**44.5**	**84.5**	**941.8**	**2 721.2**	**3 399.2**	**6 093.1**	**139.7**	**44.2**	**2 023.7**
Alabama	E2	31	7	.4	5.8	.3	.6	4.3	8.8	9.0	18.0	.8	E	(D)
Arizona	E2	39	4	.3	4.3	.2	.4	2.7	10.1	9.1	19.0	.5	.2	4.6
California	E2	380	79	8.1	151.0	6.2	11.9	100.9	315.1	338.7	653.0	19.2	4.6	171.2
Colorado	E1	40	4	.3	3.9	.2	.4	2.8	10.4	11.6	22.0	.6	(NA)	(NA)
Connecticut	E1	21	2	.2	3.6	.1	.3	2.5	7.2	6.6	13.8	(D)	C	(D)
Florida	–	133	26	2.4	41.9	1.9	3.5	28.9	87.0	103.0	191.1	4.3	1.0	28.0
Georgia	E1	66	9	1.1	19.3	.8	1.4	12.1	32.0	44.7	76.7	2.5	.9	24.5
Hawaii	E1	22	4	.2	2.9	.1	.2	1.8	10.1	18.5	28.1	(D)	.3	7.3
Illinois	E5	64	10	.9	22.4	.7	1.3	15.5	39.4	47.9	87.4	2.4	E	(D)
Indiana	E3	37	8	1.7	30.2	1.4	2.6	23.2	66.2	114.8	175.1	5.0	.6	31.1
Iowa	E5	19	2	.5	10.3	.3	.6	6.8	22.8	18.0	40.9	.7	C	(D)
Kansas	E1	19	1	.1	1.6	.1	.2	1.1	3.0	4.8	7.8	.1	(NA)	(NA)
Kentucky	E1	24	2	.2	3.0	.1	.2	2.0	6.5	5.3	11.9	.2	(NA)	(NA)
Louisiana	E2	17	2	.3	5.6	.2	.4	3.0	8.8	17.3	25.6	.3	(NA)	(NA)
Maryland	–	32	10	.7	15.0	.5	.9	9.3	31.8	38.3	70.1	.9	.5	17.7
Massachusetts	–	51	12	1.5	34.9	1.0	1.9	17.7	69.4	66.6	132.0	2.1	1.5	42.9
Michigan	–	87	25	11.9	446.8	9.7	19.0	352.2	713.5	1 123.0	1 836.4	36.0	H	(D)
Minnesota	–	48	6	.5	10.4	.4	.7	7.8	22.6	30.3	52.6	1.2	E	(D)
Mississippi	E1	18	3	.2	2.6	.2	.3	2.0	3.3	9.5	12.8	.1	(NA)	(NA)
Missouri	E1	62	9	.9	13.3	.8	1.3	9.7	37.8	53.5	93.1	1.2	.6	20.4
Nebraska	E1	21	3	.3	4.3	.2	.4	3.0	8.5	12.2	20.4	.4	(NA)	(NA)
Nevada	–	13	3	.2	3.1	.2	.3	2.0	4.0	10.2	14.4	(D)	(NA)	(NA)
New Hampshire	E9	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	105	30	2.2	47.9	1.7	3.3	33.2	102.5	111.6	214.9	3.2	1.8	71.3
New Mexico	–	13	2	.1	1.6	.1	.1	1.1	2.7	4.1	6.8	(D)	(NA)	(NA)
New York	E4	240	64	5.3	107.4	4.0	7.8	68.8	265.5	187.7	454.3	5.5	6.7	189.5
North Carolina	E4	89	24	1.9	33.9	1.5	2.8	22.1	115.1	100.6	217.9	3.4	G	(D)
Ohio	E1	88	21	4.0	96.0	3.2	6.5	70.9	244.2	296.5	539.9	8.2	2.4	166.4
Oklahoma	E1	27	1	.1	2.0	.1	.1	1.1	6.2	8.7	14.1	.2	(NA)	(NA)
Oregon	E3	34	2	.2	2.9	.1	.2	2.0	5.0	7.1	12.1	.4	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS—Con.														
Pennsylvania	E3	99	23	1.7	33.8	1.4	2.6	24.6	80.7	57.0	137.7	4.8	1.4	60.7
Rhode Island	–	13	3	.4	13.2	.3	.6	9.8	17.4	22.8	39.9	(D)	E	(D)
South Carolina	–	49	13	1.1	17.3	.8	1.5	10.3	40.2	62.5	100.5	1.8	.5	12.0
Tennessee	–	59	18	1.9	39.7	1.5	3.0	24.8	88.5	185.9	273.2	17.0	F	(D)
Texas	E2	139	17	1.1	19.6	.9	1.7	13.5	37.8	44.6	82.3	1.4	E	(D)
Utah	–	23	4	.4	7.5	.3	.6	5.5	18.0	20.8	37.6	1.1	(NA)	(NA)
Virginia	E1	52	8	1.0	16.1	.8	1.2	10.0	40.2	51.2	83.9	1.6	.4	8.1
Washington	–	53	7	.9	17.4	.7	1.3	12.3	38.1	65.9	103.6	.4	.4	11.7
Wisconsin	–	54	7	.8	15.1	.6	1.2	9.7	29.0	44.4	70.5	3.0	C	(D)
INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES														
United States	**E1**	**221**	**44**	**5.5**	**100.2**	**4.6**	**8.6**	**73.0**	**186.0**	**124.6**	**311.3**	**6.7**	**5.9**	**167.0**
California	–	14	7	.4	7.0	.4	.8	5.0	11.6	5.7	17.2	.7	F	(D)
Florida	E1	6	1	.1	1.7	.1	.1	1.0	1.9	1.7	3.7	.1	(NA)	(NA)
Georgia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E4	6	3	.1	1.9	.1	.1	1.4	3.2	2.9	6.1	(D)	C	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	142	15	1.8	41.9	1.5	2.8	30.7	76.1	68.0	143.7	2.2	2.1	65.5
New York	–	10	4	.4	7.8	.3	.6	4.9	17.0	10.0	27.4	(D)	E	(D)
North Carolina	–	3	3	.6	7.6	.5	.9	5.7	13.6	5.7	19.3	.2	E	(D)
Pennsylvania	E1	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.2	7.2
South Carolina	E5	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.														
United States	**E1**	**1 182**	**337**	**34.3**	**606.7**	**27.2**	**52.6**	**398.0**	**1 408.4**	**1 786.3**	**3 195.0**	**59.4**	**30.5**	**1 097.2**
Alabama	–	23	10	1.3	20.8	1.1	2.0	15.7	52.2	78.8	133.4	.6	2.3	104.4
Arizona	–	10	4	.4	6.4	.3	.6	3.9	19.6	9.8	29.1	.2	.3	10.4
Arkansas	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	182	45	3.8	64.5	3.0	5.9	41.7	149.5	164.1	311.8	3.6	3.7	106.5
Colorado	–	21	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	10	4	.7	9.3	.5	1.0	6.0	18.2	21.3	39.2	.2	C	(D)
Florida	E1	80	17	1.5	26.9	1.0	2.1	15.9	60.0	67.4	125.2	1.2	.9	41.3
Georgia	E1	57	29	3.5	70.6	2.7	5.3	42.9	168.6	209.3	381.9	13.4	2.7	129.7
Illinois	–	40	12	1.0	19.5	.8	1.9	12.8	43.9	48.9	92.0	.9	F	(D)
Indiana	E3	24	9	1.5	29.6	1.2	2.2	17.8	71.7	90.9	163.2	4.3	1.0	48.4
Iowa	E5	7	2	.1	1.5	.1	.2	1.1	3.5	3.7	7.2	(D)	(NA)	(NA)
Kansas	–	6	4	.3	4.5	.2	.4	2.3	8.4	8.6	16.9	(D)	(NA)	(NA)
Kentucky	–	13	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E3	33	7	.5	8.6	.3	.6	5.2	18.1	18.1	36.2	.5	F	(D)
Michigan	–	31	4	1.0	25.7	.9	1.7	18.9	46.2	66.6	112.5	(D)	F	(D)
Minnesota	E2	18	3	.2	3.4	.1	.3	2.0	6.8	6.8	13.6	.2	E	(D)
Mississippi	–	13	5	.7	10.4	.5	.8	6.2	8.6	46.2	59.5	(D)	F	(D)
Missouri	–	21	6	.8	12.9	.7	1.5	10.6	14.5	39.1	53.8	.7	E	(D)
New Jersey	E3	60	14	1.1	22.8	.9	1.8	14.9	30.7	43.6	76.1	1.2	1.8	68.2
New York	E1	105	22	2.0	38.0	1.6	3.1	22.9	79.1	118.5	196.6	1.6	2.5	75.0
North Carolina	E2	42	21	1.4	19.3	1.2	2.2	13.1	34.0	38.4	73.6	.6	1.7	39.3
North Dakota	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E1	32	15	.9	15.3	.7	1.5	10.4	27.3	31.9	60.2	.5	F	(D)
Oklahoma	–	12	3	.3	5.1	.2	.4	3.8	13.4	28.3	41.6	.5	.3	10.3
Pennsylvania	E5	45	17	1.4	28.6	1.1	2.3	19.4	62.0	63.6	124.9	1.0	1.6	61.3
Rhode Island	–	10	2	.1	2.5	.1	.2	1.9	5.4	3.5	9.3	(D)	C	(D)
South Carolina	–	20	11	2.1	32.6	1.8	3.2	25.0	73.4	110.2	182.9	1.8	G	(D)
Tennessee	–	30	15	1.9	32.4	1.6	3.1	20.6	70.2	109.3	180.7	2.9	.9	34.4
Texas	E1	74	19	1.4	24.6	1.1	2.3	14.9	92.4	122.9	211.6	1.4	G	(D)
Utah	–	18	8	.6	10.2	.5	.9	7.9	26.2	28.8	51.7	1.0	.6	18.5
Virginia	E1	22	3	.3	4.7	.2	.3	2.5	7.7	5.8	13.4	.2	C	(D)
Washington	E1	35	4	.5	10.3	.4	.7	7.2	15.6	18.6	34.5	1.2	.5	12.4
West Virginia	E2	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E1	11	3	.2	3.1	.1	.2	1.5	6.3	4.7	12.6	.1	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Curtains and draperies (SIC 2391)	Housefurnishings, n.e.c. (SIC 2392)	Textile bags (SIC 2393)	Canvas and related products (SIC 2394)	Pleating and stitching (SIC 2395)	Automotive and apparel trimmings (SIC 2396)	Schiffli machine embroideries (SIC 2397)	Fabricated textile products, n.e.c. (SIC 2399)
Companies ---- number	1 004	791	298	1 291	747	2 419	220	1 140
All establishments ---- number	1 040	868	311	1 307	756	2 469	221	1 182
With 1 to 19 employees ---- number	863	515	180	1 128	608	1 985	177	845
With 20 to 99 employees ---- number	133	226	97	162	124	366	32	262
With 100 employees or more ---- number	44	127	34	17	24	118	12	75
Employment and labor costs:								
Employees ---- 1,000	21.8	52.0	11.9	14.2	13.7	57.1	5.5	34.3
Compensation, total ---- mil dol	406.9	1 059.4	230.2	335.8	242.1	1 682.2	131.4	753.0
Annual payroll ---- mil dol	337.3	870.3	185.9	275.3	205.0	1 334.3	100.2	606.7
Fringe benefits ---- mil dol	69.6	189.1	44.3	60.5	37.0	347.9	31.2	146.3
Social Security and other legally required payments ---- mil dol	32.9	86.6	20.3	27.7	19.5	127.9	16.3	70.7
Employer voluntary payments ---- mil dol	36.7	102.5	24.0	32.8	17.5	219.9	14.9	75.6
Production workers:								
Average for year ---- 1,000	16.7	44.3	9.6	10.4	11.0	44.5	4.6	27.2
March ---- 1,000	16.5	43.4	9.6	10.1	10.9	44.6	4.6	27.1
May ---- 1,000	16.8	44.2	9.8	10.6	10.9	45.4	4.6	27.1
August ---- 1,000	16.8	44.6	9.6	10.8	11.2	44.2	4.5	27.9
November ---- 1,000	17.0	45.2	9.4	10.3	11.2	43.8	4.6	26.8
Hours ---- millions	31.2	87.8	19.0	19.7	20.7	84.5	8.6	52.6
Wages ---- mil dol	218.9	643.5	123.2	166.6	138.8	941.8	73.0	398.0
Cost of materials[1] ---- mil dol	690.2	3 269.6	443.4	538.6	355.4	3 399.2	124.6	1 786.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	624.1	3 095.8	389.2	469.3	313.1	3 118.8	98.7	1 613.4
Resales ---- mil dol	34.9	61.2	38.8	30.7	12.9	110.8	4.7	102.0
Fuels ---- mil dol	5.1	17.5	1.8	14.1	4.0	28.4	2.1	7.4
Purchased electricity ---- mil dol	12.1	36.4	4.9	13.4	8.7	55.0	2.9	22.7
Contract work ---- mil dol	13.9	58.7	8.8	11.1	16.7	86.2	16.2	40.8
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	192.2	634.4	81.1	247.4	126.1	844.2	38.3	353.0
Generated less sold ---- mil kWh	–	(Z)	–	–	(D)	–	–	–
Total value of shipments ---- mil dol	1 284.1	5 614.3	778.5	1 107.8	726.6	6 093.1	311.3	3 195.0
Value added ---- mil dol	593.3	2 374.2	336.2	578.8	383.3	2 721.2	186.0	1 408.4
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	192.0	850.4	116.0	147.2	89.5	578.8	31.9	413.0
Finished goods ---- mil dol	58.5	363.3	39.1	50.0	37.6	231.0	13.6	151.7
Work in process ---- mil dol	25.8	163.0	16.4	20.1	14.5	114.4	5.5	66.9
Materials and supplies ---- mil dol	107.6	324.1	60.5	77.1	37.4	233.4	12.9	194.5
End of 1992 ---- mil dol	198.6	891.4	121.1	157.0	102.3	624.1	31.6	410.8
Finished goods ---- mil dol	58.2	370.7	41.5	56.8	48.8	252.6	12.3	149.4
Work in process ---- mil dol	25.5	185.2	15.2	22.9	15.4	120.1	6.1	68.9
Materials and supplies ---- mil dol	114.9	335.5	64.5	77.3	38.1	251.5	13.3	192.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Curtains and draperies (SIC 2391)	Housefurnishings, n.e.c. (SIC 2392)	Textile bags (SIC 2393)	Canvas and related products (SIC 2394)	Pleating and stitching (SIC 2395)	Automotive and apparel trimmings (SIC 2396)	Schiffli machine embroideries (SIC 2397)	Fabricated textile products, n.e.c. (SIC 2399)
Gross book value of depreciable assets:								
Total:								
Beginning of year	183.9	770.3	114.2	163.7	125.8	909.0	83.5	536.3
New capital expenditures[1]	16.1	83.6	12.0	19.2	22.8	139.7	6.7	59.4
Used capital expenditures	2.1	10.2	1.3	1.8	3.1	7.7	.5	28.5
Retirements	10.8	44.7	4.4	10.3	5.8	50.1	2.9	27.1
End of year	191.3	819.4	123.1	174.4	145.9	1 006.3	87.8	597.2
Buildings and other structures:								
Beginning of year	54.4	258.5	29.1	46.5	23.9	235.0	23.5	155.2
New capital expenditures	3.8	17.9	2.0	2.3	8.8	18.4	.8	11.0
Used capital expenditures	.2	2.2	.3	.6	1.2	2.5	.1	10.3
Retirements	1.2	4.2	.1	2.4	.1	2.0	.1	4.2
End of year	57.2	274.4	31.3	47.1	33.8	253.9	24.4	172.3
Machinery and equipment:								
Beginning of year	129.4	511.8	85.1	117.2	101.9	674.0	60.0	381.2
New capital expenditures[1]	12.3	65.7	10.0	16.9	14.0	121.3	5.9	48.4
Used capital expenditures	1.9	8.0	1.0	1.2	1.9	5.2	.3	18.2
Retirements	9.6	40.5	4.3	7.9	5.7	48.1	2.8	22.9
End of year	134.1	544.9	91.8	127.4	112.1	752.4	63.4	424.9
Depreciation charges during 1992:								
Total	19.0	61.2	8.6	15.7	12.3	80.4	6.3	46.2
Buildings and other structures	3.2	12.6	1.6	3.0	1.8	11.3	.9	8.5
Machinery and equipment	15.7	48.6	7.0	12.7	10.5	69.1	5.4	37.7
Rental payments:								
Total	59.9	49.6	10.9	87.1	15.4	105.8	5.7	43.9
Buildings and other structures	30.9	35.3	7.2	39.1	9.9	75.3	3.3	28.9
Machinery and equipment	28.9	14.3	3.7	47.9	5.5	30.5	2.4	15.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Curtains and draperies (SIC 2391)		Housefurnishings, n.e.c. (SIC 2392)		Textile bags (SIC 2393)		Canvas and related products (SIC 2394)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	.8	(X)	4.2	(X)	.6	(X)	.6	(X)
Response coverage ratio (percent)[2]	58.1	(X)	71.8	(X)	88.9	(X)	76.4	(X)
Machinery	6.1	(X)	18.2	(X)	4.0	(X)	3.5	(X)
Response coverage ratio (percent)[2]	60.9	(X)	76.6	(X)	88.9	(X)	79.1	(X)
Other purchased services:								
Communications	3.0	(X)	5.9	(X)	1.5	(X)	3.4	(X)
Response coverage ratio (percent)[2]	56.9	(X)	72.3	(X)	87.1	(X)	66.0	(X)
Legal	1.0	(X)	3.1	(X)	.7	(X)	2.4	(X)
Response coverage ratio (percent)[2]	58.0	(X)	75.7	(X)	88.9	(X)	74.7	(X)
Accounting and bookkeeping	1.8	(X)	2.7	(X)	1.3	(X)	2.5	(X)
Response coverage ratio (percent)[2]	58.1	(X)	76.3	(X)	88.7	(X)	79.1	(X)
Advertising	6.6	(X)	9.6	(X)	9.4	(X)	11.9	(X)
Response coverage ratio (percent)[2]	56.4	(X)	74.2	(X)	83.2	(X)	79.1	(X)
Software and other data processing	1.4	(X)	4.7	(X)	.5	(X)	.5	(X)
Response coverage ratio (percent)[2]	55.1	(X)	72.8	(X)	83.0	(X)	70.6	(X)
Refuse removal, including hazardous waste	.3	(X)	14.1	(X)	.6	(X)	.9	(X)
Response coverage ratio (percent)[2]	55.3	(X)	73.5	(X)	83.2	(X)	79.0	(X)
New machinery and equipment expenditures	12.3	(X)	65.7	(X)	10.0	(X)	16.9	(X)
Automobiles, trucks, etc., for highway use	.7	42	1.7	27	.3	50	(S)	(X)
Computers and peripheral data processing equipment	3.6	8	4.8	11	1.5	74	(S)	(X)
All other	8.0	5	59.2	2	8.3	14	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.0	(X)	1.7	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	624.1	(X)	3 095.8	(X)	389.2	(X)	469.3	(X)
Materials purchased or transferred from foreign sources[4]	1.3	16	194.5	28	(S)	(X)	52.8	44
Materials purchased or transferred from domestic sources	622.8	1	2 901.3	3	(S)	(X)	416.5	6
Adjustment ratio[3]	1.9	(X)	1.8	(X)	(S)	(X)	1.6	(X)

Item	Pleating and stitching (SIC 2395)		Automotive and apparel trimmings (SIC 2396)		Schiffli machine embroideries (SIC 2397)		Fabricated textile products, n.e.c. (SIC 2399)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	1.0	(X)	3.2	(X)	.4	(X)	3.6	(X)
Response coverage ratio (percent)[2]	77.3	(X)	60.2	(X)	73.0	(X)	77.8	(X)
Machinery	3.1	(X)	10.6	(X)	.7	(X)	16.1	(X)
Response coverage ratio (percent)[2]	83.0	(X)	60.5	(X)	62.6	(X)	80.1	(X)
Other purchased services:								
Communications	1.9	(X)	6.5	(X)	.6	(X)	9.0	(X)
Response coverage ratio (percent)[2]	83.0	(X)	51.0	(X)	72.5	(X)	76.6	(X)
Legal	.7	(X)	4.1	(X)	.4	(X)	29.5	(X)
Response coverage ratio (percent)[2]	82.9	(X)	59.0	(X)	76.5	(X)	77.8	(X)
Accounting and bookkeeping	1.2	(X)	3.8	(X)	.4	(X)	4.3	(X)
Response coverage ratio (percent)[2]	80.7	(X)	60.6	(X)	76.6	(X)	77.9	(X)
Advertising	.8	(X)	9.0	(X)	.3	(X)	19.3	(X)
Response coverage ratio (percent)[2]	83.0	(X)	60.2	(X)	75.2	(X)	76.5	(X)
Software and other data processing	.4	(X)	2.5	(X)	.3	(X)	3.8	(X)
Response coverage ratio (percent)[2]	80.5	(X)	60.3	(X)	71.6	(X)	78.6	(X)
Refuse removal, including hazardous waste	.5	(X)	5.2	(X)	.1	(X)	5.0	(X)
Response coverage ratio (percent)[2]	77.3	(X)	60.1	(X)	71.6	(X)	79.7	(X)
New machinery and equipment expenditures	14.0	(X)	121.3	(X)	5.9	(X)	48.4	(X)
Automobiles, trucks, etc., for highway use	.6	31	2.0	64	–	(X)	1.3	29
Computers and peripheral data processing equipment	1.1	30	5.3	33	(S)	(X)	3.2	6
All other	12.2	5	114.0	3	(S)	(X)	43.9	1
Adjustment ratio[3]	1.5	(X)	1.9	(X)	(S)	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	313.1	(X)	3 118.8	(X)	98.7	(X)	1 613.4	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	(S)	(X)	(S)	(X)	113.5	7
Materials purchased or transferred from domestic sources	(S)	(X)	(S)	(X)	(S)	(X)	1 500.0	1
Adjustment ratio[3]	(S)	(X)	(S)	(X)	(S)	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2391, CURTAINS AND DRAPERIES												
Total	**E1**	**1 040**	**21.8**	**337.3**	**16.7**	**31.2**	**218.9**	**593.3**	**690.2**	**1 284.1**	**16.1**	**198.6**
Establishments with an average of—												
1 to 4 employees	E7	531	.9	12.4	.7	1.3	9.0	23.8	28.7	52.8	.3	6.1
5 to 9 employees	E2	208	1.4	19.4	1.1	1.9	14.1	36.7	38.0	74.6	.4	7.2
10 to 19 employees	E1	124	1.7	27.0	1.3	2.4	16.7	50.8	50.0	100.9	.6	10.1
20 to 49 employees	E1	78	2.4	40.1	1.9	3.5	25.0	70.2	69.2	140.5	1.0	18.9
50 to 99 employees	E1	55	3.9	61.9	3.0	5.7	39.8	105.5	127.8	233.3	1.4	37.4
100 to 249 employees	E2	34	6.0	95.1	4.8	9.4	64.6	180.9	224.4	407.8	3.3	63.6
250 to 499 employees	E1	7	5.6	81.5	4.0	7.1	49.6	125.4	152.1	274.3	9.1	55.3
500 to 999 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	460	.8	9.6	.6	1.1	6.6	17.3	24.0	41.3	.3	5.7
INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.												
Total	**E1**	**868**	**52.0**	**870.3**	**44.3**	**87.8**	**643.5**	**2 374.2**	**3 269.6**	**5 614.3**	**83.6**	**891.4**
Establishments with an average of—												
1 to 4 employees	E8	243	.4	6.1	.3	.7	4.4	15.8	20.8	36.7	.4	5.2
5 to 9 employees	E5	142	1.0	15.0	.8	1.4	9.9	45.3	47.5	92.5	1.7	13.5
10 to 19 employees	E2	130	1.9	28.0	1.5	2.8	18.8	60.8	68.9	130.5	2.2	17.6
20 to 49 employees	E2	137	4.2	66.8	3.4	6.4	44.3	159.1	174.8	331.2	4.0	50.4
50 to 99 employees	E1	89	6.3	108.5	5.2	10.6	71.0	236.0	349.0	581.8	6.7	97.1
100 to 249 employees	E1	70	11.2	180.4	9.5	18.6	129.0	413.4	574.2	987.2	11.7	175.8
250 to 499 employees	E1	41	14.1	242.5	12.0	23.7	176.0	731.5	871.4	1 581.3	26.0	282.9
500 to 999 employees	E1	11	12.8	222.9	11.7	23.5	189.9	712.2	1 163.1	1 873.3	15.8	248.9
1,000 to 2,499 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.1	(D)
Covered by administrative records[2]	E9	318	1.1	13.4	.9	1.6	9.7	32.8	44.6	77.4	1.0	12.1
INDUSTRY 2393, TEXTILE BAGS												
Total	**E1**	**311**	**11.9**	**185.9**	**9.6**	**19.0**	**123.2**	**336.2**	**443.4**	**778.5**	**12.0**	**121.1**
Establishments with an average of—												
1 to 4 employees	E9	89	.1	2.3	.1	.2	1.6	4.7	5.8	10.5	.2	1.7
5 to 9 employees	E4	35	.3	3.8	.2	.4	2.6	8.0	7.9	16.0	.2	2.3
10 to 19 employees	E1	56	.8	12.4	.6	1.1	7.6	28.7	53.0	80.6	.9	7.9
20 to 49 employees	E1	59	1.9	29.2	1.5	2.9	18.5	55.6	62.3	117.3	1.1	20.0
50 to 99 employees	–	38	2.6	40.3	2.2	4.2	27.7	72.1	87.9	161.4	1.8	23.2
100 to 249 employees	E1	27	3.9	59.3	3.3	6.5	40.7	116.2	132.3	247.4	4.0	36.4
250 to 499 employees	–	7	2.3	38.5	1.8	3.6	24.6	50.8	94.2	145.4	3.8	29.6
Covered by administrative records[2]	E9	85	.2	2.5	.1	.3	1.7	5.2	6.4	11.6	.2	1.9
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS												
Total	**E1**	**1 307**	**14.2**	**275.3**	**10.4**	**19.7**	**166.6**	**578.8**	**538.6**	**1 107.8**	**19.2**	**157.0**
Establishments with an average of—												
1 to 4 employees	E7	665	1.1	20.1	.9	1.8	13.2	42.6	40.5	83.0	1.4	9.5
5 to 9 employees	E2	260	1.7	31.3	1.3	2.3	21.1	58.1	47.2	105.0	1.4	10.9
10 to 19 employees	E1	203	2.8	54.7	2.0	3.6	32.3	110.6	93.9	204.0	2.7	24.4
20 to 49 employees	E1	137	4.0	80.8	2.8	5.3	44.9	161.3	161.0	318.7	8.7	38.6
50 to 99 employees	–	25	1.7	34.5	1.2	2.3	18.3	87.7	65.9	152.4	2.1	20.4
100 to 249 employees	E1	15	2.8	53.9	2.3	4.3	36.7	118.4	130.1	244.7	2.9	53.1
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	581	1.0	16.2	.9	1.6	10.5	35.2	35.5	70.7	1.4	8.5
INDUSTRY 2395, PLEATING AND STITCHING												
Total	**E3**	**756**	**13.7**	**205.0**	**11.0**	**20.7**	**138.8**	**383.3**	**355.4**	**726.6**	**22.8**	**102.3**
Establishments with an average of—												
1 to 4 employees	E9	325	.5	8.4	.4	.8	5.6	17.0	15.6	32.6	1.7	4.1
5 to 9 employees	E7	185	1.2	18.7	1.0	1.8	12.7	41.0	34.1	75.3	3.0	8.0
10 to 19 employees	E4	98	1.3	20.1	1.1	2.0	13.3	37.2	32.5	67.8	2.3	9.1
20 to 49 employees	E3	94	3.0	45.1	2.3	4.3	28.7	72.8	59.4	131.7	4.6	12.5
50 to 99 employees	E2	30	2.0	33.0	1.7	3.3	23.5	49.7	46.0	95.2	3.0	10.8
100 to 249 employees	E2	16	2.4	33.7	2.0	3.8	24.4	90.7	90.4	173.2	4.5	31.7
250 to 499 employees	E3	6	3.2	46.0	2.6	4.8	30.7	74.8	77.4	150.8	3.6	26.1
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	482	2.2	30.0	1.7	3.1	19.8	53.8	49.0	102.8	4.9	13.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS												
Total	**E1**	**2 469**	**57.1**	**1 334.3**	**44.5**	**84.5**	**941.8**	**2 721.2**	**3 399.2**	**6 093.1**	**139.7**	**624.1**
Establishments with an average of—												
1 to 4 employees	E7	1 341	2.0	37.4	1.6	3.2	27.9	82.5	103.2	185.0	3.9	20.8
5 to 9 employees	E3	341	2.2	40.1	1.7	3.2	30.1	83.3	101.3	184.1	3.6	16.9
10 to 19 employees	E1	303	4.2	76.8	3.2	5.6	52.6	153.6	182.6	334.9	5.9	32.3
20 to 49 employees	E2	259	8.3	151.2	6.4	11.9	98.0	311.8	368.8	679.3	17.9	66.9
50 to 99 employees	E1	107	7.4	138.2	5.9	10.9	93.1	278.3	328.7	605.1	14.0	73.8
100 to 249 employees	E2	83	12.7	244.3	9.8	19.1	160.9	543.0	684.9	1 211.8	39.1	165.1
250 to 499 employees	E1	24	7.7	171.1	5.4	10.9	98.6	467.3	444.6	911.5	31.9	114.5
500 to 999 employees	E3	6	3.5	85.4	2.7	5.1	67.6	222.0	281.6	497.3	23.5	60.0
1,000 to 2,499 employees	–	4	9.1	389.9	7.7	14.6	312.9	579.5	903.4	1 484.1	(D)	74.0
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(D)
Covered by administrative records[2]	E9	1 292	2.6	42.9	2.1	4.1	31.9	81.2	103.6	184.8	4.4	18.9
INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES												
Total	**E1**	**221**	**5.5**	**100.2**	**4.6**	**8.6**	**73.0**	**186.0**	**124.6**	**311.3**	**6.7**	**31.6**
Establishments with an average of—												
1 to 4 employees	E4	83	.2	3.4	.1	.3	2.7	6.6	5.3	12.2	.3	.9
5 to 9 employees	E1	46	.3	6.3	.3	.4	4.9	11.0	11.0	22.1	.3	1.5
10 to 19 employees	–	48	.7	13.5	.5	1.0	10.2	21.5	13.4	34.5	.5	2.1
20 to 49 employees	E1	19	.6	12.3	.4	.8	7.8	22.9	21.5	44.6	.7	4.3
50 to 99 employees	–	13	1.0	17.7	.8	1.6	12.9	44.0	29.7	72.9	2.6	8.1
100 to 249 employees	–	8	1.3	24.2	1.0	2.0	17.6	35.1	21.3	56.3	.8	6.2
250 to 499 employees	E3	4	1.5	22.8	1.4	2.4	16.8	44.9	22.4	68.8	1.4	8.6
Covered by administrative records[2]	E9	68	.2	2.7	.1	.3	2.0	4.6	3.0	7.6	.4	1.1
INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.												
Total	**E1**	**1 182**	**34.3**	**606.7**	**27.2**	**52.6**	**398.0**	**1 408.4**	**1 786.3**	**3 195.0**	**59.4**	**410.8**
Establishments with an average of—												
1 to 4 employees	E7	401	.7	11.5	.5	1.1	8.4	27.8	30.0	57.5	1.2	10.1
5 to 9 employees	E2	223	1.5	25.5	1.2	2.3	18.3	58.5	63.5	121.3	1.4	15.8
10 to 19 employees	E2	221	3.0	49.2	2.3	4.5	32.9	97.8	103.3	200.1	3.2	25.2
20 to 49 employees	E2	179	5.7	94.2	4.4	8.7	59.3	187.5	195.9	384.3	8.7	54.5
50 to 99 employees	E1	83	5.8	104.0	4.5	8.9	65.0	256.1	294.6	547.1	7.9	70.1
100 to 249 employees	E1	52	8.0	142.0	6.4	12.5	94.9	304.5	369.9	678.1	13.6	115.8
250 to 499 employees	E1	20	7.4	118.9	6.2	11.1	82.7	333.1	518.7	853.0	23.2	87.6
500 to 999 employees	–	3	2.2	61.4	1.7	3.4	36.6	143.2	210.5	353.6	(D)	31.8
Covered by administrative records[2]	E9	376	.8	11.9	.7	1.3	8.6	29.9	31.7	61.7	1.3	9.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2391	**Curtains and draperies:**										
	All establishments in industry	1 040	21.8	337.3	16.7	31.2	218.9	593.3	690.2	1 284.1	16.1
2392	**Housefurnishings, n.e.c.:**										
	All establishments in industry	868	52.0	870.3	44.3	87.8	643.5	2 374.2	3 269.6	5 614.3	83.6
	Establishments with this product class primary:										
23921	Bedspreads and bedsets (made from purchased fabrics)	50	3.7	60.0	3.1	6.3	41.8	146.7	214.5	351.7	3.6
23922	Sheets and pillowcases (made from purchased fabrics)	27	7.5	127.6	6.9	13.8	105.9	365.1	828.5	1 172.3	22.0
23923	Towels and/or washcloths	10	3.3	62.2	3.1	7.3	57.5	268.2	336.7	609.7	6.6
23924	Other housefurnishings (made from purchased fabrics)	372	33.4	565.9	27.9	54.1	399.8	1 490.4	1 768.2	3 255.2	48.4

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2393	**Textile bags:**										
	All establishments in industry	311	11.9	185.9	9.6	19.0	123.2	336.2	443.4	778.5	12.0
2394	**Canvas and related products:**										
	All establishments in industry	1 307	14.2	275.3	10.4	19.7	166.6	578.8	538.6	1 107.8	19.2
2395	**Pleating and stitching:**										
	All establishments in industry	756	13.7	205.0	11.0	20.7	138.8	383.3	355.4	726.6	22.8
	Establishments with this product class primary:										
23952	Embroideries (except Schiffli machine products)	108	5.6	91.5	4.5	8.8	61.6	188.2	186.5	361.8	7.3
23958	Receipts for commission work on materials owned by others	91	4.0	53.9	3.4	6.0	38.5	92.5	66.6	160.3	7.7
2396	**Automotive and apparel trimmings:**										
	All establishments in industry	2 469	57.1	1 334.3	44.5	84.5	941.8	2 721.2	3 399.2	6 093.1	139.7
	Establishments with this product class primary:										
23961	Mens' and boys' suit and coat findings, hatters' fur, and other hat and cap materials	49	2.4	56.0	1.9	3.7	36.4	95.0	126.4	221.2	3.4
23962	Automobile trimmings	66	16.5	550.8	13.7	26.7	434.6	1 018.0	1 498.6	2 517.5	59.5
23963	Other trimmings and findings	177	7.9	152.5	6.1	11.4	93.1	278.7	363.4	636.8	7.6
23964	Printing on garments and apparel accessories (including silk screen printing) and stamped art goods	986	22.8	443.8	17.0	31.7	281.6	1 098.7	1 157.4	2 232.7	60.0
2397	**Schiffli machine embroideries:**										
	All establishments in industry	221	5.5	100.2	4.6	8.6	73.0	186.0	124.6	311.3	6.7
2399	**Fabricated textile products, n.e.c.:**										
	All establishments in industry	1 182	34.3	606.7	27.2	52.6	398.0	1 408.4	1 786.3	3 195.0	59.4

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2391, CURTAINS AND DRAPERIES			
Total value of shipments	1 284.1	1 539.6	1 062.0
Primary products value of shipments	1 044.5	1 302.8	917.0
Secondary products value of shipments	86.1	79.4	53.7
Total miscellaneous receipts	153.5	157.3	91.3
Value of resales	52.6	56.0	17.7
Contract receipts	95.7	96.1	69.6
Other miscellaneous receipts	5.2	5.3	3.9
Primary products specialization ratio	92	94	94
Value of primary products shipments made in all industries	1 183.0	1 394.9	1 008.3
Value of primary products shipments made in this industry	1 044.5	1 302.8	917.0
Value of primary products shipments made in other industries	138.5	92.1	91.4
Coverage ratio	88	93	91
INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.			
Total value of shipments	5 614.3	4 530.0	3 262.2
Primary products value of shipments	5 092.5	3 999.5	2 872.0
Secondary products value of shipments	334.8	265.5	240.7
Total miscellaneous receipts	187.0	265.0	149.5
Value of resales	86.3	184.1	64.3
Contract receipts	84.0	76.0	82.1
Other miscellaneous receipts	16.6	4.9	3.1
Primary products specialization ratio	94	94	92
Value of primary products shipments made in all industries	5 354.5	4 428.9	3 299.3
Value of primary products shipments made in this industry	5 092.5	3 999.5	2 872.0
Value of primary products shipments made in other industries	262.1	429.4	427.3
Coverage ratio	95	90	87

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2393, TEXTILE BAGS			
Total value of shipments	778.5	571.5	421.8
Primary products value of shipments	675.4	473.8	340.5
Secondary products value of shipments	52.9	46.1	45.6
Total miscellaneous receipts	50.2	51.6	35.7
Value of resales	46.8	46.9	33.6
Contract receipts	2.8	3.6	1.1
Other miscellaneous receipts	.6	1.1	1.0
Primary products specialization ratio	93	91	88
Value of primary products shipments made in all industries	734.0	544.2	409.3
Value of primary products shipments made in this industry	675.4	473.8	340.5
Value of primary products shipments made in other industries	58.6	70.4	68.9
Coverage ratio	92	87	83
INDUSTRY 2394, CANVAS AND RELATED PRODUCTS			
Total value of shipments	1 107.8	1 066.2	752.3
Primary products value of shipments	990.2	942.4	640.8
Secondary products value of shipments	49.9	55.6	42.4
Total miscellaneous receipts	67.7	68.2	69.1
Value of resales	42.2	45.0	52.1
Contract receipts	7.0	10.2	5.0
Other miscellaneous receipts	18.5	13.0	12.1
Primary products specialization ratio	95	94	94
Value of primary products shipments made in all industries	1 051.4	983.1	690.9
Value of primary products shipments made in this industry	990.2	942.4	640.8
Value of primary products shipments made in other industries	61.2	40.7	50.2
Coverage ratio	94	96	93
INDUSTRY 2395, PLEATING AND STITCHING			
Total value of shipments	726.6	728.0	(NA)
Primary products value of shipments	638.4	592.3	(NA)
Secondary products value of shipments	45.5	110.4	(NA)
Total miscellaneous receipts	42.7	25.4	(NA)
Value of resales	(D)	17.3	(NA)
Contract receipts	20.9	6.9	(NA)
Other miscellaneous receipts	(D)	1.2	(NA)
Primary products specialization ratio	93	84	(NA)
Value of primary products shipments made in all industries	786.2	611.0	(NA)
Value of primary products shipments made in this industry	638.4	592.3	(NA)
Value of primary products shipments made in other industries	147.8	18.8	(NA)
Coverage ratio	81	97	(NA)
INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS			
Total value of shipments	6 093.1	4 564.5	(NA)
Primary products value of shipments	5 689.0	4 324.8	(NA)
Secondary products value of shipments	189.8	58.8	(NA)
Total miscellaneous receipts	214.3	180.9	(NA)
Value of resales	82.4	90.1	(NA)
Contract receipts	125.7	82.4	(NA)
Other miscellaneous receipts	6.2	8.5	(NA)
Primary products specialization ratio	97	99	(NA)
Value of primary products shipments made in all industries	5 811.5	4 506.1	(NA)
Value of primary products shipments made in this industry	5 689.0	4 324.8	(NA)
Value of primary products shipments made in other industries	122.5	181.3	(NA)
Coverage ratio	98	96	(NA)
INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES			
Total value of shipments	311.3	302.0	303.3
Primary products value of shipments	238.5	246.8	253.8
Secondary products value of shipments	22.5	14.6	13.1
Total miscellaneous receipts	50.4	40.3	36.4
Value of resales	(D)	5.0	2.0
Contract receipts	43.1	(D)	34.4
Other miscellaneous receipts	(D)	(D)	–
Primary products specialization ratio	91	94	95
Value of primary products shipments made in all industries	250.7	251.1	263.7
Value of primary products shipments made in this industry	238.5	246.8	253.8
Value of primary products shipments made in other industries	12.2	4.3	9.8
Coverage ratio	95	98	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.			
Total value of shipments	3 195.0	2 442.1	1 475.9
Primary products value of shipments	2 801.2	2 220.9	1 322.5
Secondary products value of shipments	134.9	94.5	99.0
Total miscellaneous receipts	258.9	126.7	54.4
Value of resales	153.1	97.5	27.6
Contract receipts	97.8	22.8	17.0
Other miscellaneous receipts	8.0	6.4	9.8
Primary products specialization ratio	95	96	93
Value of primary products shipments made in all industries	3 029.2	2 411.4	1 458.1
Value of primary products shipments made in this industry	2 801.2	2 220.9	1 322.5
Value of primary products shipments made in other industries	228.0	190.5	135.6
Coverage ratio	92	92	91

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2391– —	**CURTAINS AND DRAPERIES**						
	Total	**(NA)**	**(X)**	**1 183.0**	**(NA)**	**(X)**	**1 394.9**
23910	Curtains and draperies (made from purchased fabrics)	(NA)	(X)	1 183.0	(NA)	(X)	1 394.9
23910 10	Curtains and draperies, knit, except lace — mil pairs or sets	50	*.6	87.6	28	(S)	151.0
	Curtains and draperies, woven:						
	Window curtains:						
23910 12	Wholly or chiefly cotton — mil pairs or sets	48	3.3	112.2	31	**4.2	60.8
	Wholly or chiefly manmade fiber fabrics:						
23910 19	Rayon and/or acetate fabrics — mil pairs or sets	23	6.1	61.7	28	(S)	38.7
23910 23	All other manmade fiber fabrics, including glass — mil pairs or sets	29	(S)	165.3	(NA)	(D)	(D)
23910 25	Other materials — mil pairs or sets	20	.6	51.9	11	(D)	(D)
	Draperies (all lengths):						
23910 52	Wholly or chiefly cotton — mil pairs or sets	89	*2.9	105.3	106	(S)	114.5
	Wholly or chiefly manmade fiber fabrics:						
23910 59	Rayon and/or acetate fabrics — mil pairs or sets	60	3.3	93.1	71	*12.6	122.1
23910 63	All other manmade fiber fabrics, including glass — mil pairs or sets	61	2.2	175.5	(NA)	(S)	195.8
23910 62	Other materials — mil pairs or sets	39	(S)	62.1	20	(S)	69.7
23910 00	Curtains and draperies, n.s.k.[3]	(NA)	(X)	224.4	(NA)	(X)	248.0
23910 02	Curtains and draperies, n.s.k.[4]	(NA)	(X)	43.9	(NA)	(X)	74.3
2392– —	**HOUSEFURNISHINGS, N.E.C.**						
	Total	**(NA)**	**(X)**	**5 354.5**	**(NA)**	**(X)**	**4 428.9**
23921	Bedspreads and bedsets (made from purchased fabrics)	(NA)	(X)	442.6	(NA)	(X)	363.2
23921 11	Knit and/or crocheted bedspreads — millions	8	.4	7.2	3	(D)	(D)
	Tailored bedspreads (except knit):						
	Quilted:						
23921 14	Wholly or chiefly cotton fabrics — millions	49	(S)	72.6	39	6.4	105.2
23921 16	Wholly or chiefly manmade fiber fabrics — millions	41	(S)	135.2	38	**5.0	129.8
	Nonquilted:						
23921 20	Wholly or chiefly cotton fabrics — millions	7	(S)	3.0	8	(S)	5.2
23921 21	Wholly or chiefly manmade fiber fabrics — millions	6	(S)	42.4	10	(S)	30.5
	Nontailored bedspreads:						
23921 13	Wholly or chiefly cotton fabrics — millions	14	1.8	136.1	(NA)	(D)	(D)
23921 15	Wholly or chiefly manmade fiber fabrics — millions	13	*2.6	26.1	(NA)	(D)	(D)
23921 00	Bedspreads and bedsets (made from purchased fabrics), n.s.k.	(NA)	(X)	20.0	(NA)	(X)	13.5

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2392– —	**HOUSEFURNISHINGS, N.E.C.**—Con.						
23922	Sheets and pillowcases (made from purchased fabrics)	(NA)	(X)	1 001.8	(NA)	(X)	717.8
23922 00	Sheets and pillowcases (made from purchased fabrics)[5 6]	42	(X)	1 001.8	45	(X)	717.8
23923	Towels and/or washcloths[7]	(NA)	(X)	611.4	(NA)	(X)	500.6
23923 10	Woven terry fabrics, including other pile[5]	20	(X)	(D)	19	(X)	480.8
23923 13	All other fabrics (including huck and crash towels, etc.)[5]	5	(X)	(D)	4	(X)	19.8
23923 00	Towels and/or washcloths, n.s.k.	(NA)	(X)	45.2	(NA)	(X)	–
23924	Other housefurnishings (made from purchased fabrics)	(NA)	(X)	3 109.4	(NA)	(X)	2 326.8
23924 09	Shower bath curtains, including plastics (unsupported film), coated fabrics, and all others millions	24	13.6	156.3	26	*20.1	125.9
	Quilted products, except bedspreads:						
	Comforters and quilts:						
23924 12	Wholly or chiefly cotton (except downfilled) millions	26	13.5	285.4	17	4.4	84.8
23924 14	Wholly or chiefly manmade fiber (except downfilled) millions	37	*20.0	481.7	22	13.9	268.6
23924 16	Downfilled millions	12	(S)	104.6	7	*3.0	74.1
	Mattress protectors (including mattress covers):						
23924 33	Wholly or chiefly cotton millions	7	(S)	65.3	12	*1.2	9.3
23924 35	All other fabrics millions	18	57.8	107.6	17	(S)	74.1
23924 36	Other quilted products	15	(X)	17.1	15	(X)	20.6
23924 37	Table linen, knitted or crocheted (tablecloths, napkins, place mats, etc.) mil dozen	7	(Z)	15.5	6	(D)	(D)
	Other table linen:						
	Cotton:						
23924 38	Tablecloths and napkins mil dozen	27	7.0	133.0	20	(S)	122.8
23924 40	Other (including place mat sets) mil dozen	9	*.8	15.1	7	(S)	8.3
	Linen:						
23924 41	Tablecloths and napkins mil dozen	6	(D)	(D)	4	(S)	2.3
23924 43	Other (including place mats and place mat sets) mil dozen	1	(D)	(D)	(NA)	–	–
	Manmade fibers:						
23924 46	Tablecloths and napkins mil dozen	10	(S)	41.7	19	*2.2	29.4
23924 48	Other (including place mats and place mat sets) mil dozen	3	(D)	(D)	6	(S)	14.1
	Other materials, including plastics:						
23924 50	Tablecloths and napkins mil dozen	16	13.0	54.1	18	*3.4	52.3
23924 51	Other (including place mats and place mat sets) mil dozen	12	(S)	11.5	8	(S)	9.2
23924 54	Other related articles, except lace (dresser covers and scarves, doilies, tray cloths, etc., including plastics)	4	(X)	24.7	6	(X)	6.1
	Pillows:						
	Bed pillows:						
23924 55	Manmade fiber-filled millions	41	(S)	260.8	28	1.4	317.0
23924 56	Other materials (including foam) millions	30	(S)	104.9	18	(S)	60.9
	Fancy pillows and cushions:						
23924 57	Foam rubber millions	38	80.0	74.3	21	**28.4	41.2
23924 59	Other materials millions	80	(S)	256.2	47	**42.7	171.6
	Slipcovers:						
23924 63	Furniture, made from fabrics, plastics, and other material (except paper products) millions	17	*14.1	110.6	11	(S)	60.8
23924 65	Mattress, nonquilted millions	4	(D)	(D)	5	(S)	13.8
23924 69	Other millions	10	20.9	52.2	12	17.9	47.2
	Mops and dusters:						
23924 71	Dry mops and dusters (excluding dusting cloths, including refills) millions	28	*11.1	45.1	21	**8.9	31.3
23924 73	Wet mops (except sponge mops, including refills) millions	46	*46.2	106.6	52	**35.4	83.3
23924 75	Sponge mops (including refills) millions	15	**34.0	91.1	19	**25.8	69.0
23924 81	Bags: laundry, wardrobe, and shoe (including storage bags of textiles with or without external supporting frames)	24	(X)	37.9	14	(X)	28.8
23924 94	Blankets mil dozen	22	*1.0	115.2	(NA)	(D)	(D)
23924 99	All other housefurnishings	67	(X)	213.3	96	(X)	306.3
23924 00	Other housefurnishings (made from purchased fabrics), n.s.k.	(NA)	(X)	90.4	(NA)	(X)	28.0
23920	Housefurnishings, n.e.c., n.s.k.	(NA)	(X)	189.3	(NA)	(X)	520.5
23920 00	Housefurnishings, n.e.c., n.s.k.[3]	(NA)	(X)	105.4	(NA)	(X)	353.9
23920 02	Housefurnishings, n.e.c., n.s.k.[4]	(NA)	(X)	84.0	(NA)	(X)	166.6
2393– —	**TEXTILE BAGS**						
	Total	**(NA)**	**(X)**	**734.0**	**(NA)**	**(X)**	**544.2**
23930	Textile bags (except laundry, wardrobe, and shoe)	(NA)	(X)	734.0	(NA)	(X)	544.2
	Wholly or chiefly cotton (including cotton canvas and open-mesh cotton):						
23930 12	Duffle bags and knapsacks mil lin yd	21	80.7	29.8	25	(S)	22.4
23930 13	Other bags mil lin yd	72	(S)	173.6	74	*167.9	125.0
23930 18	Spun paper mil lin yd	2	(D)	(D)	6	(S)	52.3
23930 31	Burlap mil lin yd	20	(S)	67.8	24	(S)	70.9
	Wholly or chiefly manmade fiber fabrics:						
23930 91	Duffle bags and knapsacks mil lin yd	31	(S)	80.3	19	*12.5	35.3
23930 95	Split polyethylene or polypropylene strip, except duffle mil lin yd	21	394.0	68.3	19	(S)	33.6
23930 96	Other manmade fiber fabrics, except duffle mil lin yd	43	(S)	77.2	33	(S)	63.8
23930 97	Other fabrics mil lin yd	34	(D)	(D)	35	(S)	70.5
23930 00	Textile bags, n.s.k.[3]	(NA)	(X)	69.5	(NA)	(X)	49.1
23930 02	Textile bags, n.s.k.[4]	(NA)	(X)	19.1	(NA)	(X)	21.3

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2394– —	**CANVAS AND RELATED PRODUCTS**				
	Total	**(NA)**	**1 051.4**	**(NA)**	**983.1**
23940	Canvas and related products (made from cotton, nylon, polyester, and other industrial fabrics)	(NA)	1 051.4	(NA)	983.1
23940 21	Awnings	249	215.8	194	146.2
	Tents:				
23940 34	Camping	25	69.2	28	82.1
23940 36	Other tents, including air supported structures and tension structures	47	82.6	39	98.7
	Tarpaulins and other covers:				
23940 53	Flat	98	132.1	81	66.7
23940 55	Fitted	84	121.2	96	74.8
	Other canvas products, except bags:				
23940 61	Sails	41	46.4	61	52.5
23940 64	All other	122	161.8	133	249.7
23940 00	Canvas and related products, n.s.k.[3]	(NA)	151.6	(NA)	116.7
23940 02	Canvas and related products, n.s.k.[4]	(NA)	70.7	(NA)	95.1
2395– —	**PLEATING AND STITCHING**				
	Total	**(NA)**	**786.2**	**(NA)**	**611.0**
23952	Embroideries (except Schiffli machine products)	(NA)	412.3	(NA)	334.3
23952 00	Embroideries (except Schiffli machine products)	164	412.3	154	334.3
23958	Receipts for commission work on materials owned by others	(NA)	191.1	(NA)	157.6
23958 11	Embroidering (other than Schiffli machine) on materials owned by others	60	87.0	68	80.8
23958 33	Contract tucking, pleating, hemstitching, and buttonholing for the trade	51	91.0	66	76.7
23958 00	Receipts for commission work on materials owned by others, n.s.k.	(NA)	13.1	(NA)	–
23950	Pleating and stitching, n.s.k.	(NA)	182.8	(NA)	119.2
23950 00	Pleating and stitching, n.s.k.[8]	(NA)	99.0	(NA)	77.6
23950 02	Pleating and stitching, n.s.k.[9]	(NA)	83.8	(NA)	41.5
2396– —	**AUTOMOTIVE TRIMMINGS, APPAREL FINDINGS, AND RELATED PRODUCTS**				
	Total	**(NA)**	**5 811.5**	**(NA)**	**4 506.1**
23961	Mens' and boys' suit and coat findings, hatters' fur, and other hat and cap materials	(NA)	229.0	(NA)	235.6
23961 11	Mens' and boys' coat, suit, and trouser findings	38	171.0	22	216.4
23961 53	Hat bands, hat linings, tip printing and stamping, sweats, cap fronts, and hatters' fur, cut or blown, for sale as such	30	(D)	15	19.2
23961 00	Mens' and boys' suit and coat findings, hatters' fur, and other hat and cap materials, n.s.k.	(NA)	(D)	(NA)	–
23962	Automobile trimmings	(NA)	2 547.7	(NA)	2 512.4
23962 00	Automobile trimmings	51	2 547.7	36	2 512.4
23963	Other trimmings and findings	(NA)	649.7	(NA)	547.3
	Trimmings (except automobile):				
23963 11	Women's and children's apparel findings and trimmings	99	289.6	88	309.9
23963 12	All other (including furniture trimmings)	39	75.4	37	83.9
23963 33	Bias binding for the apparel trade and notion trade (except fused or sealed edge)	36	62.3	32	69.3
23963 45	Ribbons, fused or sealed edge (not woven with fast edges)	42	203.8	23	84.3
23963 00	Other trimmings and findings, n.s.k.	(NA)	18.5	(NA)	–
23964	Printing on garments and apparel accessories (including silk screen printing) and stamped art goods	(NA)	2 177.4	(NA)	872.8
23964 34	Printing on garments and apparel accessories (including silk screen printing)	795	2 093.6	265	810.1
23964 37	Stamped art goods for embroidering, punching, and needlework	8	36.6	17	62.7
23964 00	Printing on garments and apparel accessories (including silk screen printing) and stamped art goods, n.s.k.	(NA)	47.2	(NA)	–
23960	Automotive trimmings, apparel findings, and related products, n.s.k.	(NA)	207.7	(NA)	338.1
23960 00	Automotive trimmings, apparel findings, and related products, n.s.k.[3]	(NA)	62.1	(NA)	124.9
23960 02	Automotive trimmings, apparel findings, and related products, n.s.k.[4]	(NA)	145.6	(NA)	213.2
2397– —	**SCHIFFLI MACHINE EMBROIDERIES**				
	Total	**(NA)**	**250.7**	**(NA)**	**251.1**
23970	Schiffli machine embroideries	(NA)	250.7	(NA)	251.1
23970 00	Schiffli machine embroideries	140	243.1	141	232.5
23970 02	Schiffli machine embroideries, n.s.k.[4]	(NA)	7.6	(NA)	18.6

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2399– —	**FABRICATED TEXTILE PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**3 029.2**	**(NA)**	**(X)**	**2 411.5**
23990	Fabricated textile products, n.e.c.	(NA)	(X)	3 029.2	(NA)	(X)	2 411.5
23990 15	Automobile seat covers, 1,000 sets	35	9 358.3	383.1	28	*7 086.8	121.9
23990 25	Seat or safety belts, including shoulder harnesses (except leather), 1,000 units	29	27 214.5	479.5	17	*38 839.6	489.1
23990 31	Sleeping bags, thousands	16	*10 428.5	191.9	18	(S)	134.0
23990 41	Flags, banners, and similar emblems	142	(X)	288.4	100	(X)	211.0
23990 85	Parachutes, thousands	19	158.7	82.6	17	(S)	84.9
23990 93	Industrial shop towels, 1,000 dozen	7	(S)	37.7	10	(S)	53.2
23990 95	Carpet tiles (tufted and needlepunched) cut from broadloom, mil sq yd	10	11.6	220.5	9	(S)	172.9
23990 97	Carpet and rugs made from carpeting not made in this plant (cutting, sewing, and binding only)	30	(X)	252.1	34	(X)	245.5
23990 98	All other fabricated textile products, including diapers	362	(X)	837.0	(NA)	(X)	636.7
23990 00	Fabricated textile products, n.e.c., n.s.k.[3]	(NA)	(X)	183.5	(NA)	(X)	157.3
23990 02	Fabricated textile products, n.e.c., n.s.k.[4]	(NA)	(X)	72.9	(NA)	(X)	105.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[6]This product code is primary to more than one industry.
[7]This product class is primary to more than one industry.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Towels and washcloths	(NA)	1 343.1	(NA)	1 284.3
2211G	Made in weaving mills	(NA)	731.6	(NA)	783.7
23923	Made in other industries	(NA)	611.4	(NA)	500.6
	Terry towels and washcloths, including pile	(NA)	1 283.5	(NA)	(D)
2211G 10	Made in weaving mills	6	(D)	9	(D)
23923 10	Made in other industries	20	(D)	19	480.8
	Other towels, including huck and crash	(NA)	14.3	(NA)	(D)
2211G 30	Made in weaving mills	1	(D)	2	(D)
23923 13	Made in other industries	5	(D)	4	19.8
	Towels and washcloths, n.s.k.	(NA)	45.2	(NA)	(D)
2211G 00	Made in weaving mills	(NA)	–	(NA)	(D)
23923 00	Made in other industries	(NA)	45.2	(NA)	–
	Sheets and pillowcases	(NA)	1 560.8	(NA)	(D)
	Made in weaving mills	(NA)	559.0	(NA)	(D)
2211H 25	Wholly or chiefly cotton fabrics	5	(D)	6	209.4
2221K 00	Wholly or chiefly manmade fibers and silk	3	(D)	4	(D)
23922 00	Made in other industries	42	1 001.8	45	717.8

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
23921, BEDSPREADS AND BEDSETS (MADE FROM PURCHASED FABRICS)		
United States	**442.6**	**363.2**
Alabama	13.5	(NA)
California	61.7	25.9
Florida	17.9	12.1
Georgia	31.5	32.1
Indiana	8.3	8.9
Massachusetts	2.6	4.0
New Jersey	9.5	(NA)
New York	17.3	70.2
North Carolina	71.0	84.8
Pennsylvania	9.0	(NA)
South Carolina	98.6	47.8
23922, SHEETS AND PILLOWCASES (MADE FROM PURCHASED FABRICS)		
United States	**1 001.8**	**717.8**
New York	20.5	(NA)
North Carolina	16.6	(NA)
23923, TOWELS AND/ OR WASHCLOTHS		
United States	**611.4**	**500.6**
New York	2.5	(NA)
South Carolina	21.8	17.8
23924, OTHER HOUSEFURNISHINGS (MADE FROM PURCHASED FABRICS)		
United States	**3 109.4**	**2 326.8**
Arkansas	35.4	22.3
California	274.5	250.5
Florida	67.1	33.9
Georgia	160.9	136.6
Illinois	153.6	129.3
Indiana	63.7	31.4
Maryland	2.5	(NA)
Massachusetts	62.7	53.2
Michigan	9.5	(NA)
Minnesota	19.0	12.9
Mississippi	152.0	71.8
Missouri	11.8	8.6
Nevada	8.0	(NA)
New Jersey	111.2	154.4
New York	130.0	198.4
North Carolina	709.4	456.7
Ohio	140.9	85.2
Oregon	4.9	(NA)
Pennsylvania	156.0	89.8
Rhode Island	2.5	4.5
South Carolina	279.6	103.9
Tennessee	33.4	27.6
Texas	127.6	84.1
Virginia	23.7	27.5
Washington	37.3	(NA)
West Virginia	9.2	(NA)
Wisconsin	36.3	(NA)
23952, EMBROIDERIES (EXCEPT SCHIFFLI MACHINE PRODUCTS)		
United States	**412.3**	**334.3**
California	73.5	68.2
Florida	12.4	2.4
Georgia	5.7	2.7
New Jersey	43.3	39.6
New York	52.2	20.4
North Carolina	41.5	51.1
Ohio	49.2	10.7
Pennsylvania	14.2	34.9
Texas	6.7	5.7
Wisconsin	7.4	(NA)
23958, RECEIPTS FOR COMMISSION WORK ON MATERIALS OWNED BY OTHERS		
United States	**191.1**	**157.6**
California	22.4	20.0
Florida	13.7	4.4
Massachusetts	4.1	3.2
New Jersey	19.9	20.3
New York	34.5	40.6
North Carolina	32.3	21.0
South Carolina	22.9	(NA)
Texas	5.8	9.1
23961, MENS' AND BOYS' SUIT AND COAT FINDINGS, HATTERS' FUR, AND OTHER HAT AND CAP MATERIALS		
United States	**229.0**	**235.6**
Maryland	13.0	(NA)
Massachusetts	18.0	(NA)
New York	38.1	33.8
Pennsylvania	16.5	(NA)
South Carolina	12.9	(NA)
Tennessee	16.7	(NA)
23962, AUTOMOBILE TRIMMINGS		
United States	**2 547.7**	**2 512.4**
California	40.2	30.9
Illinois	25.3	(NA)
Michigan	1 782.3	2 172.8
Ohio	437.3	280.3
Tennessee	113.3	(NA)
23963, OTHER TRIMMINGS AND FINDINGS		
United States	**649.7**	**547.3**
California	59.5	33.2
Florida	10.1	3.0
Illinois	3.3	(NA)
Maryland	16.4	30.2
Massachusetts	116.1	48.1
New Jersey	109.2	109.7
New York	110.2	118.4
North Carolina	16.6	18.2
Pennsylvania	26.1	21.3
South Carolina	8.9	(NA)
Tennessee	59.3	82.9
Texas	14.5	4.2
23964, PRINTING ON GARMENTS AND APPAREL ACCESSORIES (INCLUDING SILK SCREEN PRINTING) AND STAMPED ART GOODS		
United States	**2 177.4**	**872.8**
Alabama	7.6	3.3
Arizona	8.9	(NA)
Arkansas	7.9	(NA)
California	331.1	176.9
Colorado	18.7	5.8
Delaware	2.5	(NA)
Florida	189.9	96.4
Georgia	37.2	10.8
Hawaii	26.3	16.9
Illinois	33.9	19.5
Indiana	167.6	(NA)
Iowa	30.5	17.1
Kansas	8.1	(NA)
Kentucky	8.9	(NA)
Maine	7.5	(NA)
Maryland	32.1	(NA)
Massachusetts	60.1	19.8
Michigan	28.7	2.1
Minnesota	42.4	13.5
Missouri	32.6	23.1
Nevada	11.2	(NA)
New Jersey	50.7	36.2
New Mexico	6.3	(NA)
New York	206.0	109.3
North Carolina	149.1	43.7
Ohio	75.8	(NA)
Oregon	6.3	(NA)
Pennsylvania	38.7	21.3
South Carolina	45.4	4.5
Tennessee	61.9	13.9
Texas	41.4	5.8
Utah	29.1	(NA)
Vermont	3.9	(NA)
Virginia	38.6	11.1
Washington	91.3	16.8
Wisconsin	47.6	13.0

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2391-	**Curtains and draperies**	**1 183.0**	**1 415.5**	**1 468.9**	**1 414.4**	**1 353.3**	**1 394.9**	**1 008.3**	**936.7**
23910	Curtains and draperies (made from purchased fabrics)	1 183.0	1 415.5	1 468.9	1 414.4	1 353.3	1 394.9	1 008.3	936.7
2392-	**Housefurnishings, n.e.c.**	**5 354.5**	**4 684.1**	**4 543.9**	**4 477.1**	**4 578.5**	**4 428.9**	**3 299.3**	**2 202.3**
23921	Bedspreads and bedsets (made from purchased fabrics)	442.6	438.1	480.7	455.0	394.7	363.2	331.4	300.4
23922	Sheets and pillowcases (made from purchased fabrics)	1 001.8	844.3	843.0	836.8	794.9	717.8	677.6	479.5
23923	Towels and/or washcloths	611.4	477.8	463.7	497.5	585.0	500.6	355.9	276.6
23924	Other housefurnishings (made from purchased fabrics)	3 109.4	2 743.8	2 558.2	2 381.5	2 243.2	2 326.8	1 477.6	885.8
23920	Housefurnishings, n.e.c., n.s.k.	189.3	180.0	198.3	306.3	560.8	520.5	456.8	260.0
2393-	**Textile bags**	**734.0**	**547.0**	**561.3**	**561.7**	**605.7**	**544.2**	**409.3**	**277.8**
23930	Textile bags (except laundry, wardrobe, and shoe)	734.0	547.0	561.3	561.7	605.7	544.2	409.3	277.8
2394-	**Canvas and related products**	**1 051.4**	**917.1**	**932.4**	**895.1**	**1 058.4**	**983.1**	**690.9**	**465.6**
23940	Canvas and related products (made from cotton, nylon, polyester, and other industrial fabrics)	1 051.4	917.1	932.4	895.1	1 058.4	983.1	690.9	465.6
2395-	**Pleating and stitching**	**786.2**	**540.2**	**583.2**	**537.7**	**637.2**	**611.0**	**180.3**	**(NA)**
23952	Embroideries (except Schiffli machine products)	412.3	278.2	312.5	279.8	340.5	334.3	118.6	(NA)
23958	Receipts for commission work on materials owned by others	191.1	112.6	130.8	121.4	159.9	157.6	61.7	(NA)
23950	Pleating and stitching, n.s.k.	182.8	149.4	139.9	136.5	136.8	119.1	(NA)	(NA)
2396-	**Automotive trimmings, apparel findings, and related products**	**5 811.5**	**4 847.4**	**5 181.2**	**4 716.0**	**4 458.6**	**4 506.1**	**2 764.1**	**(NA)**
23961	Mens' and boys' suit and coat findings, hatters' fur, and other hat and cap materials	229.0	252.6	249.6	220.4	275.4	235.6	183.5	104.4
23962	Automobile trimmings	2 547.7	2 226.7	2 521.8	2 412.1	2 501.2	2 512.4	1 384.3	1 737.7
23963	Other trimmings and findings	649.7	708.4	726.9	601.2	500.2	547.3	282.5	187.4
23964	Printing on garments and apparel accessories (including silk screen printing) and stamped art goods	2 177.4	1 382.5	1 409.3	1 146.9	903.1	872.8	489.8	(NA)
23960	Automotive trimmings, apparel findings, and related products, n.s.k.	207.7	277.3	273.6	335.4	278.7	338.1	[2]424.0	(NA)
2397-	**Schiffli machine embroideries**	**250.7**	**246.3**	**259.4**	**256.3**	**241.6**	**251.1**	**263.7**	**146.3**
23970	Schiffli machine embroideries	250.7	246.3	259.4	256.3	241.6	251.1	263.7	146.3
2399-	**Fabricated textile products, n.e.c.**	**3 029.2**	**3 009.5**	**2 867.1**	**2 844.4**	**2 327.9**	**2 411.5**	**1 458.1**	**1 158.9**
23990	Fabricated textile products, n.e.c.	3 029.2	3 009.5	2 867.1	2 844.4	2 327.9	2 411.5	1 458.1	1 158.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]For 1982, data for product class code 23950 are included with the data for product class code 23960.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2391, CURTAINS AND DRAPERIES				
	Materials, ingredients, containers, and supplies	**(X)**	**624.1**	**(X)**	**744.9**
	Broadwoven fabrics (piece goods):				
221101	Cotton mil sq yd	(S)	48.8	(NA)	78.1
222101	Rayon and acetate mil sq yd	50.7	74.5	(NA)	77.8
222104	Polyester mil sq yd	(S)	79.1	(NA)	106.8
222105	Nylon mil sq yd	(S)	3.9	(NA)	2.7
220127	Other broadwoven fabrics mil sq yd	89.6	119.8	(NA)	129.9
224111	Narrow fabrics (12 inches or less in width) mil sq yd	(D)	[2]	(NA)	10.8
228015	Purchased yarn, all fibers mil lb	(S)	36.3	(S)	55.0
229503	Plastics coated, impregnated, or laminated fabrics mil sq yd	(S)	6.1	(S)	1.3
282014	Manmade fibers (staple and tow) mil lb	(S)	.6	(S)	15.1
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	3.4	(X)	2.6
970099	All other materials and components, parts, containers, and supplies	(X)	[2]77.7	(X)	60.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	173.8	(X)	204.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2392, HOUSEFURNISHINGS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 095.8**	**(X)**	**2 529.5**
	Broadwoven fabrics (piece goods):				
221101	Cotton, mil sq yd	**578.3	761.5	(NA)	596.7
222101	Rayon and acetate, mil sq yd	(S)	12.9	(NA)	8.9
222104	Polyester, mil sq yd	(S)	396.3	(NA)	356.8
222105	Nylon, mil sq yd	(S)	26.5	(NA)	4.3
220127	Other broadwoven fabrics, mil sq yd	*263.3	298.4	(NA)	392.7
224111	Narrow fabrics (12 inches or less in width), mil sq yd	**43.8	33.6	(NA)	30.1
228015	Yarn, all fibers, mil lb	(S)	179.4	(S)	48.1
229503	Plastics coated, impregnated, or laminated fabrics, mil sq yd	*27.1	35.2	(X)	46.7
282014	Manmade fibers (staple and tow), mil lb	(S)	119.5	(S)	204.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	60.0	(X)	21.5
970099	All other materials and components, parts, containers, and supplies	(X)	857.2	(X)	412.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	315.2	(X)	407.0
	INDUSTRY 2393, TEXTILE BAGS				
	Materials, ingredients, containers, and supplies	**(X)**	**389.2**	**(X)**	**297.9**
	Broadwoven fabrics (piece goods):				
221101	Cotton, mil sq yd	*44.8	47.2	(NA)	48.0
222101	Rayon and acetate, mil sq yd	*3.0	2.2	(NA)	1.7
222104	Polyester, mil sq yd	*11.0	16.9	(NA)	9.3
222105	Nylon, mil sq yd	*12.9	31.9	(NA)	15.5
220127	Other broadwoven fabrics, mil sq yd	(S)	48.5	(NA)	32.4
224111	Narrow fabrics (12 inches or less in width), mil sq yd	(S)	11.9	(NA)	7.6
228015	Yarn, all fibers, mil lb	**9.2	11.5	(S)	12.4
229503	Plastics coated, impregnated, or laminated fabrics, mil sq yd	**42.1	34.0	(S)	16.8
282014	Manmade fibers, staple, and tow, mil lb	29.2	12.3	(S)	15.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	16.3	(X)	2.5
970099	All other materials and components, parts, containers, and supplies	(X)	107.3	(X)	88.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	49.2	(X)	48.0
	INDUSTRY 2394, CANVAS AND RELATED PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**469.3**	**(X)**	**r479.5**
	Broadwoven fabrics (piece goods):				
221101	Cotton, mil sq yd	*19.9	27.2	(NA)	58.4
222101	Rayon and acetate, mil sq yd	*.5	1.1	(NA)	3.1
222104	Polyester, mil sq yd	*5.6	16.6	(NA)	21.0
222105	Nylon, mil sq yd	(S)	23.3	(NA)	11.0
220127	Other broadwoven fabrics, mil sq yd	(S)	21.1	(NA)	23.2
224111	Narrow fabrics (12 inches or less in width), mil sq yd	(S)	5.7	(S)	5.4
228015	Yarn, all fibers, mil lb	(S)	1.0	(S)	6.2
229503	Plastics coated, impregnated, or laminated fabrics, mil sq yd	**20.3	54.3	(S)	45.1
282014	Manmade fibers (staple and tow), mil lb	(S)	1.1	(S)	.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	3.0	(X)	3.1
970099	All other materials and components, parts, containers, and supplies	(X)	108.6	(X)	95.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	206.3	(X)	r207.1
	INDUSTRY 2395, PLEATING AND STITCHING				
	(Material data were not collected for this industry.)				
	INDUSTRY 2396, AUTOMOTIVE AND APPAREL TRIMMINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**3 118.8**	**(X)**	**r2 422.0**
	Broadwoven fabrics (piece goods):				
222104	Polyester, mil sq yd	144.2	185.9	(NA)	211.5
221101	Cotton, mil sq yd	**73.2	76.0	(NA)	123.7
222101	Rayon and acetate, mil sq yd	(S)	35.8	(NA)	48.5
220127	Other broadwoven fabrics, mil sq yd	156.2	259.5	(NA)	205.2
224111	Narrow fabrics (12 inches or less in width), mil sq yd	(S)	29.7	(NA)	31.7
228015	Yarn, all fibers, mil lb	(S)	29.2	(NA)	(4)
229503	Plastics coated, impregnated, or laminated fabrics, mil sq yd	(S)	99.5	(S)	230.0
230001	Garments purchased to be printed and resold	(X)	347.7	(X)	(4)
289351	Printing ink, for printing on garments	(X)	53.6	(X)	(4)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	(S)	133.6	(S)	84.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	17.1	(X)	30.5
970099	All other materials and components, parts, containers, and supplies	(X)	1 208.0	(X)	41 153.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	643.3	(X)	r302.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2397, SCHIFFLI MACHINE EMBROIDERIES				
	(Material data were not collected for this industry.)				
	INDUSTRY 2399, FABRICATED TEXTILE PRODUCTS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 613.4**	**(X)**	**1 236.2**
	Broadwoven fabrics (piece goods):				
221101	Cotton, mil sq yd	(S)	54.4	(NA)	32.2
222101	Rayon and acetate, mil sq yd	(S)	7.8	(NA)	1.6
222104	Polyester, mil sq yd	67.3	90.1	(NA)	80.4
222105	Nylon, mil sq yd	*52.2	142.5	(NA)	53.5
220127	Other broadwoven fabrics, mil sq yd	(S)	157.4	(NA)	67.6
224111	Narrow fabrics (12 inches or less in width), mil sq yd	*71.4	25.5	(NA)	61.8
228015	Yarn, all fibers, mil lb	(S)	126.1	70.3	50.8
229503	Plastics coated, impregnated, or laminated fabrics, mil sq yd	(S)	78.3	(S)	46.0
282014	Manmade fibers (staple and tow), mil lb	24.2	22.9	(S)	17.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	35.0	(X)	50.1
970099	All other materials and components, parts, containers, and supplies	(X)	694.0	(X)	550.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	179.3	(X)	224.3

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1992, data are included with material code 970099 to avoid disclosing data for individual companies.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1987, data are included with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
23115	23111	23117	23113	23299 00	23299 11	23924 94	23924 82
23115	23114	23117	23114	23299 00	23299 13	23924 94	23924 91
23115 00	23111 00	23117 00	23113 00	23910 23	23910 15	23924 94	23924 92
23115 00	23114 00	23117 00	23114 00	23910 23	23910 21	23924 94	23924 93
23116	23112	23229 00	23229 11	23910 63	23910 55	23924 94	23924 95
23116	23114	23229 00	23229 12	23910 63	23910 61	23924 94	23924 96
23116 00	23112 00	23259 00	23259 11	23921 13	23921 22	23940 64	23940 63
23116 00	23114 00	23259 00	23259 12	23921 13	23921 30	23940 64	23940 65
				23921 15	23921 24	23990 98	23990 26
				23921 15	23921 31	23990 98	23990 27
						23990 98	23990 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
23111	23115	23114	23117	23299 11	23299 00	23924 82	23924 94
23111 00	23115 00	23114 00	23115 00	23299 13	23299 00	23924 91	23924 94
23112	23116	23114 00	23116 00	23910 15	23910 23	23924 92	23924 94
23112 00	23116 00	23114 00	23117 00	23910 21	23910 23	23924 93	23924 94
23113	23117	23229 11	23229 00	23910 55	23910 63	23924 95	23924 94
23113 00	23117 00	23229 12	23229 00	23910 61	23910 63	23924 96	23924 94
23114	23115	23259 11	23259 00	23921 22	23921 13	23940 63	23940 64
23114	23116	23259 12	23259 00	23921 24	23921 15	23940 65	23940 64
				23921 30	23921 13	23990 26	23990 98
				23921 31	23921 15	23990 27	23990 98
						23990 99	23990 98

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2311500	MA23A, Apparel	2339500	MA23A, Apparel
2311600	MA23A, Apparel	2339730	MA23A, Apparel
2311700	MA23A, Apparel	2339760	MA23A, Apparel
2321300	MA23A, Apparel	2339780	MA23A, Apparel
2321600	MA23A, Apparel	2341200	MA23A, Apparel
2322100	MA23A, Apparel	2341300	MA23A, Apparel
2322200	MA23A, Apparel	2342100	MA23A, Apparel
2325100	MA23A, Apparel	2342210	MA23A, Apparel
2325200	MA23A, Apparel	2361300	MA23A, Apparel
2326100	MA23A, Apparel	2361400	MA23A, Apparel
2326200	MA23A, Apparel	2361500	MA23A, Apparel
2329100	MA23A, Apparel	2369200	MA23A, Apparel
2329310	MA23A, Apparel	2369340	MA23A, Apparel
2329330	MA23A, Apparel	2369370	MA23A, Apparel
2329360	MA23A, Apparel	2369380	MA23A, Apparel
2329380	MA23A, Apparel	2369393	MA23A, Apparel
2331300	MA23A, Apparel	2381300	MA23D, Gloves and Mittens
2331400	MA23A, Apparel	2381400	MA23D, Gloves and Mittens
2335300	MA23A, Apparel	2384011	MA23A, Apparel
2337100	MA23A, Apparel	2384021	MA23A, Apparel
2337200	MA23A, Apparel	2385140	MA23A, Apparel
2337410	MA23A, Apparel	2392200	MQ23X, Sheets, Pillowcases, and Towels
2337420	MA23A, Apparel	2392310	MQ23X, Sheets, Pillowcases, and Towels
2339200	MA23A, Apparel	2392313	MQ23X, Sheets, Pillowcases, and Towels
2339400	MA23A, Apparel		

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TSF:TIPS92-08130692.DAT;1 1/ 6/ 95 08:13:15 UTF:TIPS93-08130692.DAT;1 1/ 6/ 95 08:13:15 META:TIPS96-08130692.DAT;1 1/ 6/ 95 08:13:46

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-24A

INDUSTRY SERIES

Logging Camps, Sawmills, and Planing Mills

Industries 2411, 2421, 2426, and 2429

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Logging Camps, Sawmills, and Planing Mills

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2411	Logging
2421	Sawmills and Planing Mills, General
2426	Hardwood Dimension and Flooring Mills
2429	Special Product Sawmills, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2411, LOGGING

This industry is made up of establishments primarily engaged in cutting timber and producing rough, round, hewn, or riven primary forest or wood raw materials. Also included in this industry are establishments primarily engaged in producing wood chips in the field. Independent contractors engaged in estimating or trucking timber, but who perform no cutting operations are classified in nonmanufacturing industries. Establishments primarily engaged in collecting bark, sap, gum, and other forest products are classified in major group 08.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2411, Logging, had employment of 83.6 thousand. The employment figure was 3 percent below the 85.8 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Oregon, Washington, Alabama, and Georgia, accounting for approximately 37 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $13.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2411 shipped $12.6 billion of logging products considered primary to the industry, $277.2 million of secondary products, and had $971.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 95 percent.

The products primary to industry 2411, no matter in what industry they were produced, appear in table 6a and

aggregate to $13.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the logging industry amounted to $8.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 28 percent of the total value of shipments.

INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL

This industry is made up of establishments primarily engaged in sawing rough lumber and timber from logs and bolts, or resawing cants and flitches into lumber, including box lumber and softwood cut stock; planing mills combined with sawmills; and separately operated planing mills which are engaged primarily in producing surface lumber and standard workings or patterns of lumber. This industry includes establishments primarily engaged in sawing lath and railroad ties and in producing tobacco hogshead stock, wood chips, and snow fence lath. Establishments primarily engaged in manufacturing box shook or boxes are classified in industry group 244; those manufacturing sash, doors, wood molding, window and door frames, and other fabricated millwork are classified in industry group 243; and those manufacturing hardwood dimension and flooring are classified in industry 2426. Products of this industry also are collected in Current Industrial Report MA-24T, Lumber Production and Mill Stocks.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2421, Sawmills and Planing Mills, General, had employment of 138.1 thousand. The employment figure was 7 percent below the 148.3 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Oregon, California, Washington, and Mississippi, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Oregon, California, Washington, and Georgia were the leading States.

The total value of shipments for establishments classified in this industry was $21.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2421 shipped $19.2 billion of sawmill and planing mill products considered primary to the industry, $1.0 billion of secondary products, and had $893.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2421, no matter in what industry they were produced, appear in table 6a and aggregate to $20.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sawmill and planing mills, general, industry amounted to $13.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS

This industry is made up of establishments primarily engaged in manufacturing hardwood dimension lumber and workings therefrom; and other hardwood dimension, semifabricated or ready for assembly; hardwood flooring; and wood frames for household furniture. Establishments primarily engaged in manufacturing stairwork, molding, and trim are classified in industry 2431. Establishments primarily engaged in manufacturing textile machinery bobbins, picker sticks, and shuttles are classified in industry 3552.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2426, Hardwood Dimension and Flooring Mills, had employment of 28.5 thousand. The employment figure was 4 percent below the 29.7 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Mississippi, North Carolina, Tennessee, and Virginia. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2426 shipped $1.8 billion of hardwood dimension and flooring mill products considered primary to the industry, $116.0 million of secondary products, and had $66.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2426, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hardwood dimension and flooring industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing excelsior, wood shingles, and cooperage stock; and in sawing special products, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2429, Special Product Sawmills, N.E.C., had employment of 1.8 thousand. The employment figure was 18 percent below the 2.2 thousand reported in 1987.

The leading State in employment in 1992 was Washington, accounting for approximately 28 percent of the industry's employment. Washington also was the leader in 1987 when it accounted for 59 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $144.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2429 shipped $132.7 million of special sawmill products, n.e.c., considered primary to the industry, $4.2 million of secondary products, and had $7.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2429, no matter in what industry they were produced, appear in table 6a and aggregate to $138.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the special product sawmills, n.e.c., industry amounted to $83.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2411, LOGGING															
1992 Census	12 916	13 010	727	83.6	1 693.1	69.4	131.2	1 306.9	5 119.3	8 763.3	13 844.5	375.5	493.9	98	95
1991 ASM	(NA)	(NA)	(NA)	78.1	1 560.6	65.4	126.0	1 235.4	4 097.4	7 280.2	11 434.3	292.9	648.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	83.4	1 647.3	68.9	134.4	1 283.4	4 313.2	7 930.4	12 229.0	405.9	764.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	81.7	1 595.6	68.0	132.4	1 257.7	4 512.6	7 576.3	12 017.4	353.9	744.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	86.9	1 591.4	73.0	136.5	1 240.2	4 324.0	7 350.6	11 663.8	221.5	631.4	(NA)	(NA)
1987 Census	11 852	11 937	804	85.8	1 517.6	72.2	131.4	1 200.7	4 082.5	6 853.1	10 938.2	349.3	589.2	98	95
1986 ASM	(NA)	(NA)	(NA)	72.3	1 250.0	60.6	112.2	1 022.3	2 892.3	5 306.5	8 235.7	341.3	617.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	76.3	1 259.5	65.2	116.1	1 033.2	2 944.0	5 524.9	8 518.0	356.0	700.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	84.7	1 362.5	72.1	131.5	1 113.9	2 939.3	5 993.2	8 987.9	328.2	741.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	83.5	1 310.8	73.0	129.2	1 103.0	2 780.9	5 916.6	8 731.0	237.0	810.6	(NA)	(NA)
1982 Census	11 541	11 658	657	80.8	1 207.9	69.1	121.3	1 003.7	2 501.9	5 630.2	8 274.0	249.0	747.2	96	95
1981 ASM	(NA)	(NA)	(NA)	85.8	1 199.9	74.0	135.5	956.1	2 606.4	5 465.3	8 117.5	380.8	729.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	96.5	1 233.0	82.9	149.3	987.1	3 131.1	5 328.9	8 408.1	451.2	833.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	90.4	1 146.1	80.4	145.0	948.8	3 157.2	4 522.5	7 599.9	555.9	725.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	87.2	1 125.7	76.5	135.5	923.9	2 631.6	4 277.0	6 914.8	431.2	642.4	(NA)	(NA)
1977 Census	15 136	15 469	708	83.3	1 009.0	74.5	127.7	840.1	2 418.7	3 826.7	6 230.1	386.5	555.8	97	94
INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL															
1992 Census	5 500	6 004	1 604	138.1	3 045.5	118.0	249.1	2 399.3	7 783.6	13 311.1	21 065.9	457.1	2 595.3	95	94
1991 ASM	(NA)	(NA)	(NA)	129.5	2 746.6	116.1	241.0	2 247.4	5 865.9	11 603.7	17 485.0	464.3	2 570.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	138.9	2 913.1	124.5	258.9	2 388.9	6 184.3	11 877.3	17 923.0	522.1	2 678.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	143.7	2 936.9	125.5	265.3	2 371.1	6 918.8	11 701.8	18 479.1	573.3	2 466.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	152.0	3 007.9	131.7	278.5	2 436.3	7 031.5	11 361.4	18 260.4	581.3	2 450.9	(NA)	(NA)
1987 Census	5 252	5 741	1 700	148.3	2 823.5	129.1	272.7	2 304.8	6 758.1	10 636.0	17 357.1	512.2	2 215.8	95	94
1986 ASM	(NA)	(NA)	(NA)	141.1	2 547.3	123.8	247.7	2 088.3	5 774.8	9 247.0	14 953.3	440.6	2 108.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	136.3	2 411.6	119.9	238.3	1 958.2	4 665.0	8 334.4	12 973.9	443.8	1 945.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	142.7	2 419.9	125.3	245.2	1 981.9	4 765.8	8 369.0	13 118.2	558.4	1 906.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	142.8	2 333.6	125.0	244.9	1 925.4	4 619.5	8 184.3	12 663.9	370.2	1 976.9	(NA)	(NA)
1982 Census	5 810	6 316	1 556	131.9	2 020.2	113.9	215.5	1 651.7	3 237.5	6 674.2	10 065.2	408.4	1 734.1	93	91
1981 ASM	(NA)	(NA)	(NA)	161.1	2 297.2	139.6	272.7	1 855.5	4 114.7	7 739.4	11 836.3	619.6	1 862.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	175.4	2 344.0	151.8	296.8	1 888.9	4 647.4	7 898.7	12 604.9	758.3	1 893.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	185.8	2 435.3	163.5	331.9	2 013.6	5 774.5	8 383.1	13 991.6	734.6	1 934.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	173.2	2 135.7	153.3	304.8	1 766.1	5 282.4	7 345.4	12 513.3	651.6	1 588.1	(NA)	(NA)
1977 Census	6 802	7 544	1 827	175.2	1 943.0	155.8	315.6	1 622.7	4 452.8	6 499.2	10 866.7	535.8	1 420.6	92	93
INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS															
1992 Census	781	831	339	28.5	501.9	24.8	49.9	387.1	993.9	1 037.3	2 027.2	47.8	324.2	94	94
1991 ASM	(NA)	(NA)	(NA)	26.1	462.0	22.9	48.3	350.7	863.8	866.8	1 738.8	66.6	289.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	29.3	475.0	26.0	53.3	369.2	908.8	893.9	1 800.5	88.0	318.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.2	471.7	26.0	52.9	370.8	882.1	909.0	1 787.1	44.5	302.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	28.9	454.9	25.2	51.2	353.2	840.5	916.2	1 740.0	49.9	293.0	(NA)	(NA)
1987 Census	696	737	343	29.7	440.8	26.2	53.2	345.4	853.9	866.7	1 714.0	66.3	269.1	91	91
1986 ASM	(NA)	(NA)	(NA)	27.2	386.1	23.8	48.2	305.6	718.1	793.2	1 503.0	52.7	244.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.2	347.7	23.2	45.4	276.0	688.3	705.7	1 392.4	36.5	205.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.7	334.7	22.5	45.0	262.8	649.7	679.1	1 315.2	37.2	221.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.6	275.2	20.9	40.4	220.8	522.7	553.2	1 053.8	25.0	200.3	(NA)	(NA)
1982 Census	750	789	306	22.9	252.6	20.1	37.8	199.3	445.4	465.6	912.6	24.3	168.3	91	92
1981 ASM	(NA)	(NA)	(NA)	25.4	260.1	21.9	42.2	203.5	454.0	512.2	962.2	19.2	162.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	26.4	242.3	22.9	42.2	191.9	428.3	503.3	939.6	29.5	157.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	30.4	256.4	26.8	52.2	202.9	487.4	578.4	1 055.8	34.7	183.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.6	261.5	28.2	54.3	205.6	479.1	581.9	1 052.2	40.1	168.1	(NA)	(NA)
1977 Census	829	890	345	29.1	225.0	25.8	49.8	177.5	412.9	443.1	850.0	35.3	147.4	91	92
INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.															
1992 Census	175	192	23	1.8	31.3	1.5	2.8	23.6	62.0	83.5	144.0	4.8	19.5	97	96
1991 ASM	(NA)	(NA)	(NA)	2.0	35.7	1.7	2.9	27.2	73.8	113.5	185.5	1.8	19.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.5	40.6	2.1	3.6	31.8	81.5	128.2	211.3	1.7	15.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.3	36.1	1.9	3.1	28.1	67.5	105.1	175.2	1.8	13.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.2	34.0	2.0	3.2	28.3	56.9	90.6	143.2	4.4	20.9	(NA)	(NA)
1987 Census	219	234	32	2.2	32.6	1.9	3.2	25.7	60.1	86.0	149.2	3.2	19.5	99	95
1986 ASM	(NA)	(NA)	(NA)	2.0	26.5	1.7	2.4	21.0	40.8	56.2	97.0	1.3	22.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.2	28.8	2.0	2.7	22.1	43.9	70.5	110.4	1.5	25.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.7	31.4	2.5	3.6	24.1	48.4	85.9	138.0	1.6	27.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	1.7	27.2	1.5	3.1	24.8	64.9	70.8	138.9	3.6	33.9	(NA)	(NA)
1982 Census	266	298	47	3.0	33.1	2.7	4.0	26.1	65.0	91.5	154.6	2.9	32.6	96	92
1981 ASM	(NA)	(NA)	(NA)	3.9	55.0	3.4	6.0	35.6	105.8	135.2	257.1	11.2	32.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.5	67.6	4.9	8.3	45.0	123.8	166.8	269.2	7.5	57.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.6	64.5	5.8	9.4	44.9	164.1	166.5	329.1	12.3	50.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.1	64.3	6.4	10.6	49.7	140.9	167.3	296.2	9.5	37.4	(NA)	(NA)
1977 Census	511	566	101	7.0	60.3	6.1	10.4	48.8	109.1	137.6	252.6	13.1	30.8	98	92

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2411, LOGGING								
1992 Census	20 252	83	1 890	9.96	63	76	61 236	33	39.02
1991 ASM	19 982	84	1 927	9.80	64	77	52 464	38	32.52
1990 ASM	19 752	83	1 951	9.55	65	78	51 717	38	32.09
1989 ASM	19 530	83	1 947	9.50	63	76	55 234	35	34.08
1988 ASM	18 313	84	1 870	9.09	63	77	49 758	37	31.68
1987 Census	17 688	84	1 820	9.14	63	77	47 582	37	31.07
1986 ASM	17 289	84	1 851	9.11	64	80	40 004	43	25.78
1985 ASM	16 507	85	1 781	8.90	65	80	38 585	43	25.36
1984 ASM	16 086	85	1 824	8.47	67	82	34 702	46	22.35
1983 ASM	15 698	87	1 770	8.54	68	83	33 304	47	21.52
1982 Census	14 949	86	1 755	8.27	68	83	30 964	48	20.63
1981 ASM	13 985	86	1 831	7.06	67	82	30 378	46	19.24
1980 ASM	12 777	86	1 801	6.61	63	78	32 447	39	20.97
1979 ASM	12 678	89	1 803	6.54	60	75	34 925	36	21.77
1978 ASM	12 909	88	1 771	6.82	62	78	30 179	43	19.42
1977 Census	12 113	89	1 714	6.58	61	78	29 036	42	18.94
	INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL								
1992 Census	22 053	85	2 111	9.63	63	78	56 362	39	31.25
1991 ASM	21 209	90	2 076	9.33	66	82	45 297	47	24.34
1990 ASM	20 973	90	2 080	9.23	66	83	44 523	47	23.89
1989 ASM	20 438	87	2 114	8.94	63	79	48 148	42	26.08
1988 ASM	19 789	87	2 115	8.75	62	79	46 260	43	25.25
1987 Census	19 039	87	2 112	8.45	61	78	45 570	42	24.78
1986 ASM	18 053	88	2 001	8.43	62	79	40 927	44	23.31
1985 ASM	17 693	88	1 987	8.22	64	83	34 226	52	19.58
1984 ASM	16 958	88	1 957	8.08	64	82	33 397	51	19.44
1983 ASM	16 342	88	1 959	7.86	65	83	32 349	51	18.86
1982 Census	15 316	86	1 892	7.66	66	86	24 545	62	15.02
1981 ASM	14 259	87	1 953	6.80	65	85	25 541	56	15.09
1980 ASM	13 364	87	1 955	6.36	63	81	26 496	50	15.66
1979 ASM	13 107	88	2 030	6.07	60	77	31 079	42	17.40
1978 ASM	12 331	89	1 988	5.79	59	76	30 499	40	17.33
1977 Census	11 090	89	2 026	5.14	60	78	25 416	44	14.11
	INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS								
1992 Census	17 611	87	2 012	7.76	51	76	34 874	50	19.92
1991 ASM	17 701	88	2 109	7.26	50	76	33 096	53	17.88
1990 ASM	16 212	89	2 050	6.93	50	76	31 017	52	17.05
1989 ASM	16 154	89	2 035	7.01	51	77	30 209	53	16.67
1988 ASM	15 740	87	2 032	6.90	53	79	29 083	54	16.42
1987 Census	14 842	88	2 031	6.49	51	76	28 751	52	16.05
1986 ASM	14 195	87	2 025	6.34	53	78	26 401	54	14.90
1985 ASM	13 271	89	1 957	6.08	51	76	26 271	51	15.16
1984 ASM	13 023	88	2 000	5.84	52	77	25 280	52	14.44
1983 ASM	11 661	89	1 933	5.47	52	79	22 148	53	12.94
1982 Census	11 031	88	1 881	5.27	51	79	19 450	57	11.78
1981 ASM	10 240	86	1 927	4.82	53	80	17 874	57	10.76
1980 ASM	9 178	87	1 843	4.55	54	79	16 223	57	10.15
1979 ASM	8 434	88	1 948	3.89	55	79	16 033	53	9.34
1978 ASM	8 275	89	1 926	3.79	55	80	15 161	55	8.82
1977 Census	7 732	89	1 930	3.56	52	79	14 189	54	8.29
	INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.								
1992 Census	17 389	83	1 867	8.43	58	80	34 444	50	22.14
1991 ASM	17 850	85	1 706	9.38	61	80	36 900	48	25.45
1990 ASM	16 240	84	1 714	8.83	61	80	32 600	50	22.64
1989 ASM	15 696	83	1 632	9.06	60	81	29 348	53	21.77
1988 ASM	15 455	91	1 600	8.84	63	87	25 864	60	17.78
1987 Census	14 818	86	1 684	8.03	58	79	27 318	54	18.78
1986 ASM	13 250	85	1 412	8.75	58	85	20 400	65	17.00
1985 ASM	13 091	91	1 350	8.19	64	90	19 955	66	16.26
1984 ASM	11 630	93	1 440	6.69	62	85	17 926	65	13.44
1983 ASM	16 000	88	2 067	8.00	51	71	38 176	42	20.94
1982 Census	11 033	90	1 481	6.53	59	81	21 667	51	16.25
1981 ASM	14 103	87	1 765	5.93	53	74	27 128	52	17.63
1980 ASM	12 291	89	1 694	5.42	62	87	22 509	55	14.92
1979 ASM	9 773	88	1 621	4.78	51	70	24 864	39	17.46
1978 ASM	9 056	90	1 656	4.69	56	78	19 845	46	13.29
1977 Census	8 614	87	1 705	4.69	54	78	15 586	55	10.49

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2411, LOGGING														
United States	**E2**	**13 010**	**727**	**83.6**	**1 693.1**	**69.4**	**131.2**	**1 306.9**	**5 119.3**	**8 763.3**	**13 844.5**	**375.5**	**85.8**	**4 082.5**
Alabama	E3	998	48	6.7	110.8	5.7	11.0	86.7	307.5	540.4	844.5	33.3	5.7	182.8
Alaska	E1	52	19	1.7	60.8	1.5	3.1	52.3	216.1	163.8	382.1	8.8	1.4	125.6
Arizona	E4	52	9	.5	9.8	.4	.8	8.3	24.1	26.8	50.6	1.5	.3	15.6
Arkansas	E2	544	29	3.2	56.1	2.7	5.4	42.5	199.0	334.6	528.8	16.1	3.1	122.6
California	E3	519	52	4.2	106.6	3.4	6.4	81.8	307.6	314.5	611.8	18.7	5.2	285.2
Colorado	E5	49	1	.2	3.8	.2	.4	3.1	8.6	15.3	23.8	.5	.2	7.1
Florida	E2	344	21	2.7	58.0	2.4	4.6	48.7	217.6	354.6	572.7	12.9	2.8	139.3
Georgia	E4	776	41	5.6	97.8	4.6	8.9	73.8	241.7	387.1	628.7	25.0	5.2	202.5
Idaho	E3	412	41	3.1	75.9	2.6	5.0	59.1	200.6	283.8	475.3	9.3	H	(D)
Indiana	E5	83	1	.4	7.9	.4	.7	5.7	15.9	20.1	35.9	3.9	E	(D)
Kentucky	E6	153	7	.7	8.0	.6	1.0	6.1	20.9	37.0	57.4	1.5	.5	11.5
Louisiana	E4	487	31	3.2	57.3	2.7	5.4	45.2	149.9	290.3	439.6	15.1	2.4	102.1
Maine	E1	475	30	3.3	67.4	2.5	4.6	42.2	228.4	544.3	774.6	11.3	4.2	211.7
Maryland	E5	58	2	.3	5.0	.2	.5	3.7	12.2	19.6	31.7	1.9	.3	7.7
Michigan	E4	356	12	1.6	27.0	1.4	2.6	20.6	63.6	95.9	159.0	7.6	1.7	50.6
Minnesota	E5	189	2	.7	12.3	.6	1.1	10.1	31.1	41.1	72.1	3.3	.8	31.3
Mississippi	E3	680	31	4.3	67.4	3.5	6.4	51.5	195.6	477.0	670.5	23.2	3.4	141.5
Missouri	E7	76	–	.2	2.3	.2	.3	1.9	6.8	11.7	18.5	.7	C	(D)
Montana	E2	323	16	1.6	34.8	1.3	2.5	25.5	77.7	160.4	238.0	5.9	1.9	100.9
New Hampshire	E3	134	1	.5	8.0	.4	.8	6.4	28.2	31.7	59.6	1.8	.6	22.4
New Mexico	E5	28	1	.2	2.3	.1	.3	1.9	7.2	8.5	15.7	.3	.3	9.4
New York	E5	244	3	.8	13.5	.7	1.3	11.4	40.2	47.8	86.3	3.1	.7	23.4
North Carolina	E2	714	22	4.2	71.4	3.4	6.2	50.9	198.4	460.1	658.0	19.3	4.5	159.6
Ohio	E5	120	3	.5	8.5	.4	.8	6.6	27.2	44.5	72.0	2.5	F	(D)
Oklahoma	–	26	3	.3	8.6	.3	.5	6.8	34.4	75.9	108.9	1.4	C	(D)
Oregon	E1	1 308	124	9.9	243.2	8.2	15.4	190.6	872.2	1 266.3	2 132.9	42.0	13.1	796.9
Pennsylvania	E6	267	4	1.0	15.7	.8	1.5	12.1	43.8	65.8	109.3	3.4	1.1	35.0
South Carolina	E4	531	35	3.7	58.9	2.9	5.4	42.5	153.2	273.5	424.3	14.7	3.6	124.2
Tennessee	E6	178	5	.8	10.5	.7	1.2	8.5	28.9	45.6	74.4	2.8	.6	56.0
Texas	E1	355	8	2.0	42.2	1.6	3.0	30.8	167.9	336.9	503.0	11.4	2.0	97.9
Utah	E1	16	1	.2	5.0	.2	.4	3.9	6.1	11.8	17.8	.5	(NA)	(NA)
Vermont	E4	98	2	.3	5.4	.3	.5	4.2	18.4	24.0	42.4	(D)	E	(D)
Virginia	E5	448	13	2.2	37.0	1.9	3.6	29.6	102.2	128.4	230.6	9.1	2.2	63.7
Washington	E1	1 033	93	9.1	244.7	7.5	14.4	192.7	725.6	1 638.7	2 367.3	47.8	10.2	662.6
West Virginia	E6	241	2	1.0	13.8	.8	1.5	11.4	35.8	46.2	82.9	5.1	.7	22.9
Wisconsin	E4	435	8	1.6	23.2	1.4	2.4	17.8	70.5	95.4	166.0	6.0	1.6	45.5
Wyoming	E5	73	4	.3	4.4	.3	.5	3.7	12.1	14.8	26.9	1.1	.3	8.6
INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL														
United States	**–**	**6 004**	**1 604**	**138.1**	**3 045.5**	**118.0**	**249.1**	**2 399.3**	**7 783.6**	**13 311.1**	**21 065.9**	**457.1**	**148.3**	**6 758.1**
Alabama	–	194	79	6.8	135.9	5.9	12.6	104.3	345.8	597.0	946.5	17.5	7.1	301.9
Alaska	E4	20	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Arizona	–	28	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	195	61	5.7	117.1	5.0	10.8	96.9	300.8	506.1	800.5	29.1	6.3	273.2
California	–	236	98	11.6	320.7	10.1	21.6	260.9	931.3	1 392.1	2 370.1	38.4	H	(D)
Colorado	–	47	7	.6	10.3	.5	1.0	8.4	34.8	39.8	70.9	1.3	F	(D)
Connecticut	E6	23	4	.3	7.1	.2	.4	5.1	11.8	19.3	31.3	1.0	.4	14.1
Florida	–	100	25	2.0	39.7	1.7	3.7	30.2	103.7	164.4	269.6	3.7	2.3	89.7
Georgia	–	187	78	6.5	132.5	5.4	11.9	99.8	359.5	691.0	1 064.9	24.2	8.0	317.8
Idaho	–	94	47	4.6	124.3	4.0	8.5	100.8	320.4	617.3	945.1	16.8	4.5	226.3
Illinois	E2	85	9	.7	11.4	.5	1.0	7.8	24.0	32.7	56.4	(D)	F	(D)
Indiana	E1	147	27	2.0	38.6	1.6	3.4	27.2	110.8	152.2	257.4	5.4	1.5	59.3
Iowa	–	39	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E1	12	2	.1	2.4	.1	.2	1.9	8.2	7.6	14.0	.1	C	(D)
Kentucky	E2	218	49	3.3	49.3	2.8	5.8	38.4	120.8	171.1	292.1	7.7	2.7	80.3
Louisiana	E1	107	37	3.0	60.6	2.6	5.4	48.5	149.3	286.1	433.7	6.8	2.8	140.6
Maine	–	100	28	2.2	52.0	1.8	4.1	39.6	130.0	161.3	292.2	7.9	3.1	103.0
Maryland	E3	59	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E2	59	3	.4	8.9	.3	.7	6.3	22.1	21.6	42.9	1.0	F	(D)
Michigan	E2	219	28	2.3	42.5	1.9	3.9	32.6	113.4	149.3	261.2	8.5	2.0	74.1
Minnesota	E2	94	11	.9	16.3	.8	1.6	13.3	41.6	56.6	97.4	(D)	F	(D)
Mississippi	–	173	88	7.0	140.2	6.2	13.9	115.0	424.3	674.3	1 097.9	23.6	6.6	349.5
Missouri	E2	278	24	2.2	31.5	1.8	3.5	22.9	80.4	100.8	180.9	4.0	1.6	42.7
Montana	–	67	32	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	H	(D)
New Hampshire	E1	70	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E4	22	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Mexico	E2	33	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	185	29	2.0	43.6	1.6	3.4	30.3	113.2	159.5	270.8	8.5	2.3	90.6
North Carolina	E1	346	99	6.6	123.7	5.5	11.4	92.8	311.6	495.6	801.9	18.9	6.7	238.3
Ohio	E1	163	29	2.3	38.4	1.9	3.8	29.6	103.0	155.9	255.8	9.7	2.2	76.9
Oklahoma	–	24	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	38.3
Oregon	–	269	133	14.7	405.1	12.9	27.3	329.4	947.8	2 271.7	3 205.3	53.8	19.0	1 062.0
Pennsylvania	E1	412	63	5.5	97.0	4.6	9.4	72.9	257.9	354.8	596.1	15.9	4.7	164.3
South Carolina	–	108	45	3.5	76.6	2.9	6.3	56.4	210.0	401.4	613.2	(D)	4.1	179.5
South Dakota	–	17	6	.7	14.2	.6	1.0	11.6	29.6	51.2	80.6	(D)	E	(D)
Tennessee	E2	310	47	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.8	3.6	119.8
Texas	–	155	38	3.1	64.3	2.6	5.9	50.8	159.8	300.5	455.3	12.2	H	(D)
Utah	E1	30	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	16.3
Vermont	E1	54	11	.7	16.5	.6	1.3	11.5	40.9	43.2	82.0	2.7	.8	28.9
Virginia	–	312	88	4.9	85.7	4.2	8.7	66.5	220.5	297.9	517.9	10.3	5.5	203.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL—Con.														
Washington	–	241	96	11.2	318.1	9.7	20.5	258.9	781.5	1 422.2	2 176.2	55.7	12.7	690.8
West Virginia	E1	184	59	3.1	49.0	2.7	5.4	39.5	150.3	187.5	337.0	10.3	H	(D)
Wisconsin	E2	223	40	3.5	67.9	2.8	5.8	49.3	164.8	230.6	390.8	8.5	2.8	84.9
Wyoming	E2	27	9	.8	15.5	.7	1.4	13.0	37.8	48.5	86.0	1.0	F	(D)
INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS														
United States	**E1**	**831**	**339**	**28.5**	**501.9**	**24.8**	**49.9**	**387.1**	**993.9**	**1 037.3**	**2 027.2**	**47.8**	**29.7**	**853.9**
Alabama	–	11	7	.4	4.4	.4	.7	3.8	5.7	9.3	15.5	.3	.4	7.3
Arkansas	–	25	14	1.5	22.6	1.3	2.6	17.7	61.9	49.0	111.9	1.4	G	(D)
California	E3	56	19	.9	14.5	.8	1.6	10.8	23.9	25.4	49.5	(D)	G	(D)
Florida	E3	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	C	(D)
Georgia	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	13	3	.3	5.1	.2	.5	3.8	7.9	9.1	16.7	(D)	C	(D)
Indiana	–	40	24	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
Kentucky	E1	22	14	1.4	24.4	1.2	2.4	18.9	46.0	58.9	104.5	(D)	G	(D)
Maine	E1	10	7	.6	9.3	.5	1.1	7.7	17.8	15.4	33.0	1.1	.5	17.7
Michigan	E3	21	10	.6	12.5	.5	1.0	9.4	26.3	26.8	52.8	1.5	F	(D)
Minnesota	–	11	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	E1	70	27	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.4	52.2
Missouri	–	23	11	1.5	27.1	1.3	2.6	21.9	68.0	60.5	128.4	(D)	1.6	44.8
New York	E1	40	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	20.8
North Carolina	E1	180	70	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.9	114.7
Ohio	–	16	5	.6	11.0	.5	1.0	9.1	22.7	30.2	51.3	(D)	.6	24.2
Oregon	–	9	2	.2	3.9	.2	.4	3.3	7.4	6.9	14.3	.1	E	(D)
Pennsylvania	–	58	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	53.5
South Carolina	–	9	5	.4	6.7	.4	.7	5.4	11.9	9.5	20.5	(D)	.4	8.9
Tennessee	–	63	32	4.5	80.8	3.9	8.4	61.2	169.3	190.5	360.5	(D)	5.3	170.3
Texas	–	15	2	.5	9.8	.4	.9	7.8	15.8	23.0	38.1	.6	E	(D)
Vermont	–	9	4	.2	3.7	.2	.4	2.8	8.3	4.1	12.3	.2	.4	18.6
Virginia	–	24	16	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	6	2	.2	3.8	.2	.4	3.0	10.4	10.5	19.9	(D)	(NA)	(NA)
West Virginia	E1	10	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E2	23	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.														
United States	**E1**	**192**	**23**	**1.8**	**31.3**	**1.5**	**2.8**	**23.6**	**62.0**	**83.5**	**144.0**	**4.8**	**2.2**	**60.1**
California	–	5	1	.1	1.4	.1	.1	1.0	4.9	5.8	10.5	(D)	(NA)	(NA)
Kentucky	–	7	2	.1	1.7	.1	.2	1.1	1.9	4.0	6.4	(D)	(NA)	(NA)
Missouri	–	18	5	.3	4.1	.3	.5	3.0	8.1	10.2	17.7	(D)	.2	.8
Oregon	E1	16	3	.1	2.1	.1	.2	1.5	5.6	6.5	11.8	.1	C	(D)
Washington	E1	84	2	.5	9.2	.4	.7	7.7	19.7	27.6	46.0	(D)	1.3	41.3
Wisconsin	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Logging (SIC 2411)	Sawmills and planing mills, general (SIC 2421)	Hardwood dimension and flooring mills (SIC 2426)	Special product sawmills, n.e.c. (SIC 2429)
Companies ---- number	12 916	5 500	781	175
All establishments ---- number	13 010	6 004	831	192
With 1 to 19 employees ---- number	12 283	4 400	492	169
With 20 to 99 employees ---- number	691	1 283	270	23
With 100 employees or more ---- number	36	321	69	–
Employment and labor costs:				
Employees ---- 1,000	83.6	138.1	28.5	1.8
Compensation, total ---- mil dol	2 168.9	3 902.2	612.6	38.2
Annual payroll ---- mil dol	1 693.1	3 045.5	501.9	31.3
Fringe benefits ---- mil dol	475.8	856.7	110.7	6.9
Social Security and other legally required payments ---- mil dol	275.2	412.5	59.6	4.1
Employer voluntary payments ---- mil dol	200.6	444.2	51.1	2.8
Production workers:				
Average for year ---- 1,000	69.4	118.0	24.8	1.5
March ---- 1,000	65.9	117.7	24.7	1.6
May ---- 1,000	69.9	119.4	24.8	1.6
August ---- 1,000	73.9	119.2	24.8	1.5
November ---- 1,000	68.2	116.0	24.7	1.4
Hours ---- millions	131.2	249.1	49.9	2.8
Wages ---- mil dol	1 306.9	2 399.3	387.1	23.6
Cost of materials[1] ---- mil dol	8 763.3	13 311.1	1 037.3	83.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	6 408.8	11 870.6	938.1	76.5
Resales ---- mil dol	780.9	442.5	39.5	3.2
Fuels ---- mil dol	152.1	125.7	6.5	.7
Purchased electricity ---- mil dol	22.9	365.9	45.0	1.8
Contract work ---- mil dol	1 398.5	506.4	8.2	1.3
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	435.3	6 763.0	884.6	35.4
Generated less sold ---- mil kWh	7.6	468.1	(D)	–
Total value of shipments ---- mil dol	13 844.5	21 065.9	2 027.2	144.0
Value added ---- mil dol	5 119.3	7 783.6	993.9	62.0
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	445.3	2 429.6	291.6	18.2
Finished goods ---- mil dol	258.4	1 036.0	71.7	6.4
Work in process ---- mil dol	49.9	611.4	66.1	3.3
Materials and supplies ---- mil dol	137.0	782.3	153.8	8.5
End of 1992 ---- mil dol	493.9	2 595.3	324.2	19.5
Finished goods ---- mil dol	297.3	1 058.0	69.0	7.1
Work in process ---- mil dol	49.0	618.2	72.9	4.0
Materials and supplies ---- mil dol	147.6	919.2	182.3	8.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Logging (SIC 2411)	Sawmills and planing mills, general (SIC 2421)	Hardwood dimension and flooring mills (SIC 2426)	Special product sawmills, n.e.c. (SIC 2429)
Gross book value of depreciable assets:				
Total:				
Beginning of year	3 970.1	8 063.8	831.4	42.9
New capital expenditures[1]	375.5	457.1	47.8	4.8
Used capital expenditures	91.5	72.2	8.7	1.0
Retirements	260.0	278.1	17.3	.8
End of year	4 177.2	8 315.0	870.6	47.9
Buildings and other structures:				
Beginning of year	406.4	1 236.2	162.4	5.8
New capital expenditures	20.5	77.0	9.4	2.0
Used capital expenditures	6.1	6.4	1.2	.1
Retirements	18.2	38.3	1.5	(Z)
End of year	414.8	1 281.3	171.4	7.9
Machinery and equipment:				
Beginning of year	3 563.7	6 827.6	669.1	37.1
New capital expenditures[1]	355.0	380.0	38.3	2.8
Used capital expenditures	85.4	65.9	7.5	.9
Retirements	241.7	239.8	15.8	.8
End of year	3 762.4	7 033.7	699.2	40.0
Depreciation charges during 1992:				
Total	292.6	516.7	54.3	3.0
Buildings and other structures	16.5	62.2	8.2	.4
Machinery and equipment	276.0	454.5	46.1	2.6
Rental payments:				
Total	144.3	108.3	16.0	1.9
Buildings and other structures	89.5	63.8	9.4	1.0
Machinery and equipment	54.8	44.5	6.6	.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Logging (SIC 2411)		Sawmills and planing mills, general (SIC 2421)		Hardwood dimension and flooring mills (SIC 2426)		Special product sawmills, n.e.c. (SIC 2429)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	(S)	(X)	15.9	(X)	2.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	61.6	(X)	64.3	(X)	(S)	(X)
Machinery	(S)	(X)	257.3	(X)	14.3	(X)	1.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	63.9	(X)	65.1	(X)	53.8	(X)
Other purchased services:								
Communications	(S)	(X)	17.2	(X)	2.9	(X)	.4	(X)
Response coverage ratio (percent)[2]	(S)	(X)	58.5	(X)	62.5	(X)	50.5	(X)
Legal	(S)	(X)	14.1	(X)	1.8	(X)	.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	63.5	(X)	66.9	(X)	53.4	(X)
Accounting and bookkeeping	(S)	(X)	14.0	(X)	1.5	(X)	.2	(X)
Response coverage ratio (percent)[2]	(S)	(X)	64.4	(X)	64.7	(X)	53.8	(X)
Advertising	(S)	(X)	5.6	(X)	2.0	(X)	.7	(X)
Response coverage ratio (percent)[2]	(S)	(X)	64.0	(X)	66.1	(X)	52.9	(X)
Software and other data processing	(S)	(X)	3.6	(X)	.5	(X)	(Z)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	62.4	(X)	57.2	(X)	53.4	(X)
Refuse removal, including hazardous waste	(S)	(X)	6.2	(X)	1.4	(X)	.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	62.6	(X)	65.4	(X)	53.4	(X)
New machinery and equipment expenditures	355.0	(X)	380.0	(X)	38.3	(X)	2.8	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	31.1	13	1.7	53	.6	2
Computers and peripheral data processing equipment	(S)	(X)	9.1	15	.7	43	.7	5
All other	(S)	(X)	339.8	2	35.9	4	1.4	2
Adjustment ratio[3]	(S)	(X)	1.4	(X)	1.6	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	6 408.8	(X)	11 870.6	(X)	938.1	(X)	76.5	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	115.0	54	3.5	21	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	11 755.6	1	934.6	1	(S)	(X)
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.5	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2411, LOGGING												
Total	**E2**	**13 010**	**83.6**	**1 693.1**	**69.4**	**131.2**	**1 306.9**	**5 119.3**	**8 763.3**	**13 844.5**	**375.5**	**493.9**
Establishments with an average of–												
1 to 4 employees	E7	7 559	13.0	227.9	12.1	22.8	179.9	700.9	1 242.5	1 941.1	53.2	40.5
5 to 9 employees	E3	3 145	20.6	350.2	17.1	31.4	278.7	1 118.9	1 559.2	2 672.1	89.5	80.7
10 to 19 employees	E2	1 579	20.6	385.2	17.1	32.0	308.7	1 074.7	1 420.9	2 494.7	97.0	86.4
20 to 49 employees	E2	614	17.8	385.3	14.4	27.3	296.0	1 134.2	1 596.2	2 722.2	82.1	110.3
50 to 99 employees	E1	77	5.0	127.7	3.8	7.8	91.1	422.6	845.7	1 277.0	20.3	42.5
100 to 249 employees	–	30	4.1	135.3	2.9	6.1	86.0	398.4	1 196.0	1 566.9	33.4	112.2
250 to 499 employees	–	5	2.4	81.6	1.9	3.8	66.5	269.6	902.8	1 170.6	(D)	21.3
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	7 361	16.5	210.0	15.0	26.7	165.3	585.2	1 168.3	1 753.5	49.8	26.3
INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL												
Total	**–**	**6 004**	**138.1**	**3 045.5**	**118.0**	**249.1**	**2 399.3**	**7 783.6**	**13 311.1**	**21 065.9**	**457.1**	**2 595.3**
Establishments with an average of–												
1 to 4 employees	E7	2 266	3.7	55.7	3.4	6.2	45.7	141.6	268.2	410.7	9.9	12.5
5 to 9 employees	E4	1 172	7.8	112.5	6.5	12.2	92.4	267.1	450.8	715.3	19.3	32.2
10 to 19 employees	E1	962	13.1	214.4	11.0	21.8	168.7	550.0	766.2	1 309.5	28.7	100.2
20 to 49 employees	–	830	26.0	492.5	21.5	44.7	363.0	1 308.0	1 950.6	3 251.0	72.9	350.9
50 to 99 employees	–	453	32.4	716.5	27.9	59.5	557.2	1 846.8	3 153.3	4 951.4	94.2	635.3
100 to 249 employees	–	283	40.9	1 069.4	35.5	77.5	857.6	2 777.8	5 246.6	8 013.3	168.2	1 105.4
250 to 499 employees	–	32	10.3	269.1	8.9	19.5	219.8	566.7	1 098.5	1 700.9	51.9	220.4
500 to 999 employees	–	5	3.9	115.3	3.4	7.7	94.9	325.7	376.9	713.8	11.9	138.4
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2 681	7.6	87.8	6.7	11.5	72.2	161.4	351.1	512.5	15.3	7.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS												
Total	**E1**	**831**	**28.5**	**501.9**	**24.8**	**49.9**	**387.1**	**993.9**	**1 037.3**	**2 027.2**	**47.8**	**324.2**
Establishments with an average of—												
1 to 4 employees	E8	219	.4	6.0	.4	.7	4.8	11.6	13.4	25.0	.9	3.2
5 to 9 employees	E4	128	.9	12.9	.7	1.4	10.1	26.6	30.3	56.5	1.2	6.4
10 to 19 employees	E1	145	2.0	29.6	1.7	3.3	21.9	62.2	58.3	120.7	2.6	13.6
20 to 49 employees	E1	163	4.9	77.9	4.1	8.2	57.2	136.9	144.9	281.5	6.5	37.1
50 to 99 employees	E1	107	7.7	135.9	6.8	13.9	106.4	281.2	263.5	541.7	17.2	86.6
100 to 249 employees	–	55	7.8	145.5	6.7	13.5	110.9	277.5	308.4	589.3	13.1	100.7
250 to 499 employees	–	12	4.9	94.1	4.3	8.9	75.8	197.8	218.4	412.5	6.3	76.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	285	1.0	12.1	.9	1.6	9.5	22.5	26.8	49.4	1.6	6.3
INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.												
Total	**E1**	**192**	**1.8**	**31.3**	**1.5**	**2.8**	**23.6**	**62.0**	**83.5**	**144.0**	**4.8**	**19.5**
Establishments with an average of—												
1 to 4 employees	E5	86	.2	3.0	.1	.3	2.6	6.2	10.5	16.8	.3	1.4
5 to 9 employees	E1	43	.3	5.7	.2	.4	4.6	13.1	15.1	27.1	.5	2.5
10 to 19 employees	–	40	.6	9.2	.5	.8	7.1	17.0	25.2	42.1	.7	5.5
20 to 49 employees	–	21	.8	13.4	.7	1.2	9.3	25.7	32.7	58.0	3.2	10.1
50 to 99 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	66	.1	1.6	.1	.2	1.3	3.0	6.1	9.0	.3	.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2411	**Logging:**										
	All establishments in industry	13 010	83.6	1 693.1	69.4	131.2	1 306.9	5 119.3	8 763.3	13 844.5	375.5
	Establishments with this product class primary:										
24111	Softwood logs, bolts, and timber	535	10.7	298.7	7.8	15.6	206.9	1 415.5	3 592.3	4 987.6	66.6
24112	Hardwood logs, bolts, and timber	183	2.2	42.7	1.7	3.0	29.0	112.0	208.7	319.8	9.0
24113	Pulpwood	343	4.5	99.8	3.4	6.5	67.1	335.3	865.7	1 197.9	24.3
24114	Other roundwood products	183	2.6	59.0	2.0	3.9	42.7	177.1	199.2	375.3	19.1
24119	Receipts for contract logging	2 371	28.0	620.8	23.6	44.2	514.4	1 463.6	1 049.1	2 502.5	133.7
2421	**Sawmills and planing mills, general:**										
	All establishments in industry	6 004	138.1	3 045.5	118.0	249.1	2 399.3	7 783.6	13 311.1	21 065.9	457.1
	Establishments with this product class primary:										
24211	Hardwood lumber, rough and dressed, except siding	1 118	32.1	610.8	27.0	55.5	455.5	1 605.1	1 907.6	3 486.9	80.1
24212	Softwood lumber, rough and dressed, except siding	959	71.5	1 830.8	61.7	135.4	1 471.9	4 797.2	8 836.6	13 642.3	277.1
24215	Wood chips, except field chips	141	2.6	61.0	2.0	4.2	40.3	238.6	430.8	662.4	20.3
24217	Softwood cut stock	82	4.0	88.0	3.5	7.6	69.2	174.2	435.9	619.7	7.7
24218	Softwood flooring, siding, and other general sawmill and planing mill products	120	2.2	37.7	1.9	3.7	29.3	101.6	162.0	262.3	4.4
24219	Receipts from contract or custom sawing, kiln drying, planing, etc.	112	1.9	36.9	1.6	3.4	29.6	84.2	51.6	135.0	4.3
2426	**Hardwood dimension and flooring mills:**										
	All establishments in industry	831	28.5	501.9	24.8	49.9	387.1	993.9	1 037.3	2 027.2	47.8
	Establishments with this product class primary:										
24261	Hardwood flooring	61	7.2	139.1	6.2	13.3	105.9	338.1	373.7	711.4	14.7
24262	Hardwood dimension stock, furniture parts, and vehicle stock	238	11.7	208.3	10.2	20.6	163.0	384.2	385.3	766.6	20.1
24266	Wood furniture frames for household furniture	145	5.2	81.0	4.4	8.4	61.6	140.6	127.5	267.7	4.5
2429	**Special product sawmills, n.e.c.:**										
	All establishments in industry	192	1.8	31.3	1.5	2.8	23.6	62.0	83.5	144.0	4.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2411, LOGGING			
Total value of shipments	13 844.5	10 938.2	8 274.0
Primary products value of shipments	12 595.8	10 001.7	7 057.6
Secondary products value of shipments	277.2	229.1	314.3
Total miscellaneous receipts	971.5	707.4	902.1
Value of resales	820.5	571.9	810.1
Contract receipts	84.8	90.9	44.4
Other miscellaneous receipts	66.3	44.6	47.6
Bark	5.2	11.0	3.0
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	14.8	10.1	17.0
Other miscellaneous receipts	39.2	23.5	17.7
Other miscellaneous receipts, n.s.k.	7.1	(NA)	9.9
Primary products specialization ratio	98	98	96
Value of primary products shipments made in all industries	13 235.4	10 583.0	7 448.4
Value of primary products shipments made in this industry	12 595.8	10 001.7	7 057.6
Value of primary products shipments made in other industries	639.6	581.3	390.8
Coverage ratio	95	95	95
INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL			
Total value of shipments	21 065.9	17 357.1	10 065.2
Primary products value of shipments	19 159.6	15 920.3	9 051.1
Secondary products value of shipments	1 012.4	917.6	637.8
Total miscellaneous receipts	893.9	519.2	376.3
Value of resales	517.9	287.3	206.4
Contract receipts	37.3	29.5	12.6
Other miscellaneous receipts	338.7	202.4	157.3
Bark	92.8	42.8	38.8
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	195.3	123.4	88.3
Other miscellaneous receipts	42.4	36.2	22.5
Other miscellaneous receipts, n.s.k.	8.1	(NA)	7.7
Primary products specialization ratio	95	95	93
Value of primary products shipments made in all industries	20 449.2	16 964.5	9 966.2
Value of primary products shipments made in this industry	19 159.6	15 920.3	9 051.1
Value of primary products shipments made in other industries	1 289.6	1 044.2	915.1
Coverage ratio	94	94	91
INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS			
Total value of shipments	2 027.2	1 714.0	912.6
Primary products value of shipments	1 844.8	1 508.3	802.5
Secondary products value of shipments	116.0	143.2	84.1
Total miscellaneous receipts	66.4	62.5	26.0
Value of resales	49.8	45.1	18.0
Contract receipts	9.1	6.6	4.8
Other miscellaneous receipts	7.4	10.7	3.2
Bark	1.4	.3	.1
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	3.9	3.3	2.3
Other miscellaneous receipts	1.6	7.1	.6
Other miscellaneous receipts, n.s.k.	.6	(NA)	.2
Primary products specialization ratio	94	91	91
Value of primary products shipments made in all industries	1 964.2	1 650.8	872.5
Value of primary products shipments made in this industry	1 844.8	1 508.3	802.5
Value of primary products shipments made in other industries	119.4	142.5	69.9
Coverage ratio	94	91	92
INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.			
Total value of shipments	144.0	149.2	154.6
Primary products value of shipments	132.7	139.0	138.0
Secondary products value of shipments	4.2	1.1	5.7
Total miscellaneous receipts	7.1	9.1	10.9
Value of resales	3.9	4.5	10.2
Contract receipts	1.4	4.0	(D)
Other miscellaneous receipts	1.8	.6	(D)
Bark	(D)	(D)	(D)
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	1.3	(D)	.3
Other miscellaneous receipts	(D)	(D)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	97	99	96
Value of primary products shipments made in all industries	138.9	145.6	149.9
Value of primary products shipments made in this industry	132.7	139.0	138.0
Value of primary products shipments made in other industries	6.2	6.6	11.9
Coverage ratio	96	95	92

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2411– —	**LOGGING**						
	Total	**(NA)**	**(X)**	**13 235.4**	**(NA)**	**(X)**	**10 583.0**
24111	Softwood logs, bolts, and timber	(NA)	(X)	4 527.2	(NA)	(X)	3 373.4
24111 09	Redwood—mil ft log scale	18	241.7	93.5	16	*355.2	94.7
24111 11	Southern yellow pine—mil ft log scale	359	**4 044.4	1 007.7	215	**4 037.1	645.7
24111 13	Ponderosa pine—mil ft log scale	101	*709.0	274.4	67	1 201.9	272.6
24111 15	Spruce—mil ft log scale	85	*761.9	258.5	64	1 240.1	137.5
24111 17	Douglas fir—mil ft log scale	210	3 360.0	1 549.0	190	*5 295.1	1 190.5
24111 21	Hemlock—mil ft log scale	91	1 515.1	605.5	83	2 688.9	470.2
24111 23	Western red cedar—mil ft log scale	67	249.4	120.2	61	*407.6	95.1
24111 27	Other softwood log species, n.e.c.—mil ft log scale	193	**983.6	267.8	129	**1 700.7	232.8
24111 00	Softwood logs, bolts, and timber, n.s.k.	(NA)	(X)	350.6	(NA)	(X)	r234.3
24112	Hardwood logs, bolts, and timber	(NA)	(X)	530.4	(NA)	(X)	305.1
24112 13	Maple	84	(X)	40.7	38	(X)	28.8
	Oak:						
24112 18	Red group	196	(X)	100.6	89	(X)	50.2
24112 19	White group	120	(X)	71.7	62	(X)	25.5
24112 20	Ash—mil ft log scale	31	(S)	21.4			
24112 21	Yellow poplar—mil ft log scale	64	(S)	23.0	(NA)	(S)	142.1
24112 26	Other hardwood log species, including beech, n.e.c.—mil ft log scale	193	(S)	212.3			
24112 00	Hardwood logs, bolts, and timber, n.s.k.	(NA)	(X)	60.7	(NA)	(X)	r58.5
24113	Pulpwood	(NA)	(X)	1 001.1	(NA)	(X)	732.7
24113 11	Softwood—1,000 standard cords	421	(S)	678.2	259	**8 652.9	519.3
24113 13	Hardwood—1,000 standard cords	334	(S)	276.3	178	(S)	181.2
24113 00	Pulpwood, n.s.k.	(NA)	(X)	46.6	(NA)	(X)	32.3
24114	Other roundwood products	(NA)	(X)	470.7	(NA)	(X)	310.3
24114 06	Wood poles, piles, and posts, untreated; not more than 15 ft in length	30	(X)	28.9	(NA)	(X)	20.3
	Wood poles, piles, and posts, untreated, more than 15 ft in length:						
24114 12	Softwood	83	(X)	104.0	43	(X)	66.6
24114 14	Hardwood	19	(X)	9.4	11	(X)	27.5
	Wood chips produced in the field:						
	Softwood:						
24114 16	Short tons—1,000 s tons	74	**5 245.0	125.4	36	*1 263.4	26.2
24114 18	Standard units (one standard unit, 200 cu ft of gravity packed chips, one standard cord)—1,000 standard units	27	819.5	49.9	14	*505.7	30.0
	Hardwood:						
24114 22	Short tons—1,000 s tons	64	(S)	49.0	42	(S)	r28.8
24114 24	Standard units (one standard unit, 200 cu ft of gravity packed chips, one standard cord)—1,000 standard units	18	**566.9	22.2	13	*418.3	18.0
24114 31	Other roundwood products and wood in the rough, n.e.c., including brierwood, stumps, sticks, burls, fuelwood, etc.	29	(X)	33.4	(NA)	(X)	r48.3
24114 00	Other roundwood products, n.s.k.	(NA)	(X)	48.6	(NA)	(X)	44.7
24119	Receipts for contract logging	(NA)	(X)	2 431.0	(NA)	(X)	1 616.6
24119 00	Receipts for contract logging of timber owned by others	2 494	(X)	2 431.0	1475	(X)	1 616.6
24110	Logging, n.s.k.	(NA)	(X)	4 274.9	(NA)	(X)	4 244.9
24110 00	Logging, n.s.k.[3]	(NA)	(X)	2 522.5	(NA)	(X)	2 660.3
24110 02	Logging, n.s.k.[4]	(NA)	(X)	1 752.4	(NA)	(X)	1 584.6
2421– —	**SAWMILLS AND PLANING MILLS, GENERAL**						
	Total	**(NA)**	**(X)**	**20 449.2**	**(NA)**	**(X)**	**16 964.5**
24211	Hardwood lumber, rough and dressed, except siding	(NA)	(X)	3 067.7	(NA)	(X)	1 963.1
	Hardwood rough lumber:						
24211 61	Beech—mil bd ft	65	(S)	54.9	63	(S)	38.8
24211 63	Oak—mil bd ft	756	**2 083.3	1 110.0	710	(S)	912.1
24211 65	Other hardwoods—mil bd ft	712	**2 336.8	1 014.7	641	**2 109.4	708.6
	Hardwood dressed lumber, including ceiling, framing, and shiplapped lumber:						
24211 75	Edge worked (tongued, grooved, rabbeted, etc.)—mil bd ft	40	**101.0	54.2	27	(S)	26.2
24211 77	Not edge worked—mil bd ft	79	*473.5	303.8	69	**195.2	87.1
24211 00	Hardwood lumber, rough and dressed, except siding, n.s.k.	(NA)	(X)	530.1	(NA)	(X)	190.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2421– —	**SAWMILLS AND PLANING MILLS, GENERAL —Con.**						
24212	Softwood lumber, rough and dressed, except siding	(NA)	(X)	11 535.4	(NA)	(X)	9 877.2
	Softwood rough lumber:						
24212 12	Boards, lumber less than 2 inches in nominal thickness—mil bd ft	317	*2 681.1	1 040.8	311	*2 542.7	773.3
24212 13	Two inch lumber, 2 inches in nominal thickness only—mil bd ft	238	4 808.4	1 414.6	240	*5 338.8	1 302.8
24212 15	Lumber and timbers, more than 2 inches in nominal thickness—mil bd ft	248	1 602.5	629.0	235	*2 263.7	663.1
	Softwood dressed lumber, including ceiling, framing, matched, and shiplapped:						
24212 31	Edge worked (tongued, grooved, rabbeted, etc.)—mil bd ft	79	*461.8	181.6	86	*706.8	243.8
	Not edge worked:						
24212 33	Boards, lumber less than 2 inches in nominal thickness—mil bd ft	236	4 429.0	1 839.7	238	5 358.9	1 899.5
24212 35	Two inch lumber, 2 inches in nominal thickness only—mil bd ft	255	16 513.9	4 698.3	256	15 304.3	3 609.8
24212 37	Lumber and timbers more than 2 inches in nominal thickness—mil bd ft	137	2 596.2	849.9	145	1 809.7	515.6
24212 00	Softwood lumber, rough and dressed, except siding, n.s.k.	(NA)	(X)	881.5	(NA)	(X)	869.2
24215	Wood chips, except field chips	(NA)	(X)	2 577.4	(NA)	(X)	1 727.1
	Softwood:						
24215 16	Short tons—1,000 s tons	321	35 358.2	1 043.3	322	*36 267.5	890.3
24215 18	Standard units (one standard unit, 200 cu ft of gravity packed chips, one standard cord)—1,000 standard units	208	13 164.1	831.5	181	10 435.8	421.9
	Hardwood:						
24215 22	Short tons—1,000 s tons	322	(S)	319.7	300	**11 028.1	242.3
24215 24	Standard units (one standard unit, 200 cu ft of gravity packed chips, one standard cord)—1,000 standard units	108	**5 292.6	238.7	62	**1 621.4	60.6
24215 00	Wood chips, except field chips, n.s.k.	(NA)	(X)	144.1	(NA)	(X)	r112.0
24217	Softwood cut stock	(NA)	(X)	670.3	(NA)	(X)	656.0
24217 11	Furniture cut stock—mil bd ft	37	*58.8	59.9	39	**118.2	80.9
24217 51	Industrial cut stock—mil bd ft	108	*586.2	528.2	102	*701.7	526.5
24217 00	Softwood cut stock, n.s.k.	(NA)	(X)	82.2	(NA)	(X)	48.6
24218	Softwood flooring, siding, and other general sawmill and planing mill products	(NA)	(X)	282.2	(NA)	(X)	287.7
24218 11	Softwood flooring—mil bd ft	15	25.5	12.2	20	**43.9	19.3
24218 13	Woodsiding (weatherboards or clapboards), including drilled or treated, except treated with permanent wood preservatives—mil bd ft	17	*60.2	46.4	24	(S)	43.0
24218 17	Railway crossties and mine ties (untreated)—thousands	88	(S)	51.1	73	(S)	48.9
24218 23	Wood lath	12	(X)	10.9	13	(X)	7.2
24218 25	Wood fence pickets, palings, and rails not assembled into fence sections	33	(X)	32.0	40	(X)	33.9
24218 96	Other planing mill and sawmill products	85	(X)	100.6	59	(X)	115.0
24218 00	Softwood flooring, siding, and other general sawmill and planing mill products, n.s.k.	(NA)	(X)	29.1	(NA)	(X)	20.4
24219	Receipts from contract or custom sawing, kiln drying, planing, etc.	(NA)	(X)	161.2	(NA)	(X)	171.2
24219 11	Receipts for contract or custom sawing of logs owned by others	54	(X)	37.7	43	(X)	27.4
24219 51	Receipts for contract kiln drying, planing, resawing, or other manufacturing of lumber owned by others	130	(X)	117.5	100	(X)	138.4
24219 00	Receipts from contract or custom sawing, kiln drying, planing, etc., n.s.k.	(NA)	(X)	6.0	(NA)	(X)	5.4
24210	Sawmills and planing mills, general, n.s.k.	(NA)	(X)	2 155.1	(NA)	(X)	2 282.0
24210 00	Sawmills and planing mills, general, n.s.k.[3]	(NA)	(X)	1 642.7	(NA)	(X)	1 936.2
24210 02	Sawmills and planing mills, general, n.s.k.[4]	(NA)	(X)	512.4	(NA)	(X)	345.8
2426– —	**HARDWOOD DIMENSION AND FLOORING MILLS**						
	Total	**(NA)**	**(X)**	**1 964.2**	**(NA)**	**(X)**	**1 650.8**
24261	Hardwood flooring	(NA)	(X)	656.5	(NA)	(X)	478.9
24261 11	Oak flooring (3/4 inch, 1/2 inch, 3/8 inch T and G and EM, and 5/16 inch square edge strip)—mil bd ft	40	272.9	380.7	35	*182.8	189.5
24261 21	Oak parquetry—mil bd ft	11	27.6	42.4	12	48.4	81.8
24261 23	Other oak flooring, including plank, block, and specialty—mil bd ft	21	41.4	80.4	21	78.8	131.0
24261 31	Maple, including strip, block, parquetry—mil bd ft	10	15.4	26.2	11	21.3	17.0
24261 41	Glued laminated truck trailer flooring and railroad car decking—mil bd ft	7	45.4	80.8	10	**24.9	42.4
24261 98	Other hardwoods	15	(X)	24.0	11	(X)	15.1
24261 00	Hardwood flooring, n.s.k.	(NA)	(X)	22.1	(NA)	(X)	2.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2426– —	**HARDWOOD DIMENSION AND FLOORING MILLS**—Con.						
24262	Hardwood dimension stock, furniture parts, and vehicle stock	(NA)	(X)	762.6	(NA)	(X)	740.4
	Hardwood furniture dimension, including glued laminates:						
24262 24	Rough or surfaced, cut to size, mil bd ft lum cons	110	**151.1	208.7	103	**218.9	207.8
24262 51	Semifabricated, mil bd ft lum cons	38	*71.0	116.0	36	*80.7	119.9
24262 81	Completely fabricated ready for assembly, including furniture parts, except frames, mil bd ft lum cons	102	**106.7	225.7	80	(S)	215.1
	Other industrial dimension stock (for handles, golf clubs, etc.):						
24262 83	Rough industrial dimension stock	37	(X)	43.0	34	(X)	38.9
24262 85	Semifabricated industrial dimension stock	16	(X)	11.1	13	(X)	33.5
24262 86	Completely fabricated hardwood industrial dimension stock, mil bd ft lum cons	30	(S)	124.1	23	(NA)	83.1
24262 87	Compression-modified or densified wood (whether or not impregnated with synthetic resin)	3	(X)	1.3	3	(X)	1.9
24262 00	Hardwood dimension stock, furniture parts, and vehicle stock, n.s.k.	(NA)	(X)	32.7	(NA)	(X)	40.1
24266	Wood furniture frames for household furniture	(NA)	(X)	272.8	(NA)	(X)	211.6
24266 11	For seating, thousands	132	**6 429.8	226.3	102	(S)	160.6
24266 13	Other, thousands	24	698.8	35.9	28	(S)	43.5
24266 00	Wood furniture frames for household furniture, n.s.k.	(NA)	(X)	10.6	(NA)	(X)	7.5
24260	Hardwood dimension and flooring mills, n.s.k.	(NA)	(X)	272.3	(NA)	(X)	219.9
24260 00	Hardwood dimension and flooring mills, n.s.k.[3]	(NA)	(X)	222.9	(NA)	(X)	172.8
24260 02	Hardwood dimension and flooring mills, n.s.k.[4]	(NA)	(X)	49.4	(NA)	(X)	47.1
2429– —	**SPECIAL PRODUCT SAWMILLS, N.E.C.**						
	Total	**(NA)**	**(X)**	**138.9**	**(NA)**	**(X)**	**145.6**
24290	Shingles, shakes, cooperage stock, and excelsior	(NA)	(X)	138.9	(NA)	(X)	145.6
	Red cedar shingles and shakes:						
24290 04	Shingles, including remanufactured shingles, 1,000 squares	26	**169.1	14.6	32	**743.1	34.3
24290 07	Handsplit shakes (handsplit and resawn, tapersawn, straight split, and tapersplit), 1,000 squares	35	(S)	21.0	42	**719.3	34.0
24290 09	Shingles and shakes, except red cedar, 1,000 squares	13	(S)	[5]13.4	5	(S)	2.2
24290 87	Tight and slack cooperage stock (staves and heading) and excelsior products (including wood wool, pads and wrappers)	31	(X)	55.0	(NA)	(X)	18.3
24290 00	Special product sawmills, n.e.c., n.s.k.[3]	(NA)	(X)	25.8	(NA)	(X)	45.5
24290 02	Special product sawmills, n.e.c., n.s.k.[4]	(NA)	(X)	9.0	(NA)	(X)	11.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]For 1992, red cedar ridge type and combined shingles and shakes are included under product code 24290 09.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24111, SOFTWOOD LOGS, BOLTS, AND TIMBER		
United States	**4 527.2**	**3 373.4**
Alabama	108.0	58.4
Alaska	219.8	88.1
Arkansas	158.5	85.1
California	237.3	224.3
Florida	55.6	(NA)
Georgia	100.4	33.4
Idaho	180.2	122.9
Kentucky	3.0	(NA)
Louisiana	52.2	97.0
Maine	145.0	92.8
Michigan	3.1	5.8
Minnesota	3.4	(NA)
Mississippi	211.5	116.8
Montana	75.4	77.5
New Hampshire	4.1	3.1
New Mexico	2.0	(NA)
New York	3.6	2.3
North Carolina	155.8	105.3
Oregon	1 159.9	986.4
South Carolina	75.4	78.8
Texas	150.4	71.4
Virginia	9.9	4.3
Washington	1 351.7	959.5
Wisconsin	6.2	(NA)
Wyoming	4.3	2.7
24112, HARDWOOD LOGS, BOLTS, AND TIMBER		
United States	**530.4**	**305.1**
Alabama	28.6	17.6
Arkansas	18.6	9.5
California	3.9	6.4
Florida	4.2	4.0
Georgia	15.4	5.1
Illinois	6.3	(NA)
Indiana	20.1	9.2
Iowa	6.3	(NA)
Kentucky	11.4	3.2
Louisiana	11.6	7.7
Maine	43.8	15.0
Maryland	8.0	(NA)
Massachusetts	2.6	(NA)
Michigan	18.4	16.3
Mississippi	35.6	19.5
New Hampshire	3.9	(NA)
New York	12.1	5.3
North Carolina	43.7	27.5
Ohio	23.1	9.4
Oregon	12.8	26.3
Pennsylvania	41.1	24.9
South Carolina	11.8	19.5
Tennessee	14.7	6.3
Texas	17.4	2.8
Virginia	14.6	6.6
Washington	69.0	30.9
West Virginia	7.3	3.1
Wisconsin	14.3	10.3
24113, PULPWOOD		
United States	**1 001.1**	**732.7**
Alabama	122.1	60.8
Arkansas	30.4	14.2
Georgia	55.4	17.4
Idaho	8.4	4.5
Louisiana	37.1	33.7
Maine	135.0	117.4
Michigan	32.0	20.9
Minnesota	19.8	28.6
Mississippi	54.8	25.8
New Hampshire	3.0	(NA)
New York	3.4	3.3
North Carolina	67.2	35.9
Oregon	14.3	23.3
Pennsylvania	5.8	3.2
South Carolina	36.1	23.9
Tennessee	4.3	2.6
Texas	65.5	(NA)
Vermont	2.2	(NA)
Virginia	11.1	4.2
Washington	19.3	14.8
West Virginia	4.4	(NA)
Wisconsin	33.2	21.9
24114, OTHER ROUNDWOOD PRODUCTS		
United States	**470.7**	**310.3**
Alabama	33.7	19.2
Arkansas	40.8	2.3
California	8.8	8.7
Florida	15.3	5.1
Georgia	34.8	55.5
Idaho	10.0	2.6
Louisiana	16.2	5.1
Maine	35.7	33.5
Maryland	3.6	4.0
Michigan	16.8	18.1
Minnesota	2.9	(NA)
Mississippi	44.0	2.4
New Hampshire	7.9	(NA)
New York	3.7	(NA)
North Carolina	15.6	10.0
Ohio	7.6	3.1
Oregon	72.2	7.0
Pennsylvania	2.8	3.5
South Carolina	15.9	23.0
Texas	8.7	20.7
Vermont	9.1	(NA)
Virginia	7.9	7.8
Washington	36.7	24.5
West Virginia	5.6	(NA)
Wisconsin	5.3	(NA)
24119, RECEIPTS FOR CONTRACT LOGGING		
United States	**2 431.0**	**1 616.6**
Alabama	155.1	66.1
Alaska	69.2	42.3
Arizona	22.1	6.8
Arkansas	87.8	55.8
California	241.4	226.5
Colorado	6.5	2.7
Florida	67.2	27.0
Georgia	145.7	48.7
Idaho	114.0	66.4
Louisiana	83.4	43.3
Maine	79.2	51.1
Maryland	3.8	3.6
Michigan	8.2	3.8
Minnesota	8.6	(NA)
Mississippi	84.7	30.4
Montana	63.8	37.8
New Hampshire	15.5	8.7
New Mexico	6.1	(NA)
New York	7.3	4.9
North Carolina	115.9	55.2
Oklahoma	5.4	(NA)
Oregon	455.3	448.6
Pennsylvania	13.6	2.0
South Carolina	83.6	45.5
South Dakota	3.2	(NA)
Tennessee	3.9	(NA)
Texas	61.3	30.7
Vermont	3.4	3.7
Virginia	40.9	16.7
Washington	333.8	275.6
West Virginia	12.8	7.5
Wisconsin	13.0	4.1
Wyoming	6.5	5.5
24211, HARDWOOD LUMBER, ROUGH AND DRESSED, EXCEPT SIDING		
United States	**3 067.7**	**1 963.1**
Alabama	116.6	117.7
Arkansas	122.2	74.6
Florida	15.5	5.8
Georgia	54.1	34.9
Illinois	22.6	18.6
Indiana	153.6	87.5
Iowa	27.9	19.5
Kentucky	146.5	98.1
Louisiana	34.1	33.3
Maine	9.5	13.3
Maryland	20.9	10.6
Massachusetts	13.1	6.0
Michigan	84.0	57.9
Minnesota	20.9	14.6
Mississippi	175.8	154.7
Missouri	81.0	51.4
New Hampshire	14.4	8.3
New York	171.6	113.1
North Carolina	176.4	106.0
Ohio	181.7	84.8

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24211, HARDWOOD LUMBER, ROUGH AND DRESSED, EXCEPT SIDING—Con.		
Oklahoma	6.4	7.2
Pennsylvania	359.3	192.7
South Carolina	49.7	45.8
Tennessee	169.6	144.8
Texas	26.6	16.3
Vermont	25.5	24.4
Virginia	169.8	111.8
Washington	140.9	50.3
West Virginia	228.2	119.5
Wisconsin	174.3	97.6
24212, SOFTWOOD LUMBER, ROUGH AND DRESSED, EXCEPT SIDING		
United States	**11 535.4**	**9 877.2**
Alabama	541.3	410.9
Alaska	100.4	(NA)
Arizona	131.1	88.9
Arkansas	465.7	371.1
California	1 775.2	1 673.2
Colorado	41.6	29.1
Florida	143.5	151.4
Georgia	698.0	536.7
Idaho	821.6	583.5
Illinois	5.8	(NA)
Indiana	3.8	3.2
Kentucky	4.1	3.0
Louisiana	250.9	172.5
Maine	196.7	170.5
Maryland	19.8	14.1
Massachusetts	8.5	4.7
Michigan	20.6	22.8
Minnesota	32.5	19.3
Mississippi	633.4	437.8
Missouri	5.4	(NA)
Montana	453.8	412.4
New Hampshire	61.9	38.2
New Mexico	50.3	57.9
New York	12.9	12.2
North Carolina	359.4	288.4
Ohio	4.0	3.0
Oregon	2 317.6	2 296.2
Pennsylvania	13.2	8.5
South Carolina	322.9	300.9
Tennessee	34.6	26.3
Texas	271.7	167.3
Utah	17.8	17.0
Vermont	26.5	9.8
Virginia	165.6	159.5
Washington	1 317.9	1 191.9
West Virginia	5.1	3.1
Wisconsin	16.9	13.0
Wyoming	60.0	44.3
24215, WOOD CHIPS, EXCEPT FIELD CHIPS		
United States	**2 577.4**	**1 727.1**
Alabama	183.4	99.8
Alaska	16.5	(NA)
Arizona	4.2	2.9
Arkansas	148.0	118.1
California	110.6	50.0
Florida	50.5	52.7
Georgia	178.9	150.2
Idaho	69.9	29.1
Indiana	3.2	2.2
Kentucky	11.0	7.3
Louisiana	108.0	85.5
Maine	65.8	44.6
Maryland	3.7	2.2
Massachusetts	2.1	(NA)
Michigan	9.5	9.4
Minnesota	9.0	9.6
Mississippi	147.7	92.4
Missouri	2.6	5.4
Montana	62.0	20.9
New Hampshire	8.7	5.1
New Mexico	2.4	2.1
New York	8.8	5.0
North Carolina	99.4	84.3
Ohio	8.7	4.3
Oregon	401.0	233.1
Pennsylvania	11.6	8.2
South Carolina	169.9	149.2
South Dakota	3.9	(NA)
Tennessee	16.2	18.9
Texas	181.8	95.4
Vermont	3.7	3.5
Virginia	39.0	35.1
Washington	371.2	231.2
West Virginia	8.6	7.3
Wisconsin	21.6	14.3
Wyoming	3.0	(NA)
24217, SOFTWOOD CUT STOCK		
United States	**670.3**	**656.0**
Arkansas	2.1	(NA)
California	214.7	211.3
Maine	5.7	(NA)
Missouri	5.5	(NA)
Montana	4.8	9.3
North Carolina	22.4	12.4
Oregon	207.6	172.1
Virginia	13.0	7.4
Washington	102.9	80.7
Wisconsin	6.9	10.1
24218, SOFTWOOD FLOORING, SIDING, AND OTHER GENERAL SAWMILL AND PLANING MILL PRODUCTS		
United States	**282.2**	**287.7**
Alabama	14.5	19.0
Arkansas	14.1	30.6
California	52.1	33.2
Florida	3.6	12.4
Idaho	2.5	6.1
Illinois	3.1	2.4
Kentucky	16.3	7.3
Louisiana	11.1	12.1
Maine	2.6	5.5
Michigan	2.0	(NA)
Mississippi	4.2	(NA)
Missouri	4.5	3.9
New York	2.5	3.3
Ohio	4.2	(NA)
Oregon	24.3	35.1
Pennsylvania	14.5	3.7
Tennessee	16.8	3.5
Texas	6.9	8.9
Virginia	19.2	7.6
Washington	6.5	18.9
West Virginia	11.9	7.5
Wisconsin	18.3	14.4
24219, RECEIPTS FROM CONTRACT OR CUSTOM SAWING, KILN DRYING, PLANING, ETC.		
United States	**161.2**	**171.2**
Arkansas	4.6	(NA)
California	13.1	15.8
Georgia	2.7	6.8
Idaho	6.7	(NA)
Kentucky	5.0	(NA)
Louisiana	2.3	(NA)
Michigan	2.0	3.2
Mississippi	9.4	(NA)
Missouri	7.8	(NA)
Montana	3.9	(NA)
New York	3.9	2.1
North Carolina	8.3	5.7
Ohio	3.2	(NA)
Oregon	20.5	18.8
Pennsylvania	2.4	(NA)
Tennessee	3.5	7.4
Texas	5.6	(NA)
Virginia	2.3	6.5
Washington	14.3	7.9
West Virginia	2.6	(NA)
Wisconsin	19.0	13.4
24261, HARDWOOD FLOORING		
United States	**656.5**	**478.9**
Arkansas	87.7	59.3
Kentucky	17.9	14.0
Missouri	91.8	28.7
Pennsylvania	25.5	(NA)
Tennessee	215.1	221.3
Virginia	54.3	20.8

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24262, HARDWOOD DIMENSION STOCK, FURNITURE PARTS, AND VEHICLE STOCK			**24262, HARDWOOD DIMENSION STOCK, FURNITURE PARTS, AND VEHICLE STOCK—Con.**		
United States	**762.6**	**740.4**	Oregon	12.8	16.5
			Pennsylvania	78.9	75.4
			South Carolina	15.9	13.7
Alabama	5.9	5.6	Tennessee	84.6	79.9
Arkansas	8.8	26.8	Texas	3.2	(NA)
California	8.3	16.9	Vermont	10.5	30.6
Colorado	2.2	(NA)	Virginia	25.8	25.1
Georgia	5.2	4.5	Washington	17.6	7.3
			Wisconsin	18.8	33.8
Illinois	10.9	12.0			
Indiana	61.3	38.7	**24266, WOOD FURNITURE FRAMES FOR HOUSEHOLD FURNITURE**		
Kentucky	60.2	55.4			
Maine	19.5	20.3	**United States**	**272.8**	**211.6**
Michigan	21.0	13.5			
			Alabama	2.9	4.3
Minnesota	45.0	(NA)	California	20.5	23.9
Mississippi	33.5	49.8	Indiana	5.1	(NA)
Missouri	18.5	15.6	Mississippi	69.3	33.3
New York	39.6	25.1	North Carolina	93.4	49.6
North Carolina	90.1	89.0	Tennessee	10.7	12.0
Ohio	40.2	34.9	Virginia	25.6	30.3

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2411-	**Logging**	**13 235.4**	**10 728.4**	**11 571.5**	**11 359.7**	**11 086.6**	**10 583.0**	**7 448.4**	**5 757.5**
24111	Softwood logs, bolts, and timber	4 527.2	3 550.6	3 858.0	3 987.5	3 689.2	3 373.4	3 083.2	2 580.7
24112	Hardwood logs, bolts, and timber	530.4	362.4	356.7	347.3	341.3	305.1	257.5	241.8
24113	Pulpwood	1 001.1	978.7	931.8	860.3	751.7	732.7	624.6	383.2
24114	Other roundwood products	470.7	387.4	380.2	376.0	373.8	310.3	327.2	71.3
24119	Receipts for contract logging	2 431.0	1 780.1	1 777.0	1 701.2	1 684.6	1 616.6	780.2	757.5
24110	Logging, n.s.k.	4 274.9	3 669.3	4 267.7	4 087.4	4 246.1	4 244.9	2 375.7	1 722.9
2421-	**Sawmills and planing mills, general**	**20 449.2**	**17 514.6**	**17 861.8**	**18 438.6**	**18 197.6**	**16 964.5**	**9 966.2**	**10 465.7**
24211	Hardwood lumber, rough and dressed, except siding	3 067.7	2 513.2	2 569.7	2 469.5	2 360.7	1 963.1	1 053.5	972.9
24212	Softwood lumber, rough and dressed, except siding	11 535.4	9 850.3	10 140.7	10 541.2	10 430.7	9 877.2	5 202.5	6 899.7
24215	Wood chips, except field chips	2 577.4	2 495.6	2 272.5	2 264.5	1 881.9	1 727.1	1 687.6	1 079.5
24217	Softwood cut stock	670.3	664.9	698.1	692.0	633.3	656.0	259.9	229.5
24218	Softwood flooring, siding, and other general sawmill and planing mill products	282.2	355.9	353.1	333.7	318.5	287.7	141.1	125.2
24219	Receipts from contract or custom sawing, kiln drying, planing, etc.	161.2	211.9	197.0	183.2	164.4	171.2	77.2	90.7
24210	Sawmills and planing mills, general, n.s.k.	2 155.1	1 422.8	1 630.7	1 954.5	2 408.2	2 282.0	1 544.4	1 068.2
2426-	**Hardwood dimension and flooring mills**	**1 964.2**	**1 763.7**	**1 825.4**	**1 780.6**	**1 638.0**	**1 650.8**	**872.5**	**807.5**
24261	Hardwood flooring	656.5	530.5	534.9	529.0	465.7	478.9	187.9	159.6
24262	Hardwood dimension stock, furniture parts, and vehicle stock	762.6	799.9	802.2	795.1	787.1	740.4	452.7	451.1
24266	Wood furniture frames for household furniture	272.8	190.6	224.4	217.9	178.6	211.6	130.8	104.1
24260	Hardwood dimension and flooring mills, n.s.k.	272.3	242.7	263.9	238.5	206.7	219.9	101.1	92.6
2429-	**Special product sawmills, n.e.c.**	**138.9**	**164.0**	**181.3**	**179.3**	**136.4**	**145.6**	**149.9**	**258.7**
24290	Shingles, shakes, cooperage stock, and excelsior	138.9	164.0	181.3	179.3	136.4	145.6	149.9	258.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2411, LOGGING				
	Materials, ingredients, containers, and supplies	**(X)**	**6 408.8**	**(X)**	**5 172.6**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	1 934.3	(X)	1 599.7
970099	All other materials and components, parts, containers, and supplies	(X)	[2]556.2	(X)	[2]393.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	3 918.3	(X)	3 179.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2421, SAWMILLS AND PLANING MILLS, GENERAL				
	Materials, ingredients, containers, and supplies	**(X)**	**11 870.6**	**(X)**	**9 473.2**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	1 060.9	(X)	1 140.2
	Logs, bolts, and unsliced flitches:				
241111	Hardwood—mil ft log scale	*4 018.4	935.7	**3 758.9	694.6
241112	Softwood—mil ft log scale	20 810.9	5 438.5	*18 436.0	3 635.4
	Rough lumber:				
242110	Hardwood—mil bd ft	**797.9	367.1	**592.0	214.8
242121	Softwood—mil bd ft	*2 541.0	788.6	*2 209.8	498.9
	Dressed lumber:				
242117	Hardwood—mil bd ft	**45.4	31.3	(S)	75.0
242128	Softwood—mil bd ft	**702.1	243.8	*1 124.5	273.1
289101	Glues and adhesives—mil lb	(S)	8.9	*114.6	31.3
970099	All other materials and components, parts, containers, and supplies	(X)	655.6	(X)	663.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	2 340.3	(X)	2 246.3
	INDUSTRY 2426, HARDWOOD DIMENSION AND FLOORING MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**938.1**	**(X)**	**786.5**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	4.9	(X)	9.6
	Logs, bolts, and unsliced flitches:				
241111	Hardwood—mil ft log scale	*165.5	46.5	*272.5	44.3
241112	Softwood—mil ft log scale	(D)	([4])	(S)	5.5
	Rough lumber:				
242110	Hardwood—mil bd ft	*908.2	407.1	**872.9	344.5
242121	Softwood—mil bd ft	*37.1	12.9	**55.8	15.4
	Dressed lumber:				
242117	Hardwood—mil bd ft	**124.6	65.4	*156.8	47.8
242128	Softwood—mil bd ft	*16.0	6.5	(S)	12.0
289101	Glues and adhesives—mil lb	**19.3	10.3	(S)	7.7
970099	All other materials and components, parts, containers, and supplies	(X)	[4]163.5	(X)	128.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	221.0	(X)	171.5
	INDUSTRY 2429, SPECIAL PRODUCT SAWMILLS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**76.5**	**(X)**	**78.2**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	2.3	(X)	1.0
	Logs, bolts, and unsliced flitches:				
241111	Hardwood—mil ft log scale	**67.8	21.2	(S)	7.7
241112	Softwood—mil ft log scale	(S)	13.3	50.7	19.6
970099	All other materials and components, parts, containers, and supplies	(X)	13.1	(X)	13.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	26.7	(X)	36.8

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For Industry 2411, Logging, data reported for material codes 241111, 241112, 242110, 242121, 242117, 242128, and 289101 did not meet publication standards and are included with material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1992, material code 241112 is included with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
24112 20	24112 28	24351 01	24351 00	24490 43	24490 41	24932 05	24932 00
24112 21	24112 28	24351 05	24351 00	24490 43	24490 51	24932 07	24932 00
24112 26	24112 23	24351 07	24351 00	24490 73	24490 71	24932 09	24932 00
24112 26	24112 28	24351 47	24351 00	24490 73	24490 81	24932 21	24932 00
24114 06	24114 08	24365 01	24365 00	24913 02	24913 01	24933 16	24933 15
24114 06	24114 10	24365 05	24365 00	24913 02	24913 03	24933 16	24933 18
24114 31	24114 15	24365 11	24365 00	24913 21	24913 15		
24114 31	24114 29	24365 21	24365 00	24913 21	24913 19	24934 12	24934 00
24114 31	24114 33	24365 23	24365 00			24934 14	24934 00
24114 31	24114 35			24919 11	24919 01	24934 16	24934 00
		24366 07	24366 00	24919 11	24919 03	24934 17	24934 00
24290 87	24290 61	24366 11	24366 00	24919 11	24919 09	24934 18	24934 00
24290 87	24290 83	24366 13	24366 00			24934 19	24934 00
		24366 15	24366 00	24931 20	24931 12		
24315 87	24315 98	24366 17	24366 00	24931 20	24931 14	24936 12	24936 14
24315 97	24315 98			24931 20	24931 16	24936 12	24936 15
		24367 03	24367 00	24931 20	24931 18		
		24367 21	24367 00	24931 21	24931 07	24994 98	24994 61
24317 25	24317 21	24367 23	24367 00	24931 21	24931 09	24994 98	24994 79
24317 25	24317 31	24367 25	24367 00	24931 21	24931 19	24994 98	24994 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
24112 23	24112 26	24351 00	24351 01	24490 41	24490 43	24932 00	24932 05
24112 28	24112 20	24351 00	24351 05	24490 51	24490 43	24932 00	24932 07
24112 28	24112 21	24351 00	24351 07	24490 71	24490 73	24932 00	24932 09
24112 28	24112 26	24351 00	24351 47	24490 81	24490 73	24932 00	24932 21
24114 08	24114 06	24365 00	24365 01	24913 01	24913 02	24933 15	24933 16
24114 10	24114 06	24365 00	24365 05	24913 03	24913 02	24933 18	24933 16
24114 15	24114 31	24365 00	24365 11	24913 15	24913 21		
24114 29	24114 31	24365 00	24365 21	24913 19	24913 21	24934 00	24934 12
24114 33	24114 31	24365 00	24365 23			24934 00	24934 14
24114 35	24114 31			24919 01	24919 11	24934 00	24934 16
		24366 00	24366 07	24919 03	24919 11	24934 00	24934 17
24290 61	24290 87	24366 00	24366 11	24919 09	24919 11	24934 00	24934 18
24290 83	24290 87	24366 00	24366 13			24934 00	24934 19
		24366 00	24366 15	24931 07	24931 21		
24315 98	24315 87	24366 00	24366 17	24931 09	24931 21	24936 14	24936 12
24315 98	24315 97			24931 12	24931 20	24936 15	24936 12
		24367 00	24367 03	24931 14	24931 20		
		24367 00	24367 21	24931 16	24931 20	24994 61	24994 98
24317 21	24317 25	24367 00	24367 23	24931 18	24931 20	24994 79	24994 98
24317 31	24317 25	24367 00	24367 25	24931 19	24931 21	24994 99	24994 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:15 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08150357.DAT;1 1/ 6/ 95 08:15:11 UTF:TIPS93-08150357.DAT;1 1/ 6/ 95 08:15:12 META:TIPS96-08150357.DAT;1 1/ 6/ 95 08:15:42

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-24B

INDUSTRY SERIES

Millwork, Plywood, and Structural Wood Members, Not Elsewhere Classified

Industries 2431, 2434, 2435, 2436, and 2439

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BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-24B

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2431	Millwork
2434	Wood Kitchen Cabinets
2435	Hardwood Veneer and Plywood
2436	Softwood Veneer and Plywood
2439	Structural Wood Members, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2431, MILLWORK

This industry is made up of establishments primarily engaged in manufacturing fabricated millwork, including wood millwork covered with materials such as metal and plastics. Planing mills primarily engaged in producing millwork are included in this industry, but planing mills primarily producing standard workings or patterns of lumber are classified in industry 2421. Establishments primarily engaged in manufacturing wood kitchen cabinets and bathroom vanities are classified in industry 2434.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2431, Millwork, had employment of 86.3 thousand. The employment figure was 3 percent below the 89.0 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, California, Minnesota, and Oregon. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $9.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2431 shipped $8.8 billion of millwork products considered primary to the industry, $388.0 million of secondary products, and had $486.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2431, no matter in what industry they were produced, appear in table 6a and aggregate to $9.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the millwork industry amounted to $5.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 2434, WOOD KITCHEN CABINETS

This industry is made up of establishments primarily engaged in manufacturing wood kitchen cabinets and wood bathroom vanities, generally for permanent installation. Establishments primarily engaged in manufacturing free-standing cabinets and vanities are classified in major group 25. Establishments primarily engaged in building custom cabinets for individuals are classified in retail trade, industry 5712.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2434, Wood Kitchen Cabinets, had employment of 62.8 thousand. The employment figure was 6 percent below the 67.0 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Pennsylvania, Texas, and Indiana, accounting for approximately 31 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Indiana, and Florida accounted for approximately 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2434 shipped $4.6 billion of wood kitchen cabinet products considered primary to the industry, $179.9 million of secondary products, and had $116.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2434, no matter in what industry they were produced, appear in table 6a and aggregate to $4.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood kitchen cabinets industry amounted to $2.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD

This industry is made up of establishments primarily engaged in producing commercial hardwood veneer and those primarily engaged in manufacturing commercial plywood or prefinished hardwood plywood. This includes nonwood backed or faced veneer and nonwood faced plywood, from veneer produced in the same establishment or from purchased veneer. Establishments primarily engaged in the production of veneer which is used in the same establishment for the manufacture of wood containers, such as fruit and vegetable baskets and wood boxes are classified in industry group 244.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2435, Hardwood Veneer and Plywood, had employment of 20.1 thousand. The employment figure was 2 percent below the 20.5 thousand reported in 1987. Compared with 1991, employment increased 16 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, Indiana, Wisconsin, and Oregon, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when North Carolina, Indiana, Wisconsin, and Virginia accounted for approximately 47 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2435 shipped $1.9 billion of hardwood veneer and plywood products considered primary to the industry, $196.2 million of secondary products, and had $148.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2435, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hardwood veneer and plywood industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD

This industry is made up of establishments primarily engaged in producing commercial softwood veneer and plywood, from veneer produced in the same establishment or from purchased veneer. Establishments primarily engaged in producing commercial hardwood veneer and plywood are classified in industry 2435. Establishments primarily engaged in the production of veneer which is used in the same establishment for the manufacture of wood containers such as fruit and vegetable baskets and wood boxes are classified in industry group 244.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2436, Softwood Veneer and Plywood, had employment of 31.3 thousand. The employment figure was 20 percent below the 38.9 thousand reported in 1987.

The leading States in employment in 1992 were Oregon, Louisiana, Texas, and Arkansas, accounting for approximately 58 percent of the industry's employment. This represents a shift from 1987 when Oregon, Washington, Louisiana, and Texas accounted for approximately 63 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2436 shipped $4.6 billion of softwood veneer and plywood products considered primary to the industry, $672.6 million of secondary products, and had $194.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio also was 87 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2436, no matter in what industry they were produced, appear in table 6a and aggregate to $4.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the softwood veneer and plywood industry amounted to $3.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.

This industry is made up of establishments primarily engaged in producing laminated or fabricated trusses, arches, and other structural members of lumber. Establishments primarily engaged in fabrication on the site of construction are classified in construction. Establishments primarily engaged in producing prefabricated wood buildings, sections, and panels are classified in industry 2452.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2439, Structural Wood Members, N.E.C., had employment of 24.3 thousand. The employment figure was 1 percent below the 24.6 thousand reported in 1987. Compared with 1991, employment increased 29 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Florida, California, Oregon, and North Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in

which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2439 shipped $2.3 billion of structural wood products considered primary to the industry, $101.2 million of secondary products, and had $140.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2439, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the structural wood members, not elsewhere classified, industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2431, MILLWORK															
1992 Census	3 009	3 155	799	86.3	1 983.9	68.8	136.9	1 395.9	4 048.4	5 627.6	9 639.8	190.7	1 284.7	96	95
1991 ASM	(NA)	(NA)	(NA)	84.9	1 835.9	66.7	130.9	1 304.1	3 732.9	5 235.4	8 969.4	140.6	1 266.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	90.5	1 960.9	72.1	140.1	1 377.5	3 851.6	5 655.3	9 524.7	197.5	1 249.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	90.9	1 976.7	73.5	140.2	1 433.2	3 864.7	5 755.1	9 654.3	205.4	1 208.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	90.7	2 013.7	73.0	141.3	1 464.1	3 899.6	5 553.1	9 385.2	155.9	1 258.4	(NA)	(NA)
1987 Census	2 640	2 783	856	89.0	1 809.2	71.6	140.6	1 303.6	3 932.9	5 467.3	9 326.9	184.4	1 226.5	95	96
1986 ASM	(NA)	(NA)	(NA)	77.2	1 493.4	61.1	119.8	1 054.9	3 091.0	4 692.9	7 748.9	164.9	1 052.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	73.1	1 359.5	59.2	115.5	961.2	2 637.6	4 186.7	6 812.8	137.4	953.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	74.1	1 277.0	60.3	115.4	905.8	2 641.5	3 860.8	6 489.3	139.1	938.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	67.9	1 125.6	54.7	106.5	819.4	2 268.7	3 437.6	5 627.3	103.1	930.6	(NA)	(NA)
1982 Census	2 192	2 321	642	56.8	895.4	44.7	83.5	645.6	1 712.6	2 502.0	4 248.3	79.9	731.2	93	94
1981 ASM	(NA)	(NA)	(NA)	65.2	944.8	52.2	99.5	672.1	1 924.5	2 951.0	4 859.7	105.0	775.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.5	876.7	51.9	98.8	620.4	1 770.6	2 787.6	4 569.0	99.0	777.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	73.0	893.1	59.4	113.5	650.2	1 960.2	2 971.6	4 898.0	103.5	758.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.0	835.7	59.5	114.4	608.9	1 797.8	2 872.2	4 617.1	82.5	726.1	(NA)	(NA)
1977 Census	2 209	2 333	692	68.6	742.2	56.6	108.4	542.0	1 497.9	2 460.4	3 928.1	81.0	605.0	94	94
INDUSTRY 2434, WOOD KITCHEN CABINETS															
1992 Census	4 273	4 323	627	62.8	1 307.5	49.8	99.7	926.6	2 728.3	2 214.7	4 933.5	89.1	488.8	96	97
1991 ASM	(NA)	(NA)	(NA)	57.1	1 139.0	46.2	91.3	807.2	2 277.5	1 877.9	4 164.9	60.5	419.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	62.8	1 217.4	51.0	101.4	866.7	2 540.1	2 066.7	4 610.0	92.0	462.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	61.6	1 196.7	49.6	98.3	846.4	2 437.5	1 962.7	4 393.2	108.6	469.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	67.3	1 214.0	54.1	105.6	862.0	2 581.9	1 914.9	4 484.0	86.2	468.3	(NA)	(NA)
1987 Census	3 644	3 714	669	67.0	1 185.0	53.7	107.9	833.4	2 495.9	1 909.4	4 378.2	101.0	447.0	96	98
1986 ASM	(NA)	(NA)	(NA)	53.4	901.7	42.3	85.8	623.1	1 842.9	1 501.9	3 342.2	81.9	363.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	54.5	863.5	44.6	89.1	611.0	1 659.4	1 425.9	3 083.6	67.3	356.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	58.4	841.1	48.1	98.1	601.0	1 645.9	1 434.2	3 061.4	74.5	365.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	49.5	678.4	40.7	79.0	506.9	1 421.9	1 067.8	2 482.7	52.5	337.0	(NA)	(NA)
1982 Census	2 902	2 964	489	43.6	606.9	34.6	67.1	442.5	1 144.3	906.8	2 060.7	43.8	287.3	96	97
1981 ASM	(NA)	(NA)	(NA)	49.9	637.5	39.7	77.8	444.9	1 290.6	901.6	2 195.8	49.1	241.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	55.1	646.3	43.3	83.0	468.3	1 209.6	974.6	2 183.6	42.6	239.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	56.7	633.1	46.5	88.8	450.7	1 161.6	989.4	2 145.3	70.1	233.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	54.2	587.4	45.2	85.5	424.3	1 062.2	926.2	1 976.3	60.1	253.9	(NA)	(NA)
1977 Census	2 541	2 583	510	46.2	481.1	38.7	72.3	352.3	868.8	730.6	1 590.8	36.7	212.3	96	96
INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD															
1992 Census	283	318	213	20.1	394.7	17.0	35.1	285.0	856.4	1 401.9	2 247.5	47.0	331.1	91	94
1991 ASM	(NA)	(NA)	(NA)	17.3	320.1	14.8	29.4	236.1	683.4	1 203.3	1 896.5	45.5	281.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.7	334.5	15.7	31.6	247.5	706.6	1 350.4	2 051.7	40.8	311.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.1	356.2	17.0	34.3	259.9	741.0	1 445.1	2 184.6	47.2	321.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.6	347.5	17.3	35.1	252.8	702.9	1 415.4	2 100.3	37.2	306.8	(NA)	(NA)
1987 Census	274	311	214	20.5	340.1	17.4	35.3	246.9	751.4	1 322.4	2 060.5	31.3	288.1	92	96
1986 ASM	(NA)	(NA)	(NA)	17.0	268.7	14.3	29.7	197.4	632.0	946.9	1 585.2	38.0	211.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.3	273.8	14.8	29.2	194.8	552.0	939.3	1 510.0	34.9	213.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.3	272.8	15.6	31.2	198.5	571.0	1 010.7	1 578.8	40.3	223.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.3	271.2	16.5	32.7	202.7	553.8	978.6	1 537.1	17.3	223.0	(NA)	(NA)
1982 Census	264	306	213	17.8	241.0	15.1	28.5	177.0	441.3	844.9	1 304.4	22.2	194.0	93	94
1981 ASM	(NA)	(NA)	(NA)	22.7	279.2	19.6	37.5	216.4	526.1	1 016.5	1 534.7	33.4	235.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	23.6	265.4	20.4	38.3	205.0	466.3	1 014.1	1 493.5	41.9	231.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.2	258.9	21.2	41.5	202.6	475.9	1 091.3	1 554.3	32.5	239.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	22.7	228.5	19.7	38.4	176.0	452.4	933.4	1 381.2	27.6	198.9	(NA)	(NA)
1977 Census	274	321	227	22.3	211.5	19.1	37.9	162.0	420.4	860.4	1 272.3	29.6	197.7	91	93
INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD															
1992 Census	123	201	159	31.3	827.4	28.0	63.5	704.7	2 185.9	3 265.3	5 447.0	98.7	294.0	87	96
1991 ASM	(NA)	(NA)	(NA)	31.7	810.4	28.6	63.6	685.9	1 473.9	3 114.7	4 592.4	86.7	276.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	35.6	880.6	32.2	71.5	746.8	1 669.2	3 379.0	5 030.4	103.0	285.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	36.5	887.5	32.9	73.3	757.9	2 017.3	3 282.5	5 310.0	139.8	283.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.4	900.4	34.7	76.6	772.6	1 766.9	3 083.5	4 848.4	126.1	242.3	(NA)	(NA)
1987 Census	131	232	191	38.9	889.1	35.2	77.0	767.6	1 945.2	2 966.8	4 919.6	110.2	237.1	87	95
1986 ASM	(NA)	(NA)	(NA)	35.9	826.1	32.3	71.9	711.3	1 678.4	2 727.6	4 401.1	95.8	251.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	35.7	798.7	32.1	70.0	691.5	1 495.4	2 578.4	4 091.2	130.9	241.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	37.5	823.4	33.7	72.2	712.8	1 332.6	2 773.5	4 108.4	101.8	284.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	38.1	785.9	34.4	72.4	681.1	1 333.9	2 747.7	4 062.7	86.5	294.3	(NA)	(NA)
1982 Census	135	250	199	34.9	667.3	31.1	63.7	568.6	831.5	2 363.9	3 221.5	99.7	263.3	84	94
1981 ASM	(NA)	(NA)	(NA)	39.4	721.5	35.3	69.6	614.6	997.7	2 681.2	3 687.8	187.1	321.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	41.9	711.1	37.5	73.3	608.4	1 179.9	2 556.8	3 731.0	201.0	321.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	47.6	775.3	43.3	87.8	679.9	1 483.3	2 791.9	4 295.3	144.0	301.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	47.5	731.0	42.7	91.2	641.2	1 830.9	2 647.3	4 463.8	192.8	281.4	(NA)	(NA)
1977 Census	129	256	224	46.2	634.6	41.9	89.4	556.9	1 583.7	2 231.1	3 804.8	105.6	242.6	88	91
INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.															
1992 Census	829	895	408	24.3	515.1	18.1	35.7	315.9	1 034.2	1 483.5	2 505.3	42.5	197.5	96	97
1991 ASM	(NA)	(NA)	(NA)	18.9	381.7	14.5	28.4	242.1	717.6	1 104.7	1 825.0	25.1	166.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.8	429.4	17.0	33.2	275.9	810.1	1 219.9	2 028.4	37.8	173.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.9	449.3	18.9	36.5	296.0	849.8	1 294.4	2 134.9	82.0	167.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.2	446.1	18.0	35.5	283.3	769.1	1 259.6	2 040.7	45.7	170.1	(NA)	(NA)
1987 Census	831	893	396	24.6	434.7	18.5	35.1	272.3	770.8	1 159.9	1 928.8	46.5	159.6	97	95
1986 ASM	(NA)	(NA)	(NA)	16.7	292.3	11.9	22.4	183.8	473.3	850.3	1 327.2	33.5	129.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.5	267.1	11.2	20.5	159.8	467.7	739.9	1 209.6	37.9	124.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.7	228.2	11.0	21.8	138.7	500.9	738.0	1 233.8	25.3	119.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.4	236.6	12.3	23.7	164.5	430.0	714.4	1 134.4	37.8	131.7	(NA)	(NA)
1982 Census	649	704	190	12.2	185.5	9.3	17.8	126.0	330.5	516.8	847.9	16.1	99.3	96	95
1981 ASM	(NA)	(NA)	(NA)	13.2	184.4	10.0	19.1	113.6	363.8	502.7	873.8	23.7	84.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.9	200.6	12.2	22.3	127.0	398.0	564.6	970.9	25.5	96.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.1	210.3	14.1	26.8	137.5	452.0	676.8	1 132.1	34.1	102.7	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	16.4	188.3	13.2	24.3	127.9	436.0	638.6	1 076.1	40.7	108.9	(NA)	(NA)
1977 Census	620	656	225	13.8	147.0	11.0	20.8	101.6	330.0	484.4	807.7	19.7	87.3	94	93

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2431, MILLWORK								
1992 Census	22 988	80	1 990	10.20	58	79	46 911	49	29.57
1991 ASM	21 624	79	1 963	9.96	58	79	43 968	49	28.52
1990 ASM	21 667	80	1 943	9.83	59	80	42 559	51	27.49
1989 ASM	21 746	81	1 907	10.22	60	80	42 516	51	27.57
1988 ASM	22 202	80	1 936	10.36	59	81	42 994	52	27.60
1987 Census	20 328	80	1 964	9.27	59	78	44 190	46	27.97
1986 ASM	19 345	79	1 961	8.81	61	80	40 039	48	25.80
1985 ASM	18 598	81	1 951	8.32	61	81	36 082	52	22.84
1984 ASM	17 233	81	1 914	7.85	59	79	35 648	48	22.89
1983 ASM	16 577	81	1 947	7.69	61	81	33 412	50	21.30
1982 Census	15 764	79	1 868	7.73	59	80	30 151	52	20.51
1981 ASM	14 491	80	1 906	6.75	61	80	29 517	49	19.34
1980 ASM	13 385	79	1 904	6.28	61	80	27 032	50	17.92
1979 ASM	12 234	81	1 911	5.73	61	79	26 852	46	17.27
1978 ASM	11 607	83	1 923	5.32	62	80	24 969	46	15.72
1977 Census	10 819	83	1 915	5.00	63	82	21 835	50	13.82
	INDUSTRY 2434, WOOD KITCHEN CABINETS								
1992 Census	20 820	79	2 002	9.29	45	71	43 444	48	27.37
1991 ASM	19 947	81	1 976	8.84	45	72	39 886	50	24.95
1990 ASM	19 385	81	1 988	8.55	45	71	40 447	48	25.05
1989 ASM	19 427	81	1 982	8.61	45	72	39 570	49	24.80
1988 ASM	18 039	80	1 952	8.16	43	70	38 364	47	24.45
1987 Census	17 687	80	2 009	7.72	44	71	37 252	47	23.13
1986 ASM	16 886	79	2 028	7.26	45	72	34 511	49	21.48
1985 ASM	15 844	82	1 998	6.86	46	74	30 448	52	18.62
1984 ASM	14 402	82	2 040	6.13	47	74	28 183	51	16.78
1983 ASM	13 705	82	1 941	6.42	43	70	28 725	48	18.00
1982 Census	13 920	79	1 939	6.59	44	73	26 245	53	17.05
1981 ASM	12 776	80	1 960	5.72	41	70	25 864	49	16.59
1980 ASM	11 730	79	1 917	5.64	45	74	21 953	53	14.57
1979 ASM	11 166	82	1 910	5.08	46	76	20 487	55	13.08
1978 ASM	10 838	83	1 892	4.96	47	77	19 598	55	12.42
1977 Census	10 413	84	1 868	4.87	46	76	18 805	55	12.02
	INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD								
1992 Census	19 637	85	2 065	8.12	62	80	42 607	46	24.40
1991 ASM	18 503	86	1 986	8.03	63	80	39 503	47	23.24
1990 ASM	17 888	84	2 013	7.83	66	82	37 786	47	22.36
1989 ASM	17 721	85	2 018	7.58	66	82	36 866	48	21.60
1988 ASM	16 869	84	2 029	7.20	67	84	34 121	49	20.03
1987 Census	16 590	85	2 029	6.99	64	81	36 654	45	21.29
1986 ASM	15 806	84	2 077	6.65	60	77	37 176	43	21.28
1985 ASM	15 827	86	1 973	6.67	62	80	31 908	50	18.90
1984 ASM	14 907	85	2 000	6.36	64	81	31 202	48	18.30
1983 ASM	14 052	85	1 982	6.20	64	81	28 694	49	16.94
1982 Census	13 539	85	1 887	6.21	65	83	24 792	55	15.48
1981 ASM	12 300	86	1 913	5.77	66	84	23 176	53	14.03
1980 ASM	11 246	86	1 877	5.35	68	86	19 758	57	12.17
1979 ASM	10 698	88	1 958	4.88	70	87	19 665	54	11.47
1978 ASM	10 066	87	1 949	4.58	68	84	19 930	51	11.78
1977 Census	9 484	86	1 984	4.27	68	84	18 852	50	11.09

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD								
1992 Census	26 435	89	2 268	11.10	60	75	69 837	38	34.42
1991 ASM	25 565	90	2 224	10.78	68	85	46 495	55	23.17
1990 ASM	24 736	90	2 220	10.44	67	85	46 888	53	23.35
1989 ASM	24 315	90	2 228	10.34	62	79	55 268	44	27.52
1988 ASM	23 448	90	2 207	10.09	64	82	46 013	51	23.07
1987 Census	22 856	90	2 188	9.97	60	78	50 005	46	25.26
1986 ASM	23 011	90	2 226	9.89	62	81	46 752	49	23.34
1985 ASM	22 373	90	2 181	9.88	63	83	41 888	53	21.36
1984 ASM	21 957	90	2 142	9.87	68	88	35 536	62	18.46
1983 ASM	20 627	90	2 105	9.41	68	87	35 011	59	18.42
1982 Census	19 120	89	2 048	8.93	73	94	23 825	80	13.05
1981 ASM	18 312	90	1 972	8.83	73	92	25 322	72	14.33
1980 ASM	16 971	89	1 955	8.30	69	88	28 160	60	16.10
1979 ASM	16 288	91	2 028	7.74	65	83	31 162	52	16.89
1978 ASM	15 389	90	2 136	7.03	59	76	38 545	40	20.08
1977 Census	13 736	91	2 134	6.23	59	75	34 279	40	17.71
	INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.								
1992 Census	21 198	74	1 972	8.85	59	80	42 560	50	28.97
1991 ASM	20 196	77	1 959	8.52	61	81	37 968	53	25.27
1990 ASM	19 697	78	1 953	8.31	60	81	37 161	53	24.40
1989 ASM	18 799	79	1 931	8.11	61	82	35 556	53	23.28
1988 ASM	18 434	74	1 972	7.98	62	84	31 781	58	21.66
1987 Census	17 671	75	1 897	7.76	60	83	31 333	56	21.96
1986 ASM	17 503	71	1 882	8.21	64	86	28 341	62	21.13
1985 ASM	17 232	72	1 830	7.80	61	83	30 174	57	22.81
1984 ASM	15 524	75	1 982	6.36	60	78	34 075	46	22.98
1983 ASM	15 364	80	1 927	6.94	63	84	27 922	55	18.14
1982 Census	15 205	76	1 914	7.08	61	83	27 090	56	18.57
1981 ASM	13 970	76	1 910	5.95	58	79	27 561	51	19.05
1980 ASM	12 616	77	1 828	5.70	58	79	25 031	50	17.85
1979 ASM	11 619	78	1 901	5.13	60	78	24 972	47	16.87
1978 ASM	11 482	80	1 841	5.26	59	77	26 585	43	17.94
1977 Census	10 652	80	1 891	4.88	60	78	23 913	45	15.87

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2431, MILLWORK														
United States	**E1**	**3 155**	**799**	**86.3**	**1 983.9**	**68.8**	**136.9**	**1 395.9**	**4 048.4**	**5 627.6**	**9 639.8**	**190.7**	**89.0**	**3 932.9**
Alabama	E1	61	19	1.9	34.7	1.5	2.9	22.2	74.8	129.4	203.4	4.3	2.0	69.7
Arizona	E2	78	24	1.5	28.8	1.2	2.3	18.5	57.7	66.6	123.3	2.0	1.5	54.2
Arkansas	E2	31	9	.5	8.6	.4	.8	6.5	18.9	29.5	48.2	.7	.4	14.5
California	E1	418	99	8.3	186.9	6.6	13.4	129.0	374.5	649.2	1 018.8	12.2	10.6	402.1
Colorado	–	61	10	.8	17.6	.6	1.3	11.1	33.9	39.7	75.1	.9	1.0	38.9
Connecticut	E4	54	3	.4	12.1	.4	.8	9.0	23.6	20.7	44.2	.7	.7	23.0
Delaware	E4	8	2	.1	2.6	.1	.2	2.1	4.8	8.3	12.9	.1	(NA)	(NA)
Florida	E3	156	20	1.7	32.5	1.3	2.6	21.8	64.1	76.2	141.3	2.3	3.1	97.2
Georgia	E1	107	27	2.2	53.3	1.7	3.4	32.6	107.8	147.4	255.4	5.3	1.3	69.5
Idaho	E5	25	8	1.3	26.9	1.1	2.1	18.9	56.6	112.5	168.2	(D)	G	(D)
Illinois	E2	125	24	2.8	76.0	2.2	4.6	52.6	133.4	147.5	282.0	6.8	2.6	123.2
Indiana	–	85	28	2.4	48.6	2.0	3.9	34.6	113.0	138.3	250.4	4.0	2.3	82.7
Iowa	–	20	7	3.9	105.9	3.2	6.2	78.7	174.3	189.7	355.9	24.7	H	(D)
Kansas	E1	31	7	.6	11.8	.5	.9	7.1	31.4	32.3	63.2	(D)	F	(D)
Kentucky	–	37	9	.7	13.8	.5	1.1	9.6	32.4	35.1	68.6	1.4	.6	29.0
Louisiana	E3	28	6	.3	5.2	.3	.5	3.8	11.0	10.4	21.3	.4	.4	11.6
Maine	E1	22	4	.3	6.0	.2	.5	4.4	11.5	14.5	25.3	.5	.4	12.9
Maryland	E2	41	15	1.0	22.9	.6	1.3	12.8	39.4	68.6	108.1	1.1	1.2	46.1
Massachusetts	E2	73	14	.9	22.1	.6	1.2	13.1	46.0	59.5	104.9	1.3	1.5	69.0
Michigan	E2	106	29	2.2	51.2	1.6	3.3	32.0	100.5	143.3	242.9	3.4	2.1	86.6
Minnesota	–	51	17	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	22.5	H	(D)
Mississippi	E1	27	4	.4	6.5	.3	.6	4.5	13.6	24.2	36.7	.9	.4	15.6
Missouri	E1	53	10	.7	15.1	.6	1.2	10.2	31.5	38.0	68.5	1.1	1.1	48.2
Montana	–	11	2	.3	6.7	.2	.4	4.6	12.8	14.3	26.5	(D)	.3	13.1
Nebraska	–	18	2	.3	6.3	.2	.5	3.8	17.8	30.2	47.4	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2431, MILLWORK—Con.														
Nevada	–	14	4	.2	5.1	.1	.3	2.9	8.3	8.3	15.5	.5	(NA)	(NA)
New Hampshire	E2	25	7	.6	12.2	.4	.8	6.8	17.0	33.9	50.8	.7	.8	42.3
New Jersey	E2	60	10	.7	17.8	.5	.9	11.8	32.7	46.2	78.8	1.6	1.2	51.8
New Mexico	–	26	6	.5	9.7	.4	.8	7.2	20.9	51.5	69.9	1.0	.3	15.7
New York	E3	158	32	2.1	54.0	1.5	3.2	35.2	95.6	123.9	218.2	3.3	3.4	139.6
North Carolina	E1	105	31	2.3	42.4	1.8	3.7	29.1	87.7	150.2	237.9	7.3	2.1	83.3
Ohio	E3	109	40	4.0	84.5	3.3	6.6	61.5	162.1	211.2	365.9	7.3	H	(D)
Oklahoma	E7	21	5	.4	8.6	.3	.6	6.1	15.8	19.6	35.3	1.1	E	(D)
Oregon	–	88	42	5.7	123.7	4.7	9.2	89.8	221.6	428.3	644.9	10.6	6.6	222.4
Pennsylvania	E1	146	36	3.3	72.1	2.6	5.0	51.6	146.3	187.9	332.9	4.5	2.3	101.5
Rhode Island	E2	17	1	.1	3.2	.1	.2	1.9	5.6	4.9	10.1	(D)	.3	13.8
South Carolina	E2	38	13	1.0	19.1	.8	1.7	13.6	39.4	76.6	116.4	2.1	.6	23.0
Tennessee	E2	56	16	1.4	23.8	1.1	2.1	15.7	48.0	64.2	112.9	5.4	1.3	47.1
Texas	E3	165	47	4.9	88.5	4.0	8.5	61.2	182.3	265.2	449.2	7.2	H	(D)
Utah	–	34	4	.6	9.5	.5	.9	7.8	10.3	26.2	36.5	.5	.5	11.1
Vermont	–	15	3	.2	3.1	.1	.3	2.5	6.7	11.2	17.8	.2	(NA)	(NA)
Virginia	E2	76	20	2.7	57.6	2.0	4.3	39.1	123.6	130.7	252.3	5.3	2.4	110.8
Washington	–	118	30	3.2	76.6	2.7	5.2	56.4	151.8	226.4	381.0	5.9	2.8	121.8
West Virginia	E1	18	7	.7	14.2	.6	1.2	11.5	23.4	20.1	42.7	(D)	E	(D)
Wisconsin	–	110	42	8.9	204.8	7.4	14.4	156.4	402.6	617.5	1 016.5	19.4	7.3	313.6
Wyoming	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2434, WOOD KITCHEN CABINETS														
United States	**E1**	**4 323**	**627**	**62.8**	**1 307.5**	**49.8**	**99.7**	**926.6**	**2 728.3**	**2 214.7**	**4 933.5**	**89.1**	**67.0**	**2 495.9**
Alabama	E1	121	17	1.6	29.4	1.3	2.8	22.3	55.2	53.7	106.8	6.0	1.1	27.1
Arizona	–	73	9	1.1	22.3	.9	1.7	15.3	59.2	29.9	88.0	.5	1.7	60.7
Arkansas	E1	36	5	.6	9.4	.5	.9	6.5	24.3	15.4	39.6	.4	.5	14.0
California	E2	791	79	7.3	155.5	5.3	10.4	105.6	281.7	191.9	475.5	5.5	8.8	338.5
Colorado	E1	61	8	.6	13.8	.5	.9	8.0	25.7	19.1	44.6	.9	.5	15.3
Connecticut	E1	53	9	.7	19.5	.5	1.0	12.8	33.4	22.4	55.6	(D)	1.1	39.7
Florida	E2	337	35	3.1	53.4	2.3	4.7	36.0	95.6	77.3	171.1	2.1	4.6	122.6
Georgia	E1	175	18	1.7	31.5	1.5	2.7	24.8	93.9	50.9	143.5	1.5	1.8	69.7
Hawaii	E4	20	2	.2	3.8	.1	.2	2.8	8.6	7.2	15.7	.2	(NA)	(NA)
Idaho	E1	32	1	.2	3.8	.2	.4	2.9	7.7	4.7	12.3	(D)	C	(D)
Illinois	–	128	23	2.2	48.8	1.8	3.8	35.8	100.6	78.5	178.6	2.6	G	(D)
Indiana	–	84	32	3.3	71.2	2.8	5.7	53.8	155.9	201.2	360.2	5.2	5.2	201.5
Iowa	–	30	6	1.4	31.3	1.1	2.3	23.6	70.4	52.7	122.8	7.1	G	(D)
Kansas	E1	38	12	1.2	22.5	.9	1.9	15.6	45.1	43.6	88.4	3.1	G	(D)
Kentucky	–	43	7	.5	10.8	.4	.8	7.4	17.1	14.4	31.5	.5	.9	26.0
Louisiana	E2	35	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	C	(D)
Maryland	E1	48	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	.4	11.1
Massachusetts	–	70	11	.8	21.8	.6	1.3	14.1	52.7	44.2	97.9	.8	F	(D)
Michigan	–	67	10	.9	18.6	.7	1.3	13.6	44.3	48.3	92.6	(D)	1.0	63.9
Minnesota	E1	115	17	2.9	61.1	2.4	5.2	46.5	159.0	144.4	302.7	3.2	G	(D)
Mississippi	E2	33	7	.5	7.1	.4	.8	5.0	11.7	10.6	22.3	.4	F	(D)
Missouri	E2	93	15	1.5	30.9	1.1	2.2	19.9	50.4	38.6	88.7	1.4	1.0	35.0
Nebraska	E1	27	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	E	(D)
Nevada	–	18	4	.4	8.9	.3	.7	6.8	16.1	24.9	40.3	(D)	.4	21.7
New Hampshire	–	16	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	108	11	.9	24.0	.7	1.4	15.0	41.6	29.0	70.5	.8	2.0	67.6
New Mexico	E1	35	4	.3	4.9	.2	.5	3.3	9.3	5.1	14.4	.1	.3	6.1
New York	E4	176	17	1.8	40.0	1.4	2.9	28.5	75.1	56.4	131.2	2.0	2.4	93.6
North Carolina	–	105	15	1.7	33.2	1.4	2.9	24.8	65.6	63.0	131.0	5.0	1.6	55.7
North Dakota	–	17	4	.4	7.3	.2	.5	5.3	13.7	11.8	25.5	1.5	C	(D)
Ohio	–	135	22	2.9	72.2	2.4	5.0	45.4	175.8	145.4	322.8	11.2	G	(D)
Oklahoma	E1	27	9	.5	8.2	.4	.8	6.2	15.9	12.3	28.1	(D)	.4	10.1
Oregon	–	91	19	1.6	34.3	1.3	2.5	25.9	76.1	60.2	136.3	1.5	1.3	40.8
Pennsylvania	–	202	45	4.9	112.1	4.0	7.8	82.2	212.9	150.7	360.4	4.4	6.4	276.5
South Carolina	E2	42	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	18.4
South Dakota	–	11	4	.6	10.7	.5	.9	6.4	24.7	18.3	42.9	.8	.3	12.8
Tennessee	E1	111	14	1.3	23.9	1.0	2.1	18.3	48.0	50.7	98.4	.8	1.3	43.3
Texas	E2	226	38	4.1	72.7	3.4	6.6	50.3	145.5	129.7	273.1	5.6	H	(D)
Utah	E1	63	15	1.1	23.2	.9	1.7	15.7	50.1	36.7	84.0	1.0	1.1	35.1
Vermont	E1	12	1	.2	3.6	.2	.4	3.0	7.4	3.4	10.7	(D)	(NA)	(NA)
Virginia	–	128	13	2.2	45.9	1.8	3.5	34.7	136.5	99.4	234.7	2.1	1.7	109.8
Washington	E1	118	22	1.9	41.9	1.5	2.9	29.9	81.1	58.2	139.5	2.3	1.2	44.6
West Virginia	–	14	2	.2	3.4	.1	.2	1.6	4.5	4.5	9.3	.1	(NA)	(NA)
Wisconsin	–	106	19	1.6	33.4	1.2	2.6	23.0	59.2	43.7	102.5	2.1	1.1	35.6

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD														
United States	**–**	**318**	**213**	**20.1**	**394.7**	**17.0**	**35.1**	**285.0**	**856.4**	**1 401.9**	**2 247.5**	**47.0**	**20.5**	**751.4**
Alabama	E1	12	11	.5	9.4	.5	1.0	7.1	15.3	36.1	50.9	1.2	.7	16.7
Arkansas	–	10	8	.5	7.7	.5	.9	6.1	21.4	52.9	73.7	.8	.2	8.4
California	E1	24	13	1.3	32.0	1.1	2.3	23.8	64.3	171.3	234.4	(D)	1.6	79.6
Florida	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Georgia	–	8	7	.8	14.3	.7	1.6	10.8	34.0	90.8	123.7	(D)	.9	27.1
Indiana	–	34	27	2.4	51.5	1.9	3.9	32.6	114.2	119.8	233.7	7.6	2.6	100.8
Kentucky	–	5	4	.4	7.0	.3	.6	4.4	9.6	16.2	25.4	.3	.4	7.4
Maine	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Michigan	–	10	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	F	(D)
Mississippi	–	6	4	.2	3.8	.2	.3	1.9	9.8	14.0	24.1	.6	(NA)	(NA)
Missouri	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	19.2
New York	E3	7	3	.2	3.8	.2	.3	2.6	8.1	9.7	17.9	(D)	E	(D)
North Carolina	E1	67	45	3.9	69.2	3.5	6.9	52.1	142.8	161.2	300.6	6.3	3.6	110.7
Ohio	E6	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	11	9	1.6	40.3	1.4	3.0	31.8	89.6	223.7	313.1	2.9	1.3	71.1
Pennsylvania	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	.7	26.3
South Carolina	–	14	11	.8	9.9	.7	1.2	6.8	17.9	27.7	45.4	1.2	1.5	24.9
Tennessee	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	13.8
Texas	–	4	2	.1	1.7	.1	.3	1.3	4.5	8.7	13.2	(D)	(NA)	(NA)
Vermont	–	4	4	.6	12.1	.5	1.1	9.4	22.7	27.1	50.5	(D)	.6	19.0
Virginia	–	19	13	1.4	27.1	1.2	2.4	18.6	64.9	150.7	214.9	5.0	1.6	67.1
Washington	–	6	4	.3	6.2	.3	.5	4.0	11.8	16.1	26.3	.6	(NA)	(NA)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Wisconsin	–	21	15	2.0	34.7	1.7	3.4	25.2	72.7	69.6	141.7	5.6	1.8	53.3
INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD														
United States	**–**	**201**	**159**	**31.3**	**827.4**	**28.0**	**63.5**	**704.7**	**2 185.9**	**3 265.3**	**5 447.0**	**98.7**	**38.9**	**1 945.2**
Alabama	–	8	8	1.6	43.5	1.4	3.3	36.2	129.2	172.8	302.9	2.3	1.8	103.4
Arkansas	–	8	8	2.4	67.4	2.1	5.3	57.9	198.2	221.9	420.4	11.0	2.4	133.2
California	E5	9	4	.3	7.9	.3	.6	6.2	14.2	34.0	48.2	(D)	.4	17.1
Florida	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	8	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	56.0
Idaho	–	5	5	.9	27.3	.8	1.8	23.9	64.5	105.5	168.6	3.6	.8	41.1
Louisiana	–	13	12	3.6	90.9	3.2	7.7	78.1	269.6	328.5	597.0	11.9	3.1	150.1
Michigan	E2	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	10	8	1.8	47.0	1.6	3.9	39.9	132.8	175.8	309.8	4.0	G	(D)
Montana	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	70.4
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Oregon	–	70	59	9.3	251.5	8.3	18.1	217.3	601.0	1 235.5	1 832.6	23.1	14.7	786.1
South Carolina	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	55.8
Texas	–	10	9	2.7	69.5	2.4	6.0	60.1	195.4	239.3	433.3	2.0	3.0	136.3
Virginia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	E1	22	16	2.3	60.6	2.0	4.4	50.9	113.5	219.9	331.8	10.0	3.7	142.6
INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.														
United States	**E1**	**895**	**408**	**24.3**	**515.1**	**18.1**	**35.7**	**315.9**	**1 034.2**	**1 483.5**	**2 505.3**	**42.5**	**24.6**	**770.8**
Alabama	E1	19	9	.5	8.2	.3	.5	4.7	11.3	19.5	31.0	.2	.3	8.5
Arizona	–	25	12	.7	11.6	.6	1.0	8.0	26.1	36.2	62.1	.9	.5	14.2
Arkansas	E2	24	3	.4	6.4	.3	.5	4.1	15.1	17.3	32.6	.6	.3	7.3
California	E2	92	40	2.2	47.7	1.6	3.1	29.1	85.0	112.3	197.5	1.9	2.9	97.1
Colorado	E1	22	8	.5	10.3	.4	.6	5.7	18.3	19.9	38.0	(D)	E	(D)
Florida	E1	102	59	3.2	52.7	2.5	4.6	33.1	89.4	115.4	204.3	3.1	3.6	93.4
Georgia	–	35	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	.8	35.9
Idaho	–	14	9	.4	10.0	.3	.6	5.9	19.4	33.9	52.0	.8	.5	13.7
Illinois	–	18	10	.6	16.6	.5	1.0	10.9	31.2	29.8	61.0	1.4	E	(D)
Indiana	–	18	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	13.7
Iowa	E2	10	4	.2	4.0	.1	.3	2.1	10.2	17.6	27.7	.4	(NA)	(NA)
Kansas	–	7	3	.2	3.0	.1	.3	1.9	12.0	5.5	17.3	(D)	(NA)	(NA)
Kentucky	–	18	8	.4	6.6	.3	.5	3.8	13.6	13.9	27.4	.5	.3	7.5
Louisiana	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.3
Maine	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	11	6	.4	7.9	.3	.6	5.5	13.1	52.9	66.2	(D)	.2	3.8
Michigan	E1	24	18	1.0	25.3	.7	1.4	14.5	42.3	53.6	95.6	2.0	F	(D)
Minnesota	–	18	12	.9	24.0	.7	1.4	14.7	57.8	53.1	109.6	5.8	F	(D)
Mississippi	E3	6	2	.1	2.6	.1	.2	1.4	4.6	5.7	10.3	.1	C	(D)
Missouri	E3	25	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	9.9
Nebraska	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	7.7
Nevada	–	12	7	.4	7.8	.3	.7	5.0	15.9	16.2	32.0	.4	(NA)	(NA)
New Jersey	–	9	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	26.1
New York	E1	19	9	.4	9.3	.3	.7	5.7	24.4	23.8	48.2	.4	E	(D)
North Carolina	E1	34	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	40.4

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.—Con.														
North Dakota	–	7	1	.1	2.4	.1	.2	1.5	5.1	7.0	12.1	(D)	(NA)	(NA)
Ohio	–	30	17	1.0	21.5	.8	1.6	12.5	52.6	68.2	120.6	(D)	F	(D)
Oklahoma	E4	13	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	40	19	1.5	44.2	1.3	2.6	32.6	107.8	244.5	344.0	3.7	1.7	66.9
Pennsylvania	E1	24	13	.6	12.8	.4	.8	7.8	26.0	33.1	58.8	(D)	.4	18.1
South Carolina	–	11	6	.3	5.5	.2	.4	2.9	9.3	11.8	21.0	.2	.3	6.3
South Dakota	–	8	2	.1	3.0	.1	.2	1.7	4.7	7.4	12.1	(D)	(NA)	(NA)
Tennessee	E1	18	5	.3	6.3	.2	.5	3.3	10.2	14.7	24.7	(D)	.3	9.3
Texas	–	29	8	.6	11.9	.4	.9	6.4	22.7	55.7	78.4	(D)	F	(D)
Utah	–	12	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	C	(D)
Virginia	E1	22	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	42	21	1.0	21.3	.7	1.4	13.3	44.6	45.8	90.3	2.0	.7	22.7
Wisconsin	–	19	9	.6	13.6	.4	.9	7.7	28.4	30.9	59.4	1.1	.5	17.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Millwork (SIC 2431)	Wood kitchen cabinets (SIC 2434)	Hardwood veneer and plywood (SIC 2435)	Softwood veneer and plywood (SIC 2436)	Structural wood members, n.e.c. (SIC 2439)
Companies	number	3 009	4 273	283	123	829
All establishments	number	3 155	4 323	318	201	895
With 1 to 19 employees	number	2 356	3 696	105	42	487
With 20 to 99 employees	number	641	517	152	56	376
With 100 employees or more	number	158	110	61	103	32
Employment and labor costs:						
Employees	1,000	86.3	62.8	20.1	31.3	24.3
Compensation, total	mil dol	2 430.1	1 580.9	490.9	1 065.2	626.2
Annual payroll	mil dol	1 983.9	1 307.5	394.7	827.4	515.1
Fringe benefits	mil dol	446.2	273.4	96.2	237.7	111.1
Social Security and other legally required payments	mil dol	233.2	146.0	48.2	103.1	65.5
Employer voluntary payments	mil dol	213.0	127.4	48.0	134.6	45.6
Production workers:						
Average for year	1,000	68.8	49.8	17.0	28.0	18.1
March	1,000	67.1	48.5	16.7	27.8	16.8
May	1,000	69.5	50.1	17.1	28.1	18.2
August	1,000	70.7	50.8	17.1	28.1	19.4
November	1,000	68.1	50.0	17.0	28.1	18.0
Hours	millions	136.9	99.7	35.1	63.5	35.7
Wages	mil dol	1 395.9	926.6	285.0	704.7	315.9
Cost of materials[1]	mil dol	5 627.6	2 214.7	1 401.9	3 265.3	1 483.5
Materials, parts, containers, etc., consumed[2]	mil dol	5 164.2	2 049.6	1 228.5	3 056.7	1 342.4
Resales	mil dol	326.4	79.5	96.2	25.5	100.1
Fuels	mil dol	21.0	14.5	10.4	44.8	8.5
Purchased electricity	mil dol	78.0	42.3	30.9	118.9	17.9
Contract work	mil dol	38.0	28.8	35.9	19.3	14.6
Quantity of electric energy used for heat and power:						
Purchased	mil kWh	1 347.7	651.8	558.3	2 669.0	313.5
Generated less sold	mil kWh	–	(D)	(D)	(D)	–
Total value of shipments	mil dol	9 639.8	4 933.5	2 247.5	5 447.0	2 505.3
Value added	mil dol	4 048.4	2 728.3	856.4	2 185.9	1 034.2
Inventories by stage of fabrication:						
Beginning of 1992	mil dol	1 237.5	462.6	302.3	270.5	172.3
Finished goods	mil dol	283.8	100.1	129.5	82.6	51.2
Work in process	mil dol	337.8	118.0	42.1	42.5	18.3
Materials and supplies	mil dol	616.0	244.4	130.7	145.3	102.7
End of 1992	mil dol	1 284.7	488.8	331.1	294.0	197.5
Finished goods	mil dol	310.4	96.2	133.9	83.6	60.8
Work in process	mil dol	347.3	131.4	48.5	45.6	21.2
Materials and supplies	mil dol	627.0	261.1	148.8	164.8	115.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Millwork (SIC 2431)	Wood kitchen cabinets (SIC 2434)	Hardwood veneer and plywood (SIC 2435)	Softwood veneer and plywood (SIC 2436)	Structural wood members, n.e.c. (SIC 2439)
Gross book value of depreciable assets:					
Total:					
Beginning of year	1 954.9	1 128.2	583.6	2 195.4	724.3
New capital expenditures[1]	190.7	89.1	47.0	98.7	42.5
Used capital expenditures	24.2	13.0	5.0	58.7	6.2
Retirements	38.8	26.1	11.0	43.7	31.8
End of year	2 131.1	1 204.2	624.6	2 309.2	741.2
Buildings and other structures:					
Beginning of year	588.4	342.1	131.5	263.3	161.9
New capital expenditures	39.4	16.6	11.4	6.6	5.6
Used capital expenditures	6.7	3.3	.5	(D)	.5
Retirements	3.8	3.0	1.4	(D)	5.9
End of year	630.7	359.0	142.0	269.5	162.2
Machinery and equipment:					
Beginning of year	1 366.5	786.1	452.1	1 932.1	562.4
New capital expenditures[1]	151.3	72.5	35.6	92.1	36.9
Used capital expenditures	17.6	9.7	4.6	(D)	5.7
Retirements	35.0	23.1	9.6	(D)	25.9
End of year	1 500.4	845.2	482.6	2 039.7	579.0
Depreciation charges during 1992:					
Total	146.3	77.7	45.1	112.6	65.8
Buildings and other structures	25.1	15.4	10.5	9.4	11.7
Machinery and equipment	121.2	62.4	34.5	103.2	54.1
Rental payments:					
Total	92.9	73.8	16.2	7.5	24.6
Buildings and other structures	54.1	40.8	9.7	4.3	14.9
Machinery and equipment	38.9	33.0	6.5	3.3	9.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Millwork (SIC 2431)		Wood kitchen cabinets (SIC 2434)		Hardwood veneer and plywood (SIC 2435)		Softwood veneer and plywood (SIC 2436)		Structural wood members, n.e.c. (SIC 2439)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	6.6	(X)	4.1	(X)	2.4	(X)	4.6	(X)	1.9	(X)
Response coverage ratio (percent)[2]	69.1	(X)	62.1	(X)	81.7	(X)	85.5	(X)	72.2	(X)
Machinery	36.8	(X)	18.5	(X)	20.3	(X)	67.0	(X)	15.1	(X)
Response coverage ratio (percent)[2]	72.5	(X)	69.1	(X)	84.6	(X)	93.2	(X)	75.6	(X)
Other purchased services:										
Communications	15.0	(X)	9.5	(X)	2.4	(X)	3.0	(X)	5.9	(X)
Response coverage ratio (percent)[2]	68.0	(X)	61.7	(X)	82.3	(X)	81.3	(X)	73.2	(X)
Legal	14.7	(X)	4.4	(X)	1.6	(X)	2.2	(X)	1.8	(X)
Response coverage ratio (percent)[2]	68.4	(X)	67.7	(X)	79.3	(X)	93.2	(X)	72.5	(X)
Accounting and bookkeeping	14.2	(X)	5.9	(X)	1.7	(X)	3.8	(X)	2.2	(X)
Response coverage ratio (percent)[2]	71.0	(X)	68.6	(X)	84.6	(X)	90.9	(X)	73.8	(X)
Advertising	70.5	(X)	24.3	(X)	1.4	(X)	1.5	(X)	2.9	(X)
Response coverage ratio (percent)[2]	72.5	(X)	68.1	(X)	84.6	(X)	90.9	(X)	74.0	(X)
Software and other data processing	14.8	(X)	2.2	(X)	.7	(X)	.6	(X)	2.0	(X)
Response coverage ratio (percent)[2]	66.6	(X)	63.6	(X)	78.2	(X)	93.2	(X)	71.8	(X)
Refuse removal, including hazardous waste	8.9	(X)	7.4	(X)	1.8	(X)	1.6	(X)	1.7	(X)
Response coverage ratio (percent)[2]	68.8	(X)	66.3	(X)	82.5	(X)	90.9	(X)	75.5	(X)
New machinery and equipment expenditures	151.3	(X)	72.5	(X)	35.6	(X)	92.1	(X)	36.9	(X)
Automobiles, trucks, etc., for highway use	11.3	9	12.3	21	2.5	26	1.7	11	7.7	12
Computers and peripheral data processing equipment	17.8	5	6.7	11	1.5	34	1.2	3	2.4	10
All other	122.1	2	53.5	6	31.6	4	89.2	1	26.8	4
Adjustment ratio[3]	1.9	(X)	1.9	(X)	1.4	(X)	1.1	(X)	1.8	(X)
Cost of materials, components, parts, etc., used	5 164.2	(X)	2 049.6	(X)	1 228.5	(X)	3 056.7	(X)	1 342.4	(X)
Materials purchased or transferred from foreign sources[4]	172.5	21	(S)	(X)	102.8	10	10.5	20	(S)	(X)
Materials purchased or transferred from domestic sources	4 991.7	1	(S)	(X)	1 125.7	1	3 046.2	1	(S)	(X)
Adjustment ratio[3]	1.9	(X)	(S)	(X)	1.8	(X)	1.2	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2431, MILLWORK												
Total	**E1**	**3 155**	**86.3**	**1 983.9**	**68.8**	**136.9**	**1 395.9**	**4 048.4**	**5 627.6**	**9 639.8**	**190.7**	**1 284.7**
Establishments with an average of—												
1 to 4 employees	E8	1 202	2.2	43.0	1.8	3.5	31.2	84.6	113.9	198.0	4.1	28.0
5 to 9 employees	E4	618	4.1	77.7	3.2	6.1	54.9	151.4	195.4	347.1	5.8	42.4
10 to 19 employees	E1	536	7.4	155.3	5.6	10.9	105.3	302.2	354.3	653.7	11.1	82.2
20 to 49 employees	E1	427	13.0	284.6	10.0	19.8	182.1	547.0	712.8	1 257.0	21.4	163.7
50 to 99 employees	E1	214	14.6	318.4	11.6	23.2	216.4	652.8	975.0	1 620.6	42.4	249.3
100 to 249 employees	E2	111	17.0	357.0	13.7	27.9	247.2	741.1	1 156.8	1 886.7	29.2	297.0
250 to 499 employees	E1	34	12.2	270.5	10.4	20.4	204.3	594.1	900.3	1 479.1	33.6	213.6
500 to 999 employees	–	9	7.2	177.5	5.7	11.6	131.6	297.6	505.0	801.2	14.6	89.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	3	8.5	299.9	6.9	13.4	223.0	677.6	714.2	1 396.4	28.6	118.8
Covered by administrative records[2]	E9	1 299	3.6	54.3	3.0	5.5	38.9	100.4	149.4	249.8	5.7	32.7
INDUSTRY 2434, WOOD KITCHEN CABINETS												
Total	**E1**	**4 323**	**62.8**	**1 307.5**	**49.8**	**99.7**	**926.6**	**2 728.3**	**2 214.7**	**4 933.5**	**89.1**	**488.8**
Establishments with an average of—												
1 to 4 employees	E7	2 021	3.8	66.7	3.1	5.9	50.3	147.5	119.2	266.4	4.2	25.2
5 to 9 employees	E2	1 026	6.7	123.8	5.3	10.5	94.5	233.6	168.5	400.4	6.2	38.0
10 to 19 employees	E1	649	8.6	171.0	6.7	13.4	123.0	306.1	215.6	521.4	7.7	42.6
20 to 49 employees	E1	392	11.4	240.7	8.7	17.3	158.1	426.4	305.5	731.4	11.9	65.8
50 to 99 employees	E1	125	8.4	178.9	6.5	12.8	121.7	335.0	267.5	598.7	9.2	66.1
100 to 249 employees	–	83	12.4	268.5	10.1	20.6	190.3	663.8	595.5	1 255.1	16.5	118.3
250 to 499 employees	–	20	6.7	138.1	5.4	10.8	104.6	368.3	338.0	710.3	16.9	67.5
500 to 999 employees	–	7	4.8	119.8	4.0	8.2	84.0	247.6	204.9	449.9	16.5	65.2
Covered by administrative records[2]	E9	1 963	4.7	66.1	3.8	7.2	48.5	144.1	117.4	261.4	4.5	24.5
INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD												
Total	**–**	**318**	**20.1**	**394.7**	**17.0**	**35.1**	**285.0**	**856.4**	**1 401.9**	**2 247.5**	**47.0**	**331.1**
Establishments with an average of—												
1 to 4 employees	E9	39	.1	1.5	.1	.1	1.1	3.4	6.0	9.4	.2	1.3
5 to 9 employees	E8	29	.2	3.0	.2	.3	2.2	5.4	9.7	15.0	.5	2.1
10 to 19 employees	E3	37	.5	10.3	.4	.9	6.9	23.9	34.2	57.9	1.3	7.0
20 to 49 employees	E2	87	3.0	56.2	2.4	5.0	38.3	127.3	232.3	362.7	5.5	42.5
50 to 99 employees	E1	65	4.7	86.1	3.9	8.0	60.4	161.6	291.6	453.4	14.1	75.7
100 to 249 employees	–	47	6.7	129.6	5.7	11.8	93.1	269.2	382.2	647.6	15.2	88.7
250 to 499 employees	–	13	4.9	107.9	4.3	9.0	83.0	265.5	445.9	701.5	10.2	113.8
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	59	.3	3.8	.2	.4	2.8	7.4	13.7	21.1	.5	3.1
INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD												
Total	**–**	**201**	**31.3**	**827.4**	**28.0**	**63.5**	**704.7**	**2 185.9**	**3 265.3**	**5 447.0**	**98.7**	**294.0**
Establishments with an average of—												
1 to 4 employees	E9	14	(Z)	.7	(Z)	.1	.6	1.3	2.8	4.1	.1	.2
5 to 9 employees	E1	11	.1	1.7	.1	.1	1.3	3.7	7.7	11.4	.3	.7
10 to 19 employees	E5	17	.2	5.4	.2	.4	4.0	10.0	17.2	27.2	.3	1.7
20 to 49 employees	E1	25	.8	17.1	.7	1.4	13.0	40.7	83.5	123.6	9.6	12.4
50 to 99 employees	–	31	2.1	56.2	1.8	4.0	45.2	145.3	347.5	490.8	5.5	38.5
100 to 249 employees	–	50	8.5	227.0	7.6	16.9	197.0	551.4	892.9	1 447.8	35.4	75.9
250 to 499 employees	–	48	16.1	421.8	14.5	33.4	357.7	1 163.3	1 586.2	2 747.8	45.1	130.3
500 to 999 employees	–	5	3.3	97.6	3.0	7.0	85.9	270.3	327.5	594.4	2.5	34.3
Covered by administrative records[2]	E9	17	.1	1.5	.1	.2	1.2	2.0	4.7	6.7	.1	.4
INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.												
Total	**E1**	**895**	**24.3**	**515.1**	**18.1**	**35.7**	**315.9**	**1 034.2**	**1 483.5**	**2 505.3**	**42.5**	**197.5**
Establishments with an average of—												
1 to 4 employees	E6	155	.3	6.3	.2	.5	4.2	16.7	20.9	37.5	.6	3.0
5 to 9 employees	E3	150	1.0	17.9	.8	1.5	11.8	39.2	51.0	90.3	1.6	7.2
10 to 19 employees	E1	182	2.5	47.3	1.9	3.7	29.1	92.0	124.1	214.8	2.6	15.8
20 to 49 employees	E1	256	8.2	166.4	6.0	11.9	100.9	321.5	418.9	739.9	14.0	59.1
50 to 99 employees	–	120	8.1	173.1	6.1	11.7	105.1	342.7	450.0	789.7	15.0	61.1
100 to 249 employees	–	32	4.2	104.0	3.1	6.3	64.9	222.1	418.8	633.1	8.7	51.3
Covered by administrative records[2]	E9	172	.7	8.5	.5	.8	5.2	16.7	24.0	40.7	.9	3.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2431	**Millwork:**										
	All establishments in industry	3 155	86.3	1 983.9	68.8	136.9	1 395.9	4 048.4	5 627.6	9 639.8	190.7
	Establishments with this product class primary:										
24311	Wood window units	140	24.3	663.1	19.5	38.8	477.5	1 405.6	1 766.8	3 159.0	64.0
24312	Wood sash, excluding window units	16	.8	18.1	.7	1.3	12.9	37.0	64.1	99.1	.9
24313	Wood window and door frames, and door frames shipped in door units	49	2.9	69.4	2.4	4.9	51.8	143.9	299.8	440.4	8.7
24314	Wood doors, interior and exterior, including those with glazed sections	234	12.5	278.7	9.5	19.4	186.2	607.0	967.1	1 572.4	31.8
24315	Other wood doors, including garage, screen, storm, etc.	117	5.9	114.8	4.9	9.7	81.2	269.0	285.8	557.0	15.2
24316	Wood moldings except prefinished moldings made from purchased moldings	202	9.1	187.6	7.6	15.2	136.5	388.4	768.9	1 148.1	16.2
24317	Prefinished wood moldings made from purchased moldings	19	.8	16.2	.6	1.3	11.4	34.8	51.4	84.7	2.1
24318	Other millwork products, including stairwork and exterior millwork	421	12.6	282.0	9.9	19.5	190.4	515.7	536.3	1 046.3	19.5
2434	**Wood kitchen cabinets:**										
	All establishments in industry	4 323	62.8	1 307.5	49.8	99.7	926.6	2 728.3	2 214.7	4 933.5	89.1
	Establishments with this product class primary:										
24341	Wood kitchen cabinets and cabinetwork, stock line	324	21.3	456.6	17.5	35.2	328.3	1 154.3	1 061.9	2 208.8	45.4
24342	Wood kitchen cabinets and cabinetwork, custom	1 304	23.7	515.1	18.5	37.6	362.4	897.2	619.4	1 512.4	23.4
24343	Vanities and other cabinetwork	144	3.3	69.2	2.2	4.2	43.4	123.0	92.3	219.5	4.4
2435	**Hardwood veneer and plywood:**										
	All establishments in industry	318	20.1	394.7	17.0	35.1	285.0	856.4	1 401.9	2 247.5	47.0
	Establishments with this product class primary:										
24351	Hardwood plywood	52	5.8	120.7	5.0	10.2	90.8	243.3	512.2	750.3	10.4
24352	Prefinished hardwood plywood made from purchased plywood	13	.8	19.5	.5	1.1	9.8	53.9	199.2	254.2	.6
24353	Hardwood plywood type products [1]	56	4.0	79.5	3.3	7.1	57.9	188.5	295.6	482.5	11.7
24354	Hardwood veneer, not reinforced or backed [1]	102	7.9	147.5	6.8	14.1	106.5	317.4	340.3	655.5	21.3
2436	**Softwood veneer and plywood:**										
	All establishments in industry	201	31.3	827.4	28.0	63.5	704.7	2 185.9	3 265.3	5 447.0	98.7
	Establishments with this product class primary:										
24363	Softwood plywood type products [1]	11	.9	19.4	.8	1.7	15.5	36.5	84.1	121.7	1.3
24364	Softwood veneer, not reinforced or backed [1]	48	2.9	73.4	2.4	5.2	59.3	189.1	461.0	648.2	16.3
24365	Softwood plywood, rough, including touch sanded, interior and exterior	77	19.8	533.6	17.9	41.0	456.7	1 519.1	1 952.0	3 472.1	56.6
24366	Softwood plywood, sanded	18	4.6	121.5	4.2	9.4	105.0	261.0	471.0	730.1	12.1
24367	Softwood plywood specialties	14	2.6	70.1	2.4	5.3	60.6	160.9	256.1	414.7	11.4
2439	**Structural wood members, n.e.c.:**										
	All establishments in industry	895	24.3	515.1	18.1	35.7	315.9	1 034.2	1 483.5	2 505.3	42.5

Note: For qualifications of data, see footnotes on table 1a.

[1]For 1992, veneers which are backed with paper, cloth, or other flexible materials are included in veneer, not reinforced or backed; two-ply veneers are included in plywood type products.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2431, MILLWORK			
Total value of shipments	9 639.8	9 326.9	4 248.3
Primary products value of shipments	8 765.6	8 460.4	3 762.4
Secondary products value of shipments	388.0	399.7	265.3
Total miscellaneous receipts	486.2	466.8	220.6
Value of resales	391.6	389.9	188.0
Contract receipts	33.5	26.3	15.6
Other miscellaneous receipts	61.1	50.6	17.0
Sales of scrap and refuse	18.4	16.1	6.3
Other miscellaneous receipts	36.7	34.5	9.5
Other miscellaneous receipts, n.s.k.	6.0	(NA)	1.2
Primary products specialization ratio	96	95	93
Value of primary products shipments made in all industries	9 183.6	8 800.9	3 988.4
Value of primary products shipments made in this industry	8 765.6	8 460.4	3 762.4
Value of primary products shipments made in other industries	417.9	340.5	226.0
Coverage ratio	95	96	94
INDUSTRY 2434, WOOD KITCHEN CABINETS			
Total value of shipments	4 933.5	4 378.2	2 060.7
Primary products value of shipments	4 637.3	4 130.8	1 943.2
Secondary products value of shipments	179.9	151.7	76.8
Total miscellaneous receipts	116.4	95.7	40.7
Value of resales	97.3	70.4	24.8
Contract receipts	7.7	6.3	5.2
Other miscellaneous receipts	11.4	19.1	10.7
Sales of scrap and refuse	.1	(D)	.2
Other miscellaneous receipts	6.5	(D)	9.3
Other miscellaneous receipts, n.s.k.	4.8	(NA)	1.2
Primary products specialization ratio	96	96	96
Value of primary products shipments made in all industries	4 763.7	4 216.5	2 001.3
Value of primary products shipments made in this industry	4 637.3	4 130.8	1 943.2
Value of primary products shipments made in other industries	126.5	85.8	58.1
Coverage ratio	97	98	97
INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD			
Total value of shipments	2 247.5	2 060.5	1 304.4
Primary products value of shipments	1 902.7	1 756.6	1 162.2
Secondary products value of shipments	196.2	150.1	93.9
Total miscellaneous receipts	148.6	153.8	48.3
Value of resales	105.0	126.1	33.0
Contract receipts	33.8	11.5	13.1
Other miscellaneous receipts	9.8	16.3	2.2
Bark	(D)	(D)	(D)
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	6.9	(D)	1.1
Other miscellaneous receipts	2.0	(D)	1.0
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	91	92	93
Value of primary products shipments made in all industries	2 027.6	1 834.5	1 237.0
Value of primary products shipments made in this industry	1 902.7	1 756.6	1 162.2
Value of primary products shipments made in other industries	124.9	77.9	74.8
Coverage ratio	94	96	94
INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD			
Total value of shipments	5 447.0	4 919.6	3 221.5
Primary products value of shipments	4 579.8	4 186.1	2 622.3
Secondary products value of shipments	672.6	603.9	495.2
Total miscellaneous receipts	194.6	129.6	104.0
Value of resales	35.7	23.0	13.1
Contract receipts	17.9	8.5	(D)
Other miscellaneous receipts	141.0	98.1	(D)
Bark	8.1	(NA)	3.5
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	130.2	90.8	(D)
Other miscellaneous receipts	1.7	7.3	5.7
Other miscellaneous receipts, n.s.k.	.9	(NA)	3.2
Primary products specialization ratio	87	87	84
Value of primary products shipments made in all industries	4 752.8	4 383.0	2 780.0
Value of primary products shipments made in this industry	4 579.8	4 186.1	2 622.3
Value of primary products shipments made in other industries	173.0	196.9	157.8
Coverage ratio	96	95	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.			
Total value of shipments	2 505.3	1 928.8	847.9
Primary products value of shipments	2 263.4	1 794.4	757.3
Secondary products value of shipments	101.2	49.8	34.8
Total miscellaneous receipts	140.7	84.6	55.8
Value of resales	124.7	79.0	48.3
Contract receipts	6.4	3.6	.5
Other miscellaneous receipts	9.5	2.0	7.0
Sales of scrap and refuse	1.9	.8	.3
Other miscellaneous receipts	7.2	1.2	5.5
Other miscellaneous receipts, n.s.k.	.4	(NA)	1.2
Primary products specialization ratio	96	97	96
Value of primary products shipments made in all industries	2 334.6	1 887.6	800.2
Value of primary products shipments made in this industry	2 263.4	1 794.4	757.3
Value of primary products shipments made in other industries	71.2	93.2	42.9
Coverage ratio	97	95	95

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2431– —	**MILLWORK**						
	Total	**(NA)**	**(X)**	**9 183.6**	**(NA)**	**(X)**	**8 800.9**
24311	Wood window units	(NA)	(X)	2 377.7	(NA)	(X)	1 995.1
	Double hung:						
24311 31	Cladded thousands	62	*5 200.8	699.1	41	*4 799.9	529.9
24311 32	Other thousands	64	**2 533.7	223.3	54	*2 524.3	224.1
24311 34	Awning thousands	22	(S)	29.0	25	(S)	27.0
	Casement:						
24311 35	Cladded thousands	48	*5 217.3	760.7	38	*5 854.1	720.4
24311 36	Other thousands	64	(S)	188.8	54	*1 886.5	217.6
24311 41	Horizontal sliding thousands	29	*667.9	90.5	29	(S)	46.9
24311 45	All other, including single hung thousands	57	*2 021.1	340.4	50	(S)	197.5
24311 00	Wood window units, n.s.k.	(NA)	(X)	46.1	(NA)	(X)	31.7
24312	Wood sash, excluding window units	(NA)	(X)	131.7	(NA)	(X)	r166.7
24312 09	Knockdown (kd) and open	19	(X)	71.4	15	(X)	r50.4
24312 15	Glazed thousands	21	*1 008.3	57.2	20	*2 590.5	92.6
24312 00	Wood sash, excluding window units, n.s.k.	(NA)	(X)	3.1	(NA)	(X)	23.7
24313	Wood window and door frames, and door frames shipped in door units	(NA)	(X)	448.2	(NA)	(X)	358.4
24313 13	Window frames, wood thousands	49	(S)	141.3	46	3 401.3	133.5
24313 15	Door frames, wood thousands	103	(S)	295.8	81	(S)	224.5
24313 00	Wood window and door frames, and door frames shipped in door units, n.s.k.	(NA)	(X)	11.1	(NA)	(X)	.4
24314	Wood doors, interior and exterior, including those with glazed sections	(NA)	(X)	1 505.4	(NA)	(X)	1 509.6
	Panel type:						
24314 11	Douglas fir thousands	66	(S)	165.5	63	*2 355.4	204.4
24314 13	Western pines thousands	61	(S)	233.7	60	*3 733.5	319.6
24314 19	Other species thousands	112	**703.4	111.5	50	(S)	39.5
	Flush type, hollow core:						
24314 31	Softwood faces thousands	14	(S)	56.3	10	(S)	49.8
24314 33	Hardwood faces, including lauan, birch, oak, etc. thousands	91	(S)	251.9	90	*15 074.2	265.5
24314 35	Hardboard faces thousands	42	**9 070.6	168.1	51	(S)	97.8
24314 37	Other faces thousands	13	(S)	23.7	19	*6 004.5	103.7
	Flush type, solid core:						
	Hardwood faces, including lauan, birch, oak, etc.:						
24314 41	Solid wood core thousands	55	(S)	105.5	58	(S)	80.7
24314 45	Solid composition core thousands	56	(S)	206.3	66	*3 541.1	183.7
24314 46	Hardboard faces thousands	15	(S)	16.1	17	*1 142.0	38.0
24314 48	Softwood and other faces thousands	16	**1 094.9	55.2	15	*638.7	33.7
24314 00	Wood doors, interior and exterior, including those with glazed sections, n.s.k.	(NA)	(X)	111.5	(NA)	(X)	93.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2431– —	**MILLWORK**—Con.						
24315	Other wood doors, including garage, screen, storm, etc.	(NA)	(X)	970.9	(NA)	(X)	995.3
24315 61	Garage doors, wood ---- 1,000 openings	34	(S)	119.6	33	(S)	285.9
24315 75	Screen doors and combination screen and storm doors ---- thousands	14	(S)	20.8	16	(S)	31.3
24315 81	Louver doors ---- thousands	28	(S)	39.0	35	(NA)	53.7
24315 84	Bifold doors	49	(X)	104.5	58	(X)	127.0
	Patio doors:						
24315 85	Sliding	41	(X)	237.7	43	(X)	r271.5
24315 87	Swinging	31	(X)	198.6	(NA)	(X)	(3)
24315 97	Other wood doors, including storm, cabinet, toilet, grain, etc.	89	(X)	216.1	66	(X)	3 r209.5
24315 00	Other wood doors, including garage, screen, storm, etc., n.s.k.	(NA)	(X)	34.6	(NA)	(X)	16.4
24316	Wood moldings except prefinished moldings made from purchased moldings	(NA)	(X)	1 126.7	(NA)	(X)	1 085.5
	Softwood (includes softwood covered with metal, plastics, etc.):						
24316 21	Pine	89	(X)	661.6	93	(X)	799.9
24316 31	Other softwood species	60	(X)	113.5	42	(X)	88.2
24316 51	Hardwood (including lauan) and hardwood covered with metal, plastics, etc.	174	(X)	279.4	115	(X)	141.2
24316 00	Wood moldings except prefinished moldings made from purchased moldings, n.s.k.	(NA)	(X)	72.2	(NA)	(X)	56.3
24317	Prefinished wood moldings made from purchased moldings	(NA)	(X)	151.2	(NA)	(X)	127.6
24317 25	Softwood, including softwood covered with metal, plastics, etc.	29	(X)	102.3	(NA)	(X)	90.4
24317 71	Hardwood (including lauan) and hardwood covered with metal, plastics, etc.	29	(X)	15.3	17	(X)	26.0
24317 00	Prefinished wood moldings made from purchased moldings, n.s.k.	(NA)	(X)	33.7	(NA)	(X)	11.2
24318	Other millwork products, including stairwork and exterior millwork	(NA)	(X)	979.0	(NA)	(X)	882.4
	Stairwork, including treads, risers, balusters, brackets, crooks, newels, etc.:						
24318 21	Softwood	75	(X)	114.7	51	(X)	73.5
24318 25	Hardwood	133	(X)	172.0	83	(X)	173.7
24318 33	Exterior wood blinds and shutters, with or without their hardware (excluding fibrous vegetable materials)	35	(X)	24.4	23	(X)	35.1
24318 35	Exterior millwork, including porch columns, porch rails, newels, trellises, and entrances	39	(X)	62.8	40	(X)	58.1
	Nonstandard or specialty wood moldings, carvings, and ornaments:						
24318 73	Softwood	29	(X)	50.5	22	(X)	20.8
24318 77	Hardwood	78	(X)	75.3	36	(X)	35.8
24318 98	Other millwork products, n.e.c., including interior millwork	272	(X)	433.8	246	(X)	442.1
24318 00	Other millwork products, including stairwork and exterior millwork, n.s.k.	(NA)	(X)	45.4	(NA)	(X)	43.1
24310	Millwork, n.s.k.	(NA)	(X)	1 492.7	(NA)	(X)	1 680.3
24310 00	Millwork, n.s.k.[4]	(NA)	(X)	1 242.5	(NA)	(X)	1 410.6
24310 02	Millwork, n.s.k.[5]	(NA)	(X)	250.2	(NA)	(X)	269.7
2434– —	**WOOD KITCHEN CABINETS**						
	Total	**(NA)**	**(X)**	**4 763.7**	**(NA)**	**(X)**	**4 216.5**
24341	Wood kitchen cabinets and cabinetwork, stock line	(NA)	(X)	1 925.3	(NA)	(X)	1 617.4
24341 11	Wood ---- 1,000 cabinets	280	*21 373.9	1 672.6	228	*19 814.8	1 278.1
24341 13	Plastics laminated	100	(X)	176.5	103	(X)	266.2
24341 00	Wood kitchen cabinets and cabinetwork, stock line, n.s.k.	(NA)	(X)	76.2	(NA)	(X)	73.1
24342	Wood kitchen cabinets and cabinetwork, custom	(NA)	(X)	1 361.9	(NA)	(X)	1 102.2
24342 12	Wood ---- 1,000 cabinets	1 051	(S)	938.1	653	(S)	776.0
24342 14	Plastics laminated	448	(X)	311.0	344	(X)	254.3
24342 00	Wood kitchen cabinets and cabinetwork, custom, n.s.k.	(NA)	(X)	112.8	(NA)	(X)	72.0
24343	Vanities and other cabinetwork	(NA)	(X)	505.4	(NA)	(X)	468.6
24343 16	Stock line ---- 1,000 units	121	**3 048.1	269.9	121	6 365.0	250.2
24343 18	Custom	422	(X)	207.2	283	(X)	178.2
24343 00	Vanities and other cabinetwork, n.s.k.	(NA)	(X)	28.4	(NA)	(X)	40.2
24340	Wood kitchen cabinets, n.s.k.	(NA)	(X)	971.1	(NA)	(X)	1 028.3
24340 00	Wood kitchen cabinets, n.s.k.[4]	(NA)	(X)	708.8	(NA)	(X)	763.2
24340 02	Wood kitchen cabinets, n.s.k.[5]	(NA)	(X)	262.4	(NA)	(X)	265.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2435– —	**HARDWOOD VENEER AND PLYWOOD**								
	Total	**(NA)**	**(X)**	**(X)**	**2 027.6**	**(NA)**	**(X)**	**(X)**	**1 834.5**
24351	Hardwood plywood	(NA)	(X)	(X)	677.0	(NA)	(X)	(X)	758.6
24351 01	Veneer core mil sq ft sm	47	(X)	822.7	454.3				
24351 05	Particleboard core mil sq ft sm	26	(X)	*101.7	87.2				
24351 07	MDF core mil sq ft sm	22	(X)	**87.5	71.0	69	(X)	(X)	758.6
24351 47	Other core, including lumber, hardboard, oriented strand board or waferboard mil sq ft sm	15	(X)	*13.9	30.0				
24351 00	Hardwood plywood, n.s.k.	(NA)	(X)	(X)	34.5				
24352	Prefinished hardwood plywood made from purchased plywood	(NA)	(X)	(X)	189.5	(NA)	(X)	(X)	313.2
24352 00	Prefinished hardwood plywood made from purchased plywood mil sq ft sm	13	(X)	773.4	189.5	16	(X)	(S)	313.2
24353	Hardwood plywood type products	(NA)	(X)	(X)	477.3	(NA)	(X)	(X)	235.8
24353 11	Hardwood veneer, reinforced or backed[6] mil sq ft sm	(NA)	(X)	–	–	7	(X)	835.0	56.7
24353 31	Hardwood veneered panels[6] mil sq ft sm	32	(X)	510.9	297.0	9	(X)	**71.3	26.5
24353 98	Other hardwood plywood type products, including cellular panels and curved and molded plywood mil sq ft sm	33	(X)	(S)	136.4	39	(X)	**614.9	148.1
24353 00	Hardwood plywood type products, n.s.k.	(NA)	(X)	(X)	43.9	(NA)	(X)	(X)	4.5
24354	Hardwood veneer, not reinforced or backed[6]	(NA)	(X)	(X)	589.2	(NA)	(X)	(X)	421.4
24354 15	Birch mil sq ft sm	12	**513.4	**416.1	30.0	11	466.9	456.1	30.5
24354 17	Maple mil sq ft sm	27	**447.8	439.4	39.5	16	200.3	191.1	22.8
24354 19	Oak mil sq ft sm	54	(S)	*1 945.1	220.8	45	1 651.1	1 502.9	149.3
24354 21	Walnut mil sq ft sm	21	(S)	(S)	40.5	22	351.7	342.1	40.7
24354 27	Other domestic hardwoods mil sq ft sm	69	(S)	**1 226.2	153.5	58	1 673.3	*1 606.6	116.3
24354 31	Imported hardwoods mil sq ft sm	6	(S)	(S)	6.0	7	15.0	14.6	4.7
24354 00	Hardwood veneer, not reinforced or backed, n.s.k.	(NA)	(X)	(X)	98.9	(NA)	(X)	(X)	57.2
24350	Hardwood veneer and plywood, n.s.k.	(NA)	(X)	(X)	94.6	(NA)	(X)	(X)	105.4
24350 00	Hardwood veneer and plywood, n.s.k.[7]	(NA)	(X)	(X)	73.5	(NA)	(X)	(X)	67.0
24350 02	Hardwood veneer and plywood, n.s.k.[8]	(NA)	(X)	(X)	21.1	(NA)	(X)	(X)	38.4
2436– —	**SOFTWOOD VENEER AND PLYWOOD**								
	Total	**(NA)**	**(X)**	**(X)**	**4 752.8**	**(NA)**	**(X)**	**(X)**	**4 383.0**
24363	Softwood plywood type products	(NA)	(X)	(X)	132.0	(NA)	(X)	(X)	r135.3
24363 11	Softwood veneer, reinforced or backed[6] mil sq ft sm	(NA)	(X)	–	–	9	(X)	*285.0	43.1
24363 31	Softwood veneered panels[6] mil sq ft sm	9	(X)	*449.5	105.6	8	(X)	*482.7	r62.9
24363 98	Other softwood plywood type products, including cellular panels, and curved and molded plywood mil sq ft sm	12	(X)	(S)	26.3	11	(X)	(S)	27.7
24363 00	Softwood plywood type products, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	1.7
24364	Softwood veneer, not reinforced or backed[6]	(NA)	(X)	(X)	597.5	(NA)	(X)	(X)	530.8
24364 00	Softwood veneer, not reinforced or backed mil sq ft (1 in. basis)	63	(S)	**2 713.5	597.5	59	6 938.7	*4 377.5	530.8
24365	Softwood plywood, rough, including touch sanded, interior and exterior	(NA)	(X)	(X)	2 709.6	(NA)	(X)	(X)	2 292.3
	Interior:								
24365 01	C - D exterior glue mil sq ft (3/8 in. basis)	28	(X)	8 944.6	1 663.5	(NA)	(X)	(NA)	(NA)
24365 05	Underlayment exterior glue mil sq ft (3/8 in. basis)	20	(X)	2 620.6	539.9	(NA)	(X)	(NA)	(NA)
24365 11	Other mil sq ft (3/8 in. basis)	17	(X)	1 205.2	225.1	(NA)	(X)	(NA)	(NA)
	Exterior:								
24365 21	C - C mil sq ft (3/8 in. basis)	14	(X)	310.3	68.6	(NA)	(X)	(NA)	(NA)
24365 23	C - C plugged mil sq ft (3/8 in. basis)	11	(X)	436.3	96.3	(NA)	(X)	(NA)	(NA)
24365 00	Softwood plywood, rough, including touch sanded, interior and exterior, n.s.k.	(NA)	(X)	(X)	116.2	(NA)	(X)	(X)	(NA)
24366	Softwood plywood, sanded	(NA)	(X)	(X)	786.4	(NA)	(X)	(X)	756.4
24366 07	Interior mil sq ft (3/8 in. basis)	7	(X)	170.0	41.0	(NA)	(X)	(NA)	(NA)
	Exterior:								
24366 11	A - C mil sq ft (3/8 in. basis)	16	(X)	1 291.3	332.4	(NA)	(X)	(NA)	(NA)
24366 13	B - B plyform mil sq ft (3/8 in. basis)	9	(X)	329.0	72.7	(NA)	(X)	(NA)	(NA)
24366 15	B - C mil sq ft (3/8 in. basis)	20	(X)	1 042.9	233.5	(NA)	(X)	(NA)	(NA)
24366 17	Other mil sq ft (3/8 in. basis)	13	(X)	152.2	34.3	(NA)	(X)	(NA)	(NA)
24366 00	Softwood plywood, sanded, n.s.k.	(NA)	(X)	(X)	72.5	(NA)	(X)	(X)	(NA)
24367	Softwood plywood specialties	(NA)	(X)	(X)	468.9	(NA)	(X)	(X)	582.5
24367 03	Sidings mil sq ft (3/8 in. basis)	13	(X)	907.2	245.9	(NA)	(X)	(NA)	(NA)
24367 21	Overlays mil sq ft (3/8 in. basis)	8	(X)	236.6	71.4	(NA)	(X)	(NA)	(NA)
24367 23	Interior decoratives mil sq ft (3/8 in. basis)	3	(X)	(D)	(D)	(NA)	(X)	(NA)	(NA)
24367 25	Other specialties mil sq ft (3/8 in. basis)	8	(X)	423.7	93.1	(NA)	(X)	(NA)	(NA)
24367 00	Softwood plywood specialties, n.s.k.	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	(NA)
24360	Softwood veneer and plywood, n.s.k.	(NA)	(X)	(X)	58.4	(NA)	(X)	(X)	85.6
24360 00	Softwood veneer and plywood, n.s.k.[9]	(NA)	(X)	(X)	51.7	(NA)	(X)	(X)	71.9
24360 02	Softwood veneer and plywood, n.s.k.[10]	(NA)	(X)	(X)	6.7	(NA)	(X)	(X)	13.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2439– –	**STRUCTURAL WOOD MEMBERS, N.E.C.**						
	Total	**(NA)**	**(X)**	**2 334.6**	**(NA)**	**(X)**	**1 887.6**
24390	Fabricated structural wood products	(NA)	(X)	2 334.6	(NA)	(X)	1 887.6
	Members for heavy timber construction (wood laminates, decking, etc.):						
24390 31	Glued laminated lumber mil bd ft	61	(S)	271.0	40	*481.6	277.5
24390 33	Sawn lumber	34	(X)	61.9	32	(X)	86.3
24390 35	Combination of glued, laminated, and sawn lumber	20	(X)	24.2	16	(X)	45.9
24390 51	Roof trusses made of sawn lumber, light construction, sold separately	498	(X)	1 231.3	333	(X)	893.8
24390 98	Other fabricated structural wood products, including floor trusses, n.e.c.	179	(X)	511.4	84	(X)	195.5
24390 00	Structural wood members, n.e.c., n.s.k.[4]	(NA)	(X)	193.8	(NA)	(X)	319.4
24390 02	Structural wood members, n.e.c., n.s.k.[5]	(NA)	(X)	40.8	(NA)	(X)	69.2

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, the value of code 24315 87 was included with the value of code 24315 97.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1992, veneers which are backed with paper, cloth, or other flexible materials are included in veneer, not reinforced or backed; two-ply veneers are included in veneered panels.
[7]Typically for establishments with 15 employees or more.
[8]Typically for establishments with less than 15 employees.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24311, WOOD WINDOW UNITS		
United States	**2 377.7**	**1 995.1**
Arizona	4.0	(NA)
California	11.1	13.6
Colorado	19.4	20.0
Massachusetts	14.7	16.0
Michigan	46.5	19.7
New York	16.0	34.3
North Carolina	12.2	7.1
Ohio	100.4	71.8
Oregon	65.6	(NA)
Texas	7.3	13.5
Virginia	60.1	35.2
Washington	18.0	7.8
Wisconsin	540.6	301.5
24312, WOOD SASH, EXCLUDING WINDOW UNITS		
United States	**131.7**	**166.7**
California	2.4	(NA)
Illinois	2.6	16.5
New York	3.1	(NA)
Wisconsin	12.5	(NA)
24313, WOOD WINDOW AND DOOR FRAMES, AND DOOR FRAMES SHIPPED IN DOOR UNITS		
United States	**448.2**	**358.4**
Alabama	3.5	(NA)
Arizona	5.4	(NA)
California	79.7	54.1
Florida	2.6	(NA)
Kentucky	12.2	(NA)
Massachusetts	4.9	4.8
24313, WOOD WINDOW AND DOOR FRAMES, AND DOOR FRAMES SHIPPED IN DOOR UNITS—Con.		
Minnesota	11.0	2.7
Oregon	180.8	125.8
Pennsylvania	6.2	(NA)
Texas	17.2	48.0
Utah	5.8	(NA)
Virginia	4.0	(NA)
Washington	18.0	31.8
Wisconsin	6.3	11.2
24314, WOOD DOORS, INTERIOR AND EXTERIOR, INCLUDING THOSE WITH GLAZED SECTIONS		
United States	**1 505.4**	**1 509.6**
Alabama	67.9	55.4
Arizona	29.1	29.3
California	83.6	134.9
Colorado	7.7	5.2
Florida	42.3	44.4
Georgia	24.5	8.7
Illinois	23.1	30.0
Indiana	97.4	75.6
Iowa	33.8	42.5
Kentucky	5.1	(NA)
Louisiana	3.8	(NA)
Massachusetts	11.9	17.2
Michigan	86.3	66.8
Minnesota	7.3	5.8
Missouri	6.5	7.6
New Jersey	10.5	(NA)
New York	31.6	27.4
North Carolina	40.1	13.8
Ohio	28.3	67.9

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24314, WOOD DOORS, INTERIOR AND EXTERIOR, INCLUDING THOSE WITH GLAZED SECTIONS—Con.		
Oregon	93.5	155.4
Pennsylvania	59.3	58.8
South Carolina	14.1	(NA)
Texas	120.9	124.2
Utah	2.7	(NA)
Virginia	28.5	29.1
Washington	160.5	119.1
West Virginia	3.1	(NA)
Wisconsin	257.4	194.1
24315, OTHER WOOD DOORS, INCLUDING GARAGE, SCREEN, STORM, ETC.		
United States	**970.9**	**995.3**
Alabama	25.5	(NA)
Arizona	7.2	4.0
Arkansas	2.1	(NA)
California	71.3	87.3
Colorado	5.4	(NA)
Florida	13.8	18.9
Georgia	13.9	11.0
Illinois	20.9	16.2
Indiana	54.7	34.1
Kentucky	5.3	(NA)
Massachusetts	3.7	5.3
Michigan	24.0	11.2
New York	12.7	22.0
North Carolina	7.5	10.8
Ohio	42.0	121.9
Oregon	37.1	24.6
Pennsylvania	38.1	75.3
South Carolina	5.5	(NA)
Texas	89.6	83.4
Virginia	37.5	(NA)
Washington	24.8	15.7
Wisconsin	78.7	54.0
24316, WOOD MOLDINGS EXCEPT PREFINISHED MOLDINGS MADE FROM PURCHASED MOLDINGS		
United States	**1 126.7**	**1 085.5**
Alabama	2.5	(NA)
Arizona	14.3	12.8
Arkansas	21.3	(NA)
California	341.7	393.6
Colorado	7.0	(NA)
Florida	17.2	7.2
Georgia	4.4	5.3
Illinois	16.6	7.5
Indiana	39.2	16.2
Kansas	3.2	(NA)
Kentucky	3.4	(NA)
Michigan	14.5	6.2
Minnesota	13.4	9.6
Missouri	4.0	5.7
Nebraska	2.3	(NA)
New Mexico	47.3	25.6
New York	6.1	10.0
North Carolina	44.0	26.7
Ohio	35.8	12.1
Oregon	127.2	184.3
Pennsylvania	17.4	9.0
South Carolina	9.3	4.6
Tennessee	6.1	18.2
Texas	77.6	116.4
Utah	2.4	(NA)
Vermont	2.3	(NA)
Virginia	4.7	6.9
Washington	41.6	18.8
West Virginia	7.1	(NA)
Wisconsin	49.2	14.2
24317, PREFINISHED WOOD MOLDINGS MADE FROM PURCHASED MOLDINGS		
United States	**151.2**	**127.6**
California	16.5	22.2
Florida	6.1	(NA)
Illinois	2.6	3.6
New Hampshire	2.7	(NA)
Washington	4.6	(NA)
24318, OTHER MILLWORK PRODUCTS, INCLUDING STAIRWORK AND EXTERIOR MILLWORK		
United States	**979.0**	**882.4**
Alabama	52.8	29.4
Arizona	13.5	10.5
California	108.1	95.5
Colorado	10.4	19.2
Connecticut	15.8	17.0
Florida	13.2	15.7
Georgia	29.2	12.8
Illinois	32.6	16.3
Indiana	21.6	13.6
Iowa	3.4	11.3
Kansas	5.5	5.7
Kentucky	12.0	15.1
Louisiana	2.3	2.5
Maine	3.8	9.7
Maryland	33.1	52.1
Massachusetts	17.1	14.9
Michigan	32.7	32.7
Mississippi	3.2	2.3
Missouri	11.2	18.7
Nevada	4.4	(NA)
New Hampshire	2.8	7.3
New Jersey	14.1	40.1
New York	33.8	38.8
North Carolina	31.6	14.5
Ohio	68.2	70.8
Oklahoma	27.0	(NA)
Oregon	50.2	22.5
Pennsylvania	68.9	37.8
South Carolina	2.7	6.8
Tennessee	23.9	14.2
Texas	46.3	40.8
Utah	4.8	2.9
Virginia	49.0	46.5
Washington	17.4	27.7
Wisconsin	36.5	46.4
24341, WOOD KITCHEN CABINETS AND CABINETWORK, STOCK LINE		
United States	**1 925.3**	**1 617.4**
Arizona	56.0	24.5
Arkansas	23.7	4.0
California	80.6	177.4
Colorado	17.3	13.9
Connecticut	9.8	11.9
Florida	37.8	58.2
Georgia	60.0	44.2
Illinois	85.2	60.7
Indiana	197.9	217.7
Iowa	42.4	(NA)
Kansas	49.9	48.0
Kentucky	2.7	(NA)
Louisiana	4.4	(NA)
Maryland	3.9	2.5
Minnesota	161.3	118.2
Mississippi	11.6	(NA)
Missouri	2.1	(NA)
New Jersey	6.6	39.4
New York	19.6	31.4
North Carolina	77.3	63.4
Oklahoma	4.8	2.1
Oregon	55.3	37.5
Pennsylvania	102.0	128.2
Tennessee	49.2	27.9
Texas	101.5	73.1
Utah	29.0	30.2
Washington	36.5	32.9
Wisconsin	23.5	2.2
24342, WOOD KITCHEN CABINETS AND CABINETWORK, CUSTOM		
United States	**1 361.9**	**1 102.2**
Alabama	15.2	7.1
Arizona	15.4	16.1
Arkansas	3.3	3.3
California	164.4	134.8
Colorado	6.9	3.3
Connecticut	25.8	18.8
Florida	59.0	78.0
Georgia	27.1	20.6
Hawaii	4.7	(NA)
Idaho	5.3	3.5

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24342, WOOD KITCHEN CABINETS AND CABINETWORK, CUSTOM—Con.		
Illinois	29.6	23.5
Indiana	79.7	44.0
Iowa	64.4	27.0
Kansas	19.3	11.5
Kentucky	17.0	7.9
Louisiana	5.1	4.0
Maryland	10.8	9.6
Massachusetts	16.8	23.3
Michigan	14.7	8.2
Minnesota	96.6	79.3
Mississippi	2.1	4.0
Missouri	38.1	22.7
Nebraska	6.2	6.6
Nevada	7.7	(NA)
New Hampshire	5.1	(NA)
New Jersey	19.5	27.3
New Mexico	5.8	2.5
New York	41.7	36.3
North Carolina	21.1	13.5
North Dakota	3.1	2.4
Ohio	51.8	82.9
Oklahoma	12.4	2.2
Oregon	54.7	6.7
Pennsylvania	172.3	204.1
South Carolina	7.9	3.8
Tennessee	20.5	25.6
Texas	59.1	39.2
Utah	22.4	5.9
Virginia	29.8	22.8
Washington	29.7	13.6
West Virginia	2.3	(NA)
Wisconsin	44.8	30.7
24343, VANITIES AND OTHER CABINETWORK		
United States	**505.4**	**468.6**
Alabama	7.1	3.6
Arizona	5.2	4.9
Arkansas	5.2	(NA)
California	42.8	55.4
Colorado	6.9	4.1
Connecticut	4.5	3.3
Florida	16.1	14.5
Georgia	4.9	8.0
Illinois	30.0	17.6
Indiana	66.0	67.9
Iowa	12.5	19.3
Kansas	3.8	3.4
Kentucky	2.1	4.2
Louisiana	2.4	(NA)
Maryland	3.8	2.5
Massachusetts	11.4	2.2
Michigan	16.0	15.6
Minnesota	23.0	9.4
Missouri	14.7	8.5
Nebraska	2.1	(NA)
Nevada	5.4	5.2
New Jersey	12.5	9.2
New York	5.9	12.3
North Carolina	14.0	12.2
Ohio	37.9	15.5
Oregon	10.1	5.4
Pennsylvania	35.7	67.9
South Dakota	2.0	(NA)
Tennessee	7.0	5.9
Texas	17.5	18.8
Utah	12.9	2.3
Virginia	13.2	22.2
Washington	11.0	6.9
Wisconsin	7.1	10.2
24351, HARDWOOD PLYWOOD		
United States	**677.0**	**758.6**
Arkansas	52.4	(NA)
California	76.8	83.0
New York	3.0	(NA)
North Carolina	114.3	108.9
Oregon	173.3	181.7
Virginia	84.8	54.0
Wisconsin	35.4	23.5
24352, PREFINISHED HARDWOOD PLYWOOD MADE FROM PURCHASED PLYWOOD		
United States	**189.5**	**313.2**
North Carolina	3.6	(NA)
24353, HARDWOOD PLYWOOD TYPE PRODUCTS		
United States	**477.3**	**235.8**
California	37.5	9.4
Indiana	60.4	13.9
North Carolina	61.5	32.2
Oregon	121.3	(NA)
South Carolina	13.3	11.0
Wisconsin	23.5	62.3
24354, HARDWOOD VENEER, NOT REINFORCED OR BACKED		
United States	**589.2**	**421.4**
Alabama	20.1	19.2
Arkansas	9.1	6.0
Georgia	30.3	16.5
Indiana	104.0	99.1
Kentucky	22.2	11.5
Michigan	53.8	29.7
North Carolina	80.1	56.7
Pennsylvania	25.2	(NA)
South Carolina	7.2	9.6
Virginia	34.7	15.8
Wisconsin	78.5	42.9
24363, SOFTWOOD PLYWOOD TYPE PRODUCTS		
United States	**132.0**	**135.3**
24364, SOFTWOOD VENEER, NOT REINFORCED OR BACKED		
United States	**597.5**	**530.8**
California	37.4	(NA)
Georgia	7.4	(NA)
Oregon	427.9	377.1
Washington	24.8	36.1
24365, SOFTWOOD PLYWOOD, ROUGH, INCLUDING TOUCH SANDED, INTERIOR AND EXTERIOR		
United States	**2 709.6**	**2 292.3**
Alabama	214.1	140.9
Arkansas	268.5	175.0
Louisiana	378.1	253.4
Oregon	574.2	669.6
Texas	259.4	215.3
Washington	138.1	112.6
24366, SOFTWOOD PLYWOOD, SANDED		
United States	**786.4**	**756.4**
Arkansas	46.1	32.5
Louisiana	91.0	17.7
Oregon	284.8	438.0
Texas	72.2	(NA)
Washington	88.7	105.2
24367, SOFTWOOD PLYWOOD SPECIALTIES		
United States	**468.9**	**582.5**
Oregon	148.0	247.3
Washington	63.2	102.8

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2431-	**Millwork**	**9 183.6**	**8 463.9**	**9 052.1**	**9 223.4**	**8 973.2**	**8 800.9**	**3 988.4**	**3 693.3**
24311	Wood window units	2 377.7	2 099.9	2 163.1	2 135.6	2 037.7	1 995.1	692.1	609.3
24312	Wood sash, excluding window units	131.7	153.2	195.7	209.1	169.2	166.7	60.6	95.4
24313	Wood window and door frames, and door frames shipped in door units	448.2	299.0	327.5	322.5	329.7	358.4	190.2	264.6
24314	Wood doors, interior and exterior, including those with glazed sections	1 505.4	1 517.9	1 672.0	1 663.0	1 521.0	1 509.6	775.5	707.5
24315	Other wood doors, including garage, screen, storm, etc.	970.9	1 036.2	1 079.6	1 098.5	1 037.5	995.3	480.4	479.1
24316	Wood moldings except prefinished moldings made from purchased moldings	1 126.7	937.8	949.7	966.4	1 078.2	1 085.5	507.9	569.1
24317	Prefinished wood moldings made from purchased moldings	151.2	112.3	117.5	124.9	128.7	127.6	99.1	75.0
24318	Other millwork products, including stairwork and exterior millwork	979.0	905.2	1 014.8	1 035.5	1 001.9	882.4	405.4	288.3
24310	Millwork, n.s.k.	1 492.7	1 402.3	1 532.3	1 667.9	1 669.3	1 680.3	777.2	605.1
2434-	**Wood kitchen cabinets**	**4 763.7**	**4 021.7**	**4 482.2**	**4 249.4**	**4 351.5**	**4 216.5**	**2 001.3**	**1 563.2**
24341	Wood kitchen cabinets and cabinetwork, stock line	1 925.3	1 568.4	1 740.6	1 634.5	1 625.1	1 617.4	708.0	689.2
24342	Wood kitchen cabinets and cabinetwork, custom	1 361.9	1 230.9	1 387.9	1 273.4	1 247.3	1 102.2	496.4	433.2
24343	Vanities and other cabinetwork	505.4	517.3	521.6	492.8	481.3	468.6	244.3	146.4
24340	Wood kitchen cabinets, n.s.k.	971.1	705.0	832.1	848.7	997.8	1 028.3	552.6	294.5
2435-	**Hardwood veneer and plywood**	**2 027.6**	**1 742.8**	**1 879.2**	**1 937.1**	**1 826.8**	**1 834.5**	**1 237.0**	**1 160.0**
24351	Hardwood plywood	677.0	771.3	777.9	788.9	790.9	758.6	530.6	455.8
24352	Prefinished hardwood plywood made from purchased plywood	189.5	98.3	163.5	206.0	228.8	313.2	225.8	383.8
24353	Hardwood plywood type products[2]	477.3	244.4	292.5	293.6	243.5	235.8	159.7	60.8
24354	Hardwood veneer, not reinforced or backed[2]	589.2	410.6	422.4	432.3	459.9	421.4	277.7	213.7
24350	Hardwood veneer and plywood, n.s.k.	94.6	218.3	222.8	216.3	103.7	105.4	43.2	46.0
2436-	**Softwood veneer and plywood**	**4 752.8**	**3 972.2**	**4 411.8**	**4 605.0**	**4 323.6**	**4 383.0**	**2 780.0**	**3 582.3**
24363	Softwood plywood type products[2]	132.0	101.8	117.9	156.2	169.5	135.3	73.5	102.6
24364	Softwood veneer, not reinforced or backed[2]	597.5	495.7	581.4	600.8	554.7	530.8	315.8	404.5
24365	Softwood plywood, rough, including touch sanded, interior and exterior	2 709.6	2 147.1	2 302.3	2 433.1	2 208.0	2 292.3	1 404.5	3 054.6
24366	Softwood plywood, sanded	786.4	695.8	773.9	822.0	748.3	756.4	572.8	
24367	Softwood plywood specialties	468.9	475.2	547.2	542.6	554.7	582.5	381.6	
24360	Softwood veneer and plywood, n.s.k.	58.4	56.6	89.1	50.3	88.3	85.6	31.8	20.6
2439-	**Structural wood members, n.e.c.**	**2 334.6**	**1 717.8**	**1 982.4**	**2 099.9**	**2 006.1**	**1 887.6**	**800.2**	**781.7**
24390	Fabricated structural wood products	2 334.6	1 717.8	1 982.4	2 099.9	2 006.1	1 887.6	800.2	781.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]For 1992, veneers which are backed with paper, cloth, or other flexible materials are included in veneer, not reinforced or backed; two-ply veneers are included in plywood type products.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2431, MILLWORK		
	Materials, ingredients, containers, and supplies	**5 164.2**	**5 058.2**
	Rough lumber:		
242110	Hardwood	249.8	238.0
242121	Softwood	679.1	853.9
	Dressed lumber:		
242117	Hardwood	125.2	75.1
242128	Softwood	503.4	674.6
242170	Softwood cut stock, including window and cabinet parts	533.7	(2)
242620	Hardwood dimension and parts, excluding furniture frames	48.4	(2)
243540	Hardwood veneer	101.3	118.5
	Plywood:		
243510	Hardwood	77.8	59.6
243601	Softwood	20.8	28.1
249310	Particleboard (wood)	52.9	39.6
249340	Hardboard (wood fiberboard)	61.7	43.5
249330	Medium density fiberboard (MDF)	26.1	20.7
321105	Glass (float, sheet, and plate)	257.0	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	47.1	94.0
342940	Builders' hardware, including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.	241.0	269.8
265001	Paperboard containers, boxes, and corrugated paperboard	49.6	40.8
970099	All other materials and components, parts, containers, and supplies	742.6	[2] r1 155.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	1 346.7	1 346.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2434, WOOD KITCHEN CABINETS		
	Materials, ingredients, containers, and supplies	**2 049.6**	**1 768.1**
	Rough lumber:		
242110	Hardwood	98.4	60.5
242121	Softwood	9.0	3.2
	Dressed lumber:		
242117	Hardwood	107.4	148.2
242128	Softwood	14.2	17.2
242170	Softwood cut stock, including window and cabinet parts	8.8	(2)
242620	Hardwood dimension and parts, excluding furniture frames	272.1	(2)
243540	Hardwood veneer	20.1	22.8
	Plywood:		
243510	Hardwood	90.2	89.7
243601	Softwood	16.7	12.2
249310	Particleboard (wood)	160.2	107.0
249340	Hardboard (wood fiberboard)	11.6	19.8
249330	Medium density fiberboard (MDF)	29.5	20.0
321105	Glass (float, sheet, and plate)	4.0	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	36.8	39.4
342940	Builders' hardware, including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.	151.4	121.0
265001	Paperboard containers, boxes, and corrugated paperboard	45.5	44.8
970099	All other materials and components, parts, containers, and supplies	333.6	2309.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	640.2	752.8

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2435, HARDWOOD VENEER AND PLYWOOD				
	Materials, ingredients, containers, and supplies	**(X)**	**1 228.5**	**(X)**	**1 161.1**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	43.1	(X)	29.5
	Logs, bolts, and unsliced flitches:				
241111	Hardwood—mil ft log scale	**430.0	183.2	(S)	137.6
241112	Softwood—mil ft log scale	155.5	54.8	84.8	10.0
242101	Lumber, rough and dressed—mil bd ft	*12.8	9.3	(NA)	37.4
	Veneer:				
243540	Hardwood—mil sq ft sm	2 583.3	351.2	*3 194.4	313.3
243640	Softwood—mil sq ft (1 in. basis)	867.9	61.5	(S)	22.8
	Plywood:				
243510	Hardwood—mil sq ft sm	(S)	134.3	*1 183.2	152.5
243601	Softwood—mil sq ft (3/8 in. basis)	(D)	(D)	(D)	(D)
249310	Particleboard (wood)—mil sq ft (3/4 in. basis)	**183.9	43.8	*967.3	68.3
249330	Medium density fiberboard (MDF)—mil sq ft (3/4 in. basis)	*109.5	34.9	87.5	21.9
249340	Hardboard (wood fiberboard)—mil sq ft (1/8 in. basis)	(D)	(D)	(D)	(D)
289101	Glues and adhesives	(X)	29.1	(X)	23.9
970099	All other materials and components, parts, containers, and supplies	(X)	115.5	(X)	175.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	152.5	(X)	153.1
	INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD				
	Materials, ingredients, containers, and supplies	**(X)**	**3 056.7**	**(X)**	**2 712.0**
081111	Stumpage cost (cost of timber, excluding land, cut and consumed at same establishment)	(X)	471.7	(X)	141.8
	Logs, bolts, and unsliced flitches:				
241111	Hardwood—mil ft log scale	100.2	26.6	294.0	68.5
241112	Softwood—mil ft log scale	4 535.3	1 498.2	(S)	1 358.6
242101	Lumber, rough and dressed—mil bd ft	9.5	2.9	30.0	11.5
	Veneer:				
243540	Hardwood—mil sq ft sm	*224.1	28.5	78.1	12.0
243640	Softwood—mil sq ft (1 in. basis)	(S)	402.3	3 110.7	405.2
	Plywood:				
243510	Hardwood—mil sq ft sm	(D)	(D)	(D)	(D)
243601	Softwood—mil sq ft (3/8 in. basis)	**53.9	11.4	248.7	40.3
249310	Particleboard (wood)—mil sq ft (3/4 in. basis)	(D)	(D)	(D)	(D)
249330	Medium density fiberboard (MDF)—mil sq ft (3/4 in. basis)	(D)	(D)	(D)	(D)
249340	Hardboard (wood fiberboard)—mil sq ft (1/8 in. basis)	2.3	.4	(D)	(D)
289101	Glues and adhesives	(X)	198.4	(X)	188.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2436, SOFTWOOD VENEER AND PLYWOOD—Con.				
970099	All other materials and components, parts, containers, and supplies	(X)	316.4	(X)	r326.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	95.6	(X)	158.6
	INDUSTRY 2439, STRUCTURAL WOOD MEMBERS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 342.4**	**(X)**	**1 070.0**
	Rough lumber:				
242110	Hardwood mil bd ft	(S)	59.1	(S)	73.4
242121	Softwood mil bd ft	**498.5	169.3	*459.2	116.9
	Dressed lumber:				
242117	Hardwood mil bd ft	(S)	39.2	(S)	24.4
242128	Softwood mil bd ft	**1 272.5	400.2	*1 057.8	309.2
243601	Softwood plywood mil sq ft (3/8 in. basis)	*164.1	40.8	*115.4	22.1
327511	Gypsum building board	(X)	.2	(X)	(2)
342940	Builders' hardware, including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.	(X)	15.6	(X)	10.2
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(X)	(D)	(X)	(2)
190056	Windows and window units, including wood, metal, and vinyl thousands	*96.2	6.3	(NA)	(2)
	Doors and door units:				
243103	Wood	(X)	2.3	(X)	(2)
344211	Metal thousands	*26.6	2.2	(NA)	(2)
243401	Kitchen cabinets, wood	(X)	.4	(X)	(2)
249300	Reconstituted wood products, including particleboard, oriented strandboard, medium density fiberboard, and hardboard	(X)	43.8	(X)	(2)
344451	Metal siding, including aluminum, steel	(X)	1.1	(X)	(2)
344113	Fabricated structural iron, steel, and aluminum including truss plates	(X)	42.1	(X)	33.2
364002	Current-carrying wiring devices, including switches, connectors, lampholders	(X)	(D)	(X)	(2)
363001	Household appliances, including refrigerators, cooking equipment, and other household appliances, exc. air conditioners	(X)	(D)	(X)	(2)
227001	Floor coverings, textile	(X)	3.7	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	201.5	(X)	[2]83.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	313.6	(X)	397.5

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, these materials were included with material code 970099.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
24112 20	24112 28	24351 01	24351 00	24490 43	24490 41	24932 05	24932 00
24112 21	24112 28	24351 05	24351 00	24490 43	24490 51	24932 07	24932 00
24112 26	24112 23	24351 07	24351 00	24490 73	24490 71	24932 09	24932 00
24112 26	24112 28	24351 47	24351 00	24490 73	24490 81	24932 21	24932 00
24114 06	24114 08	24365 01	24365 00	24913 02	24913 01	24933 16	24933 15
24114 06	24114 10	24365 05	24365 00	24913 02	24913 03	24933 16	24933 18
24114 31	24114 15	24365 11	24365 00	24913 21	24913 15		
24114 31	24114 29	24365 21	24365 00	24913 21	24913 19	24934 12	24934 00
24114 31	24114 33	24365 23	24365 00			24934 14	24934 00
24114 31	24114 35			24919 11	24919 01	24934 16	24934 00
		24366 07	24366 00	24919 11	24919 03	24934 17	24934 00
24290 87	24290 61	24366 11	24366 00	24919 11	24919 09	24934 18	24934 00
24290 87	24290 83	24366 13	24366 00			24934 19	24934 00
		24366 15	24366 00	24931 20	24931 12		
24315 87	24315 98	24366 17	24366 00	24931 20	24931 14	24936 12	24936 14
24315 97	24315 98			24931 20	24931 16	24936 12	24936 15
		24367 03	24367 00	24931 20	24931 18		
		24367 21	24367 00	24931 21	24931 07	24994 98	24994 61
24317 25	24317 21	24367 23	24367 00	24931 21	24931 09	24994 98	24994 79
24317 25	24317 31	24367 25	24367 00	24931 21	24931 19	24994 98	24994 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
24112 23	24112 26	24351 00	24351 01	24490 41	24490 43	24932 00	24932 05
24112 28	24112 20	24351 00	24351 05	24490 51	24490 43	24932 00	24932 07
24112 28	24112 21	24351 00	24351 07	24490 71	24490 73	24932 00	24932 09
24112 28	24112 26	24351 00	24351 47	24490 81	24490 73	24932 00	24932 21
24114 08	24114 06	24365 00	24365 01	24913 01	24913 02	24933 15	24933 16
24114 10	24114 06	24365 00	24365 05	24913 03	24913 02	24933 18	24933 16
24114 15	24114 31	24365 00	24365 11	24913 15	24913 21		
24114 29	24114 31	24365 00	24365 21	24913 19	24913 21	24934 00	24934 12
24114 33	24114 31	24365 00	24365 23			24934 00	24934 14
24114 35	24114 31			24919 01	24919 11	24934 00	24934 16
		24366 00	24366 07	24919 03	24919 11	24934 00	24934 17
24290 61	24290 87	24366 00	24366 11	24919 09	24919 11	24934 00	24934 18
24290 83	24290 87	24366 00	24366 13			24934 00	24934 19
		24366 00	24366 15	24931 07	24931 21		
24315 98	24315 87	24366 00	24366 17	24931 09	24931 21	24936 14	24936 12
24315 98	24315 97			24931 12	24931 20	24936 15	24936 12
		24367 00	24367 03	24931 14	24931 20		
		24367 00	24367 21	24931 16	24931 20	24994 61	24994 98
24317 21	24317 25	24367 00	24367 23	24931 18	24931 20	24994 79	24994 98
24317 31	24317 25	24367 00	24367 25	24931 19	24931 21	24994 99	24994 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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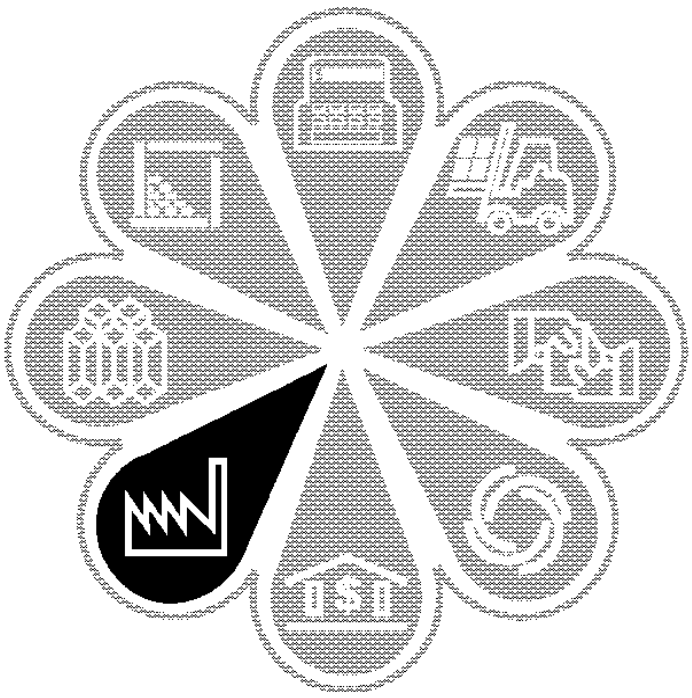
1992 Census of Manufactures

MC92-I-24C

INDUSTRY SERIES

Wooden Containers and Miscellaneous Wood Products

Industries 2441, 2448, 2449, 2491, 2493, and 2499



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

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BUREAU OF THE CENSUS

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Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2441	Nailed Wood Boxes and Shook
2448	Wood Pallets and Skids
2449	Wood Containers, N.E.C.
2491	Wood Preserving
2493	Reconstituted Wood Products
2499	Wood Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK

This industry is made up of establishments primarily engaged in manufacturing nailed and lock-corner wood boxes (lumber or plywood), and shook for nailed and lock-corner boxes.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2441, Nailed Wood Boxes and Shook, had employment of 5.9 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were California, Michigan, and Texas, accounting for approximately 44 percent of the industry's employment. The leading States in 1987 were California, Pennsylvania, Wisconsin, and Washington.

The total value of shipments for establishments classified in this industry was $444.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2441 shipped $339.6 million nailed wood boxes and shook products considered primary to the industry, $70.2 million of secondary products, and had $34.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 79 percent.

The products primary to industry 2441, no matter in what industry they were produced, appear in table 6a and aggregate to $421.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nailed wood boxes and shook industry amounted to $255.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2448, WOOD PALLETS AND SKIDS

This industry is made up of establishments primarily engaged in manufacturing wood or wood and metal combination pallets and skids.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2448, Wood Pallets and Skids, had employment of 28.7 thousand. The employment figure was 12 percent above the 25.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Ohio, Pennsylvania and Texas, accounting for approximately 27 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Michigan, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2448 shipped $1.9 billion of wood pallets and skids products considered primary to the industry, $171.9 million of secondary products, and had $85.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2448, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood pallets and skids industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2449, WOOD CONTAINERS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing wood containers, not elsewhere classified, such as cooperage, wirebound boxes and crates, and other veneer and plywood containers. Establishments primarily engaged in manufacturing tobacco hogshead stock are classified in industry 2429. Establishments primarily engaged in manufacturing cooperage stock are classified in industry 2429.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2449, Wood Containers, N.E.C., had employment of 5.4 thousand. The employment figure was unchanged from 1987. Compared with 1991, employment decreased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, North Carolina, and California, accounting for approximately 33 percent of the industry's employment. The leading States in 1987 were Georgia, North Carolina, Mississippi, and California.

The total value of shipments for establishments classified in this industry was $343.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2449 shipped $313.9 million of wood containers, not elsewhere classified, considered primary to the industry, $18.0 million of secondary products, and had $11.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2449, no matter in what industry they were produced, appear in table 6a and aggregate to $324.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood containers, not elsewhere classified, industry amounted to $178.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 26 percent of the total value of shipments.

INDUSTRY 2491, WOOD PRESERVING

This industry is made up of establishments primarily engaged in treating wood, sawed or planed in other establishments, with creosote or other preservatives to prevent decay and to protect against fire and insects. Also included in this industry are establishments primarily engaged in cutting, treating, and selling poles, parts, and piling. Establishments primarily engaged in manufacturing other wood products which they may also treat with preservatives are not included.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2491, Wood Preserving, had employment of 10.8 thousand. The employment figure was 8 percent below the 11.8 thousand reported in 1987.

The leading States in employment in 1992 were Alabama, Virginia, Texas, and South Carolina, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Alabama, Virginia, Georgia, and South Carolina accounted for approximately 31 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2491 shipped $2.5 billion of preservatives treated wood products considered primary to the industry, $74.2 million of secondary products, and had $120.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio also was 97 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2491, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood preserving industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing reconstituted wood products, such as hardboard, particleboard, cellulosic fiberboard, medium density fiberboard, waferboard, and oriented strandboard.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2493, Reconstituted Wood Products, had employment of 22.8 thousand. The employment figure was 4 percent above the 22.0 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Oregon, North Carolina, California, and Michigan, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Oregon, North Carolina, Mississippi, and Virginia accounted for approximately 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2493 shipped $3.9 billion of reconstituted wood products considered primary to the industry, $41.5 million of secondary products, and had $41.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2493, no matter in what industry they were produced, appear in table 6a and aggregate to $4.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the reconstituted wood products industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2499, WOOD PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing miscellaneous wood products, not elsewhere classified, and products from rattan, reed, splint, straw, veneer strips, wicker, and willow.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2499, Wood Products, N.E.C., had employment of 51.1 thousand. The employment figure was 9 percent below the 56.3 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, New York, and Maine, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when California, New York, Maine, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $3.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2499 shipped $3.3 billion of wood products, not elsewhere classified, considered primary to the industry, $181.2 million of secondary products, and had $229.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2499, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood products, not elsewhere classified, industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 22 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK															
1992 Census	291	304	87	5.9	101.2	4.7	9.1	67.1	189.3	255.8	444.0	7.8	49.3	83	81
1991 ASM	(NA)	(NA)	(NA)	6.2	100.0	5.0	10.2	73.2	199.3	245.9	443.7	4.7	48.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.0	97.5	4.8	9.4	67.7	191.6	240.6	431.3	4.6	46.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.2	94.5	4.9	10.0	64.5	168.5	229.0	392.9	9.0	48.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.1	88.4	4.9	9.9	59.2	183.0	193.6	378.0	8.4	38.4	(NA)	(NA)
1987 Census	304	308	95	5.9	84.7	4.9	9.0	57.4	146.5	182.0	325.0	5.5	37.0	91	79
1986 ASM	(NA)	(NA)	(NA)	5.6	77.3	4.5	8.2	54.7	157.1	181.8	338.5	6.5	24.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.0	79.1	4.8	8.9	56.0	146.8	179.6	329.7	4.8	21.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.7	80.9	5.8	10.0	59.3	147.6	187.4	336.8	14.0	29.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.1	84.6	6.0	10.6	58.1	153.9	184.8	334.8	12.5	37.8	(NA)	(NA)
1982 Census	335	338	90	6.4	76.5	5.3	9.4	56.0	137.9	166.7	306.8	6.9	29.9	90	81
1981 ASM	(NA)	(NA)	(NA)	6.7	63.7	5.5	10.2	46.1	104.7	128.7	235.7	5.2	23.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.8	70.8	6.5	11.8	51.6	127.8	157.1	283.3	5.6	29.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.9	74.1	7.4	13.4	55.5	118.7	179.0	296.9	4.8	33.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.2	78.9	8.0	14.8	58.7	116.8	176.9	297.4	9.4	33.0	(NA)	(NA)
1977 Census	391	396	110	8.6	68.6	7.5	13.7	53.6	116.2	147.4	263.3	5.4	31.2	89	83
INDUSTRY 2448, WOOD PALLETS AND SKIDS															
1992 Census	1 883	1 912	457	28.7	449.4	23.4	44.8	311.0	961.4	1 183.8	2 143.3	52.8	154.2	92	93
1991 ASM	(NA)	(NA)	(NA)	27.1	413.4	22.8	43.1	295.6	813.0	1 173.2	1 987.3	48.8	181.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.3	416.6	24.0	45.5	297.1	802.0	1 155.1	1 948.6	62.3	181.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.1	394.6	24.5	44.1	280.8	767.5	1 080.8	1 843.7	49.2	156.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.9	362.7	22.8	42.0	252.2	625.5	1 026.7	1 644.1	38.1	132.4	(NA)	(NA)
1987 Census	1 678	1 701	415	25.7	328.0	21.7	38.0	237.9	616.8	880.2	1 496.1	43.8	115.6	93	94
1986 ASM	(NA)	(NA)	(NA)	20.7	284.6	16.3	27.9	191.5	588.8	803.5	1 394.1	28.3	107.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.2	301.8	17.4	33.2	209.1	598.3	771.9	1 363.9	39.7	110.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.3	268.2	18.8	34.3	200.8	602.7	804.2	1 400.9	34.5	104.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.5	237.0	19.3	34.4	170.4	412.4	627.1	1 051.8	34.3	103.0	(NA)	(NA)
1982 Census	1 649	1 677	362	22.1	230.4	18.4	32.7	165.0	420.5	589.1	1 012.3	29.4	104.3	92	93
1981 ASM	(NA)	(NA)	(NA)	22.7	237.7	19.4	35.6	178.0	425.0	549.2	974.1	39.9	89.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.9	220.2	19.7	36.2	162.9	438.6	595.5	1 029.7	26.7	88.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.6	220.7	21.7	40.3	168.2	398.3	606.5	1 001.2	35.6	83.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	23.2	205.5	20.6	38.9	157.2	383.9	548.8	936.0	54.7	42.6	(NA)	(NA)
1977 Census	1 267	1 290	348	20.3	163.8	17.9	32.1	126.3	303.1	397.3	698.0	21.3	58.1	90	91
INDUSTRY 2449, WOOD CONTAINERS, N.E.C.															
1992 Census	217	225	50	5.4	89.4	4.4	8.6	58.6	164.2	178.0	343.3	6.1	59.9	95	97
1991 ASM	(NA)	(NA)	(NA)	6.5	120.3	5.4	9.9	83.5	190.9	251.0	433.1	5.3	81.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.2	121.5	5.9	10.7	83.4	195.6	277.6	470.2	5.2	70.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.9	110.5	5.7	10.6	78.7	158.2	225.3	380.5	4.8	50.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.4	73.6	4.7	8.9	52.9	130.1	148.8	272.3	1.3	41.5	(NA)	(NA)
1987 Census	198	208	51	5.4	70.4	4.7	8.6	50.4	111.6	136.2	248.3	2.8	39.9	92	96
1986 ASM	(NA)	(NA)	(NA)	5.0	58.3	4.4	8.2	46.2	84.0	151.0	235.8	3.0	48.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.8	69.4	5.1	9.6	54.0	96.0	183.6	279.3	2.1	58.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.1	68.6	5.3	10.0	52.9	121.3	147.6	275.1	2.8	50.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.1	85.7	6.2	12.6	68.1	131.4	169.8	309.2	4.0	57.0	(NA)	(NA)
1982 Census	216	235	72	7.4	84.0	6.5	12.5	65.9	144.6	168.8	315.8	3.7	57.2	95	97
1981 ASM	(NA)	(NA)	(NA)	8.6	91.0	7.7	14.8	71.5	168.1	196.4	366.1	3.1	72.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.5	87.3	8.4	14.8	68.8	144.2	187.4	327.8	2.8	68.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.9	77.9	8.0	15.9	62.4	122.1	170.9	286.8	7.0	51.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.8	72.0	7.9	14.8	57.8	132.2	157.1	291.0	7.3	43.3	(NA)	(NA)
1977 Census	239	263	82	8.9	67.2	8.0	15.5	53.7	120.4	134.4	255.8	2.9	50.5	93	97
INDUSTRY 2491, WOOD PRESERVING															
1992 Census	407	486	179	10.8	232.8	8.3	17.2	150.4	678.5	2 046.7	2 694.8	56.2	458.4	97	96
1991 ASM	(NA)	(NA)	(NA)	11.7	232.8	9.1	17.3	153.2	657.6	1 932.8	2 605.0	42.0	390.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.0	245.8	10.2	18.8	161.8	696.5	1 977.5	2 642.7	57.2	408.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.1	223.4	9.4	17.4	147.0	579.9	1 768.3	2 366.2	45.4	351.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.7	214.3	8.8	18.0	145.1	605.0	1 670.3	2 265.0	46.2	374.9	(NA)	(NA)
1987 Census	456	540	202	11.8	207.7	9.1	18.2	140.6	552.6	1 620.1	2 169.6	44.1	365.5	97	95
1986 ASM	(NA)	(NA)	(NA)	11.1	181.1	8.6	17.1	127.9	504.1	1 269.3	1 774.0	35.3	324.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.1	184.0	9.0	18.2	133.4	525.9	1 206.4	1 683.5	47.7	323.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.7	171.7	8.8	18.3	127.0	495.2	1 177.4	1 625.5	43.5	302.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.2	155.7	8.1	15.7	108.3	334.3	1 031.7	1 378.4	23.8	298.9	(NA)	(NA)
1982 Census	428	524	184	10.9	159.4	8.6	16.5	108.2	383.7	978.5	1 360.2	35.9	315.3	98	96
1981 ASM	(NA)	(NA)	(NA)	12.3	173.5	9.8	19.9	117.3	419.6	972.8	1 389.0	43.4	289.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.2	170.6	10.6	21.2	118.3	449.7	975.7	1 397.4	43.3	284.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.9	153.8	10.4	20.8	105.5	394.4	867.8	1 246.6	46.4	242.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.9	142.2	10.2	21.0	93.8	385.7	781.4	1 166.8	36.3	219.5	(NA)	(NA)
1977 Census	368	457	192	12.6	126.1	9.9	19.7	82.9	327.1	657.5	962.6	30.3	212.5	97	97
INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS															
1992 Census	195	288	180	22.8	614.3	18.5	39.9	458.8	1 930.7	2 029.8	3 980.6	142.8	302.3	99	98
1991 ASM	(NA)	(NA)	(NA)	21.0	537.0	17.1	36.9	395.8	1 284.6	1 756.1	3 040.6	187.3	302.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.3	554.3	18.2	39.1	407.1	1 285.0	1 778.8	3 042.6	130.2	295.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.2	546.6	18.2	39.5	401.0	1 476.5	1 706.8	3 198.8	132.9	275.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	22.8	532.0	18.3	38.7	393.0	1 390.8	1 584.0	2 971.3	215.6	263.0	(NA)	(NA)
1987 Census	158	240	154	22.0	504.5	17.7	37.1	370.4	1 371.1	1 488.9	2 864.9	149.9	257.2	98	95

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 2499, WOOD PRODUCTS, N.E.C.														
1992 Census	2 644	2 754	589	51.1	889.4	42.3	81.0	607.9	2 007.0	1 726.6	3 716.8	67.7	537.9	95	94
1991 ASM	(NA)	(NA)	(NA)	58.1	936.1	47.7	93.1	675.1	1 890.2	1 922.7	3 816.0	60.9	583.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	61.1	944.8	50.3	93.3	668.1	1 996.3	1 894.8	3 871.8	67.2	577.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	56.6	872.6	45.7	90.0	616.4	1 850.9	1 760.0	3 585.5	88.9	534.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	54.0	817.4	45.0	84.0	567.2	1 667.3	1 572.5	3 241.5	41.2	508.0	(NA)	(NA)
1987 Census	3 223	3 324	671	56.3	824.2	46.7	86.5	577.4	1 726.0	1 587.0	3 295.5	74.3	489.8	95	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK								
1992 Census	17 153	80	1 936	7.37	58	80	32 085	53	20.80
1991 ASM	16 129	81	2 040	7.18	55	78	32 145	50	19.54
1990 ASM	16 250	80	1 958	7.20	56	78	31 933	51	20.38
1989 ASM	15 242	79	2 041	6.45	58	82	27 177	56	16.85
1988 ASM	14 492	80	2 020	5.98	51	75	30 000	48	18.48
1987 Census	14 356	83	1 837	6.38	56	82	24 831	58	16.28
1986 ASM	13 804	80	1 822	6.67	54	77	28 054	49	19.16
1985 ASM	13 183	80	1 854	6.29	54	78	24 467	54	16.49
1984 ASM	12 075	87	1 724	5.93	56	80	22 030	55	14.76
1983 ASM	11 915	85	1 767	5.48	55	80	21 676	55	14.52
1982 Census	11 953	83	1 774	5.96	54	79	21 547	55	14.67
1981 ASM	9 507	82	1 855	4.52	55	82	15 627	61	10.26
1980 ASM	9 077	83	1 815	4.37	55	80	16 385	55	10.83
1979 ASM	8 326	83	1 811	4.14	60	85	13 337	62	8.86
1978 ASM	8 576	87	1 850	3.97	59	86	12 696	68	7.89
1977 Census	7 977	87	1 827	3.91	56	82	13 512	59	8.48
	INDUSTRY 2448, WOOD PALLETS AND SKIDS								
1992 Census	15 659	82	1 915	6.94	55	76	33 498	47	21.46
1991 ASM	15 255	84	1 890	6.86	59	80	30 000	51	18.86
1990 ASM	14 721	85	1 896	6.53	59	81	28 339	52	17.63
1989 ASM	13 560	84	1 800	6.37	59	80	26 375	51	17.40
1988 ASM	13 483	85	1 842	6.00	62	85	23 253	58	14.89
1987 Census	12 763	84	1 751	6.26	59	81	24 000	53	16.23
1986 ASM	13 749	79	1 712	6.86	58	78	28 444	48	21.10
1985 ASM	14 236	82	1 908	6.30	57	79	28 222	50	18.02
1984 ASM	12 027	84	1 824	5.85	57	77	27 027	44	17.57
1983 ASM	10 533	86	1 782	4.95	60	82	18 329	57	11.99
1982 Census	10 425	83	1 777	5.05	58	81	19 027	55	12.86
1981 ASM	10 471	85	1 835	5.00	56	81	18 722	56	11.94
1980 ASM	9 616	86	1 838	4.50	58	79	19 153	50	12.12
1979 ASM	8 972	88	1 857	4.17	61	83	16 191	55	9.88
1978 ASM	8 858	89	1 888	4.04	59	81	16 547	54	9.87
1977 Census	8 069	88	1 793	3.93	57	80	14 931	54	9.44
	INDUSTRY 2449, WOOD CONTAINERS, N.E.C.								
1992 Census	16 556	81	1 955	6.81	52	78	30 407	54	19.09
1991 ASM	18 508	83	1 833	8.43	58	86	29 369	63	19.28
1990 ASM	16 875	82	1 814	7.79	59	85	27 167	62	18.28
1989 ASM	16 014	83	1 860	7.42	59	88	22 928	70	14.92
1988 ASM	13 630	87	1 894	5.94	55	82	24 093	57	14.62
1987 Census	13 037	87	1 830	5.86	55	83	20 667	63	12.98
1986 ASM	11 660	88	1 864	5.63	64	89	16 800	69	10.24
1985 ASM	11 966	88	1 882	5.63	66	91	16 552	72	10.00
1984 ASM	11 246	87	1 887	5.29	54	79	19 885	57	12.13
1983 ASM	12 070	87	2 032	5.40	55	83	18 507	65	10.43
1982 Census	11 351	88	1 923	5.27	53	80	19 541	58	11.57
1981 ASM	10 581	90	1 922	4.83	54	79	19 547	54	11.36
1980 ASM	9 189	88	1 762	4.65	57	84	15 179	61	9.74
1979 ASM	8 753	90	1 988	3.92	60	87	13 719	64	7.68
1978 ASM	8 182	90	1 873	3.91	54	79	15 023	54	8.93
1977 Census	7 551	90	1 938	3.46	53	79	13 528	56	7.77

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2491, WOOD PRESERVING								
1992 Census	21 556	77	2 072	8.74	76	85	62 824	34	39.45
1991 ASM	19 897	78	1 901	8.86	74	83	56 205	35	38.01
1990 ASM	18 908	78	1 843	8.61	75	84	53 577	35	37.05
1989 ASM	18 463	78	1 851	8.45	75	84	47 926	39	33.33
1988 ASM	18 316	75	2 045	8.06	74	83	51 709	35	33.61
1987 Census	17 602	77	2 000	7.73	75	84	46 831	38	30.36
1986 ASM	16 315	77	1 988	7.48	72	82	45 414	36	29.48
1985 ASM	16 577	81	2 022	7.33	72	83	47 378	35	28.90
1984 ASM	16 047	82	2 080	6.94	72	83	46 280	35	27.06
1983 ASM	15 265	79	1 938	6.90	75	86	32 775	47	21.29
1982 Census	14 624	79	1 919	6.56	72	84	35 202	42	23.25
1981 ASM	14 106	80	2 031	5.89	70	83	34 114	41	21.09
1980 ASM	12 924	80	2 000	5.58	70	82	34 068	38	21.21
1979 ASM	11 922	81	2 000	5.07	70	82	30 574	39	18.96
1978 ASM	11 023	79	2 059	4.47	67	79	29 899	37	18.37
1977 Census	10 008	79	1 990	4.21	68	81	25 960	39	16.60
	INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS								
1992 Census	26 943	81	2 157	11.50	51	66	84 680	32	48.39
1991 ASM	25 571	81	2 158	10.73	58	75	61 171	42	34.81
1990 ASM	24 857	82	2 148	10.41	58	77	57 623	43	32.86
1989 ASM	24 622	82	2 170	10.15	53	70	66 509	37	37.38
1988 ASM	23 333	80	2 115	10.16	53	71	61 000	38	35.94
1987 Census	22 932	80	2 096	9.98	52	70	62 323	37	36.96
	INDUSTRY 2499, WOOD PRODUCTS, N.E.C.								
1992 Census	17 405	83	1 915	7.50	46	70	39 276	44	24.78
1991 ASM	16 112	82	1 952	7.25	50	75	32 534	50	20.30
1990 ASM	15 463	82	1 855	7.16	49	73	32 673	47	21.40
1989 ASM	15 417	81	1 969	6.85	49	73	32 701	47	20.57
1988 ASM	15 137	83	1 867	6.75	49	74	30 876	49	19.85
1987 Census	14 639	83	1 852	6.68	48	73	30 657	48	19.95

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK														
United States	**E1**	**304**	**87**	**5.9**	**101.2**	**4.7**	**9.1**	**67.1**	**189.3**	**255.8**	**444.0**	**7.8**	**5.9**	**146.5**
California	E1	73	29	1.8	33.2	1.4	3.0	21.8	58.5	105.6	163.0	3.3	G	(D)
Illinois	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	13	6	.4	5.5	.3	.6	3.7	11.2	9.5	20.9	.4	.3	7.7
Minnesota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Hampshire	–	4	3	.1	1.7	.1	.2	1.3	2.5	4.2	6.2	(D)	(NA)	(NA)
New Jersey	E5	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E3	22	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
North Carolina	E1	13	4	.2	4.2	.2	.5	2.9	7.4	9.5	16.9	.2	.3	5.6
Ohio	E2	18	3	.3	5.7	.3	.5	3.4	10.9	12.8	23.7	(D)	.2	5.2
Oklahoma	–	6	3	.1	2.1	.1	.2	1.6	5.3	5.0	10.3	.2	(NA)	(NA)
Oregon	–	5	3	.3	3.0	.2	.3	2.4	5.4	8.8	13.6	(D)	C	(D)
Pennsylvania	–	9	2	.1	2.0	.1	.2	1.4	4.3	4.4	8.6	.2	.3	7.4
Texas	–	16	4	.4	5.1	.3	.6	3.9	7.9	10.3	18.8	.2	E	(D)
Washington	–	10	4	.3	6.3	.3	.5	4.3	10.9	30.4	41.8	1.0	.3	8.0
Wisconsin	–	9	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	6.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2448, WOOD PALLETS AND SKIDS														
United States	**E1**	**1 912**	**457**	**28.7**	**449.4**	**23.4**	**44.8**	**311.0**	**961.4**	**1 183.8**	**2 143.3**	**52.8**	**25.7**	**616.8**
Alabama	E1	44	8	.6	8.8	.6	1.1	6.7	19.8	21.4	41.4	1.2	.8	18.1
Arizona	–	17	3	.2	2.3	.2	.3	1.7	5.8	8.3	14.1	.3	(NA)	(NA)
Arkansas	–	44	17	.9	13.5	.8	1.5	9.7	27.7	43.3	71.2	(D)	.6	11.2
California	E1	103	39	2.2	39.1	1.8	3.5	26.4	87.0	117.8	204.4	3.6	2.3	61.5
Colorado	–	13	2	.1	2.1	.1	.2	1.2	4.5	3.8	8.2	.2	(NA)	(NA)
Connecticut	–	14	3	.2	3.7	.2	.3	2.6	7.0	7.7	14.8	(D)	C	(D)
Florida	E6	31	7	.5	7.1	.4	.7	5.3	15.3	23.2	38.4	.9	.4	9.5
Georgia	E1	63	16	1.1	18.2	.9	1.7	12.1	38.2	42.4	80.7	1.9	.9	19.0
Idaho	E8	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E2	75	21	1.1	17.9	.9	1.7	12.4	36.3	41.7	77.9	2.0	F	(D)
Indiana	E1	105	23	1.5	19.6	1.2	2.1	14.4	43.0	46.9	89.8	2.1	G	(D)
Iowa	–	37	7	.6	10.0	.5	.9	6.5	21.0	27.3	47.8	1.4	E	(D)
Kansas	–	14	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	E1	63	16	.9	11.4	.8	1.5	8.7	28.2	36.0	64.0	1.6	1.0	21.5
Louisiana	–	26	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maryland	E3	12	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Massachusetts	E1	28	2	.2	3.4	.2	.3	2.3	6.6	7.7	14.5	.3	E	(D)
Michigan	E1	113	23	1.5	26.5	1.2	2.3	17.0	66.2	84.6	149.7	2.5	1.6	45.2
Minnesota	E1	38	5	.3	5.0	.3	.5	3.4	9.8	13.9	23.6	.5	E	(D)
Mississippi	–	38	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	.7	17.2
Missouri	–	78	16	1.1	16.6	.9	1.8	11.7	37.9	45.0	82.3	2.4	1.1	23.8
Nebraska	–	15	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	32	3	.3	5.2	.2	.4	3.2	11.3	11.8	23.0	.2	.3	10.5
New York	E2	57	12	.7	13.6	.6	1.2	9.7	29.6	31.0	60.6	2.4	1.0	19.3
North Carolina	–	70	28	1.5	24.8	1.2	2.5	16.2	46.4	55.3	101.9	3.1	1.0	23.4
Ohio	E1	142	31	1.9	27.7	1.5	3.0	19.2	62.1	71.5	133.9	3.2	G	(D)
Oregon	–	15	4	.2	4.1	.2	.4	2.6	8.0	13.0	21.0	1.2	.3	7.3
Pennsylvania	E1	154	28	1.8	29.4	1.5	2.8	21.2	73.9	82.3	156.3	3.8	1.5	36.7
South Carolina	E1	33	7	.5	5.5	.4	.7	4.2	12.1	14.6	26.8	.3	.3	6.0
Tennessee	E1	90	12	.9	12.7	.8	1.4	8.7	26.4	34.0	60.3	1.6	1.0	23.9
Texas	E1	79	28	1.8	27.1	1.5	3.0	18.6	52.3	73.1	125.4	3.5	1.5	30.2
Utah	–	12	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Virginia	E2	47	16	.9	16.4	.8	1.5	11.2	28.7	36.2	65.8	3.0	F	(D)
Washington	–	23	8	.6	9.2	.5	.8	6.3	13.0	24.3	37.2	.8	.4	11.4
West Virginia	–	14	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Wisconsin	–	96	31	1.7	28.3	1.4	2.7	19.8	53.5	64.5	117.8	2.1	1.4	34.0
INDUSTRY 2449, WOOD CONTAINERS, N.E.C.														
United States	**E2**	**225**	**50**	**5.4**	**89.4**	**4.4**	**8.6**	**58.6**	**164.2**	**178.0**	**343.3**	**6.1**	**5.4**	**111.6**
Alabama	E9	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Arkansas	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E3	38	4	.5	6.3	.3	.6	4.3	14.7	23.5	38.6	.7	E	(D)
Florida	E4	9	3	.3	4.5	.3	.5	3.4	6.1	12.3	18.1	(D)	.3	3.7
Georgia	E1	6	3	.7	10.5	.6	1.2	6.9	21.4	17.9	39.1	(D)	.7	15.7
Kentucky	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Mississippi	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	4.6
North Carolina	E4	13	5	.6	7.8	.5	1.0	5.8	10.8	14.1	24.9	.5	.7	9.0
South Carolina	E6	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	5	3	.3	4.8	.3	.6	3.4	6.5	8.0	14.5	.1	E	(D)
Texas	E1	14	3	.3	4.0	.2	.5	3.0	7.1	5.4	11.9	.1	(NA)	(NA)
Wisconsin	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	.2	9.2
INDUSTRY 2491, WOOD PRESERVING														
United States	**E1**	**486**	**179**	**10.8**	**232.8**	**8.3**	**17.2**	**150.4**	**678.5**	**2 046.7**	**2 694.8**	**56.2**	**11.8**	**552.6**
Alabama	–	29	19	1.3	27.4	1.0	2.1	17.3	70.9	227.4	298.4	8.6	1.0	41.2
Arkansas	–	12	8	.5	10.4	.4	.8	7.1	31.5	94.4	122.7	1.7	.4	12.8
California	E4	25	5	.3	6.4	.2	.5	4.1	19.2	40.3	57.7	1.9	.6	31.0
Florida	E1	18	7	.3	7.0	.2	.5	3.7	20.7	93.9	113.4	1.1	.3	11.7
Georgia	–	24	8	.5	10.9	.4	.7	6.2	33.6	102.6	134.4	2.9	.8	38.1
Illinois	–	16	3	.2	4.8	.2	.3	3.5	15.2	44.2	59.8	3.0	.2	11.5
Kentucky	E3	11	5	.2	3.6	.1	.3	2.0	8.4	34.6	43.0	(D)	C	(D)
Louisiana	–	12	4	.2	4.6	.2	.4	3.2	11.4	31.3	43.2	(D)	.3	14.3
Maryland	–	8	2	.1	2.9	.1	.2	1.8	14.4	51.1	66.0	(D)	C	(D)
Massachusetts	–	7	3	.1	2.4	.1	.2	1.6	8.1	45.9	52.4	.9	(NA)	(NA)
Minnesota	E2	11	4	.2	4.1	.2	.4	2.3	11.8	31.2	43.1	(D)	C	(D)
Mississippi	–	18	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	33.1
Missouri	E1	14	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Jersey	E2	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	E1	31	10	.5	10.0	.4	.8	6.2	31.2	140.2	166.8	2.2	.6	39.8
Ohio	E1	16	3	.2	4.1	.2	.3	2.7	11.3	40.7	49.9	(D)	C	(D)
Oregon	E1	13	7	.3	8.4	.3	.6	6.1	24.0	48.7	71.0	1.8	.6	27.2
Pennsylvania	E1	21	7	.4	7.5	.3	.6	5.5	21.6	85.6	107.9	1.5	E	(D)
South Carolina	–	16	6	.7	16.2	.6	1.2	10.2	42.8	140.4	180.7	3.7	.8	27.5
Tennessee	–	9	2	.2	3.6	.2	.4	2.5	4.4	35.1	42.1	.8	E	(D)

See footnotes at end of table.

TIPS [UPF] BATCH_1065 [MCD_SRB,BA_TAYLOR] MCD-SRB 5/17/95 5:07 PM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 4
TSF:24C_92.DAT;1 5/17/95 17:06:38 UTF:24C_93.DAT;1 5/17/95 17:06:39 META:TIPS96-17063362.DAT;1 5/17/95 17:07:33

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2491, WOOD PRESERVING—Con.														
Texas	E1	26	12	.8	15.0	.6	1.3	11.0	45.4	75.8	115.1	2.1	F	(D)
Virginia	E1	20	12	.8	18.7	.6	1.2	10.9	55.6	182.7	237.6	7.0	1.0	49.0
Washington	–	16	12	.7	19.8	.6	1.1	12.8	67.8	127.0	191.9	2.6	.5	25.4
West Virginia	E3	9	4	.2	4.1	.2	.4	2.9	11.7	47.0	57.5	1.1	C	(D)
Wisconsin	–	12	5	.2	6.3	.2	.4	3.6	9.2	64.7	74.6	.6	.2	11.1
INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS														
United States	–	**288**	**180**	**22.8**	**614.3**	**18.5**	**39.9**	**458.8**	**1 930.7**	**2 029.8**	**3 980.6**	**142.8**	**22.0**	**1 371.1**
Alabama	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	.3	29.7
Arkansas	–	3	3	.4	10.9	.3	.8	8.4	27.7	31.2	59.1	.2	.4	21.1
California	–	27	16	1.5	38.1	1.2	2.5	28.7	90.2	136.9	229.0	6.3	1.3	82.0
Colorado	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Georgia	–	14	10	1.2	29.4	.9	2.0	21.9	132.7	127.3	260.4	13.5	.6	42.8
Idaho	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Illinois	E2	9	7	.8	14.2	.6	1.3	8.5	26.8	33.1	59.9	1.7	.7	21.3
Indiana	–	12	6	.4	7.1	.3	.6	4.9	24.7	12.3	36.6	3.5	.3	8.3
Louisiana	–	6	5	.9	24.9	.8	1.7	20.3	55.9	76.7	134.0	(D)	.8	33.1
Maine	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	16	11	1.4	43.5	1.1	2.3	31.7	163.9	134.6	300.1	8.4	1.3	89.6
Minnesota	–	11	8	1.3	40.8	1.1	2.2	33.5	202.7	118.9	325.8	8.4	G	(D)
Mississippi	–	8	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	81.9
Montana	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Mexico	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	20	17	2.1	54.0	1.7	3.7	38.1	105.2	182.3	286.9	14.0	2.2	91.4
North Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	8	4	.4	11.4	.3	.5	5.6	46.1	38.4	84.6	(D)	F	(D)
Oregon	–	24	22	2.4	76.2	1.9	4.2	56.5	182.6	279.0	461.9	11.2	2.5	192.8
Pennsylvania	–	11	5	1.0	32.7	.9	2.0	26.2	119.9	84.0	203.2	8.3	F	(D)
South Carolina	–	9	7	1.0	25.6	.8	1.7	19.9	54.8	88.4	143.5	7.0	F	(D)
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	16	11	1.1	29.9	.9	2.1	23.3	126.5	122.7	251.0	10.5	F	(D)
Virginia	–	11	9	1.3	32.7	1.1	2.4	24.0	98.5	96.5	197.0	4.9	1.5	90.1
Washington	–	10	5	.3	6.6	.2	.5	4.0	20.1	18.6	38.8	2.1	(NA)	(NA)
Wisconsin	–	8	7	.9	24.8	.7	1.6	18.0	108.4	101.7	211.6	2.7	.6	54.6
INDUSTRY 2499, WOOD PRODUCTS, N.E.C.														
United States	**E2**	**2 754**	**589**	**51.1**	**889.4**	**42.3**	**81.0**	**607.9**	**2 007.0**	**1 726.6**	**3 716.8**	**67.7**	**56.3**	**1 726.0**
Alabama	–	54	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.5	1.0	29.3
Arizona	E5	30	6	.4	5.3	.3	.5	3.3	9.5	9.1	19.0	.2	.3	8.2
Arkansas	–	47	12	1.4	19.8	1.3	2.4	15.2	54.6	48.9	103.5	1.6	1.5	35.9
California	E1	309	64	6.6	121.3	5.3	10.2	75.9	270.3	298.3	561.2	7.5	7.3	210.5
Colorado	E6	35	2	.2	2.8	.2	.3	1.9	7.1	4.4	11.3	(D)	C	(D)
Connecticut	E1	21	4	.3	5.1	.2	.4	4.0	10.1	14.2	24.1	(D)	E	(D)
Florida	E3	92	17	1.4	20.3	1.1	2.0	12.7	45.0	57.1	102.1	1.3	1.3	40.6
Georgia	E4	51	11	.7	10.9	.6	1.0	7.3	21.7	27.2	48.7	1.1	1.7	55.1
Idaho	E2	16	1	.1	1.6	.1	.2	1.2	3.5	4.4	7.7	(D)	E	(D)
Illinois	E4	106	25	2.6	48.8	2.0	4.0	30.8	94.8	73.6	170.2	2.2	2.7	83.8
Indiana	E1	85	22	1.7	27.0	1.3	2.6	18.0	49.6	54.9	104.5	(D)	1.4	37.7
Iowa	–	32	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Kansas	E1	23	5	.3	3.8	.2	.4	3.0	13.5	5.9	19.5	.2	E	(D)
Kentucky	E1	30	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	.5	16.3
Louisiana	E1	21	4	.2	3.1	.2	.4	2.3	6.8	7.5	14.4	.4	.2	6.5
Maine	E1	63	27	2.8	49.8	2.4	5.0	38.0	100.9	55.8	155.8	3.0	3.5	102.5
Maryland	E4	24	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	.6	18.6
Massachusetts	E4	65	12	1.1	22.7	.9	1.7	15.2	47.0	45.2	92.1	.8	1.4	41.8
Michigan	E1	87	13	1.0	21.3	.8	1.6	13.6	46.8	49.0	96.0	1.3	1.6	58.8
Minnesota	–	62	14	.9	14.1	.8	1.4	10.1	30.9	28.9	59.6	(D)	F	(D)
Mississippi	E4	50	15	2.4	38.3	2.0	4.2	26.4	85.4	79.0	164.6	5.4	2.1	66.0
Missouri	E2	89	21	1.6	22.3	1.3	2.4	15.6	52.9	46.0	98.3	1.7	1.4	39.7
Montana	E2	22	4	.2	2.7	.2	.3	2.0	5.4	4.7	10.1	.1	(NA)	(NA)
New Hampshire	E1	41	11	.7	14.5	.6	1.2	9.7	27.4	16.6	44.4	1.0	1.1	34.1
New Jersey	E2	43	7	.5	9.0	.3	.7	5.3	17.5	21.9	40.0	.3	F	(D)
New York	E1	168	49	3.1	60.8	2.5	4.9	39.2	107.8	95.7	202.4	(D)	H	(D)
North Carolina	E4	111	38	2.5	45.2	2.2	4.0	32.2	116.0	87.2	203.1	3.3	3.1	113.2
Ohio	–	142	28	4.1	75.0	3.6	6.7	57.9	277.5	124.5	397.7	8.2	2.3	81.4
Oklahoma	E1	21	4	.2	4.1	.2	.3	2.8	10.0	8.9	18.8	.2	.2	4.3
Oregon	E2	96	12	.9	12.6	.7	1.2	7.9	26.6	25.9	52.3	1.0	1.0	28.2
Pennsylvania	E2	108	13	.9	16.1	.8	1.5	12.0	31.7	35.3	67.2	1.1	1.8	53.2
South Carolina	E4	32	9	.6	8.7	.5	1.0	6.3	17.2	15.8	32.8	.7	F	(D)
Tennessee	E1	71	22	1.5	21.2	1.3	2.3	14.9	46.3	41.3	86.4	1.1	G	(D)
Texas	E4	129	25	2.6	42.6	2.2	4.4	30.4	101.8	88.0	189.0	3.5	3.3	96.5
Utah	E1	18	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_1065 [MCD_SRB,BA_TAYLOR] MCD-SRB 5/17/95 5:07 PM MACHINE: EPCV24 DATA:NONE TAPE: NOreel FRAME: 5
TSF:24C_92.DAT;1 5/17/95 17:06:38 UTF:24C_93.DAT;1 5/17/95 17:06:39 META:TIPS96-17063362.DAT;1 5/17/95 17:07:33

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2499, WOOD PRODUCTS, N.E.C.—Con.														
Vermont	–	35	9	.7	14.5	.5	1.1	10.5	29.6	30.2	59.8	(D)	F	(D)
Virginia	–	56	17	1.4	23.4	1.1	2.1	14.3	36.4	35.9	71.9	1.7	1.6	46.3
Washington	E2	76	12	.9	18.9	.7	1.2	11.3	38.2	31.3	68.0	1.6	G	(D)
West Virginia	E1	19	1	.2	2.1	.1	.2	1.5	6.2	5.6	12.0	.5	E	(D)
Wisconsin	E2	94	16	1.6	27.5	1.4	2.5	20.7	51.8	42.2	93.0	2.2	1.0	29.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Nailed wood boxes and shook (SIC 2441)	Wood pallets and skids (SIC 2448)	Wood containers, n.e.c. (SIC 2449)	Wood preserving (SIC 2491)	Reconstituted wood products (SIC 2493)	Wood products, n.e.c. (SIC 2499)
Companies	number	291	1 883	217	407	195	2 644
All establishments	number	304	1 912	225	486	288	2 754
With 1 to 19 employees	number	217	1 455	175	307	108	2 165
With 20 to 99 employees	number	80	437	35	168	80	500
With 100 employees or more	number	7	20	15	11	100	89
Employment and labor costs:							
Employees	1,000	5.9	28.7	5.4	10.8	22.8	51.1
Compensation, total	mil dol	124.8	534.0	108.3	286.1	779.9	1 094.7
Annual payroll	mil dol	101.2	449.4	89.4	232.8	614.3	889.4
Fringe benefits	mil dol	23.6	84.5	18.9	53.3	165.6	205.3
Social Security and other legally required payments	mil dol	11.8	50.6	10.4	26.1	76.6	104.8
Employer voluntary payments	mil dol	11.8	34.0	8.4	27.1	89.0	100.5
Production workers:							
Average for year	1,000	4.7	23.4	4.4	8.3	18.5	42.3
March	1,000	4.7	23.3	4.6	8.5	18.3	42.0
May	1,000	4.9	23.6	4.5	8.6	18.6	42.0
August	1,000	4.9	23.9	4.3	8.4	18.7	42.5
November	1,000	4.4	23.0	4.1	7.8	18.6	42.8
Hours	millions	9.1	44.8	8.6	17.2	39.9	81.0
Wages	mil dol	67.1	311.0	58.6	150.4	458.8	607.9
Cost of materials[1]	mil dol	255.8	1 183.8	178.0	2 046.7	2 029.8	1 726.6
Materials, parts, containers, etc., consumed[2]	mil dol	220.2	1 080.6	160.7	1 913.0	1 727.8	1 533.1
Resales	mil dol	22.9	49.7	8.6	78.7	22.3	112.7
Fuels	mil dol	1.9	11.7	1.2	20.1	72.8	15.9
Purchased electricity	mil dol	4.9	28.1	4.7	16.6	187.7	45.6
Contract work	mil dol	5.8	13.7	2.7	18.3	19.2	19.3
Quantity of electric energy used for heat and power:							
Purchased	mil kWh	72.9	450.6	87.4	285.5	4 067.5	713.1
Generated less sold	mil kWh	–	(D)	–	(D)	(D)	(D)
Total value of shipments	mil dol	444.0	2 143.3	343.3	2 694.8	3 980.6	3 716.8
Value added	mil dol	189.3	961.4	164.2	678.5	1 930.7	2 007.0
Inventories by stage of fabrication:							
Beginning of 1992	mil dol	47.6	153.2	66.1	425.5	303.6	509.4
Finished goods	mil dol	17.0	29.6	18.2	240.1	122.6	226.7
Work in process	mil dol	7.0	25.1	8.5	113.2	31.4	91.6
Materials and supplies	mil dol	23.7	98.5	39.4	72.2	149.6	191.2
End of 1992	mil dol	49.3	154.2	59.9	458.4	302.3	537.9
Finished goods	mil dol	18.7	30.3	17.1	270.5	107.6	236.5
Work in process	mil dol	6.3	26.4	8.5	113.1	26.4	98.5
Materials and supplies	mil dol	24.2	97.6	34.3	74.7	168.4	202.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nailed wood boxes and shook (SIC 2441)	Wood pallets and skids (SIC 2448)	Wood containers, n.e.c. (SIC 2449)	Wood preserving (SIC 2491)	Reconstituted wood products (SIC 2493)	Wood products, n.e.c. (SIC 2499)
Gross book value of depreciable assets:						
Total:						
Beginning of year	88.7	559.8	84.4	521.7	3 141.3	972.1
New capital expenditures[1]	7.8	52.8	6.1	56.2	142.8	67.7
Used capital expenditures	.9	10.1	.6	7.4	5.1	9.4
Retirements	1.5	14.1	1.3	14.9	54.0	18.5
End of year	96.0	608.5	89.9	570.4	3 235.1	1 030.7
Buildings and other structures:						
Beginning of year	18.9	112.9	16.4	96.2	453.5	209.5
New capital expenditures	2.5	10.6	1.3	23.2	10.7	11.5
Used capital expenditures	(Z)	1.0	.2	1.0	.2	1.0
Retirements	(Z)	2.1	(Z)	.8	4.5	1.4
End of year	21.4	122.5	17.8	119.6	460.0	220.6
Machinery and equipment:						
Beginning of year	69.8	446.8	68.0	425.6	2 687.8	762.6
New capital expenditures[1]	5.3	42.2	4.8	32.9	132.1	56.1
Used capital expenditures	.9	9.1	.4	6.5	4.9	8.4
Retirements	1.5	12.0	1.2	14.2	49.6	17.1
End of year	74.6	486.0	72.0	450.8	2 775.1	810.1
Depreciation charges during 1992:						
Total	8.4	57.5	7.4	38.8	183.1	62.5
Buildings and other structures	1.2	8.4	.9	6.4	20.3	10.3
Machinery and equipment	7.2	49.0	6.5	32.5	162.9	52.2
Rental payments:						
Total	6.8	25.9	3.2	15.5	10.4	48.1
Buildings and other structures	3.8	14.5	1.6	9.0	5.4	28.3
Machinery and equipment	3.0	11.4	1.6	6.4	5.0	19.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nailed wood boxes and shook (SIC 2441)		Wood pallets and skids (SIC 2448)		Wood containers, n.e.c. (SIC 2449)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	.5	(X)	3.8	(X)	.2	(X)
Response coverage ratio (percent)[2]	67.6	(X)	67.2	(X)	81.4	(X)
Machinery	1.1	(X)	22.3	(X)	2.8	(X)
Response coverage ratio (percent)[2]	68.6	(X)	69.0	(X)	81.4	(X)
Other purchased services:						
Communications	1.5	(X)	3.9	(X)	.4	(X)
Response coverage ratio (percent)[2]	68.2	(X)	62.9	(X)	81.4	(X)
Legal	.2	(X)	2.0	(X)	.4	(X)
Response coverage ratio (percent)[2]	68.6	(X)	66.5	(X)	81.4	(X)
Accounting and bookkeeping	.5	(X)	3.3	(X)	.4	(X)
Response coverage ratio (percent)[2]	67.9	(X)	68.6	(X)	81.4	(X)
Advertising	.4	(X)	1.9	(X)	.1	(X)
Response coverage ratio (percent)[2]	67.6	(X)	66.6	(X)	81.4	(X)
Software and other data processing	.2	(X)	.3	(X)	.1	(X)
Response coverage ratio (percent)[2]	67.6	(X)	62.8	(X)	81.4	(X)
Refuse removal, including hazardous waste	.2	(X)	2.5	(X)	.2	(X)
Response coverage ratio (percent)[2]	68.6	(X)	64.2	(X)	81.4	(X)
New machinery and equipment expenditures	5.3	(X)	42.2	(X)	4.8	(X)
Automobiles, trucks, etc., for highway use	(S)	(X)	6.9	20	1.0	8
Computers and peripheral data processing equipment	(S)	(X)	2.4	61	(Z)	(X)
All other	(S)	(X)	32.8	6	3.8	3
Adjustment ratio[3]	(S)	(X)	1.5	(X)	1.9	(X)
Cost of materials, components, parts, etc., used	220.2	(X)	1 080.6	(X)	160.7	(X)
Materials purchased or transferred from foreign sources[4]	.7	36	20.6	22	1.3	19
Materials purchased or transferred from domestic sources	219.5	1	1 060.0	1	159.4	1
Adjustment ratio[3]	1.5	(X)	1.5	(X)	1.8	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood preserving (SIC 2491)		Reconstituted wood products (SIC 2493)		Wood products, n.e.c. (SIC 2499)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.2	(X)	5.0	(X)	4.0	(X)
Response coverage ratio (percent)[2]	54.8	(X)	91.2	(X)	72.2	(X)
Machinery	19.9	(X)	78.6	(X)	28.1	(X)
Response coverage ratio (percent)[2]	55.3	(X)	93.6	(X)	75.9	(X)
Other purchased services:						
Communications	2.8	(X)	4.9	(X)	6.1	(X)
Response coverage ratio (percent)[2]	50.2	(X)	89.3	(X)	62.6	(X)
Legal	2.1	(X)	2.0	(X)	4.0	(X)
Response coverage ratio (percent)[2]	54.7	(X)	92.2	(X)	72.0	(X)
Accounting and bookkeeping	2.5	(X)	1.7	(X)	6.5	(X)
Response coverage ratio (percent)[2]	55.0	(X)	92.0	(X)	75.0	(X)
Advertising	2.5	(X)	3.3	(X)	10.6	(X)
Response coverage ratio (percent)[2]	52.0	(X)	92.8	(X)	69.6	(X)
Software and other data processing	1.1	(X)	1.2	(X)	1.5	(X)
Response coverage ratio (percent)[2]	54.8	(X)	91.1	(X)	70.1	(X)
Refuse removal, including hazardous waste	5.4	(X)	5.3	(X)	3.3	(X)
Response coverage ratio (percent)[2]	51.5	(X)	93.6	(X)	70.8	(X)
New machinery and equipment expenditures	32.9	(X)	132.1	(X)	56.1	(X)
Automobiles, trucks, etc., for highway use	4.0	31	1.0	9	5.4	54
Computers and peripheral data processing equipment	.8	25	1.4	9	1.7	34
All other	28.1	5	129.6	1	49.1	7
Adjustment ratio[3]	1.7	(X)	1.2	(X)	.8	(X)
Cost of materials, components, parts, etc., used	1 913.0	(X)	1 727.8	(X)	1 533.1	(X)
Materials purchased or transferred from foreign sources[4]	.1	12	85.8	61	(S)	(X)
Materials purchased or transferred from domestic sources	1 912.9	1	1 642.0	4	(S)	(X)
Adjustment ratio[3]	1.7	(X)	1.4	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK												
Total	**E1**	**304**	**5.9**	**101.2**	**4.7**	**9.1**	**67.1**	**189.3**	**255.8**	**444.0**	**7.8**	**49.3**
Establishments with an average of—												
1 to 4 employees	E6	79	.2	2.6	.1	.2	1.7	5.6	6.0	11.6	.4	.7
5 to 9 employees	E1	68	.5	8.9	.4	.7	6.2	18.6	16.3	34.7	.8	3.2
10 to 19 employees	E1	70	1.0	16.8	.8	1.5	10.9	33.3	29.7	62.9	1.0	4.0
20 to 49 employees	E1	60	1.8	32.8	1.4	2.7	20.0	60.7	72.1	132.8	1.6	14.9
50 to 99 employees	–	20	1.4	25.8	1.2	2.5	18.1	42.7	85.6	129.6	1.6	13.7
100 to 249 employees	–	7	1.0	14.3	.9	1.6	10.2	28.4	46.1	72.4	2.4	12.7
Covered by administrative records[2]	E9	77	.2	2.6	.2	.3	1.8	4.6	6.0	10.7	.3	.6
INDUSTRY 2448, WOOD PALLETS AND SKIDS												
Total	**E1**	**1 912**	**28.7**	**449.4**	**23.4**	**44.8**	**311.0**	**961.4**	**1 183.8**	**2 143.3**	**52.8**	**154.2**
Establishments with an average of—												
1 to 4 employees	E6	576	1.2	16.6	1.0	1.9	12.3	37.1	49.0	86.2	2.4	6.4
5 to 9 employees	E2	427	2.9	38.3	2.3	4.2	28.2	94.6	96.1	189.9	4.2	14.2
10 to 19 employees	E1	452	6.4	95.1	5.2	9.6	66.3	218.3	258.1	476.7	11.8	31.8
20 to 49 employees	–	361	10.7	169.0	8.8	16.8	116.2	360.6	437.4	798.9	18.0	57.7
50 to 99 employees	E1	76	4.8	82.6	4.0	7.9	57.6	160.1	210.1	370.2	13.1	24.8
100 to 249 employees	E1	20	2.6	47.8	2.1	4.3	30.5	90.6	133.1	221.4	3.3	19.4
Covered by administrative records[2]	E9	545	1.6	16.8	1.3	2.1	11.8	35.2	50.6	85.7	2.7	7.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2449, WOOD CONTAINERS, N.E.C.												
Total	**E2**	**225**	**5.4**	**89.4**	**4.4**	**8.6**	**58.6**	**164.2**	**178.0**	**343.3**	**6.1**	**59.9**
Establishments with an average of—												
1 to 4 employees	E7	106	.2	2.9	.1	.3	2.0	5.4	7.6	13.1	.3	1.1
5 to 9 employees	E4	38	.2	3.6	.2	.3	2.5	7.2	8.7	15.9	.3	1.3
10 to 19 employees	E1	31	.4	6.2	.3	.6	4.3	13.4	21.1	35.0	.7	3.9
20 to 49 employees	E3	17	.5	8.4	.5	.9	6.2	16.2	20.3	37.1	.6	4.2
50 to 99 employees	E2	18	1.2	20.1	1.0	2.0	12.9	35.6	31.9	67.5	.5	10.2
100 to 249 employees	E2	13	2.7	48.2	2.2	4.5	30.6	86.3	88.4	174.7	3.7	39.3
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	120	.4	3.7	.3	.5	2.6	7.1	9.2	16.3	.4	1.3
INDUSTRY 2491, WOOD PRESERVING												
Total	**E1**	**486**	**10.8**	**232.8**	**8.3**	**17.2**	**150.4**	**678.5**	**2 046.7**	**2 694.8**	**56.2**	**458.4**
Establishments with an average of—												
1 to 4 employees	E8	120	.2	4.0	.2	.3	2.7	9.9	30.2	39.9	1.0	7.2
5 to 9 employees	E3	90	.6	12.1	.5	1.0	8.2	35.8	105.7	140.4	2.4	24.0
10 to 19 employees	E1	97	1.4	26.6	1.0	1.9	16.4	90.7	303.7	381.9	6.3	64.4
20 to 49 employees	–	121	3.8	86.3	2.8	6.0	51.9	280.0	886.0	1 152.0	17.4	188.0
50 to 99 employees	–	47	3.2	70.9	2.6	5.3	49.3	188.8	505.6	690.1	22.9	137.9
100 to 249 employees	E1	11	1.6	32.9	1.3	2.7	21.9	73.3	215.4	290.5	6.2	36.9
Covered by administrative records[2]	E9	129	.3	4.5	.3	.5	3.0	9.6	33.2	42.8	1.1	7.7
INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS												
Total	**–**	**288**	**22.8**	**614.3**	**18.5**	**39.9**	**458.8**	**1 930.7**	**2 029.8**	**3 980.6**	**142.8**	**302.3**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	1.3	.1	.1	1.0	2.7	3.4	6.1	.2	.7
5 to 9 employees	E3	36	.2	4.8	.2	.4	3.4	9.8	11.6	23.6	.6	1.8
10 to 19 employees	E3	34	.5	9.6	.4	.7	6.3	19.1	23.0	41.8	1.1	3.8
20 to 49 employees	–	49	1.7	38.1	1.3	2.9	25.5	110.1	164.9	276.0	9.1	31.1
50 to 99 employees	–	31	2.1	60.4	1.7	3.5	40.6	142.5	194.9	340.9	11.9	31.8
100 to 249 employees	–	85	12.8	354.0	10.3	22.8	265.7	1 259.6	1 234.9	2 506.8	84.3	160.3
250 to 499 employees	–	13	5.4	146.1	4.6	9.6	116.3	386.9	397.0	785.3	35.4	72.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	54	.3	4.3	.2	.5	3.2	7.4	10.5	17.9	.8	1.8
INDUSTRY 2499, WOOD PRODUCTS, N.E.C.												
Total	**E2**	**2 754**	**51.1**	**889.4**	**42.3**	**81.0**	**607.9**	**2 007.0**	**1 726.6**	**3 716.8**	**67.7**	**537.9**
Establishments with an average of—												
1 to 4 employees	E7	1 224	2.2	32.0	2.0	3.2	22.1	72.0	70.4	142.0	2.1	18.6
5 to 9 employees	E3	540	3.6	54.6	2.9	5.1	38.9	119.8	113.7	232.1	3.6	29.8
10 to 19 employees	E1	401	5.5	95.1	4.4	8.3	63.7	206.2	203.8	407.8	7.2	57.1
20 to 49 employees	E1	375	11.5	199.3	9.3	17.4	130.7	408.8	399.7	806.6	16.1	111.9
50 to 99 employees	E1	125	8.5	155.5	6.9	14.3	103.1	302.3	259.3	561.6	9.7	84.7
100 to 249 employees	E1	67	9.9	177.9	8.2	16.1	117.4	366.1	334.7	693.7	12.8	109.1
250 to 499 employees	E4	17	5.8	94.5	5.0	9.3	68.4	225.6	186.1	410.2	5.1	75.5
500 to 999 employees	E5	4	4.0	80.5	3.5	7.3	63.6	306.1	158.8	462.9	11.1	51.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 231	3.0	33.3	2.7	3.8	22.4	68.4	77.0	145.5	2.0	19.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2441	**Nailed wood boxes and shook:**										
	All establishments in industry	304	5.9	101.2	4.7	9.1	67.1	189.3	255.8	444.0	7.8
	Establishments with this product class primary:										
24411	Nailed or lock-corner wooden boxes	73	1.9	31.4	1.5	3.0	20.5	61.9	58.3	121.0	1.4
24412	Wooden box and crate shook	108	3.0	53.2	2.4	4.8	36.5	95.5	161.4	254.9	5.0
2448	**Wood pallets and skids:**										
	All establishments in industry	1 912	28.7	449.4	23.4	44.8	311.0	961.4	1 183.8	2 143.3	52.8
2449	**Wood containers, n.e.c.:**										
	All establishments in industry	225	5.4	89.4	4.4	8.6	58.6	164.2	178.0	343.3	6.1
2491	**Wood preserving:**										
	All establishments in industry	486	10.8	232.8	8.3	17.2	150.4	678.5	2 046.7	2 694.8	56.2
	Establishments with this product class primary:										
24912	Wood poles, piles, and posts owned and treated by same establishment	83	2.6	62.7	2.0	4.3	40.0	150.2	389.6	537.4	14.4
24913	Other wood products owned and treated by same establishment	175	6.0	130.1	4.7	9.6	82.8	435.1	1 449.6	1 855.1	34.7
24919	Contract wood preserving	29	.5	10.8	.3	.7	6.8	28.6	46.2	75.1	1.9
2493	**Reconstituted wood products:**										
	All establishments in industry	288	22.8	614.3	18.5	39.9	458.8	1 930.7	2 029.8	3 980.6	142.8
	Establishments with this product class primary:										
24931	Particleboard, produced at this location	45	6.0	164.7	4.9	10.4	125.5	385.0	557.5	943.7	22.8
24932	Waferboard and oriented strand board	26	3.7	109.1	3.1	7.1	89.2	660.0	442.8	1 111.8	58.2
24933	Medium density fiberboard (MDF) produced at this location	16	2.1	58.0	1.7	3.8	44.4	167.7	214.7	386.8	18.6
24934	Hardboard products made from hardboard produced at this location	20	4.6	132.5	3.8	7.9	99.8	360.5	324.5	689.0	21.5
24935	Cellulosic fiberboard (insulating board)	6	.7	21.2	.6	1.2	15.9	46.9	50.2	98.9	1.5
24936	Hardboard products made from purchased hardboard	27	1.4	30.3	1.1	2.3	18.5	76.7	76.4	153.8	6.1
24937	Prefinished particleboard and medium density fiberboard (MDF) made from purchased particleboard and MDF	63	3.3	74.2	2.5	5.2	48.3	180.2	292.8	473.1	10.4
2499	**Wood products, n.e.c.:**										
	All establishments in industry	2 754	51.1	889.4	42.3	81.0	607.9	2 007.0	1 726.6	3 716.8	67.7
	Establishments with this product class primary:										
24991	Mirror and picture frames	223	11.1	189.5	9.2	19.2	130.4	470.8	370.3	840.0	9.4
24992	Cork and cork products	16	.4	9.3	.3	.6	5.6	39.3	51.2	89.5	1.9
24994	Miscellaneous wood products	865	28.3	522.4	23.3	45.0	357.0	1 132.7	979.6	2 101.4	44.2

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK			
Total value of shipments	444.0	325.0	306.8
Primary products value of shipments	339.6	274.7	254.1
Secondary products value of shipments	70.2	28.8	29.6
Total miscellaneous receipts	34.2	21.5	23.0
Value of resales	27.1	16.2	15.7
Contract receipts	3.7	1.5	6.2
Other miscellaneous receipts	3.4	3.8	1.1
Sales of scrap and refuse	.3	(NA)	.4
Other miscellaneous receipts	2.5	(NA)	.5
Other miscellaneous receipts, n.s.k.	.6	(NA)	.2
Primary products specialization ratio	83	91	90
Value of primary products shipments made in all industries	421.1	347.6	314.6
Value of primary products shipments made in this industry	339.6	274.7	254.1
Value of primary products shipments made in other industries	81.5	72.9	60.5
Coverage ratio	81	79	81

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2448, WOOD PALLETS AND SKIDS			
Total value of shipments	2 143.3	1 496.1	1 012.3
Primary products value of shipments	1 885.9	1 352.8	904.9
Secondary products value of shipments	171.9	99.7	73.9
Total miscellaneous receipts	85.6	43.5	33.5
Value of resales	61.1	26.1	22.0
Contract receipts	8.7	3.9	3.3
Other miscellaneous receipts	15.7	13.5	8.2
Sales of scrap and refuse	4.0	(NA)	2.6
Other miscellaneous receipts	7.8	(NA)	4.0
Other miscellaneous receipts, n.s.k.	3.9	(NA)	1.6
Primary products specialization ratio	92	93	92
Value of primary products shipments made in all industries	2 020.2	1 437.0	969.7
Value of primary products shipments made in this industry	1 885.9	1 352.8	904.9
Value of primary products shipments made in other industries	134.3	84.2	64.8
Coverage ratio	93	94	93
INDUSTRY 2449, WOOD CONTAINERS, N.E.C.			
Total value of shipments	343.3	248.3	315.8
Primary products value of shipments	313.9	210.8	286.4
Secondary products value of shipments	18.0	18.5	15.2
Total miscellaneous receipts	11.4	19.0	14.2
Value of resales	10.1	12.7	3.9
Contract receipts	.7	5.1	(D)
Other miscellaneous receipts	.6	1.2	(D)
Sales of scrap and refuse	.5	(NA)	(D)
Other miscellaneous receipts	.2	(NA)	1.0
Other miscellaneous receipts, n.s.k.	–	(NA)	–
Primary products specialization ratio	95	92	95
Value of primary products shipments made in all industries	324.8	218.6	295.6
Value of primary products shipments made in this industry	313.9	210.8	286.4
Value of primary products shipments made in other industries	10.9	7.7	9.2
Coverage ratio	97	96	97
INDUSTRY 2491, WOOD PRESERVING			
Total value of shipments	2 694.8	2 169.6	1 360.2
Primary products value of shipments	2 500.5	2 051.7	1 269.6
Secondary products value of shipments	74.2	69.2	26.7
Total miscellaneous receipts	120.2	48.8	63.9
Value of resales	94.5	27.0	43.2
Contract receipts	18.8	10.9	10.8
Other miscellaneous receipts	6.8	11.0	9.9
Sales of scrap and refuse	.5	(NA)	(D)
Other miscellaneous receipts	6.0	(NA)	7.9
Other miscellaneous receipts, n.s.k.	.3	(NA)	(D)
Primary products specialization ratio	97	97	98
Value of primary products shipments made in all industries	2 608.5	2 151.9	1 325.0
Value of primary products shipments made in this industry	2 500.5	2 051.7	1 269.6
Value of primary products shipments made in other industries	108.0	100.2	55.4
Coverage ratio	96	95	96
INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS			
Total value of shipments	3 980.6	2 864.9	(NA)
Primary products value of shipments	3 898.1	2 763.5	(NA)
Secondary products value of shipments	41.5	42.2	(NA)
Total miscellaneous receipts	41.0	59.2	(NA)
Value of resales	28.7	49.8	(NA)
Contract receipts	(D)	1.6	(NA)
Other miscellaneous receipts	(D)	7.8	(NA)
Sales of scrap and refuse	4.6	(NA)	(NA)
Other miscellaneous receipts	(D)	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	99	98	(NA)
Value of primary products shipments made in all industries	3 979.6	2 896.4	(NA)
Value of primary products shipments made in this industry	3 898.1	2 763.5	(NA)
Value of primary products shipments made in other industries	81.6	132.8	(NA)
Coverage ratio	98	95	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2499, WOOD PRODUCTS, N.E.C.			
Total value of shipments	3 716.8	3 295.5	(NA)
Primary products value of shipments	3 306.5	2 983.3	(NA)
Secondary products value of shipments	181.2	144.5	(NA)
Total miscellaneous receipts	229.1	167.7	(NA)
Value of resales	189.4	124.7	(NA)
Contract receipts	28.6	27.4	(NA)
Other miscellaneous receipts	11.1	15.6	(NA)
Sales of scrap and refuse	5.4	(NA)	(NA)
Other miscellaneous receipts	4.8	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	1.0	(NA)	(NA)
Primary products specialization ratio	95	95	(NA)
Value of primary products shipments made in all industries	3 516.0	3 183.1	(NA)
Value of primary products shipments made in this industry	3 306.5	2 983.3	(NA)
Value of primary products shipments made in other industries	209.5	199.8	(NA)
Coverage ratio	94	94	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2441– —	**NAILED WOOD BOXES AND SHOOK**				
	Total	**(NA)**	**421.1**	**(NA)**	**347.6**
24411	Nailed or lock-corner wooden boxes	(NA)	126.6	(NA)	97.6
24411 27	Made from lumber	72	65.8	57	57.8
24411 63	Made from veneer and plywood, and combination wood and fiber boxes, including wood and part wooden cigar boxes	55	55.9	45	38.1
24411 00	Nailed or lock-corner wooden boxes, n.s.k.	(NA)	4.9	(NA)	1.7
24412	Wooden box and crate shook	(NA)	229.5	(NA)	180.8
	Made from lumber:				
24412 11	For fruits and vegetables	35	60.9	25	31.3
24412 15	For industrial and other uses	132	114.1	110	104.6
24412 25	Made from veneer and plywood for fruits, vegetables, meat, industrial, and other uses	26	40.7	33	39.6
24412 00	Wooden box and crate shook, n.s.k.	(NA)	13.8	(NA)	5.2
24410	Nailed wood boxes and shook, n.s.k.	(NA)	65.0	(NA)	69.2
24410 00	Nailed wood boxes and shook, n.s.k.[3]	(NA)	54.4	(NA)	55.2
24410 02	Nailed wood boxes and shook, n.s.k.[4]	(NA)	10.7	(NA)	14.0
2448– —	**WOOD PALLETS AND SKIDS**				
	Total	**(NA)**	**2 020.2**	**(NA)**	**1 437.0**
24480	Pallets and skids	(NA)	2 020.2	(NA)	1 437.0
24480 62	Pallets, wooden, flat	1 027	1 449.3	640	820.5
24480 64	Pallet containers	64	73.5	49	49.2
24480 65	Skids, wooden	167	105.9	118	69.5
24480 66	Pallets and skids, wood and metal combination	67	92.6	49	59.8
24480 00	Wood pallets and skids, n.s.k.[3]	(NA)	213.2	(NA)	334.5
24480 02	Wood pallets and skids, n.s.k.[4]	(NA)	85.7	(NA)	103.5
2449– —	**WOOD CONTAINERS, N.E.C.**				
	Total	**(NA)**	**324.8**	**(NA)**	**218.6**
24490	Wood containers, n.e.c.	(NA)	324.8	(NA)	218.6
24490 11	Wirebound boxes made from lumber	12	25.4	12	23.7
	Wirebound boxes made from veneer and plywood:				
24490 21	For fruits and vegetables	14	78.0	14	66.2
24490 43	For industrial and other uses, including meat and poultry	14	21.2	(NA)	19.9
24490 61	Veneer and plywood containers, including pails, drums, tubs, fruit and vegetable baskets, hampers, etc.	22	31.1	14	27.0
24490 73	Slack and tight cooperage (hogsheads, barrels, kegs, tubs, etc.) new and recoopered used	19	97.4	(NA)	36.8
24490 00	Wood containers, n.e.c., n.s.k.[3]	(NA)	55.5	(NA)	27.4
24490 02	Wood containers, n.e.c., n.s.k.[4]	(NA)	16.3	(NA)	17.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2491– —	**WOOD PRESERVING**						
	Total	**(NA)**	**(X)**	**2 608.5**	**(NA)**	**(X)**	**2 151.9**
24912	Wood poles, piles, and posts owned and treated by same establishment	(NA)	(X)	540.4	(NA)	(X)	478.2
	Not more than 15 feet in length treated with:						
24912 01	Pentachlorophenol	11	(X)	31.3	14	(X)	31.5
24912 03	Arsenical chemicals	41	(X)	84.9	33	(X)	67.7
24912 05	Creosote	9	(X)	6.5	13	(X)	16.5
24912 07	Other chemicals	3	(X)	1.6	4	(X)	2.9
	More than 15 feet in length treated with:						
24912 09	Pentachlorophenol thousands	25	(S)	169.2	29	(S)	129.9
24912 12	Arsenical chemicals thousands	35	(S)	70.8	22	(S)	26.4
24912 14	Creosote thousands	24	(S)	93.5	20	*3 384.9	106.7
24912 16	Other chemicals thousands	8	(S)	32.6	8	**1 205.3	45.6
24912 00	Wood poles, piles, and posts owned and treated by same establishment, n.s.k.	(NA)	(X)	50.0	(NA)	(X)	51.0
24913	Other wood products owned and treated by same establishment	(NA)	(X)	1 723.5	(NA)	(X)	1 265.1
24913 02	Railway crossties and mine ties (except switch or bridge) thousands	17	(S)	168.3	(NA)	*9 187.1	141.5
	Lumber, rough and dressed, not edged, treated with:						
24913 05	Fire-retardant, interior and exterior mil bd ft	18	**77.0	46.6	17	*58.2	27.5
24913 07	Pentachlorophenol mil bd ft	12	*166.5	63.3	13	(S)	26.2
24913 09	Arsenical chemicals mil bd ft	92	**2 676.2	1 033.0	79	**2 061.5	709.0
24913 12	Other chemicals mil bd ft	29	(S)	89.5	22	(S)	138.4
24913 14	Wood siding, flooring, other edged lumber mil bd ft	15	**59.7	24.6	7	*116.2	46.2
24913 17	Switch and bridge ties thousands	12	(S)	29.2	14	(S)	16.2
24913 21	Other wood treated products, n.e.c., including plywood, wood fence pickets, paling, and rails	38	(X)	101.7	(NA)	(X)	60.1
24913 00	Other wood products owned and treated by same establishment, n.s.k.	(NA)	(X)	167.4	(NA)	(X)	100.0
24919	Contract wood preserving	(NA)	(X)	122.6	(NA)	(X)	105.5
	Contract wood treating service (receipts for treating wood owned by others):						
24919 05	Arsenical chemicals	61	(X)	45.5	48	(X)	35.0
24919 07	Creosote	12	(X)	42.1	14	(X)	43.3
24919 11	Other chemicals, including fire-retardant and pentachlorophenol	21	(X)	27.3	(NA)	(X)	18.5
24919 00	Contract wood preserving, n.s.k.	(NA)	(X)	7.7	(NA)	(X)	8.7
24910	Wood preserving, n.s.k.	(NA)	(X)	221.9	(NA)	(X)	303.0
24910 00	Wood preserving, n.s.k.[3]	(NA)	(X)	179.2	(NA)	(X)	225.5
24910 02	Wood preserving, n.s.k.[4]	(NA)	(X)	42.8	(NA)	(X)	77.6
2493– —	**RECONSTITUTED WOOD PRODUCTS**						
	Total	**(NA)**	**(X)**	**3 979.6**	**(NA)**	**(X)**	**2 896.4**
24931	Particleboard, produced at this location	(NA)	(X)	950.0	(NA)	(X)	849.1
24931 03	Floor underlayment mil sq ft (3/4 in. basis)	8	339.2	60.4	9	694.8	129.2
24931 05	Mobile home decking mil sq ft (3/4 in. basis)	3	([5])	([5])	3	(D)	(D)
24931 20	Industrial board (furniture, fixtures, cabinets, toys, games, electronic cabinets, etc.) mil sq ft (3/4 in. basis)	19	2 823.7	664.4	(NA)	2 315.8	527.3
24931 21	Other, including stepping, siding, shelving, and door core, etc. mil sq ft (3/4 in. basis)	10	[5]709.1	[5]173.2	(NA)	(D)	(D)
24931 00	Particleboard, produced at this location, n.s.k.	(NA)	(X)	52.1	(NA)	(X)	36.6
24932	Waferboard and oriented strand board	(NA)	(X)	1 131.6	(NA)	(X)	513.3
24932 05	Sheathing panels mil sq ft (3/8 in. basis)	9	4 183.4	700.8			
24932 07	Underlayment panels mil sq ft (3/8 in. basis)	7	*579.5	109.9			
24932 09	Panels with surface treatment (overlays, filled, and sanded) mil sq ft (3/8 in. basis)	3	(D)	(D)	12	3 997.9	513.3
24932 21	Other panels, n.e.c. mil sq ft (3/8 in. basis)	4	(D)	(D)			
24932 00	Waferboard and oriented strand board, n.s.k.	(NA)	(X)	–			
24933	Medium density fiberboard (MDF) produced at this location	(NA)	(X)	383.4	(NA)	(X)	282.1
24933 14	Standard panel, not coated or prefinished mil sq ft (3/4 in. basis)	7	715.3	234.2	12	741.1	233.8
24933 16	All other, including cut to size, prefinished mil sq ft (3/4 in. basis)	9	403.0	141.9	(NA)	119.3	48.3
24933 00	Medium density fiberboard (MDF) produced at this location, n.s.k.	(NA)	(X)	7.4	(NA)	(X)	–

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2493– —	**RECONSTITUTED WOOD PRODUCTS**—Con.						
24934	Hardboard products made from hardboard produced at this location	(NA)	(X)	682.1	(NA)	(X)	573.7
	Basic hardboard (not machined or coated):						
24934 12	Standard—mil sq ft (1/8 in. basis)	5	1 267.6	116.9			
24934 14	Service, tempered, and other basic hardboard—mil sq ft (1/8 in. basis)	3	(D)	(D)			
24934 16	Machined and cut hardboard, including molded, cut to size, perforated, panel stock, etc., not coated—mil sq ft (1/8 in. basis)	3	(D)	(D)			
24934 17	Interior paneling—mil sq ft (1/8 in. basis)	4	**176.8	25.6	12	(X)	573.7
24934 18	Exterior siding—mil sq ft (1/8 in. basis)	5	(S)	301.7			
24934 19	Other, including doorskins, garage door panels, and furniture stock—mil sq ft (1/8 in. basis)	3	(D)	(D)			
24934 00	Hardboard products made from hardboard produced at this location, n.s.k.	(NA)	(X)	13.6			
24935	Cellulosic fiberboard (insulating board)	(NA)	(X)	104.3	(NA)	(X)	205.4
24935 00	Cellulosic fiberboard (insulating board)—mil sq ft (1/2 in. basis)	5	1 097.4	104.3	10	(NA)	205.4
24936	Hardboard products made from purchased hardboard	(NA)	(X)	174.1	(NA)	(X)	206.4
24936 12	Machined and cut hardboard, including molded, cut to size, perforated, panel stock, etc., not coated—mil sq ft (1/8 in. basis)	8	(S)	22.7	(NA)	(NA)	52.4
	Coated or laminated hardboard:						
24936 16	Interior paneling—mil sq ft (1/8 in. basis)	6	100.4	46.4	8	(S)	43.7
24936 17	Other, including doorskins, garage door panels, furniture stock, and siding—mil sq ft (1/8 in. basis)	21	(S)	61.6	16	(S)	46.2
24936 00	Hardboard products made from purchased hardboard, n.s.k.	(NA)	(X)	43.4	(NA)	(X)	64.3
24937	Prefinished particleboard and medium density fiberboard (MDF) made from purchased particleboard and MDF	(NA)	(X)	434.6	(NA)	(X)	216.1
24937 21	Prefinished particleboard made from purchased particleboard—mil sq ft (3/4 in. basis)	53	**719.6	313.7	51	**719.6	158.1
24937 31	Prefinished or coated medium density fiberboard (MDF) made from purchased MDF—mil sq ft (3/4 in. basis)	30	(S)	71.9	23	*112.4	33.6
24937 00	Prefinished particleboard and medium density fiberboard (MDF) made from purchased particleboard and MDF, n.s.k.	(NA)	(X)	49.0	(NA)	(X)	24.4
24930	Reconstituted wood products, n.s.k.	(NA)	(X)	119.5	(NA)	(X)	50.1
24930 00	Reconstituted wood products, n.s.k.[6]	(NA)	(X)	101.6	(NA)	(X)	45.5
24930 02	Reconstituted wood products, n.s.k.[7]	(NA)	(X)	17.9	(NA)	(X)	4.6

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2499– —	**WOOD PRODUCTS, N.E.C.**				
	Total	**(NA)**	**3 516.0**	**(NA)**	**3 183.1**
24991	Mirror and picture frames	(NA)	814.5	(NA)	605.1
	Frames for mirrors and pictures:				
24991 11	Wood	123	293.2	110	237.5
24991 15	Metal	29	119.6	35	107.5
	Finished moldings for mirrors and pictures:				
24991 31	Wood	48	54.0	36	59.6
24991 41	Metal	13	21.7	10	13.7
	Framed pictures:				
24991 61	Wood	60	200.9	48	92.3
24991 71	Other than wood (metal, plastics, fiber)	28	59.1	28	48.2
24991 00	Mirror and picture frames, n.s.k.	(NA)	66.1	(NA)	46.3
24992	Cork and cork products	(NA)	68.4	(NA)	43.3
24992 00	Cork and cork products, including natural and waste and articles made of natural, granulated, and composition cork	28	68.4	16	43.3
24994	Miscellaneous wood products	(NA)	2 001.5	(NA)	1 423.8
24994 11	Jewelry boxes; silverware chests; instrument cases; cigar and cigarette boxes; microscope, tool, or utensil cases; etc.	44	42.9	29	24.9
24994 14	Wood statuettes and other ornaments, including ashtrays, bookends, etc.	44	55.8	39	49.6
24994 16	Wood tableware and kitchenware	35	50.0	29	42.8
24994 17	Wood fences, palings, and rails assembled into fence sections	40	50.6	38	44.5
24994 19	Toothpicks, skewers, candy sticks, ice cream sticks, tongue depressors, drink mixers, and similar small wares	12	59.3	10	57.8

See footnotes at end of table.

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TSF:24C_92.DAT;1 5/17/95 17:06:38 UTF:24C_93.DAT;1 5/17/95 17:06:39 META:TIPS96-17063362.DAT;1 5/17/95 17:07:33

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2499– —	**WOOD PRODUCTS, N.E.C.**—Con.				
24994	Miscellaneous wood products—Con.				
24994 23	Firewood and fuel wood containing an added binder, including compressed logs	29	72.4	10	52.2
24994 25	Bamboo, rattan, willow and chip, basketwork, wickerwork, and related products of fibrous vegetable substances	17	43.2	12	48.5
24994 41	Lasts for boots and shoes, wood and other materials; remodeled last sole patterns and forms; shoe trees; and stretchers	5	11.9	7	19.7
	Handtool handles:				
24994 51	Striking tool handles (axe, pick, hammer, etc.)	15	25.1	17	33.0
24994 54	Other handtool handles, including spade, shovel, rake, scythe, and other mechanics, farm, garden, household, etc.	20	30.7	20	25.9
24994 57	Broom, mop, and paintbrush handles	13	24.3	16	30.4
24994 58	Other handles: wooden tools, tool bodies, and backs for brooms, mops, and brushes	16	17.8	12	18.6
24994 62	Dowels and dowel pins (plain or sanded, grooved, or otherwise advanced in condition)	30	51.4	29	53.2
24994 71	Stepladders	14	55.0	20	49.0
24994 75	Rung ladders (nonextension, extension, and scaffolding ladders)	18	13.8	17	32.5
24994 85	Wooden reels for wire and cable	36	163.1	34	119.0
24994 89	Wood flour	8	25.7	9	21.7
24994 91	Other fabricated industrial parts, except hardwood furniture parts	37	50.7	29	26.4
24994 97	Wood toilet seats, including molded wood	7	101.0	6	([8])
24994 98	Miscellaneous wooden products, n.e.c., including articles of wood, n.e.c., and wood turnings (except handles)	562	1 010.9	(NA)	[8]587.8
24994 00	Miscellaneous wood products, n.s.k.	(NA)	46.1	(NA)	86.3
24990	Wood products, n.e.c., n.s.k.	(NA)	631.6	(NA)	1 111.0
24990 00	Wood products, n.e.c., n.s.k.[3]	(NA)	486.1	(NA)	887.4
24990 02	Wood products, n.e.c., n.s.k.[4]	(NA)	145.5	(NA)	223.6

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5] For 1992, data for codes 24931 05 and 24931 21 are combined to avoid disclosing data for individual companies.
[6]Typically for establishments with 20 employees or more.
[7]Typically for establishments with less than 20 employees.
[8]For 1987, data for product codes 24994 97 and 24994 98 were combined to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24411, NAILED OR LOCK-CORNER WOODEN BOXES		
United States	**126.6**	**97.6**
Alabama	2.7	(NA)
California	40.0	30.9
Illinois	2.0	3.5
Massachusetts	6.1	(NA)
Michigan	8.5	(NA)
New Jersey	2.1	(NA)
New York	5.4	5.0
Ohio	6.0	2.7
Pennsylvania	2.6	2.6
Tennessee	7.0	(NA)
Texas	4.7	7.4
24412, WOODEN BOX AND CRATE SHOOK		
United States	**229.5**	**180.8**
Alabama	2.2	(NA)
California	82.2	61.3
Georgia	4.3	(NA)
Illinois	6.4	(NA)
Massachusetts	2.0	(NA)
24412, WOODEN BOX AND CRATE SHOOK—Con.		
Michigan	10.3	11.9
New York	8.8	3.1
North Carolina	9.1	6.6
Ohio	6.6	3.8
Oklahoma	5.6	(NA)
Oregon	8.6	9.0
Pennsylvania	14.2	8.2
South Carolina	3.0	(NA)
Tennessee	2.2	5.0
Texas	9.2	8.8
Washington	15.4	12.0
Wisconsin	7.7	9.1
24912, WOOD POLES, PILES, AND POSTS OWNED AND TREATED BY SAME ESTABLISHMENT		
United States	**540.4**	**478.2**
Alabama	113.4	71.1
California	19.9	23.4
Florida	15.7	13.9
Georgia	48.9	55.3

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24912, WOOD POLES, PILES, AND POSTS OWNED AND TREATED BY SAME ESTABLISHMENT—Con.		
Idaho	17.1	7.9
Mississippi	39.5	56.7
Montana	4.4	(NA)
North Carolina	35.8	34.4
Oregon	21.6	19.6
South Carolina	28.7	(NA)
Texas	18.3	18.0
Virginia	14.6	29.8
Washington	41.3	16.9
Wisconsin	17.1	4.3
24913, OTHER WOOD PRODUCTS OWNED AND TREATED BY SAME ESTABLISHMENT		
United States	**1 723.5**	**1 265.1**
Alabama	150.1	117.0
Arkansas	82.6	32.1
California	16.0	33.6
Colorado	7.5	7.4
Florida	62.0	32.5
Georgia	90.6	85.8
Illinois	43.9	25.9
Indiana	27.5	31.5
Kentucky	24.0	(NA)
Louisiana	20.9	14.6
Maryland	56.4	(NA)
Massachusetts	42.7	(NA)
Michigan	15.1	(NA)
Mississippi	50.4	31.2
Missouri	30.8	(NA)
New Jersey	8.8	(NA)
North Carolina	119.6	154.5
Ohio	37.1	13.3
Oregon	19.6	15.4
Pennsylvania	95.9	85.8
South Carolina	148.2	123.6
Tennessee	32.6	38.5
Texas	66.0	33.8
Virginia	202.7	165.0
Washington	109.1	56.3
West Virginia	56.5	23.8
Wisconsin	47.8	30.6
24919, CONTRACT WOOD PRESERVING		
United States	**122.6**	**105.5**
California	9.0	12.9
Georgia	2.6	(NA)
Illinois	6.1	(NA)
Louisiana	2.1	(NA)
Michigan	2.3	(NA)
Mississippi	3.5	(NA)
Ohio	2.4	(NA)
Oregon	13.5	6.9
Texas	9.3	9.2
Virginia	9.6	4.6
Washington	11.2	9.2
24931, PARTICLEBOARD, PRODUCED AT THIS LOCATION		
United States	**950.0**	**849.1**
California	49.7	56.2
Georgia	68.4	87.4
North Carolina	34.9	(NA)
Oregon	285.7	253.2
Virginia	78.8	78.5
24932, WAFERBOARD AND ORIENTED STRAND BOARD		
United States	**1 131.6**	**513.3**
Maine	101.4	56.7
Minnesota	275.5	156.0
24933, MEDIUM DENSITY FIBERBOARD (MDF) PRODUCED AT THIS LOCATION		
United States	**383.4**	**282.1**
North Carolina	55.9	(NA)
South Carolina	70.7	(NA)
24934, HARDBOARD PRODUCTS MADE FROM HARDBOARD PRODUCED AT THIS LOCATION		
United States	**682.1**	**573.7**
Oregon	81.3	60.9
24935, CELLULOSIC FIBERBOARD (INSULATING BOARD)		
United States	**104.3**	**205.4**
24936, HARDBOARD PRODUCTS MADE FROM PURCHASED HARDBOARD		
United States	**174.1**	**206.4**
Illinois	23.8	14.0
Indiana	10.5	9.2
North Carolina	21.3	20.2
24937, PREFINISHED PARTICLEBOARD AND MEDIUM DENSITY FIBERBOARD (MDF) MADE FROM PURCHASED PARTICLEBOARD AND MDF		
United States	**434.6**	**216.1**
Alabama	7.4	(NA)
California	39.0	50.6
Illinois	25.3	(NA)
Indiana	18.2	3.5
Michigan	10.3	2.9
New York	5.0	(NA)
North Carolina	63.0	45.1
Oregon	52.1	26.3
Texas	19.2	(NA)
24991, MIRROR AND PICTURE FRAMES		
United States	**814.5**	**605.1**
California	162.5	100.5
Florida	32.1	(NA)
Georgia	7.3	40.9
Illinois	70.9	56.9
Indiana	4.6	3.5
Maryland	11.1	13.1
Massachusetts	38.1	20.5
Michigan	11.0	9.8
Minnesota	5.9	(NA)
Missouri	9.5	4.5
New Jersey	7.4	18.1
New York	50.6	29.6
Pennsylvania	4.9	10.9
South Carolina	14.0	(NA)
Texas	59.9	90.3
Virginia	18.5	26.9
24992, CORK AND CORK PRODUCTS		
United States	**68.4**	**43.3**
California	26.6	8.0
24994, MISCELLANEOUS WOOD PRODUCTS		
United States	**2 001.5**	**1 423.8**
Alabama	49.9	36.9
Arizona	12.2	6.4
Arkansas	32.2	16.7
California	240.7	185.4
Colorado	2.5	(NA)
Connecticut	17.9	15.8
Florida	55.7	27.0
Georgia	27.0	24.5
Idaho	4.2	(NA)
Illinois	51.6	34.1
Indiana	57.7	41.1
Iowa	26.0	36.4
Kansas	2.7	(NA)
Kentucky	29.7	23.4
Louisiana	8.9	7.7
Maine	150.9	122.9
Maryland	14.9	(NA)
Massachusetts	24.2	21.9
Michigan	64.6	47.4
Minnesota	34.7	18.7
Mississippi	69.0	59.2
Missouri	53.3	35.9
Montana	5.1	(NA)
Nebraska	3.6	3.1
New Hampshire	32.8	34.5

See footnotes at end of table.

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TSF:24C_92.DAT;1 5/17/95 17:06:38 UTF:24C_93.DAT;1 5/17/95 17:06:39 META:TIPS96-17063362.DAT;1 5/17/95 17:07:33

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24994, MISCELLANEOUS WOOD PRODUCTS—Con.			**24994, MISCELLANEOUS WOOD PRODUCTS—Con.**		
New Jersey	21.9	14.1	South Carolina	9.4	11.9
New Mexico	3.5	(NA)	Tennessee	52.8	33.1
New York	99.9	70.7	Texas	53.2	70.9
North Carolina	78.6	73.0	Utah	5.2	(NA)
Ohio	269.7	94.2	Vermont	46.4	33.8
Oklahoma	4.4	(NA)	Virginia	32.8	20.9
Oregon	34.1	16.3	Washington	49.0	50.5
Pennsylvania	42.5	55.5	West Virginia	10.7	2.5
Rhode Island	6.1	2.8	Wisconsin	105.6	35.9

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2441-	**Nailed wood boxes and shook**	**421.1**	**482.9**	**454.3**	**399.6**	**398.3**	**347.6**	**314.6**	**265.3**
24411	Nailed or lock-corner wooden boxes	126.6	126.7	116.1	111.4	137.5	97.6	109.0	93.8
24412	Wooden box and crate shook	229.5	276.0	252.7	219.7	192.2	180.8	156.2	127.0
24410	Nailed wood boxes and shook, n.s.k.	65.0	80.2	85.5	68.6	68.6	69.2	49.4	44.5
2448-	**Wood pallets and skids**	**2 020.2**	**1 902.9**	**1 845.0**	**1 748.4**	**1 502.3**	**1 437.0**	**969.7**	**642.9**
24480	Pallets and skids	2 020.2	1 902.9	1 845.0	1 748.4	1 502.3	1 437.0	969.7	642.9
2449-	**Wood containers, n.e.c.**	**324.8**	**344.2**	**385.6**	**307.2**	**220.1**	**218.6**	**295.6**	**235.3**
24490	Wood containers, n.e.c.	324.8	344.2	385.6	307.2	220.1	218.6	295.6	235.3
2491-	**Wood preserving**	**2 608.5**	**2 534.2**	**2 525.5**	**2 360.1**	**2 248.4**	**2 151.9**	**1 325.0**	**892.2**
24912	Wood poles, piles, and posts owned and treated by same establishment	540.4	519.9	509.7	446.5	452.4	478.2	461.1	305.5
24913	Other wood products owned and treated by same establishment	1 723.5	1 641.8	1 616.4	1 505.7	1 379.8	1 265.1	617.4	418.3
24919	Contract wood preserving	122.6	121.2	117.3	109.0	106.0	105.5	94.9	68.6
24910	Wood preserving, n.s.k.	221.9	251.3	282.2	298.9	310.2	303.0	151.6	99.8
2493-	**Reconstituted wood products**	**3 979.6**	**3 045.7**	**3 049.7**	**3 239.6**	**2 995.8**	**2 896.4**	**(NA)**	**(NA)**
24931	Particleboard, produced at this location	950.0	798.3	821.8	886.4	856.6	849.1	567.3	476.5
24932	Waferboard and oriented strand board	1 131.6	720.0	681.6	766.0	547.9	513.3		
24933	Medium density fiberboard (MDF) produced at this location	383.4	315.5	294.5	295.2	277.4	282.1	144.7	[2]84.2
24934	Hardboard products made from hardboard produced at this location	682.1	566.6	571.6	586.2	586.3	573.7	558.3	508.0
24935	Cellulosic fiberboard (insulating board)	104.3	149.3	166.5	176.2	187.2	205.4	188.9	222.2
24936	Hardboard products made from purchased hardboard	174.1	256.5	261.3	254.7	241.8	206.4	148.1	171.3
24937	Prefinished particleboard and medium density fiberboard (MDF) made from purchased particleboard and MDF	434.6	166.3	186.0	210.9	226.3	216.1	110.3	[2]84.9
24930	Reconstituted wood products, n.s.k.	119.5	73.3	66.4	64.0	72.3	50.1	(NA)	(NA)
2499-	**Wood products, n.e.c.**	**3 516.0**	**3 777.8**	**3 850.7**	**3 581.4**	**3 201.7**	**3 183.1**	**2 304.8**	**1 602.1**
24991	Mirror and picture frames	814.5	895.8	865.5	827.0	609.1	605.1	505.5	314.6
24992	Cork and cork products	68.4	71.1	78.5	73.1	63.0	43.3	40.9	32.8
24994	Miscellaneous wood products	2 001.5	1 752.6	1 777.1	1 651.6	1 436.1	1 423.8	1 164.8	882.7
24990	Wood products, n.e.c., n.s.k.	631.6	1 058.3	1 129.5	1 029.7	1 093.4	1 111.0	[3]593.6	[3]372.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]For 1977, prefinished medium density fiberboard (MDF) was included with product class 24933.
[3]Data prior to 1987 is not completely comparable with data since 1987 because of 1987 SIC revisions to industry 2499.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2441, NAILED WOOD BOXES AND SHOOK				
	Materials, ingredients, containers, and supplies	**(X)**	**220.2**	**(X)**	**158.5**
241113	Logs, bolts, and unsliced flitches, mil ft log scale	**18.4	3.9	32.5	6.5
	Rough lumber:				
242110	Hardwood	(X)	7.3	(X)	9.5
242121	Softwood, mil bd ft	(S)	11.8	(S)	15.0
	Dressed lumber:				
242117	Hardwood, mil bd ft	(S)	9.0	(S)	3.4
242128	Softwood, mil bd ft	*205.4	64.7	**116.0	27.8
243001	Veneer and plywood	(X)	28.6	(X)	3.9
970099	All other materials and components, parts, containers, and supplies	(X)	42.7	(X)	38.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	52.3	(X)	54.0
	INDUSTRY 2448, WOOD PALLETS AND SKIDS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 080.6**	**(X)**	**811.0**
241113	Logs, bolts, and unsliced flitches, mil ft log scale	(S)	71.8	(S)	66.5
	Rough lumber:				
242110	Hardwood	(X)	277.5	(X)	166.2
242121	Softwood, mil bd ft	(S)	66.4	**247.3	35.9
	Dressed lumber:				
242117	Hardwood, mil bd ft	**275.1	60.2	*76.0	14.5
242128	Softwood, mil bd ft	*531.1	103.6	**301.6	49.5
243001	Veneer and plywood	(X)	13.0	(X)	13.8
970099	All other materials and components, parts, containers, and supplies	(X)	90.3	(X)	59.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	397.8	(X)	405.5
	INDUSTRY 2449, WOOD CONTAINERS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**160.7**	**(X)**	**118.6**
241113	Logs, bolts, and unsliced flitches, mil ft log scale	(S)	14.6	*35.1	6.2
	Rough lumber:				
242110	Hardwood	(X)	39.1	(X)	22.0
242121	Softwood, mil bd ft	(S)	1.7	(D)	(D)
	Dressed lumber:				
242117	Hardwood, mil bd ft	(S)	3.1	(D)	(D)
242128	Softwood, mil bd ft	(S)	4.7	*13.6	3.1
243001	Veneer and plywood	(X)	24.3	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	33.4	(X)	30.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	39.7	(X)	30.6
	INDUSTRY 2491, WOOD PRESERVING				
	Materials, ingredients, containers, and supplies	**(X)**	**1 913.0**	**(X)**	**1 548.1**
	Treated in same establishment:				
241109	Poles, piling, and other round or hewn wood products	(X)	216.3	(X)	222.8
	Rough lumber, including sawn ties:				
242110	Hardwood, mil bd ft	(S)	132.3	(S)	124.1
242121	Softwood, mil bd ft	(S)	360.8	*1 868.0	538.8
242103	Dressed lumber, mil bd ft	*1 704.1	540.9	(NA)	([3])
	Consumed in same establishment:				
286551	Creosote oil, mil gal	**46.7	38.3	*53.5	45.0
286915	Pentachlorophenol, mil lb	(S)	24.0	**26.2	27.7
281902	Water-born salts, mil lb	(S)	78.0	86.0	62.6
280015	Flame retardants	(X)	6.8	(X)	11.4
970099	All other materials and components, parts, containers, and supplies	(X)	196.3	(X)	[3] r217.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	319.4	(X)	298.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2493, RECONSTITUTED WOOD PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 727.8**	**(X)**	**1 210.7**
241113	Logs, bolts, and unsliced flitches, mil ft log scale	(D)	(D)	*555.7	46.7
241131	Pulpwood, 1,000 standard cords	(D)	(D)	**2 602.0	120.0
242016	Chips, slabs, edgings, sawdust, and other wood waste, except planer shavings, 1,000 s tons	5 767.8	174.5	(S)	85.6
242017	Planer shavings, 1,000 s tons	4 376.2	139.7	3 889.0	92.0
249340	Hardboard (wood fiberboard), mil sq ft (1/8 in. basis)	(S)	37.8	(S)	58.1
249330	Medium density fiberboard (MDF), mil sq ft (3/4 in. basis)	*93.3	30.1	(S)	26.8
249310	Particleboard (wood), mil sq ft (3/4 in. basis)	*477.1	106.1	(S)	44.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products, 1,000 gallons	**7 496.9	62.2	*5 263.1	39.0
289110	Urethane adhesives, mil lb (dry basis)	(D)	([4])	(NA)	([3])
282141	Urea and melamine resins, mil lb (dry basis)	*1 617.2	184.5	1 344.9	125.9
282142	Phenolic and other tar acid resins, mil lb (dry basis)	**462.2	114.2	(S)	75.4
291106	Petroleum wax, mil lb (dry basis)	*266.1	44.7	(NA)	([3])
190054	Vinyl and paper overlays, mil sq ft sm	*1 688.8	86.8	(NA)	([3])
308311	Plastics laminates	(X)	6.2	(X)	([3])
282108	All other plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(X)	27.7	(X)	18.3
970099	All other materials and components, parts, containers, and supplies	(X)	[4]377.6	(X)	[3] r363.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	93.3	(X)	115.1
	INDUSTRY 2499, WOOD PRODUCTS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 533.1**	**(X)**	**1 388.7**
	Logs, bolts, and unsliced flitches:				
241111	Hardwood, mil ft log scale	(S)	54.8	*130.8	26.7
241112	Softwood, mil ft log scale	(S)	10.5	(S)	9.1
	Rough lumber:				
242110	Hardwood, mil bd ft	(S)	101.9	**162.5	70.0
242121	Softwood, mil bd ft	*120.4	58.4	*197.8	73.3
	Dressed lumber:				
242117	Hardwood, mil bd ft	(S)	45.3	91.4	34.8
242128	Softwood, mil bd ft	(S)	91.1	266.1	70.6
242011	Chips, slabs, edgings, shavings, sawdust, and other wood waste, 1,000 s tons	(S)	22.9	(S)	9.3
242620	Hardwood dimension and parts, excluding furniture frames, mil bd ft	(S)	21.1	(S)	16.2
	Plywood:				
243510	Hardwood, mil sq ft sm	**45.7	19.4	33.0	15.9
243601	Softwood, mil sq ft (3/8 in. basis)	(S)	27.4	48.9	13.0
249300	Reconstituted wood products including particleboard, oriented strandboard, medium density fiberboard, and hardboard	(X)	21.9	(X)	34.7
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products, 1,000 gallons	(S)	20.6	*1 760.1	16.7
321105	Glass (float, sheet, and plate)	(X)	21.2	(X)	([3])
340004	Fabricated metal products, including forgings	(X)	29.7	(X)	([3])
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	37.6	(X)	([3])
970099	All other materials and components, parts, containers, and supplies	(X)	397.3	(X)	[3] r308.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	551.8	(X)	689.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, these materials were included with material code 970099.

[4]For 1992, this material is included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
24112 20	24112 28	24351 01	24351 00	24490 43	24490 41	24932 05	24932 00
24112 21	24112 28	24351 05	24351 00	24490 43	24490 51	24932 07	24932 00
24112 26	24112 23	24351 07	24351 00	24490 73	24490 71	24932 09	24932 00
24112 26	24112 28	24351 47	24351 00	24490 73	24490 81	24932 21	24932 00
24114 06	24114 08	24365 01	24365 00	24913 02	24913 01	24933 16	24933 15
24114 06	24114 10	24365 05	24365 00	24913 02	24913 03	24933 16	24933 18
24114 31	24114 15	24365 11	24365 00	24913 21	24913 15		
24114 31	24114 29	24365 21	24365 00	24913 21	24913 19	24934 12	24934 00
24114 31	24114 33	24365 23	24365 00			24934 14	24934 00
24114 31	24114 35			24919 11	24919 01	24934 16	24934 00
		24366 07	24366 00	24919 11	24919 03	24934 17	24934 00
24290 87	24290 61	24366 11	24366 00	24919 11	24919 09	24934 18	24934 00
24290 87	24290 83	24366 13	24366 00			24934 19	24934 00
		24366 15	24366 00	24931 20	24931 12		
24315 87	24315 98	24366 17	24366 00	24931 20	24931 14	24936 12	24936 14
24315 97	24315 98			24931 20	24931 16	24936 12	24936 15
		24367 03	24367 00	24931 20	24931 18		
		24367 21	24367 00	24931 21	24931 07	24994 98	24994 61
24317 25	24317 21	24367 23	24367 00	24931 21	24931 09	24994 98	24994 79
24317 25	24317 31	24367 25	24367 00	24931 21	24931 19	24994 98	24994 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
24112 23	24112 26	24351 00	24351 01	24490 41	24490 43	24932 00	24932 05
24112 28	24112 20	24351 00	24351 05	24490 51	24490 43	24932 00	24932 07
24112 28	24112 21	24351 00	24351 07	24490 71	24490 73	24932 00	24932 09
24112 28	24112 26	24351 00	24351 47	24490 81	24490 73	24932 00	24932 21
24114 08	24114 06	24365 00	24365 01	24913 01	24913 02	24933 15	24933 16
24114 10	24114 06	24365 00	24365 05	24913 03	24913 02	24933 18	24933 16
24114 15	24114 31	24365 00	24365 11	24913 15	24913 21		
24114 29	24114 31	24365 00	24365 21	24913 19	24913 21	24934 00	24934 12
24114 33	24114 31	24365 00	24365 23			24934 00	24934 14
24114 35	24114 31			24919 01	24919 11	24934 00	24934 16
		24366 00	24366 07	24919 03	24919 11	24934 00	24934 17
24290 61	24290 87	24366 00	24366 11	24919 09	24919 11	24934 00	24934 18
24290 83	24290 87	24366 00	24366 13			24934 00	24934 19
		24366 00	24366 15	24931 07	24931 21		
24315 98	24315 87	24366 00	24366 17	24931 09	24931 21	24936 14	24936 12
24315 98	24315 97			24931 12	24931 20	24936 15	24936 12
		24367 00	24367 03	24931 14	24931 20		
		24367 00	24367 21	24931 16	24931 20	24994 61	24994 98
24317 21	24317 25	24367 00	24367 23	24931 18	24931 20	24994 79	24994 98
24317 31	24317 25	24367 00	24367 25	24931 19	24931 21	24994 99	24994 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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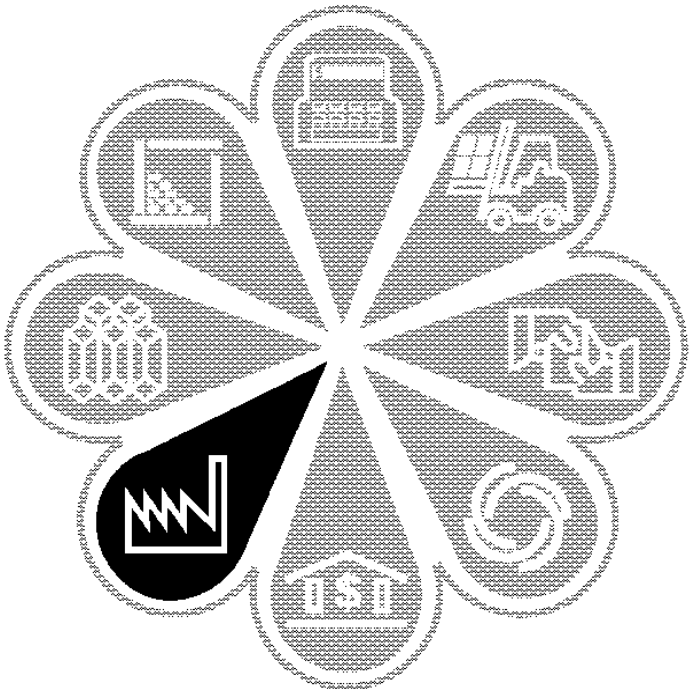
1992 Census of Manufactures

MC92-I-24D

INDUSTRY SERIES

Wood Buildings and Mobile Homes

Industries 2451 and 2452



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-24D

INDUSTRY SERIES

Wood Buildings and Mobile Homes

Industries 2451 and 2452

Issued December 1994

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

JOBNAME: No Job Name PAGE: 1 SESS: 18 OUTPUT: Tue Nov 8 07:21:29 1994 /pssw02/disk2/economic/mc92i/0/04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1]. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/77 and a reduction of three-digit groups from 143 in 1972/77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production- worker hours	1a	1b	2	3a	4	5a					
Production- worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digits)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2451	Mobile Homes
2452	Prefabricated Wood Buildings

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. Comparability for the product classes and product codes that changed between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2451, MOBILE HOMES

This industry is made up of establishments primarily engaged in the manufacture of mobile homes and nonresidential mobile buildings. These units are generally more than 35 feet long, at least 8 feet wide, do not have facilities for storage of water or waste, and are equipped with wheels. Establishments primarily engaged in the manufacture of trailers that are generally 35 feet long or less, 8 feet wide or less, and with self-contained facilities are classified in industry 3792. Establishments primarily engaged in the manufacture of portable wood buildings not equipped with wheels are classified in industry 2452.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2451, Mobile Homes, had employment of 37.0 thousand. The employment figure was 7 percent below the 39.9 thousand reported in 1987.

The leading States in employment in 1992 were Indiana, Alabama, Georgia, and North Carolina, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when Georgia, Indiana, North Carolina, and Florida accounted for approximately 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

The products primary to industry 2451, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For an explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the mobile homes industry amounted to $2.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were

obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS

This industry is made up of establishments primarily engaged in the manufacture of prefabricated wood buildings, sections, and panels. Establishments primarily engaged in the fabrication of buildings on the site of construction are classified in Division C, Construction. Establishments primarily engaged in the manufacture of fabricated structural wood products are classified in industry 2439.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2452, Prefabricated Wood Buildings, had employment of 19.0 thousand. The employment figure was 25 percent below the 25.4 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Wisconsin, Virginia, and Indiana, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Virginia, Florida, and Wisconsin accounted for approximately 34 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2452 shipped $2.0 billion of prefabricated wood buildings considered primary to the industry, $35.2 million of secondary products, and had $62.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 2452, no matter in what industry they were produced, appear in table 6a and aggregate to $2.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the prefabricated wood buildings industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 2451, MOBILE HOMES														
1992 Census	155	286	239	37.0	813.2	30.9	61.5	578.3	1 644.5	2 891.2	4 531.8	51.1	225.7	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	35.1	713.7	28.7	55.0	489.9	1 381.8	2 555.0	3 930.2	16.9	221.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	38.8	769.1	31.7	59.7	530.0	1 501.6	2 697.5	4 202.5	26.6	224.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	39.9	768.7	32.7	62.4	537.1	1 437.3	2 683.4	4 127.8	25.4	224.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	40.8	772.5	33.4	63.3	533.1	1 493.3	2 734.7	4 222.4	51.0	229.8	(NA)	(NA)
1987 Census	207	395	315	39.9	741.2	32.4	62.4	511.1	1 466.0	2 639.9	4 102.4	42.8	217.7	99	100
1986 ASM	(NA)	(NA)	(NA)	41.8	735.4	34.1	64.3	496.2	1 400.1	2 636.1	4 053.4	67.9	211.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.3	764.0	36.2	68.7	527.8	1 465.5	2 783.8	4 236.5	68.5	248.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.8	759.4	38.6	71.9	531.7	1 440.3	2 875.2	4 311.8	66.9	230.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	51.9	820.8	42.7	82.1	596.0	1 582.7	3 219.1	4 785.2	67.6	242.2	(NA)	(NA)
1982 Census	261	516	406	42.8	622.4	34.6	63.9	430.3	1 187.4	2 410.1	3 606.4	47.7	194.5	99	99
1981 ASM	(NA)	(NA)	(NA)	46.4	681.0	37.2	65.6	457.8	1 283.8	2 699.4	3 979.4	44.4	227.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	46.3	620.9	37.0	65.2	426.2	1 142.0	2 364.8	3 506.4	56.4	231.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.8	666.3	42.6	80.0	469.7	1 328.8	2 739.7	4 071.2	50.1	228.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	54.6	616.0	44.9	85.1	434.8	1 205.8	2 554.8	3 756.7	38.1	215.6	(NA)	(NA)
1977 Census	306	597	465	50.5	527.6	41.8	80.5	371.8	1 030.5	2 175.3	3 199.3	69.8	193.3	99	99
	INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS														
1992 Census	561	655	224	19.0	414.1	13.4	25.1	242.0	847.4	1 206.8	2 055.6	24.2	206.9	98	95
1991 ASM	(NA)	(NA)	(NA)	19.0	392.0	13.6	25.1	235.2	791.2	1 229.1	2 021.4	23.5	264.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.6	448.0	16.0	29.2	264.2	863.2	1 393.9	2 268.5	32.7	252.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.9	441.9	16.5	30.4	268.2	897.2	1 410.1	2 297.2	41.9	265.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.2	478.7	18.2	35.8	283.0	969.9	1 433.5	2 404.8	21.9	251.9	(NA)	(NA)
1987 Census	604	689	262	25.4	473.4	18.5	34.9	278.1	1 023.0	1 457.2	2 472.2	57.5	255.3	95	98
1986 ASM	(NA)	(NA)	(NA)	20.3	361.5	14.3	27.8	209.2	777.2	1 207.7	1 987.0	34.6	208.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.7	324.1	13.1	23.7	180.7	701.2	1 013.0	1 714.2	35.6	199.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.2	325.1	14.3	26.7	181.7	670.1	1 031.1	1 698.2	33.3	217.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	18.2	290.9	12.6	23.6	158.8	624.1	915.6	1 532.2	20.2	194.6	(NA)	(NA)
1982 Census	598	647	206	16.8	257.8	11.4	20.8	143.2	553.4	794.0	1 349.0	17.4	175.1	97	99
1981 ASM	(NA)	(NA)	(NA)	19.4	292.5	12.6	22.9	154.7	646.9	953.0	1 613.3	20.9	172.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.0	315.7	14.7	26.6	168.7	682.8	1 068.2	1 757.0	28.8	197.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.5	379.2	21.1	37.2	218.1	811.7	1 349.9	2 161.2	38.1	236.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.8	382.7	22.4	41.9	228.7	885.7	1 375.1	2 266.1	63.3	243.3	(NA)	(NA)
1977 Census	510	568	287	29.0	330.6	21.2	40.6	204.4	758.6	1 207.1	1 948.6	40.2	229.1	98	98

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2451, MOBILE HOMES								
1992 Census	21 978	84	1 990	9.40	64	82	44 446	49	26.74
1991 ASM	20 333	82	1 916	8.91	65	83	39 368	52	25.12
1990 ASM	19 822	82	1 883	8.88	64	82	38 701	51	25.15
1989 ASM	19 266	82	1 908	8.61	65	84	36 023	53	23.03
1988 ASM	18 934	82	1 895	8.42	65	83	36 600	52	23.59
1987 Census	18 576	81	1 926	8.19	64	82	36 742	51	23.49
1986 ASM	17 593	82	1 886	7.72	65	83	33 495	53	21.77
1985 ASM	17 246	82	1 898	7.68	66	84	33 081	52	21.33
1984 ASM	16 226	82	1 863	7.39	67	84	30 776	53	20.03
1983 ASM	15 815	82	1 923	7.26	67	84	30 495	52	19.28
1982 Census	14 542	81	1 847	6.73	67	84	27 743	52	18.58
1981 ASM	14 677	80	1 763	6.98	68	85	27 668	53	19.57
1980 ASM	13 410	80	1 762	6.54	67	85	24 665	54	17.52
1979 ASM	12 863	82	1 878	5.87	67	84	25 653	50	16.61
1978 ASM	11 282	82	1 895	5.11	68	84	22 084	51	14.17
1977 Census	10 448	83	1 926	4.62	68	84	20 406	51	12.80

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years** —Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS								
1992 Census	21 795	71	1 873	9.64	59	79	44 600	49	33.76
1991 ASM	20 632	72	1 846	9.37	61	80	41 642	50	31.52
1990 ASM	19 823	71	1 825	9.05	61	81	38 195	52	29.56
1989 ASM	19 297	72	1 842	8.82	61	81	39 179	49	29.51
1988 ASM	18 996	72	1 967	7.91	60	80	38 488	49	27.09
1987 Census	18 638	73	1 886	7.97	59	78	40 276	46	29.31
1986 ASM	17 808	70	1 944	7.53	61	79	38 286	47	27.96
1985 ASM	17 332	70	1 809	7.62	59	78	37 497	46	29.59
1984 ASM	16 094	71	1 867	6.81	61	80	33 173	49	25.10
1983 ASM	15 984	69	1 873	6.73	60	79	34 291	47	26.44
1982 Census	15 345	68	1 825	6.88	59	78	32 940	47	26.61
1981 ASM	15 077	65	1 817	6.76	59	77	33 345	45	28.25
1980 ASM	14 350	67	1 810	6.34	61	79	31 036	46	25.67
1979 ASM	12 854	72	1 763	5.86	62	80	27 515	47	21.82
1978 ASM	12 425	73	1 871	5.46	61	78	28 756	43	21.14
1977 Census	11 400	73	1 915	5.03	62	79	26 159	44	18.68

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2451, MOBILE HOMES														
United States	–	**286**	**239**	**37.0**	**813.2**	**30.9**	**61.5**	**578.3**	**1 644.5**	**2 891.2**	**4 531.8**	**51.1**	**39.9**	**1 466.0**
Alabama	–	25	22	4.0	79.1	3.3	6.7	52.5	146.9	296.3	443.3	3.2	3.0	92.8
Arizona	–	8	7	1.0	22.6	.9	2.0	16.9	45.7	71.4	116.4	(D)	1.3	45.7
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	23	16	2.3	45.3	1.9	3.7	32.0	96.5	120.9	217.2	1.4	3.8	147.7
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	12.3
Florida	–	25	19	2.4	53.9	2.0	3.8	39.1	117.8	184.3	301.3	1.6	3.8	136.3
Georgia	–	22	18	3.6	73.9	3.1	6.0	52.9	133.4	311.2	445.2	2.6	4.4	121.3
Idaho	–	6	5	.8	17.7	.6	1.3	12.5	39.1	62.5	101.1	.7	.5	20.4
Indiana	E2	34	29	4.9	119.3	3.8	7.7	83.0	217.9	426.4	643.2	5.5	4.3	196.8
Kansas	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Maryland	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	E2	6	6	.7	16.1	.6	1.1	12.1	32.7	57.1	89.6	1.3	.6	26.1
Mississippi	E2	8	6	1.1	23.8	.9	2.0	15.1	41.1	87.9	128.5	1.6	F	(D)
Missouri	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	E1	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	25	24	3.4	72.6	2.9	5.8	51.7	146.1	276.5	425.3	3.3	H	(D)
Ohio	–	5	3	.5	11.2	.4	.9	8.1	24.8	47.4	71.2	(D)	.5	23.8
Oklahoma	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Oregon	–	10	10	2.1	48.1	1.8	3.7	36.2	102.0	159.7	260.7	1.6	1.4	53.5
Pennsylvania	E1	18	15	1.9	44.7	1.5	2.8	31.8	97.1	154.3	250.6	(D)	2.7	122.4
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	14	12	1.9	40.5	1.6	3.3	29.9	95.7	158.2	253.7	(D)	1.4	47.8
Texas	E1	9	8	1.3	30.7	1.1	2.5	23.6	68.3	109.1	177.4	5.6	2.8	86.7
Virginia	–	3	3	.6	12.4	.5	.9	8.8	27.2	43.0	70.6	(D)	.6	20.9
Washington	–	5	5	.8	19.1	.6	1.3	13.2	36.1	47.7	84.2	(D)	.4	14.4
Wisconsin	–	5	5	.9	18.9	.7	1.4	13.5	42.9	65.7	107.4	(D)	.7	25.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987** —Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS														
United States	**E1**	**655**	**224**	**19.0**	**414.1**	**13.4**	**25.1**	**242.0**	**847.4**	**1 206.8**	**2 055.6**	**24.2**	**25.4**	**1 023.0**
Alabama	E1	14	5	.3	5.8	.2	.4	3.6	13.7	21.5	34.7	.7	.7	17.7
Arizona	–	8	3	.3	9.6	.2	.5	4.4	20.0	40.0	60.3	(D)	.4	14.2
Arkansas	E8	9	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
California	E1	41	10	.6	12.1	.4	.8	7.2	23.4	35.6	58.6	.7	1.3	60.6
Delaware	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	15	7	.4	6.0	.3	.5	3.6	12.9	14.1	27.2	.3	1.4	21.9
Georgia	E3	17	3	.3	4.9	.2	.4	3.1	9.8	16.3	26.5	.5	.8	43.5
Idaho	–	9	3	.2	2.8	.1	.2	2.0	4.7	7.3	12.1	.2	(NA)	(NA)
Illinois	E2	25	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	E2	25	10	.9	22.1	.7	1.3	13.5	46.6	57.5	104.0	.9	.6	19.7
Iowa	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	11	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E2	12	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E6	7	4	.2	6.2	.1	.2	2.9	9.3	15.7	24.9	(D)	.9	44.3
Michigan	E1	29	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	20	8	.5	13.7	.3	.6	5.4	31.4	48.3	79.6	.6	C	(D)
Mississippi	E1	6	2	.1	1.5	.1	.1	.9	3.0	3.7	6.7	.1	(NA)	(NA)
Missouri	–	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Montana	E2	18	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
New Hampshire	E2	17	4	.3	8.3	.2	.4	4.4	15.1	17.7	33.0	.2	G	(D)
New York	E2	32	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	E1	21	5	.3	7.2	.2	.5	4.5	15.2	21.7	37.0	.4	F	(D)
Ohio	E1	18	5	.4	9.5	.3	.6	5.8	31.8	34.6	65.8	(D)	1.2	40.4
Oregon	E3	19	4	.2	5.6	.2	.3	3.4	8.4	16.2	24.6	.1	.2	4.8
Pennsylvania	–	55	33	3.7	80.3	2.7	4.7	47.5	154.2	207.9	361.5	(D)	4.1	192.6
Tennessee	–	20	7	.7	10.4	.5	.7	4.8	20.2	22.4	42.6	(D)	.5	19.0
Texas	E4	25	8	.7	12.8	.4	.9	8.3	28.0	44.0	71.7	.8	.9	29.1
Utah	E1	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Vermont	E2	10	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	C	(D)
Virginia	–	24	12	1.0	19.2	.8	1.3	11.2	32.8	48.3	80.9	(D)	1.9	71.1
Washington	E4	22	4	.3	7.9	.2	.4	4.9	15.3	19.9	35.3	(D)	(NA)	(NA)
West Virginia	E3	10	5	.3	5.0	.2	.3	2.9	6.9	9.5	16.4	.2	(NA)	(NA)
Wisconsin	–	26	13	1.4	32.1	1.0	2.0	18.6	66.8	115.7	181.6	(D)	1.3	65.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1 —10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6 —60 to 69 percent; E7 —70 to 79 percent; E8 —80 to 89 percent; E9 —90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I —5,000 to 9,999 employees; J —10,000 to 24,999 employees; K —25,000 to 49,999 employees; L —50,000 to 99,999 employees; M —100,000 employees or more.

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Table 3a. Summary Statistics for the Industry: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Mobile homes (SIC 2451)	Prefabricated wood buildings (SIC 2452)	Item	Mobile homes (SIC 2451)	Prefabricated wood buildings (SIC 2452)
Companies ---- number	155	561	Cost of materials [1] ---- mil dol	2 891.2	1 206.8
			Materials, parts, containers, etc., consumed [2] ---- mil dol	2 828.9	1 113.7
All establishments ---- number	286	655	Resales ---- mil dol	18.0	31.9
With 1 to 19 employees ---- number	47	431	Fuels ---- mil dol	4.6	4.2
With 20 to 99 employees ---- number	71	176	Purchased electricity ---- mil dol	16.5	7.9
With 100 employees or more ---- number	168	48	Contract work ---- mil dol	23.2	49.1
Employment and labor costs:			Quantity of electric energy used for heat and power:		
Employees ---- 1,000	37.0	19.0	Purchased ---- mil kWh	255.8	126.3
Compensation, total ---- mil dol	969.9	504.2	Generated less sold ---- mil kWh	–	–
Annual payroll ---- mil dol	813.2	414.1			
Fringe benefits ---- mil dol	156.7	90.1	Total value of shipments ---- mil dol	4 531.8	2 055.6
Social Security and other legally required payments ---- mil dol	100.1	52.1	Value added ---- mil dol	1 644.5	847.4
Employer voluntary payments ---- mil dol	56.6	38.0			
			Inventories by stage of fabrication:		
Production workers:			Beginning of 1992 ---- mil dol	204.4	201.5
Average for year ---- 1,000	30.9	13.4	Finished goods ---- mil dol	41.2	54.8
March ---- 1,000	28.4	12.4	Work in process ---- mil dol	24.5	25.5
May ---- 1,000	30.3	13.5	Materials and supplies ---- mil dol	138.8	121.1
August ---- 1,000	32.1	14.3			
November ---- 1,000	32.8	13.4	End of 1992 ---- mil dol	225.7	206.9
			Finished goods ---- mil dol	40.5	54.4
Hours ---- millions	61.5	25.1	Work in process ---- mil dol	29.1	24.7
			Materials and supplies ---- mil dol	156.1	127.9
Wages ---- mil dol	578.3	242.0			

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Mobile homes (SIC 2451)	Prefabricated wood buildings (SIC 2452)	Item	Mobile homes (SIC 2451)	Prefabricated wood buildings (SIC 2452)
Gross book value of depreciable assets:			Gross book value of depreciable assets —Con.		
Total:			Machinery and equipment —Con.		
Beginning of year	438.9	359.9	Beginning of year —Con.		
New capital expenditures [1]	51.1	24.2	New capital expenditures [1]	25.0	18.1
Used capital expenditures	4.0	2.9	Used capital expenditures	3.5	2.8
Retirements	10.6	8.6	Retirements	7.1	7.4
End of year	483.4	378.4	End of year	189.6	196.4
Buildings and other structures:					
Beginning of year	270.8	177.0	Depreciation charges during 1992:		
New capital expenditures	26.1	6.1	Total	28.8	28.5
Used capital expenditures	.4	.1	Buildings and other structures	13.4	9.1
Retirements	3.5	1.3	Machinery and equipment	15.4	19.4
End of year	293.8	182.0			
Machinery and equipment:			Rental payments:		
Beginning of year	168.2	182.9	Total	18.9	19.4
			Buildings and other structures	13.8	12.1
			Machinery and equipment	5.0	7.3

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Mobile homes (SIC 2451)		Prefabricated wood buildings (SIC 2452)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:				
Cost of purchased services for the repair of–				
Buildings and other structures	3.0	(X)	1.8	(X)
Response coverage ratio (percent) [2]	72.2	(X)	67.9	(X)
Machinery	7.9	(X)	4.6	(X)
Response coverage ratio (percent) [2]	74.1	(X)	68.4	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992** —Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Mobile homes (SIC 2451)		Prefabricated wood buildings (SIC 2452)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services—Con.				
Other purchased services:				
Communications	8.4	(X)	4.7	(X)
Response coverage ratio (percent) [2]	71.0	(X)	66.5	(X)
Legal	3.9	(X)	3.8	(X)
Response coverage ratio (percent) [2]	73.7	(X)	68.4	(X)
Accounting and bookkeeping	.9	(X)	2.6	(X)
Response coverage ratio (percent) [2]	70.2	(X)	68.4	(X)
Advertising	5.3	(X)	8.6	(X)
Response coverage ratio (percent) [2]	74.7	(X)	68.4	(X)
Software and other data processing	.3	(X)	1.0	(X)
Response coverage ratio (percent) [2]	72.5	(X)	66.6	(X)
Refuse removal, including hazardous waste	10.7	(X)	3.0	(X)
Response coverage ratio (percent) [2]	74.7	(X)	67.9	(X)
New machinery and equipment expenditures	25.0	(X)	18.1	(X)
Automobiles, trucks, etc., for highway use	5.2	9	8.7	7
Computers and peripheral data processing equipment	1.6	8	3.4	13
All other	18.2	3	6.1	11
Adjustment ratio [3]	1.5	(X)	1.9	(X)
Cost of materials, components, parts, etc., used	2 828.9	(X)	1 113.7	(X)
Materials purchased or transferred from foreign sources [4]	13.8	29	7.3	37
Materials purchased or transferred from domestic sources	2 815.1	1	1 106.4	1
Adjustment ratio [3]	1.7	(X)	1.9	(X)

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2451, MOBILE HOMES												
Total	–	**286**	**37.0**	**813.2**	**30.9**	**61.5**	**578.3**	**1 644.5**	**2 891.2**	**4 531.8**	**51.1**	**225.7**
Establishments with an average of —												
1 to 4 employees	E1	29	.1	1.1	(Z)	.1	.6	9.5	25.5	34.9	.1	1.4
5 to 9 employees	E5	9	.1	1.4	(Z)	.1	.7	3.3	3.4	6.1	(Z)	.9
10 to 19 employees	E1	9	.1	2.6	.1	.1	1.5	5.2	6.9	12.0	(Z)	.6
20 to 49 employees	E4	23	.8	16.5	.6	1.2	12.0	34.3	52.2	85.9	.8	5.1
50 to 99 employees	E1	48	3.8	85.4	3.1	6.0	57.4	171.6	306.8	479.0	7.3	29.1
100 to 249 employees	–	145	23.1	517.7	19.4	38.4	368.5	1 060.6	1 780.1	2 839.4	27.6	124.4
250 to 499 employees	E1	20	6.6	141.8	5.6	11.4	101.9	317.4	527.5	842.6	15.2	49.8
500 to 999 employees	–	2	2.4	46.5	2.0	4.3	35.8	42.6	188.9	231.8	(D)	14.4
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records [2]	E9	26	.1	1.0	.1	.1	.7	2.0	3.4	5.3	(Z)	.3
INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS												
Total	**E1**	**655**	**19.0**	**414.1**	**13.4**	**25.1**	**242.0**	**847.4**	**1 206.8**	**2 055.6**	**24.2**	**206.9**
Establishments with an average of —												
1 to 4 employees	E8	191	.4	7.3	.3	.5	4.2	18.9	28.2	47.2	.7	6.1
5 to 9 employees	E5	142	1.0	15.9	.7	1.3	9.7	32.1	44.7	76.6	1.2	8.6
10 to 19 employees	E3	98	1.3	26.3	.9	1.7	16.2	59.5	75.4	135.3	1.4	13.2
20 to 49 employees	E1	115	3.7	78.2	2.6	4.9	45.1	202.2	242.7	443.7	5.7	46.0
50 to 99 employees	E1	61	4.2	99.6	3.0	5.9	59.0	195.5	294.2	488.1	5.0	64.2
100 to 249 employees	E1	41	5.9	129.4	4.1	7.4	71.8	231.3	367.0	603.6	6.1	49.7
250 to 499 employees	–	6	2.6	57.5	1.8	3.4	36.0	108.0	154.5	261.0	4.0	19.2
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records [2]	E9	218	.7	10.5	.6	1.0	6.5	21.2	34.4	55.6	.9	6.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1 —10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5 —50 to 59 percent; E6 —60 to 69 percent; E7 —70 to 79 percent; E8 —80 to 89 percent; E9 —90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2451	**Mobile homes:**										
	All establishments in industry	286	37.0	813.2	30.9	61.5	578.3	1 644.5	2 891.2	4 531.8	51.1
	Establishments with this product class primary:										
24511	Manufactured (mobile) homes (35 feet or more in length)	196	32.7	719.1	27.4	54.4	514.6	1 469.0	2 571.7	4 036.5	43.7
24512	Manufactured (mobile) buildings, nonresidential	21	1.3	27.0	1.0	2.2	18.4	42.6	75.0	119.0	(D)
2452	**Prefabricated wood buildings:**										
	All establishments in industry	655	19.0	414.1	13.4	25.1	242.0	847.4	1 206.8	2 055.6	24.2
	Establishments with this product class primary:										
24521	Components for stationary buildings (not sold as complete units)	54	1.6	34.6	1.0	2.0	18.5	65.9	75.7	141.8	1.0
24522	Precut packages for stationary buildings (complete units)	94	3.0	69.6	1.9	3.7	34.4	172.1	247.2	417.9	4.7
24523	Stationary buildings sold as complete units and shipped in panel form	62	2.4	58.0	1.7	3.4	33.3	139.0	233.5	376.6	4.7
24524	Stationary buildings shipped in three-dimensional assemblies	108	8.2	175.9	6.0	11.2	110.5	315.4	424.5	738.3	8.0

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2451, MOBILE HOMES			
Total value of shipments	4 531.8	4 102.4	3 606.4
Primary products value of shipments	(D)	4 030.9	3 571.7
Secondary products value of shipments	(D)	22.4	11.9
Total miscellaneous receipts	34.5	49.0	22.8
Value of resales	22.4	23.6	12.7
Contract receipts	(D)	1.6	(D)
Other miscellaneous receipts	(D)	23.8	(D)
Primary products specialization ratio	(D)	99	99
Value of primary products shipments made in all industries	4 472.1	4 044.4	3 578.9
Value of primary products shipments made in this industry	(D)	4 030.9	3 571.7
Value of primary products shipments made in other industries	(D)	13.4	7.2
Coverage ratio	(D)	100	99
INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS			
Total value of shipments	2 055.6	2 472.2	1 349.0
Primary products value of shipments	1 957.9	2 290.6	1 270.9
Secondary products value of shipments	35.2	117.2	45.4
Total miscellaneous receipts	62.4	64.4	32.7
Value of resales	39.2	49.4	22.3
Contract receipts	9.5	9.1	4.4
Other miscellaneous receipts	13.7	5.8	6.0
Sales of scrap and refuse	.5	(NA)	.7
Other miscellaneous receipts	12.1	(NA)	3.8
Other miscellaneous receipts, n.s.k.	1.1	(NA)	1.5
Primary products specialization ratio	98	95	97
Value of primary products shipments made in all industries	2 064.2	2 334.3	1 286.5
Value of primary products shipments made in this industry	1 957.9	2 290.6	1 270.9
Value of primary products shipments made in other industries	106.3	43.7	15.5
Coverage ratio	95	98	99

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes —Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2451– ––	**MOBILE HOMES**						
	Total	**(NA)**	**(X)**	**4 472.1**	**(NA)**	**(X)**	**4 044.4**
24511	Manufactured (mobile) homes (35 feet or more in length)	(NA)	(X)	3 976.4	(NA)	(X)	3 476.0
24511 11	8 feet to 11 feet 11 inches in width — 1,000 units	8	1.9	26.9	6	2.0	24.9
24511 13	12 feet in width — 1,000 units	12	3.8	53.6	11	*2.8	31.7
24511 15	12 feet 1 inch to 13 feet 11 inches in width — 1,000 units	8	10.5	137.5	17	18.9	229.3
24511 17	14 feet or more in width — 1,000 units	50	91.1	1 279.4	62	111.7	1 414.9
24511 18	Double wides — 1,000 units	58	90.8	2 212.3	61	74.4	1 542.2
24511 00	Manufactured (mobile) homes (35 feet or more in length), n.s.k.	(NA)	(X)	266.5	(NA)	(X)	232.8
24512	Manufactured (mobile) buildings, nonresidential	(NA)	(X)	130.1	(NA)	(X)	230.0
24512 22	Office and other commercial — 1,000 units	23	**5.1	64.4	26	13.9	123.5
24512 30	Other, including classroom and industrial — 1,000 units	18	**4.1	62.3	15	*3.6	80.6
24512 00	Manufactured (mobile) buildings, nonresidential, n.s.k.	(NA)	(X)	3.4	(NA)	(X)	25.8
24510	Mobile homes, n.s.k.	(NA)	(X)	365.6	(NA)	(X)	338.4
24510 00	Mobile homes, n.s.k.[3]	(NA)	(X)	360.3	(NA)	(X)	269.8
24510 02	Mobile homes, n.s.k.[4]	(NA)	(X)	5.3	(NA)	(X)	68.6
2452– ––	**PREFABRICATED WOOD BUILDINGS**						
	Total	**(NA)**	**(X)**	**2 064.2**	**(NA)**	**(X)**	**2 334.3**
24521	Components for stationary buildings (not sold as complete units)	(NA)	(X)	212.3	(NA)	(X)	400.4
24521 73	Residential (homes, townhouses, and apartments)	77	(X)	171.7	89	(X)	299.0
24521 75	Nonresidential (includes motels and hotels)	29	(X)	35.8	40	(X)	80.7
24521 00	Components for stationary buildings (not sold as complete units), n.s.k.	(NA)	(X)	4.8	(NA)	(X)	20.6
24522	Precut packages for stationary buildings (complete units)	(NA)	(X)	406.3	(NA)	(X)	374.9
	Residential:						
24522 17	Log homes — 1,000 units	51	15.2	121.3	37	(S)	117.8
24522 19	Other, including homes, townhouses, and apartments — 1,000 units	24	5.7	86.7	32	*13.8	181.7
24522 23	Nonresidential (includes motels and hotels) — 1,000 units	23	(S)	195.0	21	(S)	65.7
24522 00	Precut packages for stationary buildings (complete units), n.s.k.	(NA)	(X)	3.2	(NA)	(X)	9.8
24523	Stationary buildings sold as complete units and shipped in panel form	(NA)	(X)	355.5	(NA)	(X)	403.8
	Residential:						
24523 33	Single family, including townhouses — 1,000 units	31	*9.9	254.8	35	13.3	242.9
24523 35	Multifamily — 1,000 units	8	*.6	5.8	12	*2.9	26.5
24523 37	Nonresidential (includes motels and hotels) — 1,000 units	13	(S)	39.3	20	20.8	120.9
24523 00	Stationary buildings sold as complete units and shipped in panel form, n.s.k.	(NA)	(X)	55.6	(NA)	(X)	13.5
24524	Stationary buildings shipped in three-dimensional assemblies	(NA)	(X)	737.8	(NA)	(X)	803.3
24524 41	Residential (homes, townhouses, and apartments) — 1,000 units	57	*16.4	560.9	56	20.2	607.2
24524 47	Nonresidential (includes motels and hotels) — 1,000 units	33	**13.3	132.3	34	**21.6	176.1
24524 00	Stationary buildings shipped in three-dimensional assemblies, n.s.k.	(NA)	(X)	44.6	(NA)	(X)	20.0
24520	Prefabricated wood buildings, n.s.k.	(NA)	(X)	352.3	(NA)	(X)	351.9
24520 00	Prefabricated wood buildings, n.s.k.[3]	(NA)	(X)	296.7	(NA)	(X)	276.6
24520 02	Prefabricated wood buildings, n.s.k.[4]	(NA)	(X)	55.6	(NA)	(X)	75.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
24511, MANUFACTURED (MOBILE) HOMES (35 FEET OR MORE IN LENGTH)		
United States	**3 976.4**	**3 476.0**
Alabama	337.2	274.9
Arizona	102.2	101.4
California	191.4	259.5
Georgia	397.9	403.9
Indiana	496.6	454.4
Kansas	44.1	30.7
Nebraska	67.2	45.0
North Carolina	376.1	361.7
Pennsylvania	253.9	243.5
Washington	66.7	(NA)
24512, MANUFACTURED (MOBILE) BUILDINGS, NONRESIDENTIAL		
United States	**130.1**	**230.0**
Florida	12.9	(NA)
Georgia	21.2	32.4
Indiana	9.2	(NA)
24521, COMPONENTS FOR STATIONARY BUILDINGS (NOT SOLD AS COMPLETE UNITS)		
United States	**212.3**	**400.4**
Alabama	4.7	17.8
California	10.9	66.3
Florida	11.6	18.5
Illinois	14.0	20.3
Kentucky	5.8	(NA)
Maryland	23.8	(NA)
Massachusetts	6.6	15.0
Michigan	5.1	(NA)
Minnesota	2.3	(NA)
Mississippi	4.0	5.1
Missouri	12.0	(NA)
New York	5.9	(NA)
North Carolina	8.5	(NA)
Ohio	6.3	28.3
Oregon	2.8	(NA)
24521, COMPONENTS FOR STATIONARY BUILDINGS (NOT SOLD AS COMPLETE UNITS)—Con.		
Pennsylvania	6.9	13.3
South Dakota	6.6	(NA)
Texas	5.2	(NA)
Virginia	5.4	22.2
Washington	5.5	(NA)
Wisconsin	24.0	(NA)
24522, PRECUT PACKAGES FOR STATIONARY BUILDINGS (COMPLETE UNITS)		
United States	**406.3**	**374.9**
California	27.1	(NA)
Connecticut	3.6	5.2
Maine	13.3	35.6
Michigan	20.7	6.9
Missouri	10.0	6.3
Montana	9.5	7.8
New York	10.2	32.8
North Carolina	3.5	10.2
Pennsylvania	24.1	(NA)
Tennessee	32.6	7.6
Washington	2.3	(NA)
24523, STATIONARY BUILDINGS SOLD AS COMPLETE UNITS AND SHIPPED IN PANEL FORM		
United States	**355.5**	**403.8**
Illinois	35.0	36.0
Michigan	4.0	16.5
New York	18.8	(NA)
North Carolina	12.7	(NA)
Ohio	5.4	45.2
Pennsylvania	53.5	(NA)
Wisconsin	61.8	46.7
24524, STATIONARY BUILDINGS SHIPPED IN THREE-DIMENSIONAL ASSEMBLIES		
United States	**737.8**	**803.3**
California	12.2	(NA)
Indiana	45.8	(NA)
Maryland	53.0	(NA)
Minnesota	12.2	(NA)
New Hampshire	19.3	46.0
New York	30.3	26.1
Pennsylvania	236.1	273.3
Texas	21.7	(NA)
Virginia	51.9	56.2
Washington	5.5	(NA)
Wisconsin	53.5	21.5

Table 6c. Historical Statistics for Product Classes —Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2451-	**Mobile homes**	**4 472.1**	**3 752.6**	**4 032.2**	**3 988.6**	**4 128.5**	**4 044.4**	**3 578.9**	**3 175.4**
24511	Manufactured (mobile) homes (35 feet or more in length)	3 976.4	3 308.3	3 497.9	3 470.4	3 570.0	3 476.0	3 141.7	2 895.7
24512	Manufactured (mobile) buildings, nonresidential	130.1	170.5	232.6	257.3	252.2	230.0	183.7	83.3
24510	Mobile homes, n.s.k.	365.6	273.8	301.7	260.8	306.4	338.4	253.5	196.4
2452-	**Prefabricated wood buildings**	**2 064.2**	**1 787.7**	**2 013.5**	**2 175.5**	**2 371.2**	**2 334.3**	**1 286.5**	**1 863.8**
24521	Components for stationary buildings (not sold as complete units)	212.3	295.4	340.9	367.9	414.3	400.4	130.9	232.2
24522	Precut packages for stationary buildings (complete units)	406.3	280.8	326.0	333.9	367.9	374.9	287.2	362.9
24523	Stationary buildings sold as complete units and shipped in panel form	355.5	295.2	372.1	412.2	421.3	403.8	278.6	652.7
24524	Stationary buildings shipped in three-dimensional assemblies	737.8	663.8	698.8	705.7	790.9	803.3	369.1	365.1
24520	Prefabricated wood buildings, n.s.k.	352.3	252.5	275.8	355.8	376.8	351.9	220.7	250.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2451, MOBILE HOMES		
	Materials, ingredients, containers, and supplies	**2 828.9**	**2 558.1**
330001	Metal mill shapes and forms, including castings (castings, aluminum, etc.)	40.9	70.7
344451	Metal siding, including aluminum, steel	104.9	88.1
343201	Metal plumbing fixtures, fittings, and trim (including enameled)	40.1	32.1
344201	Metal doors and door units, windows and window units	112.3	82.7
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	42.4	35.9
308013	Plastics fabricated pipe and pipe fittings	50.1	31.8
243056	Plywood	50.4	75.7
249310	Particleboard (wood)	68.9	68.3
249322	Oriented strand board (OSB) and waferboard	64.3	30.3
327511	Gypsum building board	133.7	117.5
242103	Dressed lumber	273.1	181.4
243105	Wood millwork, including molding, doors, and windows	67.5	46.0
243401	Kitchen cabinets, wood	50.4	34.8
227001	Floor coverings, textile	83.3	64.3
399601	Linoleum and other hard-surfaced floor covering	29.3	27.8
190000	Heating equipment and air-conditioners, including heat pumps	58.4	58.2
364002	Current-carrying wiring devices, including switches, connectors, lampholders, etc.	74.1	56.2
	Insulating materials:		
329602	Mineral fiber blankets, batts, and boards	64.8	62.6
190046	Loose fill (mineral fiber, cellulose fiber, and other)	28.6	17.6
342940	Builders' hardware, including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.	30.3	29.1
251003	Household-type furniture, including tables, sofas, beds, mattresses, etc.	33.0	52.7
363001	Household appliances, including refrigerators, cooking equipment, and other household appliances; exc. air-conditioners	132.7	125.5
371411	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	157.2	109.7
301101	Pneumatic tires and inner tubes	42.6	31.1
970099	All other materials and components, parts, containers, and supplies	348.2	346.2
971000	Materials, ingredients, containers, and supplies, n.s.k. [2]	647.5	681.8

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 2452, PREFABRICATED WOOD BUILDINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 113.7**	**(X)**	**1 364.3**
	Rough lumber:				
242110	Hardwood — mil bd ft	(S)	24.6	(S)	23.9
242121	Softwood — mil bd ft	190.5	61.0	*100.4	27.4
	Dressed lumber:				
242117	Hardwood — mil bd ft	(S)	12.5	*128.2	33.4
242128	Softwood — mil bd ft	**325.0	128.0	(S)	258.5
243601	Softwood plywood — mil sq ft (3/8 in. basis)	**113.9	37.7	**247.2	68.8
327511	Gypsum building board	(X)	16.7	(X)	27.2
342940	Builders' hardware, including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.	(X)	15.5	(X)	29.3
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(X)	13.5	(X)	19.4
190056	Windows and window units, including wood, metal, and vinyl — thousands	*405.8	54.9	(NA)	55.0
	Doors and door units:				
243103	Wood	(X)	15.0	(X)	22.1
344211	Metal — thousands	**83.2	13.7	**203.0	25.5
243401	Kitchen cabinets, wood	(X)	30.3	(X)	[3]
249300	Reconstituted wood products, including particleboard, oriented strand board, medium density fiberboard, and hardboard	(X)	22.4	(X)	[3]
344451	Metal siding, including aluminum, steel	(X)	39.0	(X)	16.2
344113	Fabricated structural iron, steel, and aluminum, including truss plates	(X)	15.5	(X)	39.2
364002	Current-carrying wiring devices, including switches, connectors, lampholders	(X)	17.5	(X)	[3]
363001	Household appliances, including refrigerators, cooking equipment, and other household appliances; exc. air-conditioners	(X)	7.9	(X)	[3]
227001	Floor coverings, textile	(X)	18.6	(X)	[3]
970099	All other materials and components, parts, containers, and supplies	(X)	184.1	(X)	[3] r271.0
971000	Materials, ingredients, containers, and supplies, n.s.k. [2]	(X)	385.4	(X)	447.4

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, data were included in material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
24112 20	24112 28	24351 01	24351 00	24490 43	24490 41	24932 05	24932 00
24112 21	24112 28	24351 05	24351 00	24490 43	24490 51	24932 07	24932 00
24112 26	24112 23	24351 07	24351 00	24490 73	24490 71	24932 09	24932 00
24112 26	24112 28	24351 47	24351 00	24490 73	24490 81	24932 21	24932 00
24114 06	24114 08	24365 01	24365 00	24913 02	24913 01	24933 16	24933 15
24114 06	24114 10	24365 05	24365 00	24913 02	24913 03	24933 16	24933 18
24114 31	24114 15	24365 11	24365 00	24913 21	24913 15		
24114 31	24114 29	24365 21	24365 00	24913 21	24913 19	24934 12	24934 00
24114 31	24114 33	24365 23	24365 00			24934 14	24934 00
24114 31	24114 35			24919 11	24919 01	24934 16	24934 00
		24366 07	24366 00	24919 11	24919 03	24934 17	24934 00
24290 87	24290 61	24366 11	24366 00	24919 11	24919 09	24934 18	24934 00
24290 87	24290 83	24366 13	24366 00			24934 19	24934 00
		24366 15	24366 00	24931 20	24931 12		
24315 87	24315 98	24366 17	24366 00	24931 20	24931 14	24936 12	24936 14
24315 97	24315 98			24931 20	24931 16	24936 12	24936 15
		24367 03	24367 00	24931 20	24931 18		
		24367 21	24367 00	24931 21	24931 07	24994 98	24994 61
24317 25	24317 21	24367 23	24367 00	24931 21	24931 09	24994 98	24994 79
24317 25	24317 31	24367 25	24367 00	24931 21	24931 19	24994 98	24994 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
24112 23	24112 26	24351 00	24351 01	24490 41	24490 43	24932 00	24932 05
24112 28	24112 20	24351 00	24351 05	24490 51	24490 43	24932 00	24932 07
24112 28	24112 21	24351 00	24351 07	24490 71	24490 73	24932 00	24932 09
24112 28	24112 26	24351 00	24351 47	24490 81	24490 73	24932 00	24932 21
24114 08	24114 06	24365 00	24365 01	24913 01	24913 02	24933 15	24933 16
24114 10	24114 06	24365 00	24365 05	24913 03	24913 02	24933 18	24933 16
24114 15	24114 31	24365 00	24365 11	24913 15	24913 21		
24114 29	24114 31	24365 00	24365 21	24913 19	24913 21	24934 00	24934 12
24114 33	24114 31	24365 00	24365 23			24934 00	24934 14
24114 35	24114 31			24919 01	24919 11	24934 00	24934 16
		24366 00	24366 07	24919 03	24919 11	24934 00	24934 17
24290 61	24290 87	24366 00	24366 11	24919 09	24919 11	24934 00	24934 18
24290 83	24290 87	24366 00	24366 13			24934 00	24934 19
		24366 00	24366 15	24931 07	24931 21		
24315 98	24315 87	24366 00	24366 17	24931 09	24931 21	24936 14	24936 12
24315 98	24315 97			24931 12	24931 20	24936 15	24936 12
		24367 00	24367 03	24931 14	24931 20		
24317 21	24317 25	24367 00	24367 21	24931 16	24931 20	24994 61	24994 98
24317 31	24317 25	24367 00	24367 23	24931 18	24931 20	24994 79	24994 98
		24367 00	24367 25	24931 19	24931 21	24994 99	24994 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1411 [APS_PPGB,C_BROOKS] APS-PPGB 12/14/94 4:05 PM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-16042725.DAT;1 12/14/94 16:04:40 UTF:TIPS93-16042725.DAT;1 12/14/94 16:04:41 META:TIPS96-16042725.DAT;1 12/14/94 16:05:31

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992
Census of Manufactures

MC92-I-25A

INDUSTRY SERIES

Household Furniture

Industries 2511, 2512, 2514, 2515, 2517, and 2519

U.S. Department of Commerce
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Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
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Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-14252995.DAT;1 5/ 22/ 95 14:25:36 UTF:TIPS93-14252995.DAT;1 5/ 22/ 95 14:25:36 META:TIPS96-14252995.DAT;1 5/ 22/ 95 14:25:51

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2511	Wood Household Furniture
2512	Upholstered Household Furniture
2514	Metal Household Furniture
2515	Mattresses and Bedsprings
2517	Wood Television and Radio Cabinets
2519	Household Furniture, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE

This industry is made up of establishments primarily engaged in manufacturing wood household furniture commonly used in dwellings. It also includes establishments engaged in manufacturing wood outdoor furniture and infants' and children's wood furniture. Establishments primarily engaged in manufacturing upholstered furniture are classified in industry 2512; those manufacturing reed, rattan, and similar furniture are classified in industry 2519; those manufacturing television, radio, phonograph, and sewing machine cabinets are classified in industry 2517; and those manufacturing kitchen cabinets and bathroom vanities are classified in industry 2434.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2511, Wood Household Furniture, had employment of 121.1 thousand. The employment figure was 11 percent below the 135.9 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Virginia, California, and Tennessee, accounting for approximately 55 percent of the industry's employment. This represents a shift from 1987 when North Carolina, Virginia, California, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $8.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2511 shipped $7.8 billion of wood household furniture products considered primary to the industry, $466.6 million of secondary products, and had $477.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2511, no matter in what industry they were produced, appear in table 6a and aggregate to $8.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood household furniture industry amounted to $4.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE

This industry is made up of establishments primarily engaged in manufacturing upholstered furniture on wood frames. Shops primarily engaged in reupholstered furniture, or upholstering frames to individual order, are classified in Services, industry 7641, or Retail Trade, industry 5712. Establishments primarily engaged in manufacturing dual-purpose sleep furniture, such as convertible sofas and chair beds, are classified in industry 2515, regardless of the material used in the frame. Establishments primarily engaged in manufacturing wood frames for upholstered furniture are classified in industry 2426.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2512, Upholstered Household Furniture, had employment of 79.2 thousand. The employment figure was 4 percent below the 82.1 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Mississippi, Tennessee, and California, accounting for approximately 74 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 70 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2512 shipped $5.7 billion of upholstered household furniture products considered primary to the industry, $462.7 million of secondary products, and had $108.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2512, no matter in what industry they were produced, appear in table 6a and aggregate to $5.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the upholstered household furniture industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2514, METAL HOUSEHOLD FURNITURE

This industry is made up of establishments primarily engaged in manufacturing metal household furniture of a type commonly used in dwellings. Establishments primarily engaged in manufacturing dual-purpose sleep furniture, such as convertible sofas and chair beds, are classified in industry 2515, regardless of the material used in the frame.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2514, Metal Household Furniture, had employment of 23.8 thousand. The employment figure was 21 percent below the 30.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Indiana, North Carolina, and Tennessee. This represents a shift from 1987 when California, Illinois, Tennessee, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2514 shipped $1.8 billion of metal household furniture products considered primary to the industry, $182.1 million

of secondary products, and had $82.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2514, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal household furniture industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 2515, MATTRESSES AND BEDSPRINGS

This industry is made up of establishments primarily engaged in manufacturing innerspring mattresses, box spring mattresses, and non-innerspring mattresses containing felt, foam rubber urethane, hair, or any other filling materials; and assembled wire springs (fabric, coil, or box) for use on beds, couches, and cots. It also includes establishments engaged in manufacturing dual-purpose sleep furniture, such as convertible sofas and chair beds, regardless of the material used in the frame. Establishments primarily engaged in manufacturing automobile seats and backs are classified in industry 2531; those manufacturing individual wire springs are classified in industry 3495; and those manufacturing paddings and upholstery filling are classified in industry 2299.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2515, Mattresses and Bedsprings, had employment of 22.6 thousand. The employment figure was 7 percent below the 24.4 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, Texas, and North Carolina, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, Texas, New Jersey, and Florida were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2515 shipped $2.7 billion of mattresses and bedsprings products considered primary to the industry, $105.2 million of secondary products, and had $85.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 2512, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the mattresses and bedsprings industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS

This industry is made up of establishments primarily engaged in manufacturing wood cabinets for radios, television sets, phonographs, and sewing machines. Establishments primarily engaged in the manufacturing of wood household furniture are classified in Industry 2511, Wood Household Furniture.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2517, Wood Television and Radio Cabinets, had employment of 4.5 thousand. The employment figure was 24 percent below the 5.9 thousand reported in 1987.

The leading States in employment in 1992 were California, Indiana, North Carolina, and Tennessee. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $327.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2517 shipped $298.5 million of wood television and radio cabinets products considered primary to the industry, $25.3 million of secondary products, and had $3.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 2517, no matter in what industry they were produced, appear in table 6a and aggregate to $383.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood television and radio cabinets industry amounted to $153.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing reed, rattan, and other wicker furniture; plastics and fiberglass household furniture and cabinets; and household furniture, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2519, Household Furniture, N.E.C., had employment of 5.6 thousand. The employment figure was 5 percent below the 5.9 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, Indiana, and North Carolina. This represents a shift from 1987 when Indiana, California, Tennessee, and Florida were the leading States.

The total value of shipments for establishments classified in this industry was $451.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2519 shipped $411.0 million of household furniture, not elsewhere classified, products considered primary to the industry, $36.0 million of secondary products, and had $4.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 2519, no matter in what industry they were produced, appear in table 6a and aggregate to $483.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household furniture, not elsewhere classified, industry amounted to $256.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE															
1992 Census	2 634	2 786	720	121.1	2 173.5	105.3	205.7	1 645.8	4 726.2	4 055.4	8 737.0	197.4	1 779.4	94	98
1991 ASM	(NA)	(NA)	(NA)	121.4	2 004.9	103.8	199.0	1 490.4	4 169.3	3 834.6	7 979.8	166.1	1 660.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	130.9	2 097.1	112.6	219.2	1 570.0	4 399.0	3 991.8	8 302.9	184.6	1 679.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	134.7	2 114.1	116.4	226.6	1 601.3	4 339.7	4 153.3	8 460.7	263.7	1 663.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	136.5	2 111.8	119.6	232.1	1 650.6	4 463.4	3 915.6	8 275.4	212.4	1 722.4	(NA)	(NA)
1987 Census	2 771	2 949	865	135.9	2 017.5	118.9	235.3	1 569.6	4 267.2	3 784.9	7 982.0	196.9	1 552.2	95	97
1986 ASM	(NA)	(NA)	(NA)	128.6	1 799.5	114.1	223.1	1 414.7	3 802.8	3 468.6	7 237.5	138.5	1 393.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	133.2	1 748.8	115.9	221.1	1 352.1	3 526.7	3 194.6	6 727.6	151.6	1 360.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	134.9	1 717.9	118.1	227.0	1 330.4	3 459.0	3 223.5	6 613.2	138.7	1 375.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	125.7	1 532.0	109.7	208.0	1 185.8	3 088.5	2 640.2	5 702.4	111.5	1 250.4	(NA)	(NA)
1982 Census	2 430	2 607	833	125.6	1 402.7	109.2	197.2	1 070.6	2 715.0	2 317.8	5 056.6	119.1	1 162.4	95	96
1981 ASM	(NA)	(NA)	(NA)	134.7	1 478.1	116.8	224.6	1 142.9	2 885.6	2 489.1	5 321.7	125.1	1 115.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	138.1	1 370.0	119.5	225.9	1 047.8	2 708.2	2 325.9	5 008.5	136.8	1 004.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	140.1	1 334.3	122.1	240.5	1 035.8	2 670.7	2 327.4	4 942.3	153.8	1 001.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	147.0	1 296.3	128.6	255.0	1 014.6	2 586.8	2 333.6	4 864.4	140.7	948.9	(NA)	(NA)
1977 Census	2 796	2 982	815	140.8	1 137.3	124.6	244.5	897.3	2 235.0	1 931.2	4 140.3	101.6	821.2	94	96
INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE															
1992 Census	1 077	1 184	524	79.2	1 535.2	67.1	128.9	1 118.4	3 009.9	3 236.6	6 223.3	73.6	636.5	92	97
1991 ASM	(NA)	(NA)	(NA)	80.3	1 460.7	68.5	128.5	1 090.9	2 827.2	3 058.5	5 859.4	49.9	632.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	83.8	1 486.7	71.5	137.6	1 108.0	2 809.1	3 042.4	5 815.3	73.0	627.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	80.8	1 397.7	68.9	131.5	1 044.2	2 751.5	2 883.2	5 618.1	56.3	582.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	81.7	1 338.3	69.8	131.3	1 013.9	2 644.8	2 770.2	5 408.5	84.8	575.8	(NA)	(NA)
1987 Census	1 030	1 150	576	82.1	1 295.2	69.6	132.4	982.7	2 661.0	2 630.9	5 263.1	77.4	569.2	90	96
1986 ASM	(NA)	(NA)	(NA)	77.9	1 206.2	65.6	125.0	896.4	2 489.2	2 463.8	4 945.0	79.1	526.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	76.0	1 116.9	64.3	118.2	831.0	2 193.0	2 352.2	4 550.7	60.1	498.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	76.5	1 076.7	64.8	120.7	804.8	2 108.7	2 282.5	4 362.7	64.1	537.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	72.5	944.9	62.6	115.1	730.3	1 990.8	2 006.6	3 989.7	61.5	469.4	(NA)	(NA)
1982 Census	1 129	1 227	602	70.6	849.9	59.8	105.6	637.2	1 745.3	1 761.5	3 505.3	57.2	441.4	91	95
1981 ASM	(NA)	(NA)	(NA)	83.2	959.3	70.3	127.9	721.1	1 892.9	1 980.7	3 860.0	84.6	451.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	89.0	959.2	75.0	141.6	724.6	1 739.4	1 974.6	3 721.6	72.3	430.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	95.0	951.9	81.4	150.2	715.9	1 747.6	1 899.2	3 641.6	67.1	459.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	89.4	863.3	76.2	141.8	656.4	1 679.3	1 750.8	3 429.8	66.5	400.0	(NA)	(NA)
1977 Census	1 357	1 473	730	89.1	779.2	75.7	137.6	583.9	1 437.3	1 510.6	2 931.0	50.4	378.6	91	96
INDUSTRY 2514, METAL HOUSEHOLD FURNITURE															
1992 Census	323	353	166	23.8	468.8	18.9	36.6	308.2	1 084.7	1 044.1	2 111.7	36.8	370.6	91	96
1991 ASM	(NA)	(NA)	(NA)	24.9	441.5	20.7	39.8	293.0	1 054.4	1 048.8	2 089.8	34.1	359.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.5	471.2	22.2	43.7	314.7	1 032.4	1 136.3	2 184.1	35.7	369.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	28.2	483.6	23.3	47.0	334.7	1 058.6	1 147.9	2 228.5	33.6	385.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	29.3	510.3	23.5	48.2	340.9	1 105.6	1 139.1	2 224.7	27.9	408.0	(NA)	(NA)
1987 Census	374	418	211	30.1	498.0	24.3	47.7	330.4	1 047.6	1 103.0	2 141.2	37.7	385.8	88	94
1986 ASM	(NA)	(NA)	(NA)	26.9	438.2	21.7	43.0	289.6	941.7	980.0	1 901.5	29.7	353.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.2	420.5	22.4	42.9	279.6	885.3	939.3	1 828.9	36.9	316.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.6	406.8	22.8	43.9	270.9	893.2	916.0	1 796.2	38.5	315.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	28.3	391.2	23.0	45.2	255.1	836.4	854.9	1 701.0	23.1	300.9	(NA)	(NA)
1982 Census	413	454	205	27.0	362.4	21.5	41.8	240.3	807.0	774.1	1 590.7	25.4	277.7	89	92
1981 ASM	(NA)	(NA)	(NA)	29.8	358.5	24.4	46.6	247.5	789.0	781.5	1 546.5	27.9	254.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.6	345.3	26.2	48.8	239.0	739.9	748.1	1 467.7	34.1	239.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.4	352.1	28.0	54.1	245.6	772.1	778.6	1 506.9	29.9	249.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.1	337.3	28.3	54.0	235.0	695.0	761.8	1 450.2	26.8	234.1	(NA)	(NA)
1977 Census	405	448	213	33.2	302.2	27.4	51.6	208.6	637.4	684.0	1 307.1	22.8	217.0	89	91
INDUSTRY 2515, MATTRESSES AND BEDSPRINGS															
1992 Census	700	790	322	22.6	488.0	16.4	33.2	283.8	1 404.5	1 436.0	2 842.6	31.2	196.5	96	86
1991 ASM	(NA)	(NA)	(NA)	24.3	508.9	17.7	33.8	288.7	1 393.3	1 528.9	2 922.9	35.5	219.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.7	490.9	17.7	35.1	283.2	1 331.4	1 572.0	2 904.9	28.2	225.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.5	507.3	18.8	36.9	300.5	1 347.3	1 539.6	2 892.9	30.6	237.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.0	451.9	18.3	35.7	272.8	1 149.4	1 311.2	2 457.4	20.2	225.0	(NA)	(NA)
1987 Census	721	839	335	24.4	448.2	17.9	34.8	258.8	1 164.5	1 259.5	2 417.3	34.2	213.2	95	83
1986 ASM	(NA)	(NA)	(NA)	20.3	376.7	14.5	28.7	216.9	961.5	1 112.3	2 074.6	23.7	184.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.1	369.7	15.3	28.8	212.6	856.3	1 057.4	1 920.9	27.6	174.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.0	358.9	18.6	35.6	209.9	860.8	1 095.5	1 956.3	29.2	197.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.6	387.2	19.2	37.3	232.4	907.3	1 127.4	2 026.1	34.7	233.0	(NA)	(NA)
1982 Census	786	902	336	25.4	357.4	19.0	35.6	218.9	882.4	1 047.4	1 935.4	25.0	200.5	95	88
1981 ASM	(NA)	(NA)	(NA)	28.3	367.9	21.1	40.1	220.5	1 027.1	1 154.6	2 171.8	36.3	259.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.8	341.3	20.8	39.2	205.0	894.6	1 024.6	1 934.8	23.0	238.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.8	333.2	21.7	42.1	202.7	810.6	963.9	1 760.1	20.5	190.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	26.7	303.9	20.7	39.2	190.5	659.2	838.8	1 499.5	22.7	165.4	(NA)	(NA)
1977 Census	832	962	355	27.0	279.8	20.6	39.3	175.3	616.6	788.6	1 398.5	14.5	155.6	95	86
INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS															
1992 Census	104	105	36	4.5	83.5	3.9	7.6	63.3	171.6	153.1	327.7	3.9	38.7	92	78
1991 ASM	(NA)	(NA)	(NA)	2.8	59.7	2.4	4.7	46.2	118.1	114.6	235.3	3.8	27.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.3	64.7	2.7	5.0	47.4	132.6	116.4	246.9	6.2	30.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.1	72.5	3.5	6.4	54.9	151.3	133.1	281.2	10.3	32.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.7	87.5	4.8	9.4	65.8	171.4	170.8	340.9	6.7	36.3	(NA)	(NA)
1987 Census	80	81	36	5.9	91.5	5.1	10.3	70.6	167.5	182.1	351.1	7.0	34.5	87	82
1986 ASM	(NA)	(NA)	(NA)	6.2	95.1	5.4	10.2	75.8	189.6	196.0	382.1	8.0	38.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.2	98.9	6.2	11.2	76.0	177.2	186.0	364.4	9.4	34.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.6	103.7	6.6	12.1	80.9	191.3	206.4	393.2	16.5	37.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.2	83.1	5.4	10.0	62.6	155.5	155.8	310.3	6.3	33.4	(NA)	(NA)
1982 Census	81	83	37	7.0	88.6	5.9	10.8	66.4	152.1	151.8	306.6	7.3	32.5	91	91
1981 ASM	(NA)	(NA)	(NA)	7.0	84.7	6.1	11.9	65.9	149.6	143.9	291.9	4.8	29.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.5	80.5	6.5	12.3	63.9	139.9	139.0	279.0	3.8	26.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.4	81.4	7.1	13.1	62.5	123.7	128.5	261.7	6.4	27.2	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS—Con.															
1978 ASM	(NA)	(NA)	(NA)	10.2	100.7	8.9	17.1	81.1	158.2	193.4	340.7	7.3	38.7	(NA)	(NA)
1977 Census	91	94	51	10.7	89.0	9.3	17.6	70.5	150.4	155.0	304.8	11.1	30.5	92	90
INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.															
1992 Census	197	200	51	5.6	113.0	4.7	8.0	82.8	193.0	256.0	451.2	10.8	39.4	92	85
1991 ASM	(NA)	(NA)	(NA)	4.9	99.9	3.9	6.5	71.4	160.8	254.9	411.8	7.6	39.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.7	107.8	4.7	8.2	78.4	173.7	270.7	458.7	18.8	47.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.2	111.4	5.3	10.0	83.1	209.7	267.6	473.4	19.7	63.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.2	107.9	5.3	10.1	78.0	199.1	225.6	424.0	20.9	45.3	(NA)	(NA)
1987 Census	175	177	51	5.9	101.4	5.0	10.1	73.2	178.2	227.3	403.9	24.1	39.4	88	83
1986 ASM	(NA)	(NA)	(NA)	6.9	108.9	5.8	11.5	80.5	192.9	253.5	450.3	21.9	64.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.0	105.4	5.9	11.3	78.6	188.6	257.7	445.7	12.2	67.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.5	114.1	6.3	12.3	86.4	185.7	239.9	423.4	13.4	58.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.7	114.7	6.5	12.2	85.9	219.1	258.8	462.0	12.4	64.8	(NA)	(NA)
1982 Census	196	202	63	7.4	100.7	6.0	11.7	76.4	153.3	225.6	381.1	11.9	50.3	80	93
1981 ASM	(NA)	(NA)	(NA)	9.2	121.6	7.7	15.2	90.0	199.6	267.3	466.5	17.6	53.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.1	109.2	7.6	14.4	81.5	179.5	232.2	412.3	18.1	46.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.8	99.0	7.6	14.5	76.0	139.4	211.9	353.8	13.2	37.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.0	94.2	7.6	15.0	72.2	141.5	195.1	331.7	14.2	40.1	(NA)	(NA)
1977 Census	198	201	59	8.7	79.7	7.5	14.3	61.7	131.0	172.6	301.9	10.4	34.1	79	84

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE									
1992 Census	17 948	87	1 953	8.00	46	71	39 027	46	22.98
1991 ASM	16 515	86	1 917	7.49	48	73	34 343	48	20.95
1990 ASM	16 021	86	1 947	7.16	48	73	33 606	48	20.07
1989 ASM	15 695	86	1 947	7.07	49	74	32 218	49	19.15
1988 ASM	15 471	88	1 941	7.11	47	73	32 699	47	19.23
1987 Census	14 845	87	1 979	6.67	47	73	31 400	47	18.14
1986 ASM	13 993	89	1 955	6.34	48	73	29 571	47	17.05
1985 ASM	13 129	87	1 908	6.12	47	73	26 477	50	15.95
1984 ASM	12 735	88	1 922	5.86	49	75	25 641	50	15.24
1983 ASM	12 188	87	1 896	5.70	46	73	24 570	50	14.85
1982 Census	11 168	87	1 806	5.43	46	74	21 616	52	13.77
1981 ASM	10 973	87	1 923	5.09	47	75	21 422	51	12.85
1980 ASM	9 920	87	1 890	4.64	46	74	19 610	51	11.99
1979 ASM	9 524	87	1 970	4.31	47	74	19 063	50	11.10
1978 ASM	8 818	87	1 983	3.98	48	75	17 597	50	10.14
1977 Census	8 077	88	1 962	3.67	47	74	15 874	51	9.14
INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE									
1992 Census	19 384	85	1 921	8.68	52	77	38 004	51	23.35
1991 ASM	18 191	85	1 876	8.49	52	77	35 208	52	22.00
1990 ASM	17 741	85	1 924	8.05	52	78	33 521	53	20.41
1989 ASM	17 298	85	1 909	7.94	51	76	34 053	51	20.92
1988 ASM	16 381	85	1 881	7.72	51	76	32 372	51	20.14
1987 Census	15 776	85	1 902	7.42	50	75	32 412	49	20.10
1986 ASM	15 484	84	1 905	7.17	50	74	31 954	48	19.91
1985 ASM	14 696	85	1 838	7.03	52	76	28 855	51	18.55
1984 ASM	14 075	85	1 863	6.67	52	77	27 565	51	17.47
1983 ASM	13 033	86	1 839	6.34	50	74	27 459	47	17.30
1982 Census	12 038	85	1 766	6.03	50	74	24 721	49	16.53
1981 ASM	11 530	84	1 819	5.64	51	76	22 751	51	14.80
1980 ASM	10 778	84	1 888	5.12	53	79	19 544	55	12.28
1979 ASM	10 020	86	1 845	4.77	52	78	18 396	54	11.64
1978 ASM	9 657	85	1 861	4.63	51	76	18 784	51	11.84
1977 Census	8 745	85	1 818	4.24	52	78	16 131	54	10.45

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2514, METAL HOUSEHOLD FURNITURE								
1992 Census	19 697	79	1 937	8.42	49	72	45 576	43	29.64
1991 ASM	17 731	83	1 923	7.36	50	71	42 345	42	26.49
1990 ASM	17 781	84	1 968	7.20	52	74	38 958	46	23.62
1989 ASM	17 149	83	2 017	7.12	52	73	37 539	46	22.52
1988 ASM	17 416	80	2 051	7.07	51	74	37 734	46	22.94
1987 Census	16 545	81	1 963	6.93	52	75	34 804	48	21.96
1986 ASM	16 290	81	1 982	6.73	52	75	35 007	47	21.90
1985 ASM	15 460	82	1 915	6.52	51	74	32 548	47	20.64
1984 ASM	14 739	83	1 925	6.17	51	74	32 362	46	20.35
1983 ASM	13 823	81	1 965	5.64	50	73	29 555	47	18.50
1982 Census	13 422	80	1 944	5.75	49	71	29 889	45	19.31
1981 ASM	12 030	82	1 910	5.31	51	74	26 477	45	16.93
1980 ASM	10 927	83	1 863	4.90	51	74	23 415	47	15.16
1979 ASM	10 235	81	1 932	4.54	52	75	22 445	46	14.27
1978 ASM	9 891	83	1 908	4.35	53	76	20 381	49	12.87
1977 Census	9 102	83	1 883	4.04	52	75	19 199	47	12.35
	INDUSTRY 2515, MATTRESSES AND BEDSPRINGS								
1992 Census	21 593	73	2 024	8.55	51	68	62 146	35	42.30
1991 ASM	20 942	73	1 910	8.54	52	70	57 337	37	41.22
1990 ASM	19 874	72	1 983	8.07	54	71	53 903	37	37.93
1989 ASM	19 894	74	1 963	8.14	53	71	52 835	38	36.51
1988 ASM	18 829	76	1 951	7.64	53	72	47 892	39	32.20
1987 Census	18 369	73	1 944	7.44	52	71	47 725	38	33.46
1986 ASM	18 557	71	1 979	7.56	54	72	47 365	39	33.50
1985 ASM	17 521	73	1 882	7.38	55	74	40 583	43	29.73
1984 ASM	14 356	74	1 914	5.90	56	74	34 432	42	24.18
1983 ASM	15 125	75	1 943	6.23	56	75	35 441	43	24.32
1982 Census	14 071	75	1 874	6.15	54	73	34 740	41	24.79
1981 ASM	13 000	75	1 900	5.50	53	70	36 293	36	25.61
1980 ASM	12 277	75	1 885	5.23	53	71	32 180	38	22.82
1979 ASM	11 569	75	1 940	4.81	55	74	28 146	41	19.25
1978 ASM	11 382	78	1 894	4.86	56	76	24 689	46	16.82
1977 Census	10 363	76	1 908	4.46	56	76	22 837	45	15.69
	INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS								
1992 Census	18 556	87	1 949	8.33	47	72	38 133	49	22.58
1991 ASM	21 321	86	1 958	9.83	49	74	42 179	51	25.13
1990 ASM	19 606	82	1 852	9.48	47	73	40 182	49	26.52
1989 ASM	17 683	85	1 829	8.58	47	73	36 902	48	23.64
1988 ASM	15 351	84	1 958	7.00	50	76	30 070	51	18.23
1987 Census	15 508	86	2 020	6.85	52	78	28 390	55	16.26
1986 ASM	15 339	87	1 889	7.43	51	76	30 581	50	18.59
1985 ASM	13 736	86	1 806	6.79	51	78	24 611	56	15.82
1984 ASM	13 645	87	1 833	6.69	52	79	25 171	54	15.81
1983 ASM	13 403	87	1 852	6.26	50	77	25 081	53	15.55
1982 Census	12 657	84	1 831	6.15	50	78	21 729	58	14.08
1981 ASM	12 100	87	1 951	5.54	49	78	21 371	57	12.57
1980 ASM	10 733	87	1 892	5.20	50	79	18 653	58	11.37
1979 ASM	9 690	85	1 845	4.77	49	80	14 726	66	9.44
1978 ASM	9 873	87	1 921	4.74	57	86	15 510	64	9.25
1977 Census	8 318	87	1 892	4.01	51	80	14 056	59	8.55
	INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.								
1992 Census	20 179	84	1 702	10.35	57	82	34 464	59	24.13
1991 ASM	20 388	80	1 667	10.98	62	86	32 816	62	24.74
1990 ASM	18 912	82	1 745	9.56	59	83	30 474	62	21.18
1989 ASM	17 968	85	1 887	8.31	57	80	33 823	53	20.97
1988 ASM	17 403	85	1 906	7.72	53	79	32 113	54	19.71
1987 Census	17 186	85	2 020	7.25	56	81	30 203	57	17.64
1986 ASM	15 783	84	1 983	7.00	56	80	27 957	56	16.77
1985 ASM	15 057	84	1 915	6.96	58	81	26 943	56	16.69
1984 ASM	15 213	84	1 952	7.02	57	84	24 760	61	15.10
1983 ASM	14 896	84	1 877	7.04	56	81	28 455	52	17.96
1982 Census	13 608	81	1 950	6.53	59	86	20 716	66	13.10
1981 ASM	13 217	84	1 974	5.92	57	83	21 696	61	13.13
1980 ASM	12 000	84	1 895	5.66	56	83	19 725	61	12.47
1979 ASM	11 250	86	1 908	5.24	60	88	15 841	71	9.61
1978 ASM	10 467	84	1 974	4.81	59	87	15 722	67	9.43
1977 Census	9 161	86	1 907	4.31	57	84	15 057	61	9.16

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE														
United States	–	**2 786**	**720**	**121.1**	**2 173.5**	**105.3**	**205.7**	**1 645.8**	**4 726.2**	**4 055.4**	**8 737.0**	**197.4**	**135.9**	**4 267.2**
Alabama	E1	98	35	4.1	60.2	3.6	7.1	46.3	145.8	150.2	289.7	6.4	3.2	81.5
Arizona	–	46	7	1.2	21.2	1.0	2.2	14.5	40.5	40.9	81.3	3.4	1.4	30.7
Arkansas	E1	38	10	2.1	34.7	1.9	3.6	26.3	62.4	78.4	142.4	2.1	2.9	70.3
California	E2	414	116	10.4	171.8	9.0	17.7	120.1	363.4	355.2	720.4	8.8	14.4	435.4
Colorado	E1	48	4	.5	7.8	.5	.8	6.5	14.4	21.7	36.3	(D)	.6	18.3
Connecticut	–	23	3	.3	7.3	.2	.5	5.5	14.2	8.9	23.1	.2	F	(D)
Florida	E2	196	25	2.9	45.4	2.4	4.6	32.4	122.0	81.7	202.9	2.6	3.3	87.7
Georgia	–	70	21	2.1	31.4	1.8	3.6	23.0	68.4	95.9	164.7	2.0	3.0	75.4
Illinois	–	73	13	1.7	30.0	1.3	2.5	20.8	71.9	94.5	166.9	1.6	1.4	56.6
Indiana	–	56	25	4.0	85.6	3.5	7.1	62.0	187.5	136.4	321.3	11.4	3.7	136.6
Iowa	–	15	4	.2	3.0	.2	.4	2.3	4.5	4.5	9.1	(D)	(NA)	(D)
Kansas	E2	18	2	.1	2.1	.1	.3	1.6	4.9	6.1	11.1	.2	(NA)	(NA)
Kentucky	E2	35	9	.6	9.3	.5	1.0	6.8	19.1	23.4	43.0	(D)	F	(D)
Louisiana	E6	16	3	.2	3.1	.2	.4	2.2	5.3	11.3	16.7	(D)	(NA)	(NA)
Maine	–	24	5	.4	5.9	.3	.6	4.7	12.7	6.2	18.8	.3	F	(D)
Maryland	–	26	4	.4	9.6	.3	.7	7.0	20.3	12.8	32.6	.6	G	(D)
Massachusetts	E1	58	13	1.1	25.2	.9	1.8	17.5	53.5	46.1	98.7	1.5	2.4	85.1
Michigan	–	62	20	2.3	47.2	1.9	4.0	35.8	105.1	79.4	182.1	2.9	2.5	83.5
Minnesota	E1	42	9	.6	9.0	.5	.9	6.5	19.8	18.0	37.5	1.1	F	(D)
Mississippi	E3	33	13	2.2	25.4	1.9	3.6	19.2	58.9	54.9	114.1	.8	2.5	68.4
Missouri	–	49	15	3.0	61.6	2.5	4.7	44.6	172.9	167.8	339.3	7.3	3.2	127.7
New Hampshire	–	23	5	.5	10.1	.4	.8	6.4	26.9	23.0	50.5	.7	.8	30.5
New Jersey	E3	60	7	.5	12.0	.4	.8	8.2	26.8	25.5	52.4	.6	1.0	42.1
New Mexico	E5	26	2	.2	2.6	.1	.3	2.0	4.5	4.9	9.4	.2	.2	3.4
New York	E1	184	39	5.0	100.4	3.8	7.5	70.7	245.6	164.8	409.5	5.3	6.3	235.9
North Carolina	–	218	119	34.5	636.5	31.1	59.4	517.5	1 235.9	939.8	2 162.5	37.7	38.1	1 188.2
North Dakota	E7	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	87	13	3.4	84.4	2.9	5.6	56.2	207.5	216.1	424.2	(D)	2.4	149.5
Oklahoma	E5	19	5	.2	2.7	.1	.3	2.2	4.1	3.6	7.6	.1	(NA)	(NA)
Oregon	–	38	7	.7	15.6	.6	1.2	11.6	35.5	27.0	62.5	1.3	.8	26.7
Pennsylvania	–	133	26	3.6	73.9	2.9	6.0	50.6	186.5	128.7	314.9	7.6	3.9	131.5
South Carolina	E2	28	9	2.0	33.1	1.8	3.5	26.5	69.7	59.8	129.6	3.2	1.6	52.8
South Dakota	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	99	35	5.9	91.7	5.2	9.9	67.8	193.0	188.8	380.8	11.0	5.7	149.6
Texas	E1	82	12	1.0	14.9	.8	1.8	11.2	37.9	31.9	69.9	.7	1.7	42.3
Utah	E1	30	4	.3	4.0	.2	.4	2.9	11.7	10.7	22.1	1.3	.4	9.5
Vermont	–	32	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	76	38	15.2	246.7	13.8	26.7	203.8	540.1	448.4	976.1	16.0	(NA)	(D)
Washington	E3	50	7	.5	8.5	.4	.7	6.4	16.5	13.1	29.3	(D)	.4	10.3
West Virginia	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	77	15	4.1	79.5	3.4	7.7	51.4	205.5	187.4	386.6	6.9	3.5	143.2
INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE														
United States	–	**1 184**	**524**	**79.2**	**1 535.2**	**67.1**	**128.9**	**1 118.4**	**3 009.9**	**3 236.6**	**6 223.3**	**73.6**	**82.1**	**2 661.0**
Alabama	–	12	9	.6	8.4	.5	.9	5.8	19.9	18.5	38.3	.6	F	(D)
Arizona	E2	19	8	.6	9.6	.6	1.4	7.9	15.6	17.3	32.7	.2	E	(D)
Arkansas	–	14	7	1.0	15.1	.8	1.7	12.2	34.3	36.0	70.4	.3	1.4	43.1
California	E1	195	71	7.7	150.8	6.4	12.4	108.3	312.8	317.1	626.5	3.9	9.2	317.9
Florida	E2	48	10	.7	10.8	.6	1.1	7.4	19.2	18.8	38.1	.4	1.1	26.1
Georgia	E2	19	13	1.0	13.6	.8	1.6	9.3	27.2	37.4	62.4	1.2	1.2	31.7
Illinois	E2	18	4	.4	6.8	.3	.6	5.0	11.4	10.4	21.9	.2	F	(D)
Indiana	E1	22	12	1.6	30.3	1.3	2.5	23.0	62.1	87.0	148.5	(D)	1.9	63.4
Iowa	–	6	6	1.7	41.6	1.3	2.7	26.7	68.6	77.2	145.1	(D)	G	(D)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.1
Massachusetts	E3	20	4	.3	5.7	.3	.5	4.4	9.8	8.8	18.6	.1	F	(D)
Michigan	–	15	4	.4	7.2	.4	.7	6.4	12.0	23.2	35.2	.1	E	(D)
Mississippi	–	135	88	18.2	353.3	15.4	30.1	259.7	678.9	864.1	1 537.1	20.6	13.4	469.8
Missouri	–	8	4	1.6	34.4	1.4	3.1	29.2	77.4	60.2	137.8	(D)	G	(D)
Nebraska	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	17	3	.3	6.8	.2	.5	5.0	15.7	21.0	36.6	.3	(NA)	(NA)
New Mexico	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E5	47	9	.6	10.9	.5	.9	7.8	17.2	16.7	34.0	.2	G	(D)
North Carolina	–	288	159	24.2	495.5	20.6	39.2	367.9	912.5	1 021.1	1 929.9	20.6	27.7	882.0
Ohio	–	14	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	1.0	40.3
Oklahoma	E1	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Oregon	E1	19	8	.7	12.7	.6	1.0	8.3	25.7	24.4	49.6	.2	.6	18.2
Pennsylvania	E1	36	11	1.4	25.3	1.1	2.4	18.3	62.4	63.2	125.4	.9	1.7	57.4
South Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	58	33	8.7	153.5	7.6	13.2	103.5	321.4	267.9	584.6	9.0	7.4	225.2
Texas	E1	44	17	1.6	26.8	1.3	2.7	18.7	64.5	51.5	115.9	1.1	1.9	54.1
Utah	–	17	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	E1	15	10	1.3	22.6	1.0	2.1	16.4	37.2	56.3	94.3	(D)	1.6	40.1
Washington	E3	14	4	.4	6.2	.3	.5	4.6	10.8	10.5	21.2	(D)	.4	14.5
Wisconsin	E1	16	7	.8	14.4	.6	1.3	8.3	42.9	23.0	66.5	.3	.8	26.1

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2514, METAL HOUSEHOLD FURNITURE														
United States	**E1**	**353**	**166**	**23.8**	**468.8**	**18.9**	**36.6**	**308.2**	**1 084.7**	**1 044.1**	**2 111.7**	**36.8**	**30.1**	**1 047.6**
Alabama	–	8	4	1.0	21.0	.9	1.6	13.8	80.2	46.1	116.8	(D)	1.1	46.9
Arizona	E8	5	2	.2	2.6	.1	.2	1.8	5.8	6.2	12.1	(D)	(NA)	(NA)
Arkansas	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	68	38	3.8	75.2	2.9	5.5	44.1	166.1	178.4	345.6	5.1	(NA)	(D)
Florida	E1	34	9	.7	13.9	.6	1.1	8.2	30.4	22.4	53.0	1.0	1.3	41.3
Georgia	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	17	10	1.2	23.9	.9	1.7	13.4	65.2	72.9	134.7	.9	3.1	108.7
Indiana	–	16	11	2.0	42.6	1.6	3.3	31.1	91.7	72.1	160.0	(D)	1.5	52.5
Michigan	E3	10	6	.7	15.2	.6	1.1	9.2	43.8	33.0	77.0	1.5	.9	52.8
Minnesota	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	7	4	1.2	25.1	.9	1.7	18.4	54.2	46.1	101.4	.7	G	(D)
Missouri	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	8	3	.1	4.3	.1	.2	1.8	9.9	9.4	19.3	.1	.6	19.9
New York	E2	40	16	1.1	27.4	.8	1.6	16.8	51.0	40.2	90.8	1.0	1.4	45.2
North Carolina	E1	22	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	56.1
Ohio	E2	8	5	.8	12.1	.6	1.0	8.8	30.7	64.3	97.5	(D)	G	(D)
Oklahoma	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Pennsylvania	–	22	12	1.8	38.7	1.5	2.8	25.7	93.1	103.8	196.3	3.1	1.5	66.3
South Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	8	6	3.9	67.6	3.2	6.3	45.4	148.8	132.1	279.0	6.4	2.7	91.4
Texas	E4	17	7	.9	15.8	.8	1.7	11.7	46.6	45.1	91.8	.7	G	(D)
Virginia	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	44.1
Wisconsin	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2515, MATTRESSES AND BEDSPRINGS														
United States	**E1**	**790**	**322**	**22.6**	**488.0**	**16.4**	**33.2**	**283.8**	**1 404.5**	**1 436.0**	**2 842.6**	**31.2**	**24.4**	**1 164.5**
Alabama	E2	17	5	.3	5.4	.2	.4	2.8	12.3	17.3	29.6	(D)	E	(D)
Arizona	E1	26	5	.3	6.2	.2	.4	3.5	20.3	19.3	39.2	.4	.3	10.5
Arkansas	E1	13	3	.3	3.7	.2	.4	2.6	9.0	9.6	18.7	.3	(NA)	(D)
California	E1	105	36	2.9	68.4	2.1	4.3	38.6	218.7	189.6	408.9	3.6	(NA)	(D)
Colorado	–	8	5	.3	7.5	.2	.5	4.3	22.1	23.0	46.2	.5	.3	15.6
Connecticut	–	12	4	.3	7.9	.2	.4	3.9	25.5	18.8	44.4	.3	E	(D)
Florida	E1	47	24	1.8	39.1	1.4	3.0	22.9	104.5	121.2	225.6	3.6	1.8	98.3
Georgia	E1	27	10	.7	16.4	.5	1.1	9.3	50.8	50.4	100.9	2.1	1.1	53.5
Idaho	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	23	7	.6	13.1	.4	.8	7.8	41.4	34.9	76.5	1.3	.5	30.9
Indiana	–	20	9	.5	10.3	.3	.6	5.3	21.2	28.6	49.8	.5	.5	22.0
Iowa	–	6	2	.1	2.2	.1	.1	1.4	9.0	8.5	17.3	(D)	(NA)	(NA)
Kansas	–	9	4	.3	5.7	.2	.5	4.0	15.8	18.0	33.9	.1	E	(D)
Kentucky	E7	6	1	.1	2.8	.1	.2	1.6	8.5	8.4	17.0	(Z)	(NA)	(NA)
Louisiana	–	6	2	.1	1.9	.1	.2	1.2	6.4	7.7	14.1	(D)	(NA)	(NA)
Maryland	E1	11	7	.6	13.4	.5	1.0	9.5	35.7	38.0	74.0	.4	.9	43.4
Massachusetts	–	24	12	.7	16.3	.5	.9	8.3	44.5	46.1	90.5	1.0	.6	32.6
Michigan	–	16	7	.4	7.2	.3	.5	4.3	26.9	22.8	49.7	.5	.5	22.8
Minnesota	E3	13	6	.3	7.0	.2	.4	3.7	30.8	22.1	52.6	(D)	(NA)	(D)
Mississippi	–	18	11	.8	13.7	.6	1.2	9.4	34.2	47.3	81.4	.6	.8	23.9
Missouri	–	20	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	F	(D)
Nebraska	–	5	3	.3	8.9	.2	.4	4.2	15.6	27.2	42.8	.6	(NA)	(NA)
New Jersey	–	23	12	1.0	26.8	.8	1.6	15.6	71.1	76.3	147.7	1.1	1.3	87.2
New York	E2	38	15	.8	13.1	.5	1.0	8.0	36.0	35.5	72.4	.6	.9	41.4
North Carolina	E2	42	23	1.6	31.3	1.2	2.3	19.1	75.1	89.5	164.2	1.8	G	(D)
Ohio	–	24	12	.8	20.7	.6	1.2	12.3	65.7	60.2	126.2	.9	1.0	61.4
Oklahoma	E4	10	4	.2	3.3	.1	.2	1.8	8.2	11.1	19.3	.2	(NA)	(D)
Oregon	–	14	2	.2	5.7	.2	.3	2.9	20.5	18.1	38.6	.3	(NA)	(D)
Pennsylvania	–	32	13	.8	17.9	.6	1.2	10.2	49.3	49.3	99.0	.7	F	(D)
South Carolina	–	5	3	.2	4.7	.1	.3	2.1	9.5	9.6	19.1	(D)	.2	7.8
Tennessee	–	21	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	35.1
Texas	E1	52	22	1.7	32.0	1.3	2.6	19.3	95.6	95.9	191.6	2.4	2.0	85.0
Utah	–	7	4	.1	3.0	.1	.2	1.4	8.4	9.1	17.5	.3	(NA)	(D)
Virginia	E3	14	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	F	(D)
Washington	–	22	8	.5	10.3	.3	.6	5.4	27.4	27.3	54.9	.8	.4	17.8
West Virginia	E3	5	3	.1	1.9	.1	.2	1.5	6.2	8.2	14.4	(D)	(NA)	(NA)
Wisconsin	E1	21	9	.6	15.1	.5	1.0	9.4	50.1	50.3	100.2	1.2	.6	38.6

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS														
United States	**–**	**105**	**36**	**4.5**	**83.5**	**3.9**	**7.6**	**63.3**	**171.6**	**153.1**	**327.7**	**3.9**	**5.9**	**167.5**
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	23	11	.5	9.3	.4	.9	6.4	26.6	19.5	46.8	(D)	F	(D)
Illinois	–	4	2	.2	4.6	.1	.3	3.5	7.5	7.6	15.1	(D)	(NA)	(NA)
Indiana	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E6	10	3	.2	2.8	.1	.2	1.9	4.5	3.4	7.8	.1	(NA)	(NA)
North Carolina	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.														
United States	**E1**	**200**	**51**	**5.6**	**113.0**	**4.7**	**8.0**	**82.8**	**193.0**	**256.0**	**451.2**	**10.8**	**5.9**	**178.2**
Arizona	E1	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	29	7	.9	16.4	.8	1.5	12.4	38.2	34.0	72.9	(D)	F	(D)
Florida	E5	50	12	.6	12.6	.5	1.0	8.2	23.9	25.7	49.6	.8	F	(D)
Illinois	E1	8	3	.4	7.5	.3	.5	5.3	12.0	13.6	26.5	(D)	F	(D)
Indiana	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	E1	5	2	.1	1.6	.1	.2	1.2	3.2	2.0	5.2	(D)	(NA)	(D)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Mexico	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E6	9	3	.1	2.6	.1	.2	2.0	3.5	2.4	6.0	.1	E	(D)
North Carolina	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(D)
Tennessee	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Wood household furniture (SIC 2511)	Upholstered household furniture (SIC 2512)	Metal household furniture (SIC 2514)	Mattresses and bedsprings (SIC 2515)	Wood television and radio cabinets (SIC 2517)	Household furniture, n.e.c. (SIC 2519)
Companies	number	2 634	1 077	323	700	104	197
All establishments	number	2 786	1 184	353	790	105	200
With 1 to 19 employees	number	2 066	660	187	468	69	149
With 20 to 99 employees	number	456	331	100	260	26	38
With 100 employees or more	number	264	193	66	62	10	13
Employment and labor costs:							
Employees	1,000	121.1	79.2	23.8	22.6	4.5	5.6
Compensation, total	mil dol	2 657.0	1 848.7	592.9	604.7	110.3	146.0
Annual payroll	mil dol	2 173.5	1 535.2	468.8	488.0	83.5	113.0
Fringe benefits	mil dol	483.5	313.5	124.1	116.8	26.8	33.0
Social Security and other legally required payments	mil dol	234.6	156.2	60.2	62.6	9.6	16.1
Employer voluntary payments	mil dol	248.8	157.2	63.8	54.1	17.2	16.9
Production workers:							
Average for year	1,000	105.3	67.1	18.9	16.4	3.9	4.7
March	1,000	104.7	66.6	19.8	16.3	3.9	4.6
May	1,000	105.6	66.7	19.8	16.3	3.9	4.7
August	1,000	105.5	67.3	16.9	16.8	4.0	4.7
November	1,000	105.6	67.8	19.0	16.4	3.9	4.8
Hours	millions	205.7	128.9	36.6	33.2	7.6	8.0
Wages	mil dol	1 645.8	1 118.4	308.2	283.8	63.3	82.8
Cost of materials[1]	mil dol	4 055.4	3 236.6	1 044.1	1 436.0	153.1	256.0
Materials, parts, containers, etc., consumed[2]	mil dol	3 525.4	3 118.6	942.2	1 371.9	146.0	241.6
Resales	mil dol	346.4	63.5	54.7	45.3	.8	2.5
Fuels	mil dol	26.9	10.8	8.4	4.8	1.2	1.2
Purchased electricity	mil dol	121.4	35.6	18.4	11.0	3.8	10.3
Contract work	mil dol	35.2	8.2	20.3	2.9	1.4	.4

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood household furniture (SIC 2511)	Upholstered household furniture (SIC 2512)	Metal household furniture (SIC 2514)	Mattresses and bedsprings (SIC 2515)	Wood television and radio cabinets (SIC 2517)	Household furniture, n.e.c. (SIC 2519)
Quantity of electric energy used for heat and power:						
Purchased mil kWh	1 983.8	563.2	273.9	161.6	62.7	188.3
Generated less sold mil kWh	7.2	(D)	(D)	(Z)	–	(D)
Total value of shipments mil dol	8 737.0	6 223.3	2 111.7	2 842.6	327.7	451.2
Value added mil dol	4 726.2	3 009.9	1 084.7	1 404.5	171.6	193.0
Inventories by stage of fabrication:						
Beginning of 1992 mil dol	1 712.0	593.6	357.1	199.5	41.4	39.5
Finished goods mil dol	826.7	125.5	115.8	51.9	14.5	10.3
Work in process mil dol	359.0	116.8	69.0	17.5	11.4	8.1
Materials and supplies mil dol	526.3	351.3	172.3	130.1	15.5	21.1
End of 1992 mil dol	1 779.4	636.5	370.6	196.5	38.7	39.4
Finished goods mil dol	865.8	142.9	137.5	49.4	11.1	9.5
Work in process mil dol	364.5	122.7	64.3	18.0	11.9	6.8
Materials and supplies mil dol	549.1	370.9	168.7	129.2	15.7	23.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood household furniture (SIC 2511)	Upholstered household furniture (SIC 2512)	Metal household furniture (SIC 2514)	Mattresses and bedsprings (SIC 2515)	Wood television and radio cabinets (SIC 2517)	Household furniture, n.e.c. (SIC 2519)
Gross book value of depreciable assets:						
Total:						
Beginning of year	2 325.8	928.5	432.3	410.7	91.2	153.6
New capital expenditures[1]	197.4	73.6	36.8	31.2	3.9	10.8
Used capital expenditures	40.3	11.2	2.5	6.2	.4	.4
Retirements	34.9	21.6	5.7	10.9	6.6	2.0
End of year	2 528.5	991.6	465.9	437.1	88.8	162.9
Buildings and other structures:						
Beginning of year	832.4	485.4	151.3	158.0	35.5	43.8
New capital expenditures	48.4	26.8	6.6	5.5	(D)	(D)
Used capital expenditures	1.8	2.9	.9	1.1	(D)	(D)
Retirements	9.2	3.1	.3	2.7	2.7	.1
End of year	873.4	511.9	158.4	161.9	33.3	47.3
Machinery and equipment:						
Beginning of year	1 493.4	443.1	281.0	252.7	55.7	109.8
New capital expenditures[1]	148.9	46.8	30.2	25.7	(D)	(D)
Used capital expenditures	38.5	8.3	1.6	5.1	(D)	(D)
Retirements	25.7	18.5	5.4	8.2	4.0	1.9
End of year	1 655.1	479.7	307.5	275.3	55.5	115.5
Depreciation charges during 1992:						
Total	222.1	55.2	35.1	26.6	5.9	11.7
Buildings and other structures	62.1	20.2	7.6	6.9	1.7	2.2
Machinery and equipment	160.1	34.9	27.5	19.7	4.2	9.5
Rental payments:						
Total	99.4	77.7	33.2	47.8	3.4	7.1
Buildings and other structures	64.5	52.6	22.0	31.3	2.2	4.4
Machinery and equipment	35.0	25.1	11.2	16.6	1.1	2.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood household furniture (SIC 2511)		Upholstered household furniture (SIC 2512)		Metal household furniture (SIC 2514)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	12.8	(X)	30.0	(X)	2.3	(X)
Response coverage ratio (percent)[2]	74.9	(X)	78.1	(X)	63.8	(X)
Machinery	45.8	(X)	13.1	(X)	6.8	(X)
Response coverage ratio (percent)[2]	75.7	(X)	78.4	(X)	66.9	(X)
Other purchased services:						
Communications	12.2	(X)	9.8	(X)	4.1	(X)
Response coverage ratio (percent)[2]	72.5	(X)	77.0	(X)	68.3	(X)
Legal	5.9	(X)	4.5	(X)	3.0	(X)
Response coverage ratio (percent)[2]	74.1	(X)	78.3	(X)	63.0	(X)
Accounting and bookkeeping	5.0	(X)	4.2	(X)	1.9	(X)
Response coverage ratio (percent)[2]	74.0	(X)	77.3	(X)	65.3	(X)
Advertising	38.9	(X)	36.0	(X)	11.9	(X)
Response coverage ratio (percent)[2]	74.8	(X)	77.2	(X)	63.0	(X)
Software and other data processing	6.7	(X)	5.5	(X)	1.5	(X)
Response coverage ratio (percent)[2]	73.0	(X)	74.3	(X)	61.7	(X)
Refuse removal, including hazardous waste	10.8	(X)	3.8	(X)	2.2	(X)
Response coverage ratio (percent)[2]	71.3	(X)	78.3	(X)	66.9	(X)
New machinery and equipment expenditures	148.9	(X)	46.8	(X)	30.2	(X)
Automobiles, trucks, etc., for highway use	6.9	24	8.6	14	.4	17
Computers and peripheral data processing equipment	8.1	14	7.6	4	2.9	8
All other	134.0	3	30.5	4	27.0	1
Adjustment ratio[3]	1.4	(X)	1.4	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	3 525.4	(X)	3 118.6	(X)	942.2	(X)
Materials purchased or transferred from foreign sources[4]	307.6	21	53.2	8	60.1	13
Materials purchased or transferred from domestic sources	3 217.8	3	3 065.4	1	882.1	1
Adjustment ratio[3]	1.5	(X)	1.6	(X)	1.7	(X)

Item	Mattresses and bedsprings (SIC 2515)		Wood television and radio cabinets (SIC 2517)		Household furniture, n.e.c. (SIC 2519)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.2	(X)	1.7	(X)	1.0	(X)
Response coverage ratio (percent)[2]	67.8	(X)	92.6	(X)	94.0	(X)
Machinery	9.5	(X)	3.8	(X)	4.7	(X)
Response coverage ratio (percent)[2]	74.3	(X)	92.6	(X)	94.0	(X)
Other purchased services:						
Communications	6.4	(X)	.3	(X)	.8	(X)
Response coverage ratio (percent)[2]	73.6	(X)	92.6	(X)	91.2	(X)
Legal	2.5	(X)	.7	(X)	.5	(X)
Response coverage ratio (percent)[2]	74.7	(X)	71.4	(X)	94.0	(X)
Accounting and bookkeeping	2.2	(X)	.2	(X)	.3	(X)
Response coverage ratio (percent)[2]	72.0	(X)	71.4	(X)	94.0	(X)
Advertising	89.3	(X)	.3	(X)	1.2	(X)
Response coverage ratio (percent)[2]	74.7	(X)	71.4	(X)	94.0	(X)
Software and other data processing	2.4	(X)	.5	(X)	.1	(X)
Response coverage ratio (percent)[2]	74.7	(X)	92.6	(X)	91.2	(X)
Refuse removal, including hazardous waste	2.3	(X)	.5	(X)	.6	(X)
Response coverage ratio (percent)[2]	72.0	(X)	89.0	(X)	94.0	(X)
New machinery and equipment expenditures	25.7	(X)	(D)	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	10.1	28	–	(X)	.1	50
Computers and peripheral data processing equipment	1.6	28	.2	1	.1	51
All other	14.1	19	3.3	1	7.2	3
Adjustment ratio[3]	.9	(X)	1.6	(X)	.8	(X)
Cost of materials, components, parts, etc., used	1 371.9	(X)	146.0	(X)	241.6	(X)
Materials purchased or transferred from foreign sources[4]	10.3	34	1.0	1	39.1	39
Materials purchased or transferred from domestic sources	1 361.6	1	145.0	1	202.4	8
Adjustment ratio[3]	1.5	(X)	1.7	(X)	1.2	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE												
Total	**–**	**2 786**	**121.1**	**2 173.5**	**105.3**	**205.7**	**1 645.8**	**4 726.2**	**4 055.4**	**8 737.0**	**197.4**	**1 779.4**
Establishments with an average of—												
1 to 4 employees	E8	1 229	2.2	34.0	1.9	3.8	26.2	77.1	67.7	145.0	2.6	25.9
5 to 9 employees	E4	465	3.1	49.1	2.4	4.8	37.6	104.3	90.6	194.9	2.9	32.8
10 to 19 employees	E1	372	5.0	84.5	4.0	7.7	61.3	191.0	172.7	363.6	5.9	65.3
20 to 49 employees	E1	302	9.6	156.7	8.0	15.3	113.1	327.4	287.1	612.7	8.1	112.8
50 to 99 employees	E1	154	10.6	179.0	8.9	17.5	127.8	425.3	388.3	810.2	11.9	150.4
100 to 249 employees	E1	131	20.3	371.1	17.6	34.6	270.5	781.0	747.7	1 525.6	25.5	310.5
250 to 499 employees	–	90	32.5	561.6	29.5	57.8	455.9	1 271.9	1 014.7	2 276.8	47.5	463.1
500 to 999 employees	–	29	18.4	341.2	16.3	32.9	269.4	698.0	554.1	1 237.8	28.2	297.5
1,000 to 2,499 employees	–	13	19.4	396.3	16.6	31.3	284.1	850.2	732.5	1 570.5	64.6	321.1
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 352	3.6	48.1	3.1	5.7	36.8	97.9	91.5	189.4	3.6	37.5
INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE												
Total	**–**	**1 184**	**79.2**	**1 535.2**	**67.1**	**128.9**	**1 118.4**	**3 009.9**	**3 236.6**	**6 223.3**	**73.6**	**636.5**
Establishments with an average of—												
1 to 4 employees	E9	279	.6	8.3	.5	1.0	6.2	16.0	17.8	33.7	.5	3.6
5 to 9 employees	E8	208	1.4	20.6	1.1	2.1	15.2	38.8	43.1	81.6	.9	8.8
10 to 19 employees	E5	173	2.4	37.6	1.9	3.6	26.8	68.0	69.4	136.9	1.3	15.7
20 to 49 employees	E2	202	6.7	109.5	5.4	10.5	77.6	214.0	212.7	427.0	6.1	43.9
50 to 99 employees	E1	129	9.1	162.7	7.4	13.9	114.3	324.5	342.2	663.6	7.5	74.2
100 to 249 employees	–	118	18.5	346.2	15.3	29.3	260.7	701.1	779.4	1 474.5	11.5	173.1
250 to 499 employees	–	49	17.1	339.1	15.0	29.8	257.8	679.0	776.1	1 449.3	12.8	146.2
500 to 999 employees	–	19	12.9	273.5	11.0	21.1	203.3	504.1	616.0	1 113.9	14.7	107.6
1,000 to 2,499 employees	–	7	10.5	237.7	9.3	17.6	156.5	464.4	380.0	842.7	18.5	63.4
Covered by administrative records[2]	E9	544	3.3	43.3	2.9	5.2	32.1	77.8	85.9	163.7	1.9	17.0
INDUSTRY 2514, METAL HOUSEHOLD FURNITURE												
Total	**E1**	**353**	**23.8**	**468.8**	**18.9**	**36.6**	**308.2**	**1 084.7**	**1 044.1**	**2 111.7**	**36.8**	**370.6**
Establishments with an average of—												
1 to 4 employees	E4	86	.2	2.8	.1	.2	1.8	6.7	5.8	12.6	.2	2.1
5 to 9 employees	E2	50	.3	6.2	.3	.5	4.1	16.9	13.2	30.6	.5	4.2
10 to 19 employees	E2	51	.7	12.2	.5	1.1	8.0	24.9	19.8	44.0	1.8	6.6
20 to 49 employees	–	65	2.0	36.9	1.6	3.2	24.6	80.5	76.8	154.7	1.9	24.3
50 to 99 employees	E2	35	2.4	51.6	1.7	3.8	30.4	122.7	120.9	244.8	3.8	42.2
100 to 249 employees	E1	42	5.9	113.9	4.7	8.8	70.0	260.8	278.5	540.6	7.3	103.9
250 to 499 employees	E1	17	6.1	124.9	5.0	9.1	84.9	330.8	306.0	623.6	9.5	111.8
500 to 999 employees	–	5	6.2	120.3	4.9	9.8	84.4	241.5	223.0	460.8	11.9	75.5
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	45	.1	.6	(Z)	.1	.4	1.3	1.5	2.9	.1	.5
INDUSTRY 2515, MATTRESSES AND BEDSPRINGS												
Total	**E1**	**790**	**22.6**	**488.0**	**16.4**	**33.2**	**283.8**	**1 404.5**	**1 436.0**	**2 842.6**	**31.2**	**196.5**
Establishments with an average of—												
1 to 4 employees	E6	213	.4	7.3	.3	.6	4.3	22.8	24.2	47.0	.7	3.4
5 to 9 employees	E2	120	.8	12.5	.5	1.0	7.3	35.2	39.4	74.1	.8	7.0
10 to 19 employees	–	135	1.9	32.9	1.3	2.3	17.8	86.3	105.4	191.0	2.6	17.5
20 to 49 employees	E1	179	5.7	114.4	3.9	7.8	60.6	289.2	346.4	635.9	7.0	52.1
50 to 99 employees	–	81	5.5	130.4	4.0	8.3	72.7	405.1	374.2	780.2	8.9	51.0
100 to 249 employees	E1	62	8.3	190.4	6.4	13.3	121.1	566.0	546.3	1 114.3	11.3	65.6
Covered by administrative records[2]	E9	256	.8	11.0	.5	.9	6.3	31.5	33.8	65.3	1.0	4.5
INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS												
Total	**–**	**105**	**4.5**	**83.5**	**3.9**	**7.6**	**63.3**	**171.6**	**153.1**	**327.7**	**3.9**	**38.7**
Establishments with an average of—												
1 to 4 employees	E8	38	.1	1.4	.1	.1	1.0	2.9	2.7	5.7	.1	.2
5 to 9 employees	E6	21	.1	2.7	.1	.2	2.2	4.4	4.3	8.7	.3	.6
10 to 19 employees	E2	10	.1	2.6	.1	.2	1.7	4.7	5.6	10.8	.1	1.1
20 to 49 employees	E1	17	.5	9.0	.4	.8	6.1	19.9	17.5	37.4	.4	4.1
50 to 99 employees	–	9	.6	9.3	.5	1.0	6.8	19.3	13.5	35.8	.7	5.3
100 to 249 employees	–	4	.5	10.0	.4	.8	7.8	17.5	15.8	34.4	(D)	8.1
250 to 499 employees	–	4	2.6	48.6	2.3	4.5	37.7	102.8	93.7	194.9	2.2	19.4
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	45	.1	2.8	.1	.3	2.2	5.3	5.5	10.8	.2	.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.												
Total	**E1**	**200**	**5.6**	**113.0**	**4.7**	**8.0**	**82.8**	**193.0**	**256.0**	**451.2**	**10.8**	**39.4**
Establishments with an average of—												
1 to 4 employees	E8	87	.2	2.1	.1	.3	1.6	4.0	3.9	8.1	.2	.2
5 to 9 employees	E5	35	.2	3.3	.2	.3	2.4	6.6	6.1	12.7	.3	1.0
10 to 19 employees	E2	27	.4	6.5	.3	.6	4.9	10.7	13.9	25.0	.4	2.4
20 to 49 employees	E4	29	.9	14.9	.7	1.4	10.4	25.8	27.2	52.6	.5	5.4
50 to 99 employees	E4	9	.6	12.7	.5	.9	7.6	25.3	31.3	56.6	.7	7.2
100 to 249 employees	–	9	1.4	28.7	1.1	1.9	20.7	61.9	63.4	126.1	2.7	13.6
250 to 499 employees	–	3	2.0	44.8	1.7	2.7	35.2	58.8	110.2	170.1	6.1	9.7
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	90	.3	3.3	.2	.4	2.6	6.1	6.3	12.4	.2	.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2511	**Wood household furniture:**										
	All establishments in industry	2 786	121.1	2 173.5	105.3	205.7	1 645.8	4 726.2	4 055.4	8 737.0	197.4
	Establishments with this product class primary:										
25112	Wood living room, library, family room, and den furniture	368	22.2	406.2	18.8	37.1	299.1	930.2	733.0	1 664.9	30.6
25113	Wood dining room and kitchen furniture, except kitchen cabinets	190	25.2	473.8	21.8	41.7	358.0	913.6	788.7	1 685.2	26.4
25115	Wood bedroom furniture	264	44.5	775.9	40.2	79.5	613.5	1 640.6	1 406.3	3 025.6	56.8
25116	Infants' and children's wood furniture	45	4.6	73.4	3.9	7.6	52.2	176.1	160.6	338.1	4.6
25117	Wood outdoor furniture, unpainted wood furniture, and ready-to-assemble wood furniture	104	10.2	212.8	8.3	16.5	151.4	579.7	535.0	1 108.8	60.9
2512	**Upholstered household furniture:**										
	All establishments in industry	1 184	79.2	1 535.2	67.1	128.9	1 118.4	3 009.9	3 236.6	6 223.3	73.6
2514	**Metal household furniture:**										
	All establishments in industry	353	23.8	468.8	18.9	36.6	308.2	1 084.7	1 044.1	2 111.7	36.8
	Establishments with this product class primary:										
25145	Metal household dining room and kitchen furniture	55	5.5	108.4	4.3	8.4	70.7	231.2	231.5	459.3	4.4
25146	Metal porch, lawn, outdoor, and casual furniture	53	8.1	147.8	6.6	12.7	95.0	366.8	278.6	634.9	11.5
25147	Other metal household furniture	76	7.8	166.7	6.1	11.8	111.9	398.1	439.4	834.1	16.5
2515	**Mattresses and bedsprings:**										
	All establishments in industry	790	22.6	488.0	16.4	33.2	283.8	1 404.5	1 436.0	2 842.6	31.2
	Establishments with this product class primary:										
25151	Innerspring mattresses, excluding crib-size	309	13.2	306.0	9.5	19.7	176.1	945.6	924.8	1 872.0	18.7
25152	Other mattresses, including crib mattresses and mattress inserts	49	1.7	36.7	1.1	2.3	19.5	107.8	98.9	206.2	2.9
25153	Foundations, excluding innerspring units and those incorporated into hybrid-type flotation and adjustable ensembles	27	.7	13.6	.6	1.1	8.5	30.8	45.0	75.7	.8
25155	Dual-purpose sleep furniture	28	1.7	32.3	1.4	2.6	23.7	67.4	85.1	152.4	.5
25156	Sleep system ensembles, excluding conventional water beds	15	1.0	23.0	.8	1.5	11.9	54.1	63.7	119.4	1.6
2517	**Wood television and radio cabinets:**										
	All establishments in industry	105	4.5	83.5	3.9	7.6	63.3	171.6	153.1	327.7	3.9
2519	**Household furniture, n.e.c.:**										
	All establishments in industry	200	5.6	113.0	4.7	8.0	82.8	193.0	256.0	451.2	10.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE			
Total value of shipments	8 737.0	7 982.0	5 056.6
Primary products value of shipments	7 793.2	7 193.3	4 631.6
Secondary products value of shipments	466.6	380.4	257.7
Total miscellaneous receipts	477.2	408.3	167.2
Value of resales	453.8	373.8	140.7
Contract receipts	10.1	15.8	6.6
Other miscellaneous receipts	13.3	18.7	19.9
Sales of scrap and refuse	3.5	(NA)	1.1
Other miscellaneous receipts	8.8	(NA)	16.1
Other miscellaneous receipts, n.s.k.	.9	(NA)	2.8
Primary products specialization ratio	94	95	95
Value of primary products shipments made in all industries	7 976.4	7 454.2	4 846.1
Value of primary products shipments made in this industry	7 793.2	7 193.3	4 631.6
Value of primary products shipments made in other industries	183.1	260.8	214.5
Coverage ratio	98	97	96
INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE			
Total value of shipments	6 223.3	5 263.1	3 505.3
Primary products value of shipments	5 651.7	4 702.1	3 149.2
Secondary products value of shipments	462.7	510.6	317.3
Total miscellaneous receipts	108.9	50.4	38.8
Value of resales	80.7	27.2	30.3
Contract receipts	12.0	7.3	3.1
Other miscellaneous receipts	16.2	15.8	5.4
Receipts for repair, renovating, refurnishing, or reupholstering furniture	3.7	(NA)	3.4
Other miscellaneous receipts	12.5	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(Z)	(NA)	(D)
Primary products specialization ratio	92	90	91
Value of primary products shipments made in all industries	5 802.6	4 911.8	3 319.8
Value of primary products shipments made in this industry	5 651.7	4 702.1	3 149.2
Value of primary products shipments made in other industries	150.8	209.7	170.6
Coverage ratio	97	96	95
INDUSTRY 2514, METAL HOUSEHOLD FURNITURE			
Total value of shipments	2 111.7	2 141.2	1 590.7
Primary products value of shipments	1 847.1	1 831.9	1 393.6
Secondary products value of shipments	182.1	247.5	168.2
Total miscellaneous receipts	82.5	61.8	28.9
Value of resales	71.8	54.5	26.7
Contract receipts	7.1	5.0	1.0
Other miscellaneous receipts	3.6	2.3	1.2
Sales of scrap and refuse	1.8	(NA)	.3
Other miscellaneous receipts	.8	(NA)	(D)
Other miscellaneous receipts, n.s.k.	1.0	(NA)	(D)
Primary products specialization ratio	91	88	89
Value of primary products shipments made in all industries	1 917.3	1 947.3	1 517.4
Value of primary products shipments made in this industry	1 847.1	1 831.9	1 393.6
Value of primary products shipments made in other industries	70.2	115.4	123.7
Coverage ratio	96	94	92
INDUSTRY 2515, MATTRESSES AND BEDSPRINGS			
Total value of shipments	2 842.6	2 417.3	1 935.4
Primary products value of shipments	2 652.4	2 237.0	1 800.6
Secondary products value of shipments	105.2	115.9	101.9
Total miscellaneous receipts	85.0	64.4	32.9
Value of resales	71.2	53.3	28.2
Contract receipts	(D)	4.0	1.0
Other miscellaneous receipts	(D)	7.1	3.7
Sales of scrap and refuse	(D)	(NA)	.3
Receipts for repairing and renovating mattresses	(D)	(NA)	1.8
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	96	95	95
Value of primary products shipments made in all industries	3 098.2	2 693.5	2 042.6
Value of primary products shipments made in this industry	2 652.4	2 237.0	1 800.6
Value of primary products shipments made in other industries	445.8	456.5	242.0
Coverage ratio	86	83	88

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS			
Total value of shipments	327.7	351.1	306.6
Primary products value of shipments	298.5	304.3	276.4
Secondary products value of shipments	25.3	45.0	26.5
Total miscellaneous receipts	3.9	1.8	3.7
Value of resales	1.2	1.8	(D)
Contract receipts	(D)	–	(D)
Other miscellaneous receipts	(D)	(Z)	(D)
Sales of scrap and refuse	(D)	(NA)	(Z)
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	92	87	91
Value of primary products shipments made in all industries	383.2	371.8	302.4
Value of primary products shipments made in this industry	298.5	304.3	276.4
Value of primary products shipments made in other industries	84.7	67.5	26.1
Coverage ratio	78	82	91
INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.			
Total value of shipments	451.2	403.9	381.1
Primary products value of shipments	411.0	352.7	302.1
Secondary products value of shipments	36.0	47.6	73.3
Total miscellaneous receipts	4.1	3.6	5.6
Value of resales	3.8	3.4	(D)
Contract receipts	–	(Z)	(D)
Other miscellaneous receipts	(D)	.1	(D)
Sales of scrap and refuse	(D)	(NA)	(D)
Other miscellaneous receipts	–	(NA)	(Z)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	92	88	80
Value of primary products shipments made in all industries	483.3	426.4	324.5
Value of primary products shipments made in this industry	411.0	352.7	302.1
Value of primary products shipments made in other industries	72.3	73.7	22.3
Coverage ratio	85	83	93

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2511– —	**WOOD HOUSEHOLD FURNITURE**						
	Total	**(NA)**	**(X)**	**7 976.4**	**(NA)**	**(X)**	**7 454.2**
25112	Wood living room, library, family room, and den furniture	(NA)	(X)	1 620.8	(NA)	(X)	1 499.7
25112 19	Cabinets, including record, music, sewing, smoking, etc., except sewing machine, radio, phono, and television cabinets	103	(X)	182.1	70	(X)	148.9
25112 33	Chairs, except dining room, 1,000 units	61	(S)	67.8	50	(S)	63.8
25112 35	Rockers, 1,000 units	38	**784.5	70.3	26	(S)	25.2
25112 41	Tables (all types), except card and telephone tables, 1,000 units	184	**3 791.2	499.2	176	*5 360.9	545.4
25112 51	Desks, 1,000 units	77	**528.4	132.9	65	*754.6	140.7
25112 71	Credenzas, bookcases, and bookshelves, except wall units	75	(X)	86.7	68	(X)	71.8
25112 81	Wall units (desk, bookcase, and storage type), 1,000 units	145	**1 102.9	266.6	98	*1 130.0	258.6
25112 91	Other seating, including settees, loveseats, benches, stools, etc., 1,000 units	58	1 613.1	51.4	48	(S)	69.8
25112 98	Other nonupholstered living room furniture (secretaries, breakfronts, bars, magazine racks, smoking stands, etc.)	85	(X)	147.1	65	(X)	85.6
25112 00	Wood living room, library, family room, and den furniture, n.s.k.	(NA)	(X)	116.8	(NA)	(X)	89.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2511– —	**WOOD HOUSEHOLD FURNITURE**—Con.						
25113	Wood dining room and kitchen furniture, except kitchen cabinets	(NA)	(X)	1 587.6	(NA)	(X)	1 477.4
25113 11	Tables, 30 x 40 inches or greater, dining room—1,000 units	149	**1 621.5	379.8	111	(S)	355.7
25113 31	Chairs, dining room—1,000 units	168	**7 970.9	581.6	(NA)	**8 250.5	546.4
25113 51	Buffets and servers, dining room—1,000 units	70	**359.7	142.9	67	**443.0	147.3
25113 71	China and corner cabinets, dining room—1,000 units	74	(S)	309.4	76	*612.9	258.7
25113 91	Other dining room and kitchen seating—1,000 units	24	(S)	19.8	13	(S)	19.7
25113 99	Other dining room and kitchen furniture, including junior dining furniture sets	26	(X)	83.8	23	(X)	42.0
25113 00	Wood dining room and kitchen furniture, except kitchen cabinets, n.s.k.	(NA)	(X)	70.3	(NA)	(X)	107.6
25115	Wood bedroom furniture	(NA)	(X)	2 478.3	(NA)	(X)	2 271.2
25115 11	Beds, excluding headboards, headboard beds, bunk beds, cribs, cradles, Hollywood beds, and youth beds—1,000 units	90	(S)	217.7	65	*1 023.9	214.8
25115 13	Headboards and headboard beds, including padded—1,000 units	91	*2 462.2	299.2	104	*2 672.2	273.9
25115 15	Bunk beds, excluding mattresses and detachable springs—1,000 units	36	*529.5	50.6	35	(S)	46.2
25115 17	Conventional water beds—1,000 units	31	(S)	97.4	12	(S)	52.2
25115 21	Dressers, vanities, and dressing tables—1,000 units	127	*2 272.1	487.2	123	*2 734.6	500.1
25115 33	Wardrobes, chifforobes, armoires, and wardrobe-type cabinets—1,000 units	75	398.4	137.3	62	*389.5	117.5
25115 35	Chests of drawers—1,000 units	133	2 376.5	391.3	115	*3 042.4	422.9
25115 41	Cedar chests—1,000 units	11	188.0	29.2	11	268.6	37.8
25115 61	Night tables and stands—1,000 units	106	*2 175.2	250.3	92	*2 675.7	224.7
25115 98	Other nonupholstered bedroom furniture, including commodes, bed rails, chairs, valet stands, etc.	61	(X)	286.9	(NA)	(X)	184.5
25115 00	Wood bedroom furniture, n.s.k.	(NA)	(X)	231.3	(NA)	(X)	196.5
25116	Infants' and children's wood furniture	(NA)	(X)	316.2	(NA)	(X)	272.7
25116 11	Cribs, including springs sold as part of the crib—1,000 units	17	(S)	111.8	11	998.7	102.2
25116 21	Seating (chairs, nursery seats, high chairs, etc.)—1,000 units	10	(S)	11.7	16	(S)	12.5
25116 31	Other bedroom furniture, including youth beds	32	(X)	123.9	13	(X)	88.4
25116 98	Other infants' and children's furniture	17	(X)	59.3	15	(X)	56.6
25116 00	Infants' and children's wood furniture, n.s.k.	(NA)	(X)	9.6	(NA)	(X)	13.1
25117	Wood outdoor furniture, unpainted wood furniture, and ready-to-assemble wood furniture	(NA)	(X)	1 082.2	(NA)	(X)	810.1
25117 25	Porch, lawn, beach, and similar wood outdoor furniture	44	(X)	57.1	(NA)	(X)	41.2
25117 48	Unpainted wood furniture, assembled (furniture-in-the-white), including bookcases, chairs, tables, desks, vanities, etc.	30	(X)	74.8	(NA)	(X)	61.1
	Ready-to-assemble wood household furniture, unpainted or finished, sold in kits:						
25117 63	Seating—1,000 units	6	**769.4	22.3	4	**513.6	11.8
25117 65	Kitchen furniture	11	(X)	124.5	16	(X)	79.7
25117 67	Bedroom furniture	19	(X)	64.8	16	(X)	62.7
25117 75	Home entertainment centers—1,000 units	17	**2 161.0	106.5	(NA)	(NA)	(3)
25117 79	Other ready-to-assemble furniture	34	(X)	604.5	(NA)	(X)	3515.9
25117 00	Wood outdoor furniture, unpainted wood furniture, and ready-to-assemble wood furniture, n.s.k.	(NA)	(X)	27.8	(NA)	(X)	37.8
25110	Wood household furniture, n.s.k.	(NA)	(X)	891.2	(NA)	(X)	1 123.0
25110 00	Wood household furniture, n.s.k.[4]	(NA)	(X)	701.2	(NA)	(X)	875.0
25110 02	Wood household furniture, n.s.k.[5]	(NA)	(X)	190.1	(NA)	(X)	248.0
2512– —	**UPHOLSTERED HOUSEHOLD FURNITURE**						
	Total	**(NA)**	**(X)**	**5 802.6**	**(NA)**	**(X)**	**4 911.8**
25120	Upholstered wood household furniture, except dual-purpose sleep furniture	(NA)	(X)	5 802.6	(NA)	(X)	4 911.8
25120 12	Sofas, davenports, settees, and loveseats, excluding chairs sold as part of suites and sectional sofa pieces—1,000 units	310	**9 043.8	2 609.6	313	**8 301.8	1 987.6
25120 31	Swivel chairs with variable height adjustment—1,000 units	36	(S)	49.7	44	(S)	60.4
25120 35	Other chairs, except reclining—1,000 units	207	**3 635.8	697.7	196	*3 601.8	634.3
25120 41	Sectional sofa pieces, including pieces seating one person—1,000 units	122	*1 364.2	399.9	125	*1 443.5	341.3
25120 45	Rockers, including swivel rockers—1,000 units	64	1 979.6	342.5	67	*1 512.9	183.5
25120 54	Reclining chairs, all types—1,000 units	72	*3 835.1	772.4	48	4 107.4	837.2
25120 98	Other upholstered wood household furniture (ottomans, hassocks, benches, chaise lounges, etc.)	94	(X)	96.4	80	(X)	95.6
25120 00	Upholstered household furniture, n.s.k.[6]	(NA)	(X)	670.8	(NA)	(X)	629.5
25120 02	Upholstered household furniture, n.s.k.[7]	(NA)	(X)	163.7	(NA)	(X)	142.5
2514– —	**METAL HOUSEHOLD FURNITURE**						
	Total	**(NA)**	**(X)**	**1 917.3**	**(NA)**	**(X)**	**1 947.3**

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2514– —	**METAL HOUSEHOLD FURNITURE**—Con.						
25145	Metal household dining room and kitchen furniture	(NA)	(X)	380.0	(NA)	(X)	370.4
	Tubular metal dining, dinette, and breakfast furniture:						
	Sets:						
25145 12	Tables, 1,000 units	21	**965.9	83.3	11	**509.3	73.2
25145 13	Chairs, 1,000 units	18	3 184.2	102.1	11	*2 283.5	119.4
25145 15	Tables (not sold with a set), 1,000 units	19	*862.2	36.4	11	189.9	21.2
25145 17	Chairs (not sold with a set), 1,000 units	18	*2 718.8	84.6	11	513.2	29.8
25145 21	Cabinets, such as base, top and base, wall, utility, etc., 1,000 units	17	(S)	12.8	14	(S)	43.6
25145 27	Stools, padded and plain, 1,000 units	13	818.8	24.2	8	1 026.1	23.1
25145 97	Other metal dining room and kitchen furniture, including hostess carts	18	(X)	22.5	(NA)	(X)	20.0
25145 00	Metal household dining room and kitchen furniture, n.s.k.	(NA)	(X)	14.1	(NA)	(X)	40.1
25146	Metal porch, lawn, outdoor, and casual furniture	(NA)	(X)	625.0	(NA)	(X)	536.4
	Tubular aluminum:						
25146 12	Chairs, rockers, benches, chaise lounges, and settees, 1,000 units	20	(S)	323.3	19	*11 626.8	331.8
25146 14	Other tubular aluminum porch, lawn, outdoor, and casual furniture, including gliders, swings, hammocks, and tables	22	(X)	71.4	16	(X)	39.1
	Cast and wrought iron:						
25146 22	Chairs, rockers, benches, chaise lounges, and settees, 1,000 units	13	(S)	83.8	9	**1 263.2	59.5
25146 24	Other cast and wrought iron porch, lawn, outdoor, and casual furniture, including gliders, hammocks, and tables	13	(X)	50.0	8	(X)	10.6
25146 98	Other metal porch, lawn, outdoor, and casual furniture, including picnic tables	14	(X)	74.3	19	(X)	68.9
25146 00	Metal porch, lawn, outdoor, and casual furniture, n.s.k.	(NA)	(X)	22.3	(NA)	(X)	26.4
25147	Other metal household furniture	(NA)	(X)	707.9	(NA)	(X)	771.1
25147 33	Folding cots, rollable cots, army cots, and other metal beds, 1,000 units	20	(S)	59.4	12	**1 256.0	69.5
25147 37	Metal bed frames (complete metal bed frames, sold separately, with or without a headboard), 1,000 units	56	(S)	190.6	38	(S)	174.9
25147 71	Card tables and chairs	3	(X)	(D)	6	(X)	63.9
25147 75	Medicine cabinets, including "wall type" and "insert type", 1,000 units	9	(S)	87.1	9	(S)	77.7
25147 82	Infants' high chairs (metal and plastics), 1,000 units	6	1 700.5	36.7	7	*1 900.5	40.7
25147 83	Infants' car seats (metal and plastics), 1,000 units	7	3 701.6	119.0	6	*4 432.9	123.5
25147 88	Other infants' and children's metal furniture, including chairs, tables, playpens, play yards, and portable cribs	10	(X)	93.8	(NA)	(X)	57.9
25147 98	Other metal household furniture, including upholstered furniture, metal folding trays, etc.	35	(X)	89.8	(NA)	(X)	134.3
25147 00	Other metal household furniture, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	28.7
25140	Metal household furniture, n.s.k.	(NA)	(X)	204.4	(NA)	(X)	269.5
25140 00	Metal household furniture, n.s.k.[6]	(NA)	(X)	201.5	(NA)	(X)	198.6
25140 02	Metal household furniture, n.s.k.[7]	(NA)	(X)	2.9	(NA)	(X)	70.9
2515– —	**MATTRESSES, FOUNDATIONS, AND CONVERTIBLE BEDS**						
	Total	**(NA)**	**(X)**	**3 098.2**	**(NA)**	**(X)**	**2 693.5**
25151	Innerspring mattresses, excluding crib-size	(NA)	(X)	1 174.9	(NA)	(X)	890.6
25151 00	Innerspring mattresses, excluding crib-size, including those with topper pads and those sold as part of Hollywood beds, 1,000 units	269	**12 311.5	1 174.9	206	**10 330.1	890.6
25152	Other mattresses, including crib mattresses and mattress inserts	(NA)	(X)	204.1	(NA)	(X)	145.5
25152 11	Crib mattresses, all types, including crib-size mattresses made with innersprings, foam, hair, cotton felt, etc., 1,000 units	17	(S)	53.4	8	*1 102.7	26.9
25152 15	Foam core mattresses, other than crib-size, 1,000 units	53	(S)	34.3	43	(S)	41.8
25152 47	Other mattresses, including inflatable air chambered, cotton felt, hair, etc. (do not include sleep system ensembles), 1,000 units	17	(S)	67.8	20	(S)	50.3
25152 65	Mattress inserts for dual-purpose sleep furniture (innerspring and foam), and futons shipped without frames, 1,000 units	27	(S)	38.0	20	*517.1	23.9
25152 00	Other mattresses, including crib mattresses and mattress inserts, n.s.k.	(NA)	(X)	10.6	(NA)	(X)	2.6
25153	Foundations, excluding innerspring units and those incorporated into hybrid-type flotation and adjustable ensembles	(NA)	(X)	684.1	(NA)	(X)	554.1
25153 15	Spring, 1,000 units	183	**7 074.4	582.9	148	*6 585.9	436.3
25153 17	Foam, 1,000 units	46	(S)	47.5	46	**666.7	34.9
25153 19	Other foundations, including platform, 1,000 units	65	(S)	38.7	47	(S)	43.1
25153 00	Foundations, excl. innerspring units and those incorporated into hybrid-type flotation and adjustable ensembles, n.s.k.	(NA)	(X)	15.0	(NA)	(X)	39.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2515– —	**MATTRESSES, FOUNDATIONS, AND CONVERTIBLE BEDS**—Con.						
25155	Dual-purpose sleep furniture	(NA)	(X)	500.7	(NA)	(X)	583.6
25155 00	Dual-purpose sleep furniture, including convertible sofas, futons shipped with frames, studio couches, etc.—1,000 units	144	*1 738.5	500.7	(NA)	(X)	583.6
25156	Sleep system ensembles, excluding conventional water beds	(NA)	(X)	131.6	(NA)	(X)	80.3
25156 13	Hybrid-type flotation ensemble—1,000 units	10	(S)	33.3	19	(S)	28.7
25156 19	Electric adjustable sleep ensemble (excluding hospital beds)—1,000 units	27	(S)	89.6	16	(S)	46.6
25156 00	Sleep system ensembles, excluding conventional water beds, n.s.k.	(NA)	(X)	8.6	(NA)	(X)	5.0
25150	Mattresses, foundations, and convertible beds, n.s.k.	(NA)	(X)	402.9	(NA)	(X)	439.3
25150 00	Mattresses, foundations, and convertible beds, n.s.k.[8]	(NA)	(X)	338.1	(NA)	(X)	367.1
25150 02	Mattresses, foundations, and convertible beds, n.s.k.[9]	(NA)	(X)	64.8	(NA)	(X)	72.3
2517– —	**WOOD TELEVISION AND RADIO CABINETS**						
	Total	**(NA)**	**(X)**	**383.2**	**(NA)**	**(X)**	**371.8**
25170	Wood television, radio, stereo, and sewing machine cabinets	(NA)	(X)	383.2	(NA)	(X)	371.8
25170 15	Television cabinets and combinations (television, stereo, and radio)—1,000 units	62	*1 739.4	248.7	35	2 864.5	226.0
25170 18	Audio cabinets, including radio, stereo, phonograph, and speaker cabinets—1,000 units	28	(S)	73.3	(NA)	(S)	86.5
25170 21	Sewing machine cabinets—1,000 units	7	(S)	17.0	8	(S)	16.4
25170 00	Wood television and radio cabinets, n.s.k.[8]	(NA)	(X)	24.4	(NA)	(X)	15.7
25170 02	Wood television and radio cabinets, n.s.k.[9]	(NA)	(X)	19.8	(NA)	(X)	27.1
2519– —	**HOUSEHOLD FURNITURE, N.E.C.**						
	Total	**(NA)**	**(X)**	**483.3**	**(NA)**	**(X)**	**426.4**
25190	Household furniture, except wood or metal	(NA)	(X)	483.3	(NA)	(X)	426.4
25190 11	Plastics and fibrous glass cabinets, including radio, phonograph, television, stereo, and combinations thereof—1,000 units	20	(S)	252.8	15	(S)	187.0
25190 23	Plastics and fibrous glass seating—1,000 units	11	(S)	8.6	19	927.1	29.1
25190 25	Other plastics and fibrous glass household furniture	25	(X)	32.2	23	(X)	43.6
25190 33	Reed and rattan seating, including willow, wicker, and cane—1,000 units	14	*262.1	52.9	8	476.8	51.4
25190 35	Other reed and rattan furniture	14	(X)	41.7	9	(X)	13.1
25190 98	Other household furniture, n.e.c.	18	(X)	20.8	4	(X)	7.2
25190 00	Household furniture, n.e.c., n.s.k.[4]	(NA)	(X)	61.4	(NA)	(X)	77.1
25190 02	Household furniture, n.e.c., n.s.k.[5]	(NA)	(X)	12.9	(NA)	(X)	17.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Prior to 1992, product code 25117 75 was included in Product Code 25117 79, Other Ready-to-Assemble Furniture.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
25112, WOOD LIVING ROOM, LIBRARY, FAMILY ROOM, AND DEN FURNITURE		
United States	**1 620.8**	**1 499.7**
Alabama	42.1	49.2
Arizona	18.9	(NA)
California	133.4	148.6
Connecticut	4.4	11.5
Florida	8.7	10.7
Georgia	26.8	27.1
Illinois	68.9	23.8
Indiana	107.7	84.4
Kentucky	10.5	10.6
Maine	3.3	7.0
Maryland	4.4	(NA)
Massachusetts	17.8	22.4
Michigan	32.0	24.8
Minnesota	3.6	(NA)
Mississippi	38.7	36.0
Missouri	18.0	(NA)
New Jersey	9.5	8.4
New York	52.5	65.2
North Carolina	418.6	430.1
Ohio	38.1	34.7
Oregon	3.6	(NA)
Pennsylvania	92.8	35.5
South Carolina	4.1	3.6
Tennessee	96.0	60.3
Texas	29.8	11.0
Utah	3.3	(NA)
Virginia	164.9	213.2
Washington	6.5	(NA)
Wisconsin	28.7	21.3
25113, WOOD DINING ROOM AND KITCHEN FURNITURE, EXCEPT KITCHEN CABINETS		
United States	**1 587.6**	**1 477.4**
Alabama	66.1	15.3
Arkansas	4.2	(NA)
California	118.7	115.6
Georgia	50.6	46.7
Illinois	57.3	33.2
Indiana	72.3	52.8
Massachusetts	42.3	59.7
Michigan	25.1	27.2
Mississippi	7.7	(NA)
New Hampshire	4.2	8.6
New York	50.9	64.5
North Carolina	574.6	643.6
Ohio	14.4	(NA)
Pennsylvania	53.2	44.7
Tennessee	29.1	30.8
Texas	11.3	31.3
Virginia	227.4	163.4
Wisconsin	61.9	(NA)
25115, WOOD BEDROOM FURNITURE		
United States	**2 478.3**	**2 271.2**
Alabama	101.3	61.3
Arizona	54.6	48.6
Arkansas	23.7	15.4
California	213.8	243.6
Connecticut	8.9	5.5
Florida	82.3	54.0
Georgia	35.6	29.1
Illinois	7.4	(NA)
Indiana	61.1	37.5
Iowa	4.9	3.5
Kentucky	17.8	23.2
Massachusetts	11.9	9.5
Michigan	28.0	28.6
Mississippi	60.1	54.8
Missouri	13.1	17.4
New Jersey	2.2	4.4
New York	47.8	47.7
North Carolina	782.9	754.9
Ohio	15.6	13.2
Oregon	10.5	(NA)
Pennsylvania	57.6	51.9
South Carolina	95.2	71.0
Tennessee	188.5	121.4
Texas	10.9	27.3
Vermont	36.0	16.8
Virginia	364.2	415.1
Washington	8.7	3.3
25116, INFANTS' AND CHILDREN'S WOOD FURNITURE		
United States	**316.2**	**272.7**
California	5.2	(NA)
Florida	3.6	(NA)
Georgia	3.2	(NA)
New York	3.7	2.1
North Carolina	69.8	(NA)
Pennsylvania	3.8	6.8
Texas	3.4	(NA)
Wisconsin	88.1	74.7
25117, WOOD OUTDOOR FURNITURE, UNPAINTED WOOD FURNITURE, AND READY-TO-ASSEMBLE WOOD FURNITURE		
United States	**1 082.2**	**810.1**
Alabama	4.7	4.1
California	34.1	43.5
Kentucky	2.3	(NA)
Maine	4.8	(NA)
Massachusetts	6.9	4.0
Minnesota	13.9	(NA)
Missouri	268.1	204.3
New York	105.0	84.8
North Carolina	7.2	31.0
Pennsylvania	15.6	26.7
Tennessee	17.3	3.5
Texas	2.8	5.1
Virginia	96.0	(NA)
25145, METAL HOUSEHOLD DINING ROOM AND KITCHEN FURNITURE		
United States	**380.0**	**370.4**
California	82.6	108.5
Indiana	44.1	17.6
New York	7.1	7.5
North Carolina	31.9	22.4
25146, METAL PORCH, LAWN, OUTDOOR, AND CASUAL FURNITURE		
United States	**625.0**	**536.4**
California	35.9	98.4
Florida	32.2	44.7
Michigan	49.1	39.1
New York	48.2	(NA)
North Carolina	33.7	41.3
Pennsylvania	33.5	(NA)
25147, OTHER METAL HOUSEHOLD FURNITURE		
United States	**707.9**	**771.1**
California	112.8	115.5
Florida	7.8	(NA)
Georgia	4.8	(NA)
Illinois	56.3	111.6
Michigan	9.9	(NA)
New York	8.4	12.2
North Carolina	32.0	25.2
Ohio	85.7	118.0
Pennsylvania	102.8	67.1
Texas	34.5	40.4
25151, INNERSPRING MATTRESSES, EXCLUDING CRIB-SIZE		
United States	**1 174.9**	**890.6**
Alabama	12.0	9.3
Arizona	11.4	9.2
Arkansas	6.7	4.0
California	176.9	143.1
Colorado	31.1	12.1
Florida	74.3	67.3
Georgia	47.4	47.6
Illinois	32.5	9.9
Indiana	19.0	14.6
Iowa	9.1	(NA)
Kansas	11.8	13.4
Louisiana	8.8	4.9
Maryland	27.5	21.9
Massachusetts	38.5	36.3
Michigan	20.2	18.1

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
25151, INNERSPRING MATTRESSES, EXCLUDING CRIB-SIZE—Con.		
Minnesota	7.4	8.4
Mississippi	34.8	(NA)
Missouri	21.3	9.4
New Hampshire	4.2	(NA)
New Jersey	93.0	83.5
New York	21.3	19.7
North Carolina	47.1	23.1
Ohio	59.3	51.5
Oklahoma	8.3	6.2
Oregon	19.1	(NA)
Pennsylvania	56.2	37.7
South Carolina	7.7	7.2
Tennessee	41.2	34.6
Texas	67.4	75.0
Utah	10.8	7.3
Virginia	24.4	18.8
Washington	25.6	13.2
Wisconsin	47.8	(NA)
25152, OTHER MATTRESSES, INCLUDING CRIB MATTRESSES AND MATTRESS INSERTS		
United States	**204.1**	**145.5**
California	33.0	12.0
Florida	22.2	7.1
Georgia	3.7	6.6
Indiana	2.2	(NA)
Massachusetts	5.7	(NA)
New Jersey	2.9	(NA)
New York	10.6	6.2
North Carolina	14.9	16.6
Ohio	5.8	(NA)
Pennsylvania	2.7	10.0
Tennessee	6.1	7.7
Washington	4.5	(NA)
25153, FOUNDATIONS, EXCLUDING INNERSPRING UNITS AND THOSE INCORPORATED INTO HYBRID-TYPE FLOTATION AND ADJUSTABLE ENSEMBLES		
United States	**684.1**	**554.1**
Alabama	6.8	4.1
Arizona	12.4	(NA)
Arkansas	2.8	2.4
25153, FOUNDATIONS, EXCLUDING INNERSPRING UNITS AND THOSE INCORPORATED INTO HYBRID-TYPE FLOTATION AND ADJUSTABLE ENSEMBLES—Con.		
California	78.8	73.2
Colorado	11.6	6.9
Florida	48.0	43.0
Georgia	30.2	31.3
Illinois	21.9	20.8
Indiana	12.1	11.0
Iowa	5.7	(NA)
Kansas	8.8	8.2
Louisiana	4.8	3.3
Maryland	13.9	16.1
Massachusetts	34.5	14.6
Michigan	14.3	13.9
Minnesota	10.8	5.7
Mississippi	10.0	(NA)
Missouri	14.1	5.3
New Jersey	32.4	57.3
New York	11.7	(NA)
North Carolina	23.9	14.2
Ohio	43.0	36.9
Oregon	14.1	(NA)
Pennsylvania	31.9	21.8
South Carolina	4.6	4.1
Tennessee	32.5	21.9
Texas	55.3	60.1
Utah	3.6	(NA)
Virginia	12.8	6.4
Washington	11.9	6.9
Wisconsin	28.1	17.4
25155, DUAL-PURPOSE SLEEP FURNITURE		
United States	**500.7**	**583.6**
California	76.4	69.1
Florida	5.2	9.0
Indiana	19.8	25.7
Mississippi	91.4	125.1
North Carolina	128.6	102.5
Pennsylvania	8.6	10.9
Tennessee	44.4	42.9
Texas	9.4	17.6
25156, SLEEP SYSTEM ENSEMBLES, EXCLUDING CONVENTIONAL WATER BEDS		
United States	**131.6**	**80.3**
California	52.2	29.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2511-	**Wood household furniture**	**7 976.4**	**7 591.9**	**7 847.4**	**7 853.3**	**7 710.4**	**7 454.2**	**4 846.1**	**3 890.7**
25112	Wood living room, library, family room, and den furniture	1 620.8	1 528.5	1 620.5	1 590.4	1 681.5	1 499.7	1 221.7	859.8
25113	Wood dining room and kitchen furniture, except kitchen cabinets	1 587.6	1 578.1	1 624.9	1 568.5	1 493.5	1 477.4	1 014.7	962.3
25115	Wood bedroom furniture	2 478.3	2 464.0	2 506.6	2 474.5	2 381.6	2 271.2	1 557.0	1 475.9
25116	Infants' and children's wood furniture	316.2	288.3	289.9	292.4	281.6	272.7	158.8	118.8
25117	Wood outdoor furniture, unpainted wood furniture, and ready-to-assemble wood furniture	1 082.2	961.4	945.7	980.7	735.5	810.1	249.9	185.8
25110	Wood household furniture, n.s.k.	891.2	771.5	859.7	946.8	1 136.7	1 123.0	685.4	473.7
2512-	**Upholstered household furniture**	**5 802.6**	**5 402.1**	**5 391.5**	**5 323.6**	**5 049.3**	**4 911.8**	**3 319.8**	**2 735.7**
25120	Upholstered wood household furniture, except dual-purpose sleep furniture	5 802.6	5 402.1	5 391.5	5 323.6	5 049.3	4 911.8	3 319.8	2 735.7
2514-	**Metal household furniture**	**1 917.3**	**1 982.3**	**2 054.3**	**2 048.6**	**2 034.1**	**1 947.3**	**1 517.4**	**1 231.2**
25145	Metal household dining room and kitchen furniture	380.0	424.5	433.4	425.9	371.1	370.4	422.5	392.5
25146	Metal porch, lawn, outdoor, and casual furniture	625.0	545.2	597.1	622.4	585.6	536.4	399.4	275.9
25147	Other metal household furniture	707.9	797.4	775.1	768.0	801.1	771.1	539.2	445.5
25140	Metal household furniture, n.s.k.	204.4	215.2	248.7	232.3	276.3	269.5	156.3	117.3

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2515-	**Mattresses, foundations, and convertible beds**	**3 098.2**	**3 181.8**	**3 184.9**	**3 135.4**	**2 746.9**	**2 693.5**	**2 042.6**	**1 481.5**
25151	Innerspring mattresses, excluding crib-size	1 174.9	1 245.0	1 196.1	1 160.0	1 044.0	890.6	705.3	492.6
25152	Other mattresses, including crib mattresses and mattress inserts	204.1	171.8	164.0	169.1	157.0	145.5	159.1	108.3
25153	Foundations, excluding innerspring units and those incorporated into hybrid-type flotation and adjustable ensembles	684.1	568.4	567.8	572.5	556.5	554.1	461.3	360.6
25155	Dual-purpose sleep furniture	500.7	498.0	539.5	571.8	565.8	583.6	396.2	334.4
25156	Sleep system ensembles, excluding conventional water beds	131.6	152.7	163.9	191.1	83.3	80.3	23.9	(NA)
25150	Mattresses, foundations, and convertible beds, n.s.k.	402.9	545.9	553.6	470.9	340.3	439.3	255.6	185.6
2517-	**Wood television and radio cabinets**	**383.2**	**292.0**	**312.7**	**352.7**	**363.8**	**371.8**	**302.4**	**312.8**
25170	Wood television, radio, stereo, and sewing machine cabinets	383.2	292.0	312.7	352.7	363.8	371.8	302.4	312.8
2519-	**Household furniture, n.e.c.**	**483.3**	**391.5**	**441.7**	**494.2**	**467.1**	**426.4**	**324.5**	**281.8**
25190	Household furniture, except wood or metal	483.3	391.5	441.7	494.2	467.1	426.4	324.5	281.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2511, WOOD HOUSEHOLD FURNITURE				
	Materials, ingredients, containers, and supplies	**(X)**	**3 525.4**	**(X)**	**3 324.9**
242111	Hardwood lumber, rough and dressed, mil bd ft	(S)	445.5	**833.7	416.4
242123	Softwood lumber, rough and dressed, mil bd ft	*853.9	115.7	(S)	137.1
242620	Hardwood dimension and parts, excluding furniture frames	(X)	238.3	(X)	243.8
	Plywood:				
243601	Softwood, mil sq ft (3/8 in. basis)	(S)	21.2	(S)	17.6
243510	Hardwood, mil sq ft sm	(S)	92.7	(NA)	84.0
243530	Hardwood veneer	(X)	126.1	(X)	109.6
249310	Particleboard (wood), mil sq ft (3/4 in. basis)	(S)	240.8	(NA)	226.7
249330	Medium density fiberboard (MDF), mil sq ft (3/4 in. basis)	451.1	65.9	(S)	67.7
249340	Hardboard (wood fiberboard)	(X)	34.3	(X)	39.2
242661	Furniture frames, wood	(X)	156.8	(X)	104.7
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	142.0	(X)	149.4
289100	Adhesives and sealants	(X)	15.9	(X)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	(S)	11.2	(S)	6.6
308009	Plastics parts, components, sheets, and other shapes (excluding plastics resins)	(X)	50.3	(X)	42.2
321101	Flat glass (plate, float, and sheet)	(X)	46.8	(X)	51.6
323150	Mirrors, framed and unframed	(X)	47.6	(X)	50.8
220390	Fabrics, all types	(X)	35.2	(X)	(2)
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	(X)	254.6	(X)	219.2
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	199.4	(X)	179.1
970099	All other materials and components, parts, containers, and supplies	(X)	501.7	(X)	[2]414.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	683.4	(X)	764.9

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2512, UPHOLSTERED HOUSEHOLD FURNITURE		
	Materials, ingredients, containers, and supplies	**3 118.6**	**2 561.3**
242111	Hardwood lumber, rough and dressed	142.9	90.0
242123	Softwood lumber, rough and dressed	25.0	20.6
242620	Hardwood dimension and parts, excluding furniture frames	39.1	28.4
242661	Furniture frames, wood	307.7	238.2
	Woven upholstery fabrics, excluding ticking:		
221161	Cotton	253.4	105.4
222103	Other (rayon, nylon, polyester, etc.)	560.8	516.4
229908	Paddings, battings, and fillings, except rubber and plastics foam	137.8	79.2
229508	Coated or laminated fabrics, including vinyl coated	128.2	111.8
349538	Springs, innerspring units, and box spring constructions	71.9	68.7
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	151.0	76.1
342921	Constructions (sleeper mechanisms) for dual-purpose sleep furniture	76.1	63.8
300003	Foam cores for mattresses, including latex, excluding topper pads	40.7	34.8
308601	Formed and slab stock for pillows, cushions, seatings, etc. (urethane)	327.5	265.7
970099	All other materials and components, parts, containers, and supplies	424.6	388.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	432.2	473.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2514, METAL HOUSEHOLD FURNITURE		
	Materials, ingredients, containers, and supplies	**942.2**	**1 007.2**
	Fabricated metal products (except forgings):		
346901	Metal stampings	11.5	(2)
346068	Other fabricated metal products, except forgings	52.9	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	(D)	(2)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	88.8	88.0
331085	All other steel shapes and forms	83.6	71.6
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	39.3	29.8
335011	All other (except sheet, plate, foil, and welded tubing)	21.3	54.9
335091	Other nonferrous	1.2	(2)
308009	Plastics parts, components, sheets, and other shapes (excluding plastics resins)	47.9	64.7
242600	Hardwood dimension and parts, including wood furniture frames	40.1	(2)
249310	Particleboard (wood)	14.9	26.0
321101	Flat glass (plate, float, and sheet)	18.1	25.6
229508	Coated or laminated fabrics, including vinyl coated	59.0	59.2
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	20.9	20.8
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	39.1	41.5
265001	Paperboard containers, boxes, and corrugated paperboard	46.5	49.2
970099	All other materials and components, parts, containers, and supplies	226.1	2253.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	115.9	222.4
	INDUSTRY 2515, MATTRESSES AND BEDSPRINGS		
	Materials, ingredients, containers, and supplies	**1 371.9**	**1 202.4**
242628	Hardwood dimension and parts, including furniture frames	55.6	54.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	21.9	17.7
330001	Mill shapes and forms, including castings (steel, aluminum, etc.)	9.9	(2)
	Core material, excluding padding and topper pads:		
349538	Springs, innerspring units, and box spring constructions	302.4	244.1
342921	Constructions (sleeper mechanisms) for dual-purpose sleep furniture	16.6	22.6
300003	Foam cores for mattresses, including latex, excluding topper pads	37.6	26.8
220200	Woven upholstery fabrics (cotton, nylon, polyester, rayon, etc.), excluding ticking	42.6	64.6
221141	Ticking (mattress)	186.4	143.1
190047	Cotton linters and cotton waste	12.1	13.3
308604	Padding, foam (except mattress cores)	115.1	56.6
	Filling materials, purchased premade:		
190048	Cotton felt	18.1	13.4
190049	Insulators, all types, except cotton felt	50.5	24.5
190044	Other cushioning materials	18.4	26.7
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	8.4	10.6
970099	All other materials and components, parts, containers, and supplies	158.4	2126.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	317.9	358.1

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS				
	Materials, ingredients, containers, and supplies	**(X)**	**146.0**	**(X)**	**174.5**
242111	Hardwood lumber, rough and dressed, mil bd ft	254.7	12.3	(S)	8.9
242123	Softwood lumber, rough and dressed, mil bd ft	(D)	(D)	(S)	2.1
242620	Hardwood dimension and parts, excluding furniture frames	(X)	(D)	(X)	(D)
	Plywood:				
243601	Softwood, mil sq ft (3/8 in. basis)	(S)	.5	(D)	(D)
243510	Hardwood, mil sq ft sm	284.7	6.0	(NA)	7.2
243530	Hardwood veneer	(X)	1.2	(X)	(D)
249310	Particleboard (wood), mil sq ft (3/4 in. basis)	(S)	16.5	(NA)	19.8
249330	Medium density fiberboard (MDF), mil sq ft (3/4 in. basis)	*16.4	7.9	(S)	12.9
249340	Hardboard (wood fiberboard)	(X)	(D)	(X)	1.2
242661	Furniture frames, wood	(X)	(D)	(X)	(2)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	4.9	(X)	8.1
289100	Adhesives and sealants	(X)	1.3	(X)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	(D)	(D)	(NA)	(2)
308009	Plastics parts, components, sheets, and other shapes (excluding plastics resins)	(X)	4.2	(X)	14.2
321101	Flat glass (plate, float, and sheet)	(X)	1.7	(X)	(2)
323150	Mirrors, framed and unframed	(X)	(D)	(X)	(2)
220390	Fabrics, all types	(X)	1.5	(X)	(2)
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	(X)	13.4	(X)	11.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2517, WOOD TELEVISION AND RADIO CABINETS—Con.				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	13.7	(X)	12.1
970099	All other materials and components, parts, containers, and supplies	(X)	7.5	(X)	[2]21.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	29.8	(X)	35.6
	INDUSTRY 2519, HOUSEHOLD FURNITURE, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**241.6**	**(X)**	**215.2**
242111	Hardwood lumber, rough and dressed mil bd ft	(S)	.4	(NA)	(2)
242123	Softwood lumber, rough and dressed mil bd ft	(D)	(D)	(NA)	(2)
242620	Hardwood dimension and parts, excluding furniture frames	(X)	(D)	(X)	(2)
	Plywood:				
243601	Softwood mil sq ft (3/8 in. basis)	(S)	.2	(NA)	(2)
243510	Hardwood mil sq ft sm	(S)	.2	(NA)	(2)
243530	Hardwood veneer	(X)	(D)	(X)	(2)
249310	Particleboard (wood) mil sq ft (3/4 in. basis)	(S)	.1	(NA)	(2)
249330	Medium density fiberboard (MDF) mil sq ft (3/4 in. basis)	*1.0	.4	(NA)	(2)
249340	Hardboard (wood fiberboard)	(X)	.1	(X)	(2)
242661	Furniture frames, wood	(X)	(D)	(X)	(2)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	5.5	(X)	(2)
289100	Adhesives and sealants	(X)	.3	(X)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	(S)	103.0	*110.4	83.0
308009	Plastics parts, components, sheets, and other shapes (excluding plastics resins)	(X)	5.2	(X)	(2)
321101	Flat glass (plate, float, and sheet)	(X)	.9	(X)	(2)
323150	Mirrors, framed and unframed	(X)	.1	(X)	(2)
220390	Fabrics, all types	(X)	2.3	(X)	(2)
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	(X)	.6	(X)	.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	15.2	(X)	14.2
970099	All other materials and components, parts, containers, and supplies	(X)	51.9	(X)	[2]76.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	53.2	(X)	40.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]In 1987, data for this material code were collected under code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
25113 31	25113 33	25117 48	25117 49	25147 98	25147 99	25312 34	25312 35
25113 31	25113 35	25117 75	25117 69			25312 41	25312 43
		25117 79	25117 69	25152 47	25156 15	25312 41	25312 45
25115 98	25115 91					25312 41	25312 47
25115 98	25115 99	25145 97	25145 19	25155 00	25155 12	25420	25425
		25145 97	25145 98	25155 00	25155 16	25420 00	25425 00
25117 25	25117 21					25424 99	25424 81
25117 25	25117 29	25147 88	25147 85	25170 18	25170 12	25424 99	25424 97
25117 48	25117 43	25147 88	25147 87	25170 18	25170 14		
25117 48	25117 45	25147 98	25147 55			25992 36	25992 35
25117 48	25117 47	25147 98	25147 91	25312 34	25312 33	25992 36	25992 37

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
25113 33	25113 31	25117 49	25117 48	25147 99	25147 98	25312 35	25312 34
25113 35	25113 31	25117 69	25117 75			25312 43	25312 41
		25117 69	25117 79	25155 12	25155 00	25312 45	25312 41
25115 91	25115 98			25155 16	25155 00	25312 47	25312 41
25115 99	25115 98	25145 19	25145 97			25424 81	25424 99
		25145 98	25145 97	25156 15	25152 47	25424 97	25424 99
25117 21	25117 25					25425	25420
25117 29	25117 25	25147 55	25147 98	25170 12	25170 18	25425 00	25420 00
25117 43	25117 48	25147 85	25147 88	25170 14	25170 18		
25117 45	25117 48	25147 87	25147 88			25992 35	25992 36
25117 47	25117 48	25147 91	25147 98	25312 33	25312 34	25992 37	25992 36

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:17 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08160690.DAT;1 1/ 6/ 95 08:16:19 UTF:TIPS93-08160690.DAT;1 1/ 6/ 95 08:16:20 META:TIPS96-08160690.DAT;1 1/ 6/ 95 08:17:07

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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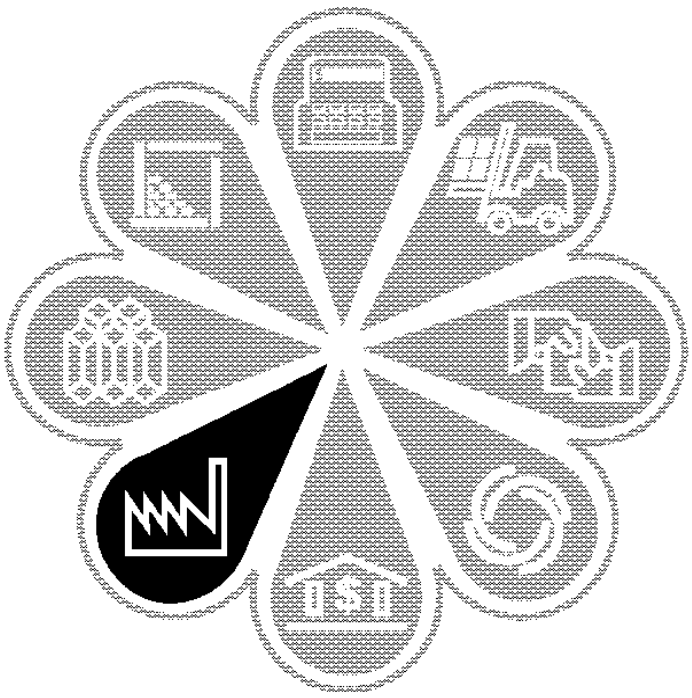
1992 Census of Manufactures

MC92-I-25B

INDUSTRY SERIES

Office, Public Building, and Miscellaneous Furniture; Office and Store Fixtures

Industries 2521, 2522, 2531, 2541, 2542, 2591, and 2599



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Office, Public Building, and Miscellaneous Furniture; Office and Store Fixtures

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2521	Wood Office Furniture
2522	Office Furniture, Except Wood
2531	Public Building and Related Furniture
2541	Wood Partitions and Fixtures
2542	Partitions and Fixtures, Except Wood
2591	Drapery Hardware and Blinds and Shades
2599	Furniture and Fixtures, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2521, WOOD OFFICE FURNITURE

This industry is made up of establishments primarily engaged in manufacturing office furniture, chiefly of wood.

In the 1992 Census of Manufactures, Industry 2521, Wood Office Furniture, had employment of 23.4 thousand. The employment figure was 25 percent below the 31.0 thousand reported in 1987.

The leading States in employment in 1992 were Indiana, North Carolina, California, and New York, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2521 shipped $1.8 billion of wood office furniture products considered primary to the industry, $136.5 million of secondary products, and had $70.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2521, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood office furniture industry amounted to $853.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD

This industry is made up of establishments primarily engaged in manufacturing office furniture, except furniture chiefly of wood. Establishments primarily engaged in manufacturing safes and vaults are classified in industry 3499.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2522, Office Furniture, Except Wood, had employment of 44.5 thousand. The employment figure was 10 percent below the 49.7 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, California, Pennsylvania, and North Carolina, accounting for approximately 58 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $6.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2522 shipped $5.5 billion of nonwood office furniture products considered primary to the industry, $292.3 million of secondary products, and had $228.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 2522, no matter in what industry they were produced, appear in table 6a and aggregate to $5.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonwood office furniture industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE

This industry is made up of establishments primarily engaged in manufacturing furniture for schools, theaters, assembly halls, churches, and libraries. Also included in this industry are establishments primarily engaged in manufacturing seats for public conveyances, as well as seats for automobiles and aircraft. Establishments primarily engaged in manufacturing stone furniture are classified in industry 3281. Establishments primarily engaged in manufacturing concrete furniture are classified in industry 3272.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2531, Public Building and Related Furniture, had employment of 28.9 thousand. The employment figure was 33 percent above the 21.8 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Texas, Indiana, and Arkansas, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when California, Indiana, Michigan, and Arkansas accounted for approximately 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2531 shipped $3.8 billion of public building and related furniture products considered primary to the industry, $210.0 million of secondary products, and had $127.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 2531, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the public building and related furniture industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES

This industry is made up of establishments primarily engaged in manufacturing shelving, lockers, and office and store fixtures, plastics laminated fixture tops, and related fabricated products, chiefly of wood. Prefabricated partitions are included in this industry if designed to be attached to the floor and are classified in industry 2521 if designed to be free-standing or part of an office furniture panel system. Establishments primarily engaged in manufacturing refrigerated cabinets, showcases, and display cases are classified in industry 3585.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2541, Wood Partitions and Fixtures, had employment of 39.4 thousand. The employment figure was 3 percent below the 40.6 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, Ohio, and Illinois, accounting for approximately 30 percent of the industry's employment. This represents a shift from 1987 when California, New York, Pennsylvania, and Illinois were the leading States in employment.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2541 shipped $2.7 billion of wood partitions and fixtures products considered primary to the industry, $170.0 million of secondary products, and had $228.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2541, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wood partitions and fixtures industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD

This industry is made up of establishments primarily engaged in manufacturing office and store fixtures, shelving, storage racks, lockers, and related fabricated products, chiefly of materials other than wood. Prefabricated partitions are included in this industry if designed to be attached to the floor and are classified in industry 2522 if designed to be free-standing or part of an office furniture panel system. Establishments primarily engaged in manufacturing refrigerated cabinets, showcases, and display cases are classified in industry 3585, and those primarily engaged in manufacturing safes and vaults are classified in industry 3499.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2542, Partitions and Fixtures, Except Wood, had employment of 34.8 thousand. The employment figure was 4 percent above the 33.5 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, California, New York, and Ohio accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Illinois, New York, California, and Pennsylvania accounted for approximately 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2542 shipped $2.9 billion of nonwood partitions and fixtures products considered primary to the industry, $334.5 million of secondary products, and had $185.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary

and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2542, no matter in what industry they were produced, appear in table 6a and aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonwood partitions and fixtures industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES

This industry is made up of establishments primarily engaged in manufacturing curtain and drapery rods, poles, and fixtures; and venetian blinds and other window blinds and shades, except of canvas. Establishments primarily engaged in manufacturing canvas shades and awnings are classified in industry 2394.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2591, Drapery Hardware and Blinds and Shades, had employment of 19.4 thousand. The employment figure was 6 percent below the 20.6 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, Pennsylvania, and Texas, accounting for approximately 46 percent of the industry's employment. This represents a shift from 1987 when California, Illinois, New Jersey, and Pennsylvania accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2591 shipped $1.8 billion of drapery hardware and blinds and shades products considered primary to the industry, $10.6 million of secondary products, and had $141.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2591, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the drapery hardware and blinds and shades industry amounted to $941.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 26 percent of the total value of shipments.

INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing furniture and fixtures, not elsewhere classified, including hospital beds and furniture specially designed for use in restaurants, bars, cafeterias, bowling centers, and ships.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2591, Furniture and Fixtures, N.E.C., had employment of 25.3 thousand. The employment figure was 14 percent below the 29.3 thousand reported in 1987. Compared with 1991, employment decreased 18 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Indiana, and Missouri. This represents a shift from 1987 when California, Florida, Indiana, and Tennessee were the leading States.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2599 shipped $1.9 billion of furniture and fixtures, not elsewhere classified, considered primary to the industry,

$228.8 million of secondary products, and had $212.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2599, no matter in what industry they were produced, appear in table 6a and aggregate to $2.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the furniture and fixtures, not elsewhere classified, industry amounted to $966.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2521, WOOD OFFICE FURNITURE															
1992 Census	611	635	192	23.4	529.1	18.5	38.4	349.9	1 101.0	853.8	1 964.6	37.4	302.8	93	90
1991 ASM	(NA)	(NA)	(NA)	22.5	493.4	17.0	34.1	315.0	986.4	708.5	1 720.7	22.4	277.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.2	572.4	22.1	44.1	382.5	1 100.8	878.3	1 998.8	34.7	326.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	31.0	601.7	24.3	49.0	398.9	1 186.9	916.2	2 101.3	40.5	388.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	30.8	557.7	24.6	47.2	370.5	1 163.4	822.0	1 984.8	36.4	339.3	(NA)	(NA)
1987 Census	625	649	233	31.0	562.2	24.4	48.4	379.0	1 261.8	829.0	2 084.1	48.3	341.7	93	91
1986 ASM	(NA)	(NA)	(NA)	24.8	426.2	19.8	37.9	288.9	913.8	608.9	1 530.2	42.1	274.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	23.7	410.5	18.5	37.0	270.0	942.8	557.4	1 505.4	54.8	260.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	24.8	406.6	19.6	39.1	272.4	909.4	586.7	1 477.9	45.2	271.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	20.8	324.0	16.6	32.6	212.1	712.6	473.4	1 166.6	47.0	224.8	(NA)	(NA)
1982 Census	430	446	175	21.0	296.1	16.6	32.0	194.0	659.0	424.2	1 087.4	32.6	198.2	91	84
1981 ASM	(NA)	(NA)	(NA)	19.3	263.7	14.9	29.7	170.0	644.8	419.0	1 055.7	36.6	178.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.3	263.4	15.5	27.7	154.3	602.1	446.0	1 034.8	45.5	210.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.1	249.2	15.6	31.3	153.9	599.4	444.0	1 023.0	35.5	182.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.5	199.8	13.7	26.6	129.2	425.2	300.3	712.1	37.3	137.7	(NA)	(NA)
1977 Census	316	331	119	16.0	165.0	12.8	25.5	110.2	381.3	239.0	612.0	26.5	107.1	85	90
INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD															
1992 Census	327	386	222	44.5	1 337.7	31.9	70.0	824.3	3 533.0	2 505.6	6 043.1	164.1	572.8	95	96
1991 ASM	(NA)	(NA)	(NA)	43.6	1 267.9	30.8	62.8	742.3	3 141.9	2 374.8	5 542.2	150.2	556.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	46.7	1 324.8	33.4	68.6	822.8	3 618.7	2 401.2	6 031.4	257.4	594.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	48.6	1 365.2	35.1	70.9	858.4	3 654.8	2 478.9	6 155.7	261.4	609.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	49.8	1 327.5	36.3	72.1	851.2	3 534.2	2 251.2	5 794.1	270.0	648.5	(NA)	(NA)
1987 Census	291	337	206	49.7	1 227.4	35.8	69.6	776.4	3 479.4	1 987.9	5 453.6	234.1	645.7	94	96
1986 ASM	(NA)	(NA)	(NA)	43.7	1 072.5	30.8	61.0	679.7	2 874.1	1 861.7	4 728.9	218.3	562.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.6	1 036.1	31.8	62.9	670.2	2 687.9	1 847.6	4 530.2	171.9	577.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	40.4	931.1	29.4	59.4	595.2	2 487.4	1 567.7	4 027.2	159.5	522.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	39.1	816.5	28.4	53.8	519.1	2 073.4	1 313.9	3 350.5	185.0	473.7	(NA)	(NA)
1982 Census	224	254	162	37.8	754.8	27.3	53.2	483.9	1 817.9	1 230.9	3 062.7	114.2	427.4	90	91
1981 ASM	(NA)	(NA)	(NA)	34.7	646.2	25.8	51.1	437.0	1 506.8	1 058.1	2 563.3	91.6	338.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	33.0	549.2	24.4	48.3	380.4	1 337.8	906.3	2 224.2	107.0	289.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.8	465.0	23.4	47.2	335.4	1 059.8	769.4	1 818.1	81.4	260.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.0	435.9	24.3	48.4	311.6	958.1	684.2	1 631.8	56.0	253.3	(NA)	(NA)
1977 Census	167	192	114	29.0	377.6	22.3	43.6	265.7	854.8	553.2	1 397.4	41.1	237.2	94	92
INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE															
1992 Census	473	516	223	28.9	677.9	21.4	44.5	414.6	1 607.1	2 529.4	4 135.2	69.0	327.5	95	93
1991 ASM	(NA)	(NA)	(NA)	25.9	558.8	19.8	40.5	353.5	1 259.1	1 909.8	3 136.4	47.9	302.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.0	543.9	20.1	42.6	354.0	1 147.1	1 979.0	3 112.4	46.6	302.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	26.2	519.0	19.8	39.6	323.7	1 108.2	1 795.9	2 883.7	59.7	289.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.5	457.4	17.9	34.8	285.4	1 037.4	1 622.2	2 660.8	40.7	250.4	(NA)	(NA)
1987 Census	465	491	209	21.8	396.8	16.6	33.0	259.1	901.1	1 191.3	2 088.3	45.0	222.9	92	92
1986 ASM	(NA)	(NA)	(NA)	22.9	399.7	17.4	33.0	257.4	827.7	831.6	1 654.8	42.1	246.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.2	369.9	15.8	31.0	232.6	728.2	687.5	1 415.8	46.0	219.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.7	350.1	15.4	30.5	218.5	683.9	640.5	1 317.0	42.3	237.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.1	318.8	14.0	26.9	190.3	609.4	586.8	1 197.8	25.4	222.3	(NA)	(NA)
1982 Census	394	413	181	18.8	294.9	13.8	26.2	175.8	578.8	521.6	1 102.8	24.8	203.7	84	86
1981 ASM	(NA)	(NA)	(NA)	20.8	293.1	15.0	29.1	177.3	579.5	579.3	1 140.2	27.9	200.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	21.8	274.8	15.7	29.0	164.2	557.7	561.5	1 121.9	33.7	177.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	23.0	263.3	17.1	31.7	162.9	539.8	521.7	1 047.8	21.5	175.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.2	231.5	14.9	29.5	139.0	416.8	440.8	850.7	30.0	161.8	(NA)	(NA)
1977 Census	401	420	185	20.0	214.3	15.0	29.2	132.9	414.9	381.8	787.4	22.3	138.3	88	87
INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES															
1992 Census	1 905	1 936	523	39.4	950.3	28.5	58.5	583.0	1 747.4	1 369.6	3 132.7	48.5	372.1	94	88
1991 ASM	(NA)	(NA)	(NA)	35.9	841.8	26.8	52.1	524.2	1 527.0	1 241.1	2 804.3	61.8	404.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	40.1	952.5	29.6	58.7	595.3	1 788.5	1 360.2	3 147.2	81.5	456.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	40.3	916.5	30.2	58.8	586.1	1 668.6	1 339.7	2 978.3	75.5	398.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	40.3	918.3	30.0	62.6	607.3	1 623.8	1 272.2	2 891.5	109.5	357.8	(NA)	(NA)
1987 Census	1 833	1 867	557	40.6	861.2	30.3	60.9	566.8	1 609.4	1 212.1	2 815.9	65.7	347.5	94	90
1986 ASM	(NA)	(NA)	(NA)	34.0	721.0	26.3	51.9	487.8	1 349.3	993.1	2 337.9	75.7	291.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	35.6	703.0	27.3	52.8	483.3	1 325.8	988.6	2 315.3	62.9	292.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	35.0	687.9	26.7	51.1	471.3	1 304.0	998.2	2 288.4	42.4	298.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	31.5	560.9	24.2	43.7	384.8	1 100.3	753.5	1 851.2	24.7	255.8	(NA)	(NA)
1982 Census	1 547	1 580	388	31.7	543.0	24.3	46.9	379.6	1 017.1	746.3	1 766.7	39.2	250.3	92	91
1981 ASM	(NA)	(NA)	(NA)	34.9	514.5	28.5	53.2	357.0	913.5	716.3	1 603.2	20.6	249.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.8	453.0	26.7	49.1	313.0	814.2	645.9	1 440.4	17.6	206.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.7	413.0	25.6	48.7	286.1	722.2	592.0	1 294.7	17.1	184.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.6	403.9	24.6	47.6	279.7	736.1	597.7	1 325.3	32.7	185.6	(NA)	(NA)
1977 Census	1 572	1 598	394	29.4	352.9	23.0	45.3	241.0	621.4	496.1	1 105.8	22.4	158.2	92	88
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD															
1992 Census	743	786	332	34.8	863.8	26.0	54.6	536.2	1 889.6	1 562.4	3 445.9	66.3	474.5	90	91
1991 ASM	(NA)	(NA)	(NA)	31.0	779.7	21.9	47.7	471.6	1 683.3	1 436.5	3 125.0	70.1	500.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.5	748.4	23.5	48.0	454.2	1 620.8	1 427.0	3 045.8	68.0	502.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.7	712.9	23.8	47.0	440.0	1 544.3	1 367.6	2 909.4	58.1	477.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	33.2	716.2	24.4	49.4	448.7	1 593.8	1 306.9	2 879.2	47.0	480.5	(NA)	(NA)
1987 Census	566	592	299	33.5	691.0	24.6	49.2	430.8	1 502.4	1 237.9	2 721.3	59.2	449.4	89	93
1986 ASM	(NA)	(NA)	(NA)	32.4	641.1	23.9	47.5	406.7	1 374.3	1 178.2	2 554.2	50.2	383.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	32.3	615.0	24.2	45.9	388.5	1 308.4	1 166.8	2 490.5	61.8	393.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	32.8	601.1	25.1	46.8	382.8	1 295.1	1 126.2	2 390.9	50.2	406.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	28.7	510.0	21.3	41.0	311.9	1 090.4	915.7	2 000.9	32.5	367.3	(NA)	(NA)
1982 Census	533	568	299	28.0	482.0	20.5	38.9	294.5	1 062.5	874.4	1 943.2	48.1	342.0	89	91
1981 ASM	(NA)	(NA)	(NA)	26.6	439.8	20.1	39.8	275.6	995.7	804.1	1 790.0	52.5	299.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	28.0	422.2	20.8	41.6	270.0	921.6	800.3	1 718.5	38.3	299.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.0	400.3	22.2	44.5	265.3	900.3	793.2	1 668.2	31.9	303.9	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD—Con.															
1978 ASM	(NA)	(NA)	(NA)	28.7	350.5	21.7	41.2	228.5	769.8	688.3	1 436.4	50.2	260.1	(NA)	(NA)
1977 Census	508	536	272	28.0	322.2	21.3	40.5	213.2	689.7	630.2	1 303.0	36.5	236.5	89	91
INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES															
1992 Census	502	556	157	19.4	395.5	13.0	26.3	220.4	959.9	941.2	1 915.6	27.6	306.2	99	98
1991 ASM	(NA)	(NA)	(NA)	17.3	341.6	12.2	24.7	204.2	928.0	778.0	1 712.5	24.9	281.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.0	360.6	13.7	26.6	224.1	1 005.1	890.2	1 886.3	27.8	318.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.8	359.6	15.4	30.7	238.7	984.2	948.2	1 927.0	25.6	328.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.0	341.3	15.6	30.8	228.6	929.1	900.5	1 830.0	24.8	337.7	(NA)	(NA)
1987 Census	443	489	142	20.6	342.3	15.9	31.2	223.5	898.8	887.0	1 780.4	27.3	338.7	99	96
1986 ASM	(NA)	(NA)	(NA)	18.2	296.2	13.7	26.8	188.8	748.5	822.6	1 570.6	15.9	280.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.4	294.9	14.2	27.3	189.8	692.3	768.3	1 473.6	26.1	275.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.7	274.8	13.5	26.2	174.2	660.8	706.0	1 354.2	35.1	289.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.8	257.5	12.5	24.1	163.1	712.4	649.2	1 332.1	18.7	260.8	(NA)	(NA)
1982 Census	404	435	127	15.7	223.7	11.7	22.0	146.8	556.6	557.6	1 114.4	31.3	211.3	97	97
1981 ASM	(NA)	(NA)	(NA)	15.8	213.1	11.2	21.8	128.5	541.5	570.8	1 080.9	23.0	189.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.7	199.4	11.0	21.1	119.1	458.2	502.6	958.4	24.0	155.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	183.8	11.4	21.7	114.5	438.4	447.5	879.9	26.6	145.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.4	172.6	11.7	22.6	117.4	431.8	406.8	834.1	19.7	133.6	(NA)	(NA)
1977 Census	435	456	85	13.6	145.6	10.3	20.0	99.1	345.0	331.6	675.1	16.7	115.6	95	96
INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.															
1992 Census	1 386	1 409	288	25.3	604.5	18.1	37.2	330.1	1 396.3	966.8	2 359.0	47.6	295.1	89	91
1991 ASM	(NA)	(NA)	(NA)	31.0	630.4	23.1	44.6	360.2	1 420.1	1 059.8	2 487.1	54.5	357.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	31.9	630.2	23.9	46.8	371.5	1 485.6	1 084.7	2 547.3	54.0	384.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.1	576.2	22.8	44.1	353.8	1 327.0	920.7	2 242.3	51.1	310.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	28.3	561.4	21.0	41.0	336.9	1 238.8	815.3	2 054.7	34.7	292.6	(NA)	(NA)
1987 Census	1 569	1 597	352	29.3	549.7	21.6	41.9	332.3	1 171.4	791.1	1 959.7	38.2	266.7	93	90
1986 ASM	(NA)	(NA)	(NA)	23.9	449.1	17.1	34.0	273.2	994.0	719.8	1 713.7	32.8	250.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.8	465.0	18.2	36.4	281.2	966.2	760.9	1 724.7	42.0	262.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.1	415.9	17.0	34.8	251.0	866.4	737.0	1 599.8	49.6	245.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	21.6	374.4	15.9	32.5	230.6	785.9	691.6	1 457.9	17.8	246.8	(NA)	(NA)
1982 Census	819	832	221	20.1	327.4	14.9	29.4	204.8	682.0	595.8	1 275.7	30.0	199.6	90	82
1981 ASM	(NA)	(NA)	(NA)	15.6	242.2	12.1	24.7	155.9	515.9	461.6	973.4	24.8	161.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.2	255.6	14.2	28.0	163.4	538.0	450.7	992.8	20.7	166.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.5	235.4	14.4	30.5	157.5	474.8	422.2	868.9	20.7	170.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.1	239.3	15.4	31.0	155.8	478.4	390.2	859.4	16.6	151.0	(NA)	(NA)
1977 Census	528	541	195	18.1	201.4	13.7	27.0	131.0	401.9	310.1	705.2	12.0	120.1	87	82

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2521, WOOD OFFICE FURNITURE									
1992 Census	22 611	79	2 076	9.11	43	70	47 051	48	28.67
1991 ASM	21 929	76	2 006	9.24	41	70	43 840	50	28.93
1990 ASM	20 298	78	1 995	8.67	44	73	39 035	52	24.96
1989 ASM	19 410	78	2 016	8.14	44	72	38 287	51	24.22
1988 ASM	18 107	80	1 919	7.85	41	70	37 773	48	24.65
1987 Census	18 135	79	1 984	7.83	40	67	40 703	45	26.07
1986 ASM	17 185	80	1 914	7.62	40	68	36 847	47	24.11
1985 ASM	17 321	78	2 000	7.30	37	64	39 781	44	25.48
1984 ASM	16 395	79	1 995	6.97	40	67	36 669	45	23.26
1983 ASM	15 577	80	1 964	6.51	41	68	34 260	45	21.86
1982 Census	14 100	79	1 928	6.06	39	66	31 381	45	20.59
1981 ASM	13 663	77	1 993	5.72	40	65	33 409	41	21.71
1980 ASM	12 975	76	1 787	5.57	43	69	29 660	44	21.74
1979 ASM	12 398	78	2 006	4.92	43	68	29 821	42	19.15
1978 ASM	11 417	78	1 942	4.86	42	70	24 297	47	15.98
1977 Census	10 313	80	1 992	4.32	39	66	23 831	43	14.95

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD									
1992 Census	30 061	72	2 194	11.78	41	64	79 391	38	50.47
1991 ASM	29 080	71	2 039	11.82	43	66	72 062	40	50.03
1990 ASM	28 368	72	2 054	11.99	40	62	77 488	37	52.75
1989 ASM	28 091	72	2 020	12.11	40	62	75 202	37	51.55
1988 ASM	26 657	73	1 986	11.81	39	62	70 968	38	49.02
1987 Census	24 696	72	1 944	11.16	36	59	70 008	35	49.99
1986 ASM	24 542	70	1 981	11.14	39	62	65 769	37	47.12
1985 ASM	23 231	71	1 978	10.66	41	64	60 267	39	42.73
1984 ASM	23 047	73	2 020	10.02	39	62	61 569	37	41.88
1983 ASM	20 882	73	1 894	9.65	39	64	53 028	39	38.54
1982 Census	19 968	72	1 949	9.10	40	65	48 093	42	34.17
1981 ASM	18 622	74	1 981	8.55	41	66	43 424	43	29.49
1980 ASM	16 642	74	1 980	7.88	41	65	40 539	41	27.70
1979 ASM	15 604	79	2 017	7.11	42	68	35 564	44	22.45
1978 ASM	14 061	78	1 992	6.44	42	69	30 906	45	19.80
1977 Census	13 021	77	1 955	6.09	40	67	29 476	44	19.61
INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE									
1992 Census	23 457	74	2 079	9.32	61	78	55 609	42	36.11
1991 ASM	21 575	76	2 045	8.73	61	79	48 614	44	31.09
1990 ASM	20 919	77	2 119	8.31	64	81	44 119	47	26.93
1989 ASM	19 809	76	2 000	8.17	62	80	42 298	47	27.98
1988 ASM	19 464	76	1 944	8.20	61	78	44 145	44	29.81
1987 Census	18 202	76	1 988	7.85	57	76	41 335	44	27.31
1986 ASM	17 454	76	1 897	7.80	50	74	36 144	48	25.08
1985 ASM	17 448	75	1 962	7.50	49	75	34 349	51	23.49
1984 ASM	16 913	74	1 981	7.16	49	75	33 039	51	22.42
1983 ASM	16 691	73	1 921	7.07	49	76	31 906	52	22.65
1982 Census	15 686	73	1 899	6.71	47	74	30 787	51	22.09
1981 ASM	14 091	72	1 940	6.09	51	77	27 861	51	19.91
1980 ASM	12 606	72	1 847	5.66	50	75	25 583	49	19.23
1979 ASM	11 448	74	1 854	5.14	50	75	23 470	49	17.03
1978 ASM	11 460	74	1 980	4.71	52	79	20 634	56	14.13
1977 Census	10 715	75	1 947	4.55	48	76	20 745	52	14.21
INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES									
1992 Census	24 119	72	2 053	9.97	44	74	44 350	54	29.87
1991 ASM	23 448	75	1 944	10.06	44	74	42 535	55	29.31
1990 ASM	23 753	74	1 983	10.14	43	73	44 601	53	30.47
1989 ASM	22 742	75	1 947	9.97	45	76	41 404	55	28.38
1988 ASM	22 787	74	2 087	9.70	44	76	40 293	57	25.94
1987 Census	21 212	75	2 010	9.31	43	74	39 640	54	26.43
1986 ASM	21 206	77	1 973	9.40	42	73	39 685	53	26.00
1985 ASM	19 747	77	1 934	9.15	43	73	37 242	53	25.11
1984 ASM	19 654	76	1 914	9.22	44	74	37 257	53	25.52
1983 ASM	17 806	77	1 806	8.81	41	71	34 930	51	25.18
1982 Census	17 129	77	1 930	8.09	42	73	32 085	53	21.69
1981 ASM	14 742	82	1 867	6.71	45	77	26 175	56	17.17
1980 ASM	13 811	81	1 839	6.37	45	76	24 823	56	16.58
1979 ASM	13 028	81	1 902	5.87	46	78	22 782	57	14.83
1978 ASM	12 782	78	1 935	5.88	45	76	23 294	55	15.46
1977 Census	12 003	78	1 970	5.32	45	77	21 136	57	13.72
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD									
1992 Census	24 822	75	2 100	9.82	45	70	54 299	46	34.61
1991 ASM	25 152	71	2 178	9.89	46	71	54 300	46	35.29
1990 ASM	23 028	72	2 043	9.46	47	71	49 871	46	33.77
1989 ASM	21 801	73	1 975	9.36	47	72	47 226	46	32.86
1988 ASM	21 572	73	2 025	9.08	45	70	48 006	45	32.26
1987 Census	20 627	73	2 000	8.76	45	71	44 848	46	30.54
1986 ASM	19 787	74	1 987	8.56	46	71	42 417	47	28.93
1985 ASM	19 040	75	1 897	8.46	47	72	40 508	47	28.51
1984 ASM	18 326	77	1 865	8.18	47	72	39 485	46	27.67
1983 ASM	17 770	74	1 925	7.61	46	71	37 993	47	26.60
1982 Census	17 214	73	1 898	7.57	45	70	37 946	45	27.31
1981 ASM	16 534	76	1 980	6.92	45	69	37 432	44	25.02
1980 ASM	15 079	74	2 000	6.49	47	71	32 914	46	22.15
1979 ASM	13 803	77	2 005	5.96	48	72	31 045	44	20.23
1978 ASM	12 213	76	1 899	5.55	48	72	26 822	46	18.68
1977 Census	11 507	76	1 901	5.26	48	73	24 632	47	17.03
INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES									
1992 Census	20 387	67	2 023	8.38	49	70	49 479	41	36.50
1991 ASM	19 746	71	2 025	8.27	45	65	53 642	37	37.57
1990 ASM	18 979	72	1 942	8.42	47	66	52 900	36	37.79
1989 ASM	18 162	78	1 994	7.78	49	68	49 707	37	32.06
1988 ASM	17 065	78	1 974	7.42	49	68	46 455	37	30.17
1987 Census	16 617	77	1 962	7.16	50	69	43 631	38	28.81
1986 ASM	16 275	75	1 956	7.04	52	71	41 126	40	27.93
1985 ASM	16 027	77	1 923	6.95	52	72	37 625	43	25.36
1984 ASM	15 525	76	1 941	6.65	52	72	37 333	42	25.22
1983 ASM	15 327	74	1 928	6.77	49	68	42 405	36	29.56
1982 Census	14 248	75	1 880	6.67	50	70	35 452	40	25.30
1981 ASM	13 487	71	1 946	5.89	53	73	34 272	39	24.84
1980 ASM	12 701	70	1 918	5.64	52	73	29 185	44	21.72
1979 ASM	12 013	75	1 904	5.28	51	72	28 654	42	20.20
1978 ASM	11 208	76	1 932	5.19	49	69	28 039	40	19.11
1977 Census	10 706	76	1 942	4.96	49	71	25 368	42	17.25

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.								
1992 Census	23 893	72	2 055	8.87	41	67	55 190	43	37.53
1991 ASM	20 335	75	1 931	8.08	43	68	45 810	44	31.84
1990 ASM	19 755	75	1 958	7.94	43	67	46 571	42	31.74
1989 ASM	19 143	76	1 934	8.02	41	67	44 086	43	30.09
1988 ASM	19 837	74	1 952	8.22	40	67	43 774	45	30.21
1987 Census	18 761	74	1 940	7.93	40	68	39 980	47	27.96
1986 ASM	18 791	72	1 988	8.04	42	68	41 590	45	29.24
1985 ASM	18 750	73	2 000	7.73	44	71	38 960	48	26.54
1984 ASM	18 004	74	2 047	7.21	46	72	37 506	48	24.90
1983 ASM	17 333	74	2 044	7.10	47	73	36 384	48	24.18
1982 Census	16 289	74	1 973	6.97	47	72	33 930	48	23.20
1981 ASM	15 526	78	2 041	6.31	47	72	33 071	47	20.89
1980 ASM	14 044	78	1 972	5.84	45	71	29 560	48	19.21
1979 ASM	12 724	78	2 118	5.16	49	76	25 665	50	15.57
1978 ASM	11 905	77	2 013	5.03	45	73	23 801	50	15.43
1977 Census	11 127	76	1 971	4.85	44	73	22 204	50	14.89

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2521, WOOD OFFICE FURNITURE														
United States	**E1**	**635**	**192**	**23.4**	**529.1**	**18.5**	**38.4**	**349.9**	**1 101.0**	**853.8**	**1 964.6**	**37.4**	**31.0**	**1 261.8**
Alabama	–	10	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	14	2	.3	4.8	.3	.6	4.2	6.0	13.7	19.5	(D)	(NA)	(D)
Arkansas	E6	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
California	E1	115	35	2.7	54.5	2.1	4.4	33.8	132.9	115.7	250.2	3.8	4.7	170.2
Connecticut	–	6	4	.3	7.4	.2	.4	3.4	16.5	9.5	26.4	.3	E	(D)
Florida	E2	31	1	.3	5.7	.2	.4	3.4	8.3	6.8	14.9	.1	.6	17.6
Georgia	–	13	3	.5	10.9	.4	.7	6.7	24.7	10.8	36.0	(D)	G	(D)
Illinois	–	28	9	1.0	36.8	.7	1.5	20.0	62.7	41.1	103.2	.2	E	(D)
Indiana	E1	31	19	4.2	89.1	3.6	7.2	67.5	199.3	167.9	367.7	8.2	(NA)	(D)
Iowa	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E1	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	26	12	1.5	41.2	1.1	2.4	28.1	86.2	56.4	145.2	3.3	2.2	75.1
Minnesota	–	17	5	.3	7.0	.2	.5	4.4	15.7	11.0	26.9	(D)	F	(D)
New Jersey	E7	19	5	.5	12.5	.4	.7	8.5	44.2	15.8	60.2	(D)	F	(D)
New York	E2	60	16	1.8	49.0	1.3	3.4	31.3	84.8	56.5	142.2	1.9	2.4	107.9
North Carolina	E2	32	19	4.2	80.4	3.4	6.4	49.6	153.3	128.7	283.7	5.6	6.6	275.9
Ohio	–	9	3	.2	5.2	.2	.4	2.8	11.5	8.9	20.4	.3	E	(D)
Oregon	E1	12	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	18	8	.8	18.3	.5	1.2	11.3	30.8	30.6	62.9	.5	.9	42.9
Tennessee	E4	9	3	.3	6.8	.2	.5	4.5	9.9	9.7	19.6	.3	(NA)	(NA)
Texas	E2	31	6	.4	7.3	.3	.6	4.9	14.9	11.3	26.2	.2	F	(D)
Washington	E2	25	10	.7	16.3	.6	1.2	11.6	36.5	24.9	60.9	(D)	F	(D)
Wisconsin	E6	15	4	.4	9.4	.3	.6	6.0	19.7	17.2	39.9	.7	.5	21.7

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD														
United States	–	**386**	**222**	**44.5**	**1 337.7**	**31.9**	**70.0**	**824.3**	**3 533.0**	**2 505.6**	**6 043.1**	**164.1**	**49.7**	**3 479.4**
Alabama	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	4	2	.1	3.7	.1	.2	1.7	5.4	3.1	8.6	(D)	(NA)	(NA)
Arkansas	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	F	(D)
California	–	77	38	4.9	130.6	3.5	7.3	83.2	331.3	200.5	531.1	8.4	5.3	411.4
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E3	25	10	.7	14.3	.5	1.2	9.0	27.3	22.0	49.3	1.5	.4	13.5
Georgia	–	9	7	1.2	28.8	1.0	2.4	24.7	106.2	113.6	220.4	(D)	F	(D)
Illinois	E4	9	8	1.5	44.6	1.1	2.3	29.1	89.2	60.1	150.5	4.6	G	(D)
Indiana	E1	9	7	.8	18.4	.6	1.3	11.9	36.4	22.5	58.7	.5	F	(D)
Iowa	–	7	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	E1	5	1	.1	3.1	.1	.2	2.0	7.7	4.7	12.5	(D)	E	(D)
Kentucky	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	31	25	16.1	615.5	10.5	24.1	349.6	1 636.3	1 051.5	2 693.2	103.1	16.2	1 408.8
Minnesota	–	7	5	.5	13.0	.4	.6	8.3	31.5	17.2	49.1	(D)	E	(D)
Mississippi	E3	5	4	.7	12.6	.6	1.3	10.5	55.9	38.0	93.5	(D)	E	(D)
Missouri	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E2	11	4	.4	7.9	.3	.6	5.4	17.2	14.1	29.9	(D)	G	(D)
New York	E3	33	15	1.1	24.3	.8	1.7	14.1	54.3	33.8	87.9	1.3	2.3	92.5
North Carolina	–	22	16	2.1	40.4	1.6	3.4	25.9	97.2	84.9	181.4	5.4	G	(D)
Ohio	–	12	8	1.3	37.1	.8	1.6	19.0	93.3	55.8	150.8	2.7	G	(D)
Pennsylvania	E2	17	12	2.9	85.4	2.0	4.1	52.3	172.2	177.5	349.4	5.1	4.2	214.0
South Carolina	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E2	12	10	2.1	45.0	1.6	3.4	27.9	123.3	145.6	266.8	2.7	G	(D)
Texas	–	17	8	1.6	35.7	1.2	2.9	22.9	85.8	78.5	165.4	2.6	G	(D)
Virginia	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	8	3	.3	6.9	.2	.4	3.4	12.9	8.4	21.3	(D)	E	(D)
Wisconsin	–	11	6	1.1	27.6	.8	1.8	17.2	92.7	70.6	162.5	4.1	1.3	85.6
INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE														
United States	–	**516**	**223**	**28.9**	**677.9**	**21.4**	**44.5**	**414.6**	**1 607.1**	**2 529.4**	**4 135.2**	**69.0**	**21.8**	**901.1**
Alabama	–	15	7	.7	15.9	.6	1.2	9.2	34.1	38.3	73.1	.7	.5	18.3
Arizona	–	7	4	.3	8.1	.1	.3	2.7	10.4	8.7	19.2	(D)	.2	10.1
Arkansas	–	16	7	2.2	47.9	1.3	2.3	29.7	115.4	107.6	223.9	(D)	1.9	95.0
California	E1	53	20	2.2	45.2	1.5	3.2	27.4	116.8	140.3	256.5	1.7	2.7	91.3
Colorado	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	11.1
Connecticut	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E3	23	1	.2	3.9	.1	.3	2.3	12.3	9.3	20.5	.1	.4	18.8
Georgia	–	10	3	.2	3.8	.2	.4	2.8	8.0	11.3	19.7	(D)	.2	4.5
Illinois	–	21	7	.9	20.8	.6	1.3	13.1	38.4	135.4	174.5	1.3	F	(D)
Indiana	–	41	25	2.7	56.8	2.2	4.4	37.7	112.4	158.0	270.4	(D)	2.1	55.9
Iowa	–	7	4	.3	6.8	.2	.4	4.9	15.7	18.8	34.7	(D)	E	(D)
Kansas	–	6	2	.1	2.1	.1	.1	1.0	4.5	3.5	8.1	(Z)	(NA)	(D)
Kentucky	–	7	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	E9	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	12	4	.4	8.1	.3	.6	4.9	19.4	18.0	37.3	.5	E	(D)
Michigan	–	35	21	3.3	85.9	2.3	4.4	51.6	254.3	532.1	785.4	5.7	2.1	116.6
Minnesota	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E5	8	3	.1	3.9	.1	.2	2.1	7.1	7.7	14.6	.3	E	(D)
New York	–	14	3	.2	5.4	.2	.3	3.5	17.4	30.5	45.6	(D)	(NA)	(D)
North Carolina	–	22	9	1.2	31.4	.9	2.4	19.8	56.4	53.1	108.3	2.8	F	(D)
Ohio	E1	24	10	1.0	20.6	.8	1.9	14.5	91.7	119.3	212.6	(D)	.8	27.0
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	17	7	.8	16.7	.6	1.2	9.4	18.6	34.4	53.3	1.1	.8	22.7
Tennessee	E1	20	12	1.8	35.2	1.5	3.0	23.1	83.4	215.2	297.3	(D)	.8	40.8
Texas	–	43	19	3.0	68.3	2.3	4.6	37.0	132.6	136.0	269.1	4.8	1.6	49.5
Utah	–	5	2	.1	2.5	.1	.2	1.4	6.6	5.4	11.9	(D)	(NA)	(NA)
Virginia	–	8	5	.3	4.5	.3	.5	3.7	7.0	5.5	12.7	.3	E	(D)
Washington	–	13	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	9.8
Wisconsin	E1	20	12	2.2	56.2	1.5	3.2	32.3	124.5	161.0	285.4	5.0	.7	26.9

See footnotes at end of table.

TIPS [UPF] BATCH_1992 [EISS,BA_TAYLOR] EISS 3/16/95 9:44 AM MACHINE: EPCV22 DATA:NONE TAPE: NOreel FRAME: 5
TSF:25B_92.DAT;2 3/16/95 09:43:03 UTF:25B_93.DAT;3 3/16/95 09:43:03 META:TIPS96-09425842.DAT;1 3/16/95 09:44:00

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES														
United States	**E1**	**1 936**	**523**	**39.4**	**950.3**	**28.5**	**58.5**	**583.0**	**1 747.4**	**1 369.6**	**3 132.7**	**48.5**	**40.6**	**1 609.4**
Alabama	–	19	4	.3	4.6	.2	.4	3.2	10.0	10.3	20.1	.2	.4	16.0
Arizona	E1	35	3	.3	6.6	.2	.4	4.0	18.3	7.6	26.9	(D)	E	(D)
Arkansas	–	13	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	271	71	4.5	115.8	3.2	6.9	70.6	208.7	178.6	400.8	5.3	6.1	251.7
Colorado	–	36	9	.6	15.1	.5	1.0	10.0	24.3	14.3	38.7	.8	.7	22.5
Connecticut	–	24	4	.3	8.8	.2	.4	5.2	20.4	8.5	28.9	.1	E	(D)
Florida	E1	99	18	1.1	24.4	.9	1.8	15.8	45.1	32.2	76.5	1.0	1.4	42.8
Georgia	–	53	14	1.0	23.9	.8	1.6	14.7	50.5	43.7	94.7	1.0	G	(D)
Illinois	E1	114	26	2.2	61.8	1.6	3.3	40.9	106.2	109.9	215.7	2.7	G	(D)
Indiana	–	48	18	1.1	27.2	.8	2.0	17.6	41.7	52.8	94.8	1.6	F	(D)
Iowa	–	16	4	.2	4.9	.2	.3	3.2	9.2	5.9	15.0	.1	(NA)	(NA)
Kansas	–	11	5	.2	4.6	.2	.3	2.9	7.5	8.0	15.6	.3	(NA)	(D)
Kentucky	E3	15	7	.4	8.7	.3	.6	5.5	15.0	10.5	25.6	.7	E	(D)
Maine	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E4	45	9	.6	19.5	.5	1.0	13.4	34.9	15.1	50.1	(D)	.5	21.0
Massachusetts	E1	42	11	.7	18.9	.5	1.0	11.6	37.1	20.9	57.8	.7	F	(D)
Michigan	E1	73	19	2.0	40.9	1.3	2.4	23.1	78.7	53.8	129.9	2.2	1.2	58.7
Minnesota	–	52	17	1.1	33.1	.8	1.6	19.1	68.6	40.9	110.4	2.1	G	(D)
Mississippi	–	8	2	.2	3.3	.1	.3	2.2	4.6	11.1	15.7	(D)	(NA)	(NA)
Missouri	E1	42	14	.7	15.8	.5	1.0	9.7	25.3	19.6	44.3	.6	.6	25.5
Nebraska	–	12	3	.5	12.8	.4	.8	7.8	18.6	10.4	29.1	(D)	E	(D)
Nevada	E1	16	2	.1	3.5	.1	.2	2.3	6.0	3.2	9.3	(D)	(NA)	(NA)
New Hampshire	E2	12	5	.2	5.4	.1	.3	3.1	10.6	7.4	18.0	.2	E	(D)
New Jersey	–	76	20	1.2	34.8	.9	1.8	20.7	63.9	40.3	104.0	1.5	1.4	62.2
New York	E1	147	41	3.1	76.4	2.1	4.1	44.9	150.9	89.8	240.3	3.3	4.0	175.6
North Carolina	–	46	18	1.6	36.3	1.1	2.1	19.8	65.1	65.6	131.6	1.7	G	(D)
Ohio	–	106	32	2.2	55.9	1.5	3.0	31.7	102.3	103.6	205.8	2.7	2.1	78.8
Oklahoma	E1	20	5	1.0	18.9	.9	2.1	15.6	29.6	29.1	58.8	.4	F	(D)
Oregon	E3	33	8	.7	16.7	.5	1.0	8.6	30.3	21.5	52.6	.5	E	(D)
Pennsylvania	E1	90	25	2.0	45.8	1.4	2.7	27.4	84.7	61.7	146.5	2.3	2.7	122.8
Rhode Island	E2	15	7	.4	9.6	.3	.5	5.0	20.8	12.4	32.6	.5	E	(D)
South Carolina	–	11	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	14.8
Tennessee	E2	32	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Texas	E1	86	28	2.2	48.4	1.7	3.3	29.8	90.1	65.4	154.9	2.5	2.0	62.8
Utah	–	26	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	7	3	.2	3.9	.1	.2	2.8	10.6	4.9	15.2	.1	(NA)	(NA)
Virginia	–	30	8	.6	13.9	.4	1.0	9.1	25.2	16.9	42.0	.5	F	(D)
Washington	E1	49	8	.7	17.1	.5	1.0	10.3	30.7	20.0	50.5	(D)	.7	25.6
Wisconsin	E1	60	23	1.7	40.3	1.3	2.5	25.4	78.0	57.0	134.0	3.6	1.6	46.9
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD														
United States	**–**	**786**	**332**	**34.8**	**863.8**	**26.0**	**54.6**	**536.2**	**1 889.6**	**1 562.4**	**3 445.9**	**66.3**	**33.5**	**1 502.4**
Alabama	–	9	5	1.2	24.6	.9	2.3	17.3	88.5	75.9	163.7	3.6	1.2	55.3
Arizona	E1	8	3	.1	2.9	.1	.2	1.9	5.4	5.2	10.5	(D)	(NA)	(NA)
Arkansas	–	7	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	118	40	2.7	75.3	1.9	4.2	43.3	140.5	121.7	260.6	4.9	2.9	132.1
Colorado	–	10	6	.3	9.1	.3	.6	5.4	19.3	12.5	31.9	1.2	(NA)	(NA)
Connecticut	E2	9	3	.2	4.1	.2	.3	2.7	9.1	7.2	16.3	.2	(NA)	(D)
Florida	–	32	10	1.0	21.3	.7	1.6	12.8	42.6	34.8	77.4	.8	1.0	37.2
Georgia	E1	29	13	1.1	25.7	.8	2.0	15.8	53.8	47.8	101.4	2.2	G	(D)
Illinois	–	60	25	3.7	98.3	2.8	5.6	60.1	253.7	212.5	472.1	6.0	4.6	240.9
Indiana	–	21	13	2.1	51.1	1.7	3.5	36.7	113.8	93.6	209.1	7.7	G	(D)
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	9	5	.6	12.6	.4	.9	7.2	25.9	15.3	40.8	.5	(NA)	(D)
Kentucky	E1	11	5	.5	8.8	.4	.9	6.5	18.4	19.3	38.1	1.9	(NA)	(NA)
Maryland	–	5	3	.1	4.3	.1	.2	2.3	7.5	5.2	12.8	(D)	.2	5.4
Massachusetts	E1	12	7	.5	13.4	.3	.7	8.2	22.7	20.6	42.8	1.4	F	(D)
Michigan	–	43	24	1.8	41.2	1.3	2.6	24.7	82.5	94.0	175.9	2.6	1.7	86.2
Minnesota	–	18	9	1.6	43.9	1.3	2.2	32.1	95.2	61.2	156.2	2.2	G	(D)
Mississippi	E2	4	4	.5	9.5	.4	.8	6.1	33.1	30.3	63.7	(D)	E	(D)
Missouri	E1	27	12	1.2	27.4	.9	1.9	16.0	65.2	42.3	108.2	1.6	1.0	45.7
Nebraska	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	34	16	1.6	43.6	1.1	2.5	25.1	83.8	87.1	174.3	3.5	2.0	87.0
New York	E1	82	32	2.7	65.6	1.9	4.2	38.5	119.5	96.5	215.6	4.1	3.1	121.6
North Carolina	–	15	5	.4	6.9	.3	.6	4.8	14.6	8.5	22.8	.4	(NA)	(NA)
Ohio	E1	50	24	2.3	55.3	1.7	3.5	35.2	94.6	91.1	184.0	2.5	2.0	85.3
Oklahoma	E1	6	1	.1	2.3	.1	.1	1.3	5.2	3.0	8.2	(Z)	(NA)	(NA)
Oregon	E1	9	2	.1	2.6	.1	.2	1.6	6.0	4.6	10.6	.2	(NA)	(NA)
Pennsylvania	E1	40	15	1.8	57.2	1.3	2.6	33.1	102.9	89.4	190.9	4.1	2.7	139.2
Rhode Island	E4	7	3	.1	2.2	.1	.2	1.2	5.1	3.3	8.3	(Z)	(NA)	(D)
South Carolina	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	31	15	1.4	39.2	1.1	2.3	19.9	68.6	49.2	117.3	3.6	.9	24.6
Utah	E3	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E2	9	4	.3	4.9	.2	.4	3.1	8.9	8.4	17.1	.2	(NA)	(NA)
Washington	E1	14	3	.2	5.1	.1	.2	2.7	11.1	7.1	18.0	(D)	(NA)	(NA)
Wisconsin	–	19	10	.8	21.9	.6	1.3	13.0	43.7	27.8	70.9	1.8	.4	19.2

See footnotes at end of table.

TIPS [UPF] BATCH_1992 [EISS,BA_TAYLOR] EISS 3/16/95 9:44 AM MACHINE: EPCV22 DATA:NONE TAPE: NOreel FRAME: 6
TSF:25B_92.DAT;2 3/16/95 09:43:03 UTF:25B_93.DAT;3 3/16/95 09:43:03 META:TIPS96-09425842.DAT;1 3/16/95 09:44:00

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES														
United States	**E2**	**556**	**157**	**19.4**	**395.5**	**13.0**	**26.3**	**220.4**	**959.9**	**941.2**	**1 915.6**	**27.6**	**20.6**	**898.8**
Arizona	E1	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Arkansas	E9	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	88	28	4.4	97.1	2.5	5.3	44.7	235.9	174.5	418.1	3.4	4.0	144.2
Connecticut	–	8	2	.2	7.5	.2	.4	4.0	16.6	11.3	27.4	(D)	E	(D)
Florida	E1	98	21	1.5	23.9	.9	1.8	11.8	45.4	59.1	105.6	1.8	1.3	53.3
Georgia	E6	11	4	.6	10.1	.5	1.0	7.9	41.4	32.8	74.0	.7	F	(D)
Illinois	E2	28	8	1.3	28.9	.9	1.9	17.4	102.3	61.0	165.5	1.3	1.6	89.5
Indiana	E1	14	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	E9	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E6	10	2	.3	4.1	.2	.3	2.1	9.6	9.4	19.0	(D)	.2	5.6
Michigan	–	15	6	1.1	21.4	.7	1.3	14.7	79.6	68.9	147.0	(D)	F	(D)
Minnesota	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E4	26	7	.7	14.2	.4	1.0	7.2	34.1	28.2	63.8	.5	1.6	57.1
New York	E3	51	10	.8	13.9	.6	1.1	8.5	28.6	34.3	62.5	1.0	G	(D)
North Carolina	E1	9	2	.2	2.8	.1	.2	1.7	6.7	7.0	13.8	(D)	(NA)	(NA)
Oregon	E9	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	35	11	1.5	30.3	1.0	2.0	15.5	40.5	75.0	117.8	1.1	1.5	42.1
Rhode Island	E9	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Texas	E1	34	15	1.5	24.9	1.1	2.3	15.1	94.9	66.8	162.5	1.6	G	(D)
Utah	E1	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	7	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.														
United States	**E1**	**1 409**	**288**	**25.3**	**604.5**	**18.1**	**37.2**	**330.1**	**1 396.3**	**966.8**	**2 359.0**	**47.6**	**29.3**	**1 171.4**
Alabama	E1	26	5	.4	5.9	.3	.6	4.1	12.2	7.9	20.1	(D)	.6	14.2
Arizona	E1	20	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	E5	16	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E2	204	44	3.3	73.9	2.4	5.1	42.3	159.1	117.7	276.1	4.5	4.2	149.8
Colorado	–	24	5	.4	11.0	.3	.7	6.1	22.7	15.6	38.0	(D)	.4	15.4
Florida	E2	124	14	1.5	28.9	1.0	2.1	14.8	56.9	58.6	114.9	1.8	2.2	56.3
Georgia	E1	41	7	.6	13.2	.5	.9	7.8	26.4	16.9	43.2	(D)	F	(D)
Illinois	E1	58	15	1.1	29.1	.9	1.9	16.2	48.4	40.3	87.8	1.0	G	(D)
Indiana	–	29	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	18	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	12	3	.2	3.9	.1	.3	2.6	15.7	10.2	25.6	(D)	.3	13.4
Massachusetts	–	23	4	.4	10.9	.3	.7	6.0	19.0	14.9	33.8	.9	F	(D)
Michigan	E1	59	15	1.1	27.0	.8	1.7	16.5	52.6	43.7	95.8	(D)	G	(D)
Minnesota	–	28	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	E3	46	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	34	18	1.7	42.2	1.2	2.5	24.7	101.9	77.6	182.3	(D)	G	(D)
New Jersey	E1	36	9	.5	13.0	.3	.7	8.5	28.3	18.0	46.2	1.8	F	(D)
New York	E2	103	11	1.0	21.4	.8	1.5	13.8	40.8	21.9	62.7	(D)	1.8	77.5
North Carolina	E1	67	13	1.0	19.2	.8	1.6	12.0	37.1	40.8	77.7	(D)	F	(D)
Ohio	–	35	8	.5	12.2	.4	.7	7.1	25.0	16.9	41.9	.8	1.1	55.9
Oklahoma	E2	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	27	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	51	10	.6	15.9	.5	.9	8.5	32.8	28.9	61.4	1.6	.8	39.1
South Carolina	E2	16	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	25	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	G	(D)
Texas	E3	73	13	.8	17.3	.7	1.4	11.5	36.5	30.1	66.6	1.8	F	(D)
Utah	E8	12	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	E1	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	18	5	.4	8.8	.3	.6	5.9	17.1	11.5	28.3	.7	.4	13.0
Washington	E2	43	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	16.9
Wisconsin	E2	24	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood office furniture (SIC 2521)	Office furniture, except wood (SIC 2522)	Public building and related furniture (SIC 2531)	Wood partitions and fixtures (SIC 2541)	Partitions and fixtures, except wood (SIC 2542)	Drapery hardware and blinds and shades (SIC 2591)	Furniture and fixtures, n.e.c. (SIC 2599)
Companies ---- number	611	327	473	1 905	743	502	1 386
All establishments ---- number	635	386	516	1 936	786	556	1 409
With 1 to 19 employees ---- number	443	164	293	1 413	454	399	1 121
With 20 to 99 employees ---- number	136	123	142	466	249	114	240
With 100 employees or more ---- number	56	99	81	57	83	43	48
Employment and labor costs:							
Employees ---- 1,000	23.4	44.5	28.9	39.4	34.8	19.4	25.3
Compensation, total ---- mil dol	652.0	1 741.5	852.5	1 173.1	1 083.7	502.9	726.6
Annual payroll ---- mil dol	529.1	1 337.7	677.9	950.3	863.8	395.5	604.5
Fringe benefits ---- mil dol	122.8	403.8	174.7	222.8	219.9	107.4	122.2
Social Security and other legally required payments ---- mil dol	53.1	159.9	88.3	108.4	99.6	46.7	52.5
Employer voluntary payments ---- mil dol	69.8	243.8	86.3	114.4	120.3	60.7	69.7
Production workers:							
Average for year ---- 1,000	18.5	31.9	21.4	28.5	26.0	13.0	18.1
March ---- 1,000	18.6	31.4	20.5	28.1	25.4	12.8	18.2
May ---- 1,000	18.5	31.6	21.3	28.6	26.1	13.1	18.2
August ---- 1,000	18.7	32.5	21.9	29.2	26.8	13.3	18.2
November ---- 1,000	18.5	32.1	21.9	28.1	25.9	12.8	17.9
Hours ---- millions	38.4	70.0	44.5	58.5	54.6	26.3	37.2
Wages ---- mil dol	349.9	824.3	414.6	583.0	536.2	220.4	330.1
Cost of materials[1] ---- mil dol	853.8	2 505.6	2 529.4	1 369.6	1 562.4	941.2	966.8
Materials, parts, containers, etc., consumed[2] ---- mil dol	753.2	2 267.4	2 393.7	1 141.0	1 334.7	818.2	785.9
Resales ---- mil dol	47.3	145.4	83.1	96.8	104.8	102.0	127.0
Fuels ---- mil dol	8.8	22.7	7.7	10.6	18.7	3.1	7.6
Purchased electricity ---- mil dol	25.0	48.0	20.2	24.9	31.3	10.7	16.5
Contract work ---- mil dol	19.6	22.1	24.6	96.4	72.8	7.1	29.7
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	381.6	765.2	333.9	378.3	468.5	159.2	242.4
Generated less sold ---- mil kWh	–	(D)	(D)	(D)	(D)	(Z)	–
Total value of shipments ---- mil dol	1 964.6	6 043.1	4 135.2	3 132.7	3 445.9	1 915.6	2 359.0
Value added ---- mil dol	1 101.0	3 533.0	1 607.1	1 747.4	1 889.6	959.9	1 396.3
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	305.8	579.8	314.1	381.4	475.3	311.7	291.5
Finished goods ---- mil dol	80.4	118.9	67.3	133.3	194.6	122.4	74.8
Work in process ---- mil dol	80.9	128.3	71.0	109.3	108.9	32.8	63.2
Materials and supplies ---- mil dol	144.5	332.6	175.8	138.8	171.7	156.5	153.4
End of 1992 ---- mil dol	302.8	572.8	327.5	372.1	474.5	306.2	295.1
Finished goods ---- mil dol	71.4	120.2	66.3	122.3	196.7	105.4	74.6
Work in process ---- mil dol	80.0	122.5	73.3	104.7	112.9	35.2	67.5
Materials and supplies ---- mil dol	151.3	330.1	187.9	145.0	164.9	165.6	153.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood office furniture (SIC 2521)	Office furniture, except wood (SIC 2522)	Public building and related furniture (SIC 2531)	Wood partitions and fixtures (SIC 2541)	Partitions and fixtures, except wood (SIC 2542)	Drapery hardware and blinds and shades (SIC 2591)	Furniture and fixtures, n.e.c. (SIC 2599)
Gross book value of depreciable assets:							
Total:							
Beginning of year	602.5	2 421.3	617.4	622.3	795.5	322.4	464.8
New capital expenditures[1]	37.4	164.1	69.0	48.5	66.3	27.6	47.6
Used capital expenditures	1.8	4.3	9.3	4.9	7.9	3.4	5.6
Retirements	8.7	53.4	16.2	13.6	11.8	6.6	12.7
End of year	633.0	2 536.3	679.6	662.2	858.0	346.8	505.4
Buildings and other structures:							
Beginning of year	239.3	914.2	200.5	196.3	244.8	112.0	153.2
New capital expenditures	7.1	15.0	15.2	12.5	11.5	9.9	8.4
Used capital expenditures	.6	1.4	(D)	1.2	2.0	.6	(D)
Retirements	1.2	42.7	(D)	1.5	.4	.6	(D)
End of year	245.9	887.9	216.3	208.5	258.0	121.9	161.2
Machinery and equipment:							
Beginning of year	363.2	1 507.0	416.9	426.1	550.7	210.4	311.7
New capital expenditures[1]	30.3	149.1	53.8	36.0	54.8	17.7	39.2
Used capital expenditures	1.3	2.9	(D)	3.8	5.9	2.8	(D)
Retirements	7.5	10.7	(D)	12.1	11.4	6.0	(D)
End of year	387.2	1 648.4	463.2	453.7	600.0	224.9	344.2
Depreciation charges during 1992:							
Total	42.1	178.9	47.9	50.0	56.6	26.2	38.5
Buildings and other structures	12.1	43.4	10.7	9.9	9.9	6.2	7.5
Machinery and equipment	30.0	135.5	37.3	40.1	46.6	20.1	31.0
Rental payments:							
Total	29.7	62.9	39.2	73.6	47.9	30.9	38.0
Buildings and other structures	18.2	40.1	24.8	44.1	28.7	23.2	23.3
Machinery and equipment	11.5	22.8	14.4	29.4	19.2	7.7	14.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Wood office furniture (SIC 2521)		Office furniture, except wood (SIC 2522)		Public building and related furniture (SIC 2531)		Wood partitions and fixtures (SIC 2541)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	2.5	(X)	7.4	(X)	3.0	(X)	4.2	(X)
Response coverage ratio (percent)[2]	67.0	(X)	74.6	(X)	57.6	(X)	51.4	(X)
Machinery	6.9	(X)	30.2	(X)	10.4	(X)	12.7	(X)
Response coverage ratio (percent)[2]	67.4	(X)	74.8	(X)	59.2	(X)	54.5	(X)
Other purchased services:								
Communications	5.2	(X)	19.9	(X)	7.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	65.2	(X)	74.1	(X)	57.8	(X)	(S)	(X)
Legal	3.2	(X)	15.1	(X)	4.5	(X)	3.1	(X)
Response coverage ratio (percent)[2]	68.4	(X)	75.5	(X)	56.2	(X)	53.0	(X)
Accounting and bookkeeping	2.4	(X)	2.1	(X)	1.7	(X)	6.3	(X)
Response coverage ratio (percent)[2]	68.2	(X)	69.9	(X)	56.1	(X)	54.1	(X)
Advertising	11.5	(X)	32.8	(X)	9.1	(X)	6.1	(X)
Response coverage ratio (percent)[2]	68.2	(X)	73.0	(X)	57.0	(X)	53.3	(X)
Software and other data processing	2.3	(X)	9.8	(X)	3.1	(X)	3.9	(X)
Response coverage ratio (percent)[2]	66.0	(X)	73.8	(X)	57.0	(X)	52.0	(X)
Refuse removal, including hazardous waste	3.1	(X)	6.1	(X)	2.5	(X)	4.7	(X)
Response coverage ratio (percent)[2]	66.0	(X)	76.1	(X)	59.2	(X)	52.7	(X)
New machinery and equipment expenditures	30.3	(X)	149.1	(X)	53.8	(X)	36.0	(X)
Automobiles, trucks, etc., for highway use	.3	41	3.7	9	1.1	40	(S)	(X)
Computers and peripheral data processing equipment	2.3	6	14.1	6	3.8	18	(S)	(X)
All other	27.7	1	131.4	1	48.8	3	(S)	(X)
Adjustment ratio[3]	1.1	(X)	1.2	(X)	1.1	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	753.2	(X)	2 267.4	(X)	2 393.7	(X)	1 141.0	(X)
Materials purchased or transferred from foreign sources[4]	20.2	15	88.6	16	304.1	5	8.2	31
Materials purchased or transferred from domestic sources	733.0	1	2 178.9	1	2 089.7	1	1 132.7	1
Adjustment ratio[3]	1.6	(X)	1.6	(X)	1.6	(X)	1.6	(X)

Item	Partitions and fixtures, except wood (SIC 2542)		Drapery hardware and blinds and shades (SIC 2591)		Furniture and fixtures, n.e.c. (SIC 2599)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	7.2	(X)	3.7	(X)	3.5	(X)
Response coverage ratio (percent)[2]	85.8	(X)	67.5	(X)	50.5	(X)
Machinery	24.3	(X)	4.5	(X)	7.6	(X)
Response coverage ratio (percent)[2]	90.2	(X)	59.6	(X)	54.1	(X)
Other purchased services:						
Communications	11.2	(X)	8.2	(X)	(S)	(X)
Response coverage ratio (percent)[2]	90.6	(X)	63.1	(X)	(S)	(X)
Legal	7.6	(X)	1.3	(X)	12.5	(X)
Response coverage ratio (percent)[2]	90.9	(X)	59.8	(X)	52.5	(X)
Accounting and bookkeeping	5.2	(X)	1.4	(X)	2.1	(X)
Response coverage ratio (percent)[2]	89.6	(X)	68.0	(X)	50.2	(X)
Advertising	19.1	(X)	27.2	(X)	12.1	(X)
Response coverage ratio (percent)[2]	91.3	(X)	67.4	(X)	53.3	(X)
Software and other data processing	6.5	(X)	1.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	89.4	(X)	67.8	(X)	(S)	(X)
Refuse removal, including hazardous waste	5.8	(X)	1.0	(X)	3.3	(X)
Response coverage ratio (percent)[2]	92.0	(X)	61.7	(X)	50.2	(X)
New machinery and equipment expenditures	54.8	(X)	17.7	(X)	39.2	(X)
Automobiles, trucks, etc., for highway use	3.6	25	.6	27	2.5	21
Computers and peripheral data processing equipment	6.5	19	1.8	15	6.0	17
All other	44.6	4	15.3	3	30.7	5
Adjustment ratio[3]	1.1	(X)	1.9	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 334.7	(X)	818.2	(X)	785.9	(X)
Materials purchased or transferred from foreign sources[4]	36.3	31	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	1 298.4	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.5	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2521, WOOD OFFICE FURNITURE												
Total	**E1**	**635**	**23.4**	**529.1**	**18.5**	**38.4**	**349.9**	**1 101.0**	**853.8**	**1 964.6**	**37.4**	**302.8**
Establishments with an average of—												
1 to 4 employees	E7	219	.4	8.2	.3	.7	5.6	18.8	15.0	33.9	.5	5.0
5 to 9 employees	E3	125	.8	15.5	.6	1.3	10.2	33.2	29.0	65.4	1.7	9.0
10 to 19 employees	E2	99	1.4	28.2	1.1	2.1	19.4	54.8	39.6	93.4	1.5	11.6
20 to 49 employees	E1	83	2.6	58.0	2.1	4.2	37.8	126.2	83.0	209.5	2.7	35.9
50 to 99 employees	E1	53	3.7	86.2	2.9	5.8	56.2	187.5	136.5	324.2	3.6	54.0
100 to 249 employees	E1	34	5.4	117.5	4.3	8.9	77.1	229.9	197.4	430.3	12.5	77.6
250 to 499 employees	E1	18	6.4	147.6	5.3	11.0	103.0	306.4	264.7	571.6	14.8	81.6
500 to 999 employees	E1	4	2.7	67.8	1.9	4.4	40.7	144.2	88.7	236.4	(D)	28.2
Covered by administrative records[2]	E9	257	.8	13.4	.7	1.3	9.0	26.3	21.9	48.2	.9	7.8
INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD												
Total	**–**	**386**	**44.5**	**1 337.7**	**31.9**	**70.0**	**824.3**	**3 533.0**	**2 505.6**	**6 043.1**	**164.1**	**572.8**
Establishments with an average of—												
1 to 4 employees	E8	51	.1	2.5	.1	.2	1.6	6.2	4.3	10.5	.3	1.0
5 to 9 employees	E5	57	.4	8.7	.3	.6	5.7	18.4	11.5	29.7	.9	2.9
10 to 19 employees	E3	56	.8	15.8	.6	1.2	9.9	37.5	27.9	65.5	1.1	7.9
20 to 49 employees	E1	73	2.4	53.1	1.8	3.5	31.1	113.3	74.7	187.5	3.9	23.5
50 to 99 employees	E1	50	3.6	84.7	2.6	5.6	50.8	195.1	160.6	355.9	9.4	45.3
100 to 249 employees	–	53	7.9	186.9	6.0	12.6	119.9	612.0	480.4	1 093.5	29.8	116.5
250 to 499 employees	–	33	10.9	284.0	8.1	17.7	184.6	776.3	608.4	1 382.9	26.7	148.4
500 to 999 employees	E1	10	6.8	218.6	4.9	10.4	139.4	644.8	459.4	1 108.4	91.9	94.7
1,000 to 2,499 employees	–	2	11.6	483.3	7.4	18.2	281.3	1 129.4	678.5	1 809.2	(D)	132.7
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	84	.5	9.2	.4	.8	5.8	20.2	13.2	33.4	1.1	3.1
INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE												
Total	**–**	**516**	**28.9**	**677.9**	**21.4**	**44.5**	**414.6**	**1 607.1**	**2 529.4**	**4 135.2**	**69.0**	**327.5**
Establishments with an average of—												
1 to 4 employees	E7	120	.3	5.4	.2	.4	3.5	12.2	17.2	29.3	.3	2.8
5 to 9 employees	E4	94	.6	12.7	.5	1.0	7.6	25.5	37.6	63.2	.5	7.0
10 to 19 employees	E3	79	1.0	21.1	.8	1.7	13.1	44.7	47.7	92.0	.8	11.9
20 to 49 employees	–	85	2.7	54.8	2.1	4.2	33.2	130.4	141.3	269.6	3.6	30.2
50 to 99 employees	–	57	4.1	85.2	3.2	6.6	52.1	178.0	238.1	415.0	6.2	46.6
100 to 249 employees	–	57	8.7	202.9	6.5	13.8	126.2	519.7	1 099.5	1 620.0	20.4	95.3
250 to 499 employees	–	19	6.9	173.8	5.1	10.6	108.5	427.0	617.6	1 046.2	19.0	76.7
500 to 999 employees	–	3	4.5	121.9	3.0	6.3	70.3	269.7	330.5	600.0	18.2	57.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	174	.8	11.7	.6	1.1	7.6	19.6	34.4	54.0	.6	5.4
INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES												
Total	**E1**	**1 936**	**39.4**	**950.3**	**28.5**	**58.5**	**583.0**	**1 747.4**	**1 369.6**	**3 132.7**	**48.5**	**372.1**
Establishments with an average of—												
1 to 4 employees	E6	630	1.3	25.9	1.0	2.0	16.8	53.7	40.0	93.5	1.5	10.7
5 to 9 employees	E1	398	2.7	56.1	2.0	4.1	35.8	115.2	76.4	192.3	3.4	18.4
10 to 19 employees	–	386	5.3	121.0	3.9	8.0	78.1	214.4	147.3	360.5	5.7	33.6
20 to 49 employees	E1	338	10.3	262.4	7.4	15.5	158.7	468.4	340.0	812.5	13.5	85.5
50 to 99 employees	E1	127	8.8	225.2	6.4	13.0	140.3	435.7	329.9	765.7	11.1	77.5
100 to 249 employees	–	45	6.7	163.3	4.7	9.4	98.5	286.2	283.6	577.5	7.2	75.1
250 to 499 employees	E1	11	4.4	96.3	3.1	6.5	54.9	173.8	152.5	330.5	6.1	71.3
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	573	1.5	24.3	1.2	2.4	15.1	47.8	35.8	83.6	1.5	10.4
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD												
Total	**–**	**786**	**34.8**	**863.8**	**26.0**	**54.6**	**536.2**	**1 889.6**	**1 562.4**	**3 445.9**	**66.3**	**474.5**
Establishments with an average of—												
1 to 4 employees	E8	156	.3	6.7	.2	.5	4.3	14.3	12.7	26.9	.5	3.7
5 to 9 employees	E3	144	1.0	20.4	.7	1.4	11.6	46.1	40.4	88.4	1.2	10.7
10 to 19 employees	E2	154	2.2	48.2	1.6	3.2	28.8	94.7	77.4	172.2	4.2	20.1
20 to 49 employees	E1	168	5.4	132.5	4.0	8.3	78.5	272.2	197.9	469.3	7.6	53.6
50 to 99 employees	–	81	5.9	144.8	4.3	9.0	86.4	291.2	244.0	529.5	11.8	79.7
100 to 249 employees	–	60	9.3	226.4	6.8	14.5	133.7	468.4	426.0	898.9	16.0	135.8
250 to 499 employees	–	17	5.8	171.5	4.2	9.0	101.6	373.1	317.1	690.6	13.0	84.8
500 to 999 employees	–	6	5.0	113.3	4.3	8.7	91.4	329.6	246.9	570.1	12.1	86.1
Covered by administrative records[2]	E9	219	1.0	16.5	.7	1.5	10.5	32.8	28.0	60.8	1.4	8.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES												
Total	**E2**	**556**	**19.4**	**395.5**	**13.0**	**26.3**	**220.4**	**959.9**	**941.2**	**1 915.6**	**27.6**	**306.2**
Establishments with an average of—												
1 to 4 employees	E8	226	.4	7.2	.3	.6	4.2	18.8	18.1	36.7	.7	6.1
5 to 9 employees	E4	101	.7	11.6	.4	.9	6.5	26.8	24.3	50.7	.5	8.7
10 to 19 employees	E1	72	1.0	15.7	.6	1.1	8.4	35.3	32.9	68.0	.7	10.2
20 to 49 employees	E2	80	2.5	42.0	1.6	2.9	21.1	123.1	90.7	213.9	3.8	32.6
50 to 99 employees	E1	34	2.5	47.1	1.7	3.4	26.2	122.0	110.1	235.1	2.6	38.8
100 to 249 employees	E1	28	4.0	78.4	3.1	6.5	52.4	237.6	185.4	423.8	7.3	69.1
250 to 499 employees	E4	7	2.5	65.6	1.7	3.8	34.1	126.9	117.5	243.4	3.1	37.8
500 to 999 employees	E2	7	5.9	128.0	3.5	7.2	67.7	269.3	362.2	644.1	8.9	102.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	247	.7	9.7	.5	.9	5.6	23.0	24.9	47.9	.9	8.6
INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.												
Total	**E1**	**1 409**	**25.3**	**604.5**	**18.1**	**37.2**	**330.1**	**1 396.3**	**966.8**	**2 359.0**	**47.6**	**295.1**
Establishments with an average of—												
1 to 4 employees	E8	738	1.0	19.7	.8	1.6	11.1	46.1	36.0	81.7	2.5	11.5
5 to 9 employees	E4	199	1.3	23.8	.9	2.0	13.5	50.5	34.5	84.5	2.3	12.1
10 to 19 employees	E1	184	2.6	53.2	1.9	3.9	31.9	119.7	86.6	206.0	3.6	24.3
20 to 49 employees	E1	159	4.7	104.1	3.5	7.2	61.9	231.0	164.9	394.4	7.4	50.2
50 to 99 employees	E1	81	5.6	115.8	4.3	8.7	72.2	263.3	185.1	444.1	7.3	60.9
100 to 249 employees	E1	43	6.7	171.9	4.7	9.7	95.7	322.7	286.5	607.1	24.5	85.8
250 to 499 employees	–	3	3.4	116.1	2.0	4.1	43.9	362.9	173.2	541.1	(D)	50.3
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	661	1.4	19.9	1.0	2.1	11.0	46.7	35.8	82.5	2.1	11.9

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2521	**Wood office furniture:**										
	All establishments in industry	635	23.4	529.1	18.5	38.4	349.9	1 101.0	853.8	1 964.6	37.4
2522	**Office furniture, except wood:**										
	All establishments in industry	386	44.5	1 337.7	31.9	70.0	824.3	3 533.0	2 505.6	6 043.1	164.1
	Establishments with this product class primary:										
25221	Office seating, including upholstered, except wood	65	7.5	175.0	5.8	12.5	112.0	494.4	448.3	937.2	13.9
25225	Office desks and extensions, except wood	38	2.1	49.5	1.6	3.4	31.8	95.8	96.0	190.3	3.4
25226	Office storage units, files, and tables, except wood	85	11.4	295.2	8.7	18.8	194.4	757.9	543.8	1 305.3	31.9
25227	Office panel and modular systems furniture and all other nonwood office furniture, n.e.c.	63	21.5	778.1	14.4	32.3	460.8	2 100.2	1 359.1	3 466.9	110.1
2531	**Public building and related furniture:**										
	All establishments in industry	516	28.9	677.9	21.4	44.5	414.6	1 607.1	2 529.4	4 135.2	69.0
	Establishments with this product class primary:										
25311	School furniture, except stone and concrete (excluding library furniture)	76	6.6	147.3	4.4	8.6	82.5	282.5	309.8	593.3	9.5
25312	Public building and related furniture, except school and restaurant furniture	194	20.1	491.3	15.3	32.5	306.4	1 255.4	2 117.6	3 370.9	57.7
2541	**Wood partitions and fixtures:**										
	All establishments in industry	1 936	39.4	950.3	28.5	58.5	583.0	1 747.4	1 369.6	3 132.7	48.5
	Establishments with this product class primary:										
25411	Wood partitions, shelving, and lockers	38	1.3	29.4	1.0	2.1	20.5	71.5	68.4	140.3	1.1
25412	Plastics laminated fixture tops	352	6.6	151.1	4.8	10.2	93.6	272.2	252.4	525.6	6.3
25413	Wood fixtures for stores, banks, and offices, and other miscellaneous fixtures	640	22.4	566.0	15.9	32.6	342.0	1 007.3	763.6	1 782.8	29.2

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2542	**Partitions and fixtures, except wood:**										
	All establishments in industry	786	34.8	863.8	26.0	54.6	536.2	1 889.6	1 562.4	3 445.9	66.3
	Establishments with this product class primary:										
25421	Partitions, prefabricated (assembled or knocked-down), except wood	33	2.3	58.9	1.5	3.3	31.7	111.4	83.3	196.2	2.9
25422	Shelving and lockers, except wood	61	7.3	179.6	5.5	11.8	115.8	498.1	427.4	927.8	12.4
25423	Storage racks and accessories, except wood	79	5.0	126.8	3.9	7.9	83.3	277.1	329.0	598.1	9.7
25424	Fixtures for stores, banks, and offices, and miscellaneous fixtures, except wood	254	15.5	402.3	11.6	24.3	244.8	819.0	567.1	1 386.0	33.1
2591	**Drapery hardware and blinds and shades:**										
	All establishments in industry	556	19.4	395.5	13.0	26.3	220.4	959.9	941.2	1 915.6	27.6
	Establishments with this product class primary:										
25913	Window shades and accessories	40	2.2	44.8	1.4	3.0	23.9	97.8	102.7	211.0	2.3
25914	Venetian blinds	130	9.6	197.5	6.4	13.3	106.1	526.2	406.2	937.2	8.8
25915	Other shades and blinds, n.e.c., and curtain and drapery rods, poles, and fixtures	34	4.1	95.0	2.7	5.5	57.3	211.9	292.7	504.3	12.1
2599	**Furniture and fixtures, n.e.c.:**										
	All establishments in industry	1 409	25.3	604.5	18.1	37.2	330.1	1 396.3	966.8	2 359.0	47.6
	Establishments with this product class primary:										
25991	Hospital beds	12	2.8	105.3	1.5	3.2	36.5	315.9	150.2	472.2	(D)
25992	Restaurant, cafeteria, and bar furniture and fixtures	220	10.7	266.7	7.8	16.0	157.1	583.1	437.7	1 014.0	14.6
25994	All other furniture and fixtures, n.e.c.	138	4.8	103.9	3.7	7.4	64.5	208.9	157.9	365.5	7.0

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2521, WOOD OFFICE FURNITURE			
Total value of shipments	1 964.6	2 084.1	1 087.4
Primary products value of shipments	1 757.5	1 833.9	951.2
Secondary products value of shipments	136.5	141.1	89.6
Total miscellaneous receipts	70.5	109.0	46.6
Value of resales	62.4	103.3	43.7
Contract receipts	2.7	(D)	(D)
Other miscellaneous receipts	5.4	(D)	(D)
Receipts for installation (or construction) of products of this establishment	1.9	(NA)	(D)
Other miscellaneous receipts	3.4	(NA)	.9
Other miscellaneous receipts, n.s.k.	.1	(NA)	(D)
Primary products specialization ratio	93	93	91
Value of primary products shipments made in all industries	1 947.2	2 016.5	1 132.1
Value of primary products shipments made in this industry	1 757.5	1 833.9	951.2
Value of primary products shipments made in other industries	189.7	182.6	180.9
Coverage ratio	90	91	84
INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD			
Total value of shipments	6 043.1	5 453.6	3 062.7
Primary products value of shipments	5 522.6	5 030.5	2 699.8
Secondary products value of shipments	292.3	293.6	308.5
Total miscellaneous receipts	228.3	129.5	54.4
Value of resales	207.9	120.8	44.3
Contract receipts	(D)	(D)	2.7
Other miscellaneous receipts	(D)	(D)	7.4
Receipts for installation (or construction) of products of this establishment	(D)	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	3.2
Primary products specialization ratio	95	94	90
Value of primary products shipments made in all industries	5 760.4	5 243.0	2 951.6
Value of primary products shipments made in this industry	5 522.6	5 030.5	2 699.8
Value of primary products shipments made in other industries	237.9	212.5	251.8
Coverage ratio	96	96	91

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE			
Total value of shipments	4 135.2	2 088.3	1 102.8
Primary products value of shipments	3 797.8	1 861.0	901.4
Secondary products value of shipments	210.0	153.1	165.5
Total miscellaneous receipts	127.5	74.2	35.9
Value of resales	107.0	67.1	25.0
Contract receipts	4.4	2.7	.9
Other miscellaneous receipts	16.1	4.4	10.0
Receipts for installation (or construction) of products of this establishment	10.0	(NA)	8.2
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	95	92	84
Value of primary products shipments made in all industries	4 101.1	2 029.8	1 052.5
Value of primary products shipments made in this industry	3 797.8	1 861.0	901.4
Value of primary products shipments made in other industries	303.3	168.8	151.1
Coverage ratio	93	92	86
INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES			
Total value of shipments	3 132.7	2 815.9	1 766.7
Primary products value of shipments	2 734.6	2 508.4	1 534.1
Secondary products value of shipments	170.0	167.2	137.1
Total miscellaneous receipts	228.0	140.3	95.5
Value of resales	153.3	88.1	47.5
Contract receipts	9.8	7.1	4.3
Other miscellaneous receipts	64.9	45.1	43.7
Receipts for installation (or construction) of products of this establishment	42.7	(NA)	35.5
Other miscellaneous receipts	20.8	(NA)	(D)
Other miscellaneous receipts, n.s.k.	1.5	(NA)	(D)
Primary products specialization ratio	94	94	92
Value of primary products shipments made in all industries	3 107.5	2 778.0	1 676.8
Value of primary products shipments made in this industry	2 734.6	2 508.4	1 534.1
Value of primary products shipments made in other industries	372.9	269.6	142.7
Coverage ratio	88	90	91
INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD			
Total value of shipments	3 445.9	2 721.3	1 943.2
Primary products value of shipments	2 926.0	2 274.1	1 656.6
Secondary products value of shipments	334.5	285.2	205.4
Total miscellaneous receipts	185.4	162.1	81.2
Value of resales	136.8	114.3	52.9
Contract receipts	18.9	17.0	12.7
Other miscellaneous receipts	29.7	30.7	15.6
Receipts for installation (or construction) of products of this establishment	22.8	(NA)	9.5
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	90	89	89
Value of primary products shipments made in all industries	3 214.1	2 434.0	1 828.2
Value of primary products shipments made in this industry	2 926.0	2 274.1	1 656.6
Value of primary products shipments made in other industries	288.1	160.0	171.6
Coverage ratio	91	93	91
INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES			
Total value of shipments	1 915.6	1 780.4	1 114.4
Primary products value of shipments	1 763.9	1 613.1	974.4
Secondary products value of shipments	10.6	11.3	32.9
Total miscellaneous receipts	141.1	156.0	107.0
Value of resales	132.1	152.8	101.0
Contract receipts	1.3	–	(D)
Other miscellaneous receipts	7.6	2.4	(D)
Sales of scrap and refuse	(D)	(NA)	(D)
Other miscellaneous receipts	7.4	(NA)	1.7
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	99	99	97
Value of primary products shipments made in all industries	1 808.3	1 671.9	1 001.2
Value of primary products shipments made in this industry	1 763.9	1 613.1	974.4
Value of primary products shipments made in other industries	44.4	58.8	26.7
Coverage ratio	98	96	97

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.			
Total value of shipments	2 359.0	1 959.7	1 275.7
Primary products value of shipments	1 917.3	1 698.3	1 045.4
Secondary products value of shipments	228.8	121.3	113.7
Total miscellaneous receipts	212.8	140.0	116.6
Value of resales	161.7	118.4	99.6
Contract receipts	14.5	13.9	4.8
Other miscellaneous receipts	36.7	7.7	12.2
Receipts for installation (or construction) of products of this establishment	13.6	(NA)	6.4
Other miscellaneous receipts	19.4	(NA)	(D)
Other miscellaneous receipts, n.s.k.	3.7	(NA)	(D)
Primary products specialization ratio	89	93	90
Value of primary products shipments made in all industries	2 095.9	1 878.1	1 271.3
Value of primary products shipments made in this industry	1 917.3	1 698.3	1 045.4
Value of primary products shipments made in other industries	178.6	179.8	225.9
Coverage ratio	91	90	82

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2521– —	**WOOD OFFICE FURNITURE**				
	Total	**(NA)**	**1 947.2**	**(NA)**	**2 016.5**
25210	Wood office furniture	(NA)	1 947.2	(NA)	2 016.5
25210 00	Wood office furniture	442	1 895.6	370	1 947.6
25210 02	Wood office furniture, n.s.k.[3]	(NA)	51.7	(NA)	68.9
2522– —	**OFFICE FURNITURE, EXCEPT WOOD**				
	Total	**(NA)**	**5 760.4**	**(NA)**	**5 243.0**
25221	Office seating, including upholstered, except wood	(NA)	1 425.2	(NA)	1 174.8
25221 00	Office seating, including upholstered, except wood	105	1 425.2	96	1 174.8
25225	Office desks and extensions, except wood	(NA)	373.6	(NA)	322.2
25225 00	Office desks and extensions, except wood	96	373.6	71	r322.2
25226	Office storage units, files, and tables, except wood	(NA)	1 506.5	(NA)	1 417.7
25226 00	Office storage units, files, and tables, except wood	140	1 506.5	120	1 417.7
25227	Office panel and modular systems furniture and all other nonwood office furniture, n.e.c.	(NA)	2 314.7	(NA)	2 113.8
25227 00	Office panel and modular systems furniture and all other nonwood office furniture, n.e.c.	90	2 314.7	81	2 113.8
25220	Office furniture, except wood, n.s.k.	(NA)	140.5	(NA)	214.5
25220 00	Office furniture, except wood, n.s.k.[4]	(NA)	107.1	(NA)	161.5
25220 02	Office furniture, except wood, n.s.k.[5]	(NA)	33.4	(NA)	53.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2531– —	**PUBLIC BUILDING AND RELATED FURNITURE**						
	Total	**(NA)**	**(X)**	**4 101.1**	**(NA)**	**(X)**	**2 029.8**
25311	School furniture, except stone and concrete (excluding library furniture)	(NA)	(X)	482.7	(NA)	(X)	277.2
25311 31	Single pupil units 1,000 units	17	(S)	116.3	9	1 593.8	53.3
25311 36	Chairs, all purpose (nonfolding) 1,000 units	20	2 223.5	99.5	13	3 280.8	68.3
25311 37	Storage cabinets 1,000 cabinets	48	(S)	75.8	25	(S)	45.6
25311 98	Other school furniture, designed specifically for use in schools (including teachers' desks, study carrels, etc.)	77	(X)	175.1	35	(X)	97.5
25311 00	School furniture, except stone and concrete (excluding library furniture), n.s.k.	(NA)	(X)	15.9	(NA)	(X)	12.6
25312	Public building and related furniture, except school and restaurant furniture	(NA)	(X)	3 429.7	(NA)	(X)	1 540.9
25312 13	Seats for public conveyances (except aircraft), including automobiles, trucks, buses, and van conversion seats	74	(X)	2 370.6	47	(X)	980.8
25312 15	Seats for aircraft	13	(X)	268.7	16	(X)	145.0
25312 34	Church pews 1,000 lin ft	28	*1 043.9	34.7	(NA)	(S)	42.9
25312 39	Other church furniture (pulpits, altars, lecterns, etc.)	24	(X)	18.8	22	(X)	17.4
25312 41	Folding tables, including folding banquet tables thousands	18	(S)	70.1	(NA)	*498.3	32.8
	Chairs and seats (including theater, auditorium, and institutional):						
25312 51	Fixed thousands	9	(S)	53.7	14	**918.6	64.5
25312 55	Portable folding chairs, single or ganged thousands	6	4 328.6	37.9	6	*2 568.3	26.3
25312 57	Stacking chairs thousands	24	*1 569.0	79.2	16	712.6	24.4
25312 59	Other chairs and seats, including freestanding thousands	17	(S)	52.4	13	*243.3	28.4
25312 61	Stadium and bleacher seating, including grandstands	18	(X)	130.6	13	(X)	76.1
25312 71	Library furniture, all types (including chairs, charging desks, study carrels, reading tables, etc.)	21	(X)	28.3	18	(X)	21.9
25312 97	Other public building furniture	39	(X)	82.4	25	(X)	47.9
25312 00	Public building and related furniture, except school and restaurant furniture, n.s.k.	(NA)	(X)	202.2	(NA)	(X)	32.9
25310	Public building and related furniture, n.s.k.	(NA)	(X)	188.7	(NA)	(X)	211.8
25310 00	Public building and related furniture, n.s.k.[6]	(NA)	(X)	134.7	(NA)	(X)	140.3
25310 02	Public building and related furniture, n.s.k.[7]	(NA)	(X)	54.0	(NA)	(X)	71.5

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2541– —	**WOOD PARTITIONS AND FIXTURES**				
	Total	**(NA)**	**3 107.5**	**(NA)**	**2 778.0**
25411	Wood partitions, shelving, and lockers	(NA)	239.7	(NA)	183.7
25411 11	Partitions, prefabricated (assembled or knocked-down)	32	57.4	42	81.1
25411 21	Shelving	50	147.0	42	72.8
25411 31	Lockers	10	13.0	9	12.4
25411 00	Wood partitions, shelving, and lockers, n.s.k.	(NA)	22.2	(NA)	17.4
25412	Plastics laminated fixture tops	(NA)	556.4	(NA)	431.6
25412 00	Plastics laminated fixture tops (including tops for drainboards, sinks, cabinets, tables, counters, and fixtures)	607	556.4	425	431.6
25413	Wood fixtures for stores, banks, and offices, and other miscellaneous fixtures	(NA)	1 655.5	(NA)	1 420.1
	Store fixtures, retail, except food stores:				
	Custom:				
25413 32	Walls and wall fixtures	138	200.3	105	159.8
25413 33	Center floor tables and gondolas	97	143.3	90	123.1
25413 34	Other fixtures and displays	189	315.3	172	299.7
	Manufacturers' standard:				
25413 35	Walls and wall fixtures	22	55.0	40	58.5
25413 36	Center floor tables and gondolas	17	34.5	28	42.7
25413 37	Other fixtures and displays	57	115.9	41	51.3
25413 38	Store fixtures for retail food stores, wood	91	147.2	84	111.1
25413 39	Other show and display cases (including wall types) and tables, wood	74	99.8	67	88.1
25413 41	Cabinets (floor or wall types), wood	174	134.6	129	96.1
25413 61	Counters, except bank counters, wood	74	56.3	87	54.6
25413 81	Bank fixtures, wood (including bank counters)	55	30.5	45	22.8
25413 97	Other, including window backs, telephone booths, miscellaneous display fixtures, cashier stands, etc.	74	104.6	47	76.4
25413 00	Wood fixtures for stores, banks, and offices, and other miscellaneous fixtures, n.s.k.	(NA)	218.2	(NA)	235.8
25410	Wood partitions and fixtures, n.s.k.	(NA)	656.0	(NA)	742.7
25410 00	Wood partitions and fixtures, n.s.k.[8]	(NA)	572.3	(NA)	631.1
25410 02	Wood partitions and fixtures, n.s.k.[3]	(NA)	83.6	(NA)	111.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2542– —	**PARTITIONS AND FIXTURES, EXCEPT WOOD**				
	Total	**(NA)**	**3 214.1**	**(NA)**	**2 434.0**
25421	Partitions, prefabricated (assembled or knocked-down), except wood	(NA)	219.9	(NA)	170.3
25421 13	Toilet partitions	20	77.6	9	67.5
25421 17	Movable (except freestanding)	20	124.5	16	69.6
25421 19	Other partitions (excluding accordion and folding-type doors)	6	11.4	11	22.3
25421 00	Partitions, prefabricated (assembled or knocked-down), except wood, n.s.k.	(NA)	6.3	(NA)	10.8
25422	Shelving and lockers, except wood	(NA)	739.2	(NA)	527.6
	Shelving:				
25422 33	Commercial shelving (factory, store, etc.)	60	419.7	39	288.5
25422 37	Bookstacks (library, office, and school)	16	37.9	11	45.5
25422 41	Other shelving, including office shelving for correspondence, computer tapes, microfilm, etc.	34	124.7	22	73.0
25422 51	Lockers	19	140.9	18	110.5
25422 00	Shelving and lockers, except wood, n.s.k.	(NA)	15.9	(NA)	10.1
25423	Storage racks and accessories, except wood	(NA)	647.9	(NA)	425.7
25423 41	Drive-in/ drive-thru and gravity conveyor pallet storage racks	25	71.2	20	34.8
25423 43	Cantilever storage racks	22	47.7	16	28.5
25423 45	Portable stacking racks and frames	27	71.5	15	48.4
25423 47	Stacker-racks (pallet support, beams perpendicular to the storage aisle)	19	72.2	13	28.2
25423 49	Other racks, including conventional pallet racks and accessories	70	327.0	54	254.6
25423 00	Storage racks and accessories, except wood, n.s.k.	(NA)	58.4	(NA)	31.2
25424	Fixtures for stores, banks, and offices, and miscellaneous fixtures, except wood	(NA)	1 279.3	(NA)	961.4
	Store fixtures, retail, except food stores:				
25424 63	Custom	119	426.1	50	235.8
25424 65	Manufacturers' standard	35	231.5	26	233.1
25424 67	Store fixtures for retail food stores	47	190.0	29	123.2
25424 69	Other show and display cases (including wall types) and tables	49	90.2	33	57.1
25424 71	Cabinets (floor or wall types)	53	155.3	53	173.1
25424 99	Other (counters, window backs, telephone booths, miscellaneous display fixtures, cashier stands, etc.)	80	131.5	(NA)	95.2
25424 00	Fixtures for stores, banks, and offices, and miscellaneous fixtures, except wood, n.s.k.	(NA)	54.8	(NA)	44.0
25420	Partitions and fixtures, except wood, n.s.k.	(NA)	327.9	(NA)	349.1
25420 00	Partitions and fixtures, except wood, n.s.k.[6]	(NA)	267.1	(NA)	251.7
25420 02	Partitions and fixtures, except wood, n.s.k.[7]	(NA)	60.8	(NA)	97.4
2591– —	**DRAPERY HARDWARE AND BLINDS AND SHADES**				
	Total	**(NA)**	**1 808.3**	**(NA)**	**1 671.9**
25913	Window shades and accessories	(NA)	287.7	(NA)	208.4
25913 11	Plastics window shades	25	52.6	27	49.3
25913 13	Other window shades, including cloth, paper, etc.	46	164.7	57	134.5
25913 15	Window shade accessories and rollers, sold separately	13	66.2	8	9.4
25913 00	Window shades and accessories, n.s.k.	(NA)	4.3	(NA)	15.2
25914	Venetian blinds	(NA)	891.8	(NA)	810.9
	Complete venetian blinds, vertical and horizontal:				
25914 52	Aluminum-slat blinds	88	467.7	78	454.3
25914 58	All other venetian blinds; including wood, plastics, steel, etc.	66	286.2	60	215.8
25914 71	Unassembled venetian blinds, parts, and components	17	121.0	18	126.1
25914 00	Venetian blinds, n.s.k.	(NA)	16.8	(NA)	14.7
25915	Other shades and blinds, n.e.c., and curtain and drapery rods, poles, and fixtures	(NA)	395.4	(NA)	414.5
25915 11	Other shades and blinds, except canvas and other textile fabrics; including wood, metal, plastics, chip, bamboo, etc.	34	50.6	30	85.1
25915 17	Curtain and drapery rods, poles, and fixtures, excluding window shade accessories	29	331.3	26	320.2
25915 00	Other shades and blinds, n.e.c., and curtain and drapery rods, poles, and fixtures, n.s.k.	(NA)	13.6	(NA)	9.1
25910	Drapery hardware and blinds and shades, n.s.k.	(NA)	233.4	(NA)	238.2
25910 00	Drapery hardware and blinds and shades, n.s.k.[8]	(NA)	184.2	(NA)	183.3
25910 02	Drapery hardware and blinds and shades, n.s.k.[3]	(NA)	49.1	(NA)	54.9
2599– —	**FURNITURE AND FIXTURES, N.E.C.**				
	Total	**(NA)**	**2 095.9**	**(NA)**	**1 878.1**
25991	Hospital beds	(NA)	372.4	(NA)	182.1
25991 00	Hospital beds	27	372.4	(NA)	182.1
25992	Restaurant, cafeteria, and bar furniture and fixtures	(NA)	912.3	(NA)	721.5
	Wood chairs and stools:				
25992 31	Upholstered	46	146.2	31	109.3
25992 33	Nonupholstered	20	28.7	18	28.7
25992 36	Metal chairs and stools	26	77.7	(NA)	71.3
25992 47	Booths, bars, and back bars	79	111.3	56	71.3
25992 48	Other restaurant, cafeteria, bar, and bowling center furniture and fixtures, except warming, cooking, and refrigeration	163	446.5	127	365.7
25992 00	Restaurant, cafeteria, and bar furniture and fixtures, n.s.k.	(NA)	101.9	(NA)	75.2

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2599– ––	**FURNITURE AND FIXTURES, N.E.C.**—Con.				
25994	All other furniture and fixtures, n.e.c.	(NA)	380.4	(NA)	279.6
25994 51	Industrial work benches and stools	35	62.6	26	65.4
25994 97	Other furniture and fixtures, n.e.c. (including ship furniture, amusement game cabinets, etc.)	132	282.8	107	214.2
25994 00	All other furniture and fixtures, n.e.c., n.s.k.	(NA)	34.9	(NA)	–
25990	Furniture and fixtures, n.e.c., n.s.k.	(NA)	430.9	(NA)	694.8
25990 00	Furniture and fixtures, n.e.c., n.s.k.[8]	(NA)	348.2	(NA)	579.9
25990 02	Furniture and fixtures, n.e.c., n.s.k.[3]	(NA)	82.7	(NA)	114.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with less than 5 employees.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Typically for establishments with 5 employees or more.

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
25221, OFFICE SEATING, INCLUDING UPHOLSTERED, EXCEPT WOOD		
United States	**1 425.2**	**1 174.8**
California	150.5	103.1
Florida	22.0	12.4
Indiana	19.1	11.7
Michigan	535.4	410.8
Mississippi	76.7	33.4
New York	9.1	9.9
North Carolina	151.4	98.2
Tennessee	73.9	(NA)
Texas	77.1	54.4
25225, OFFICE DESKS AND EXTENSIONS, EXCEPT WOOD		
United States	**373.6**	**322.2**
California	32.1	44.4
Florida	5.8	(NA)
Indiana	5.0	6.0
Michigan	61.7	(NA)
New Jersey	3.7	18.7
New York	12.9	15.6
North Carolina	27.3	(NA)
Pennsylvania	15.0	30.4
Tennessee	13.6	(NA)
Texas	10.9	12.9
Wisconsin	6.1	(NA)
25226, OFFICE STORAGE UNITS, FILES, AND TABLES, EXCEPT WOOD		
United States	**1 506.5**	**1 417.7**
California	147.2	177.2
Florida	7.6	6.9
Illinois	70.5	82.8
Indiana	31.5	(NA)
Michigan	420.3	302.6
Minnesota	13.5	(NA)
Missouri	3.6	8.7
New York	48.2	64.1
North Carolina	12.2	8.3
Pennsylvania	86.2	115.3
Tennessee	120.7	63.5
Texas	58.6	33.6
Wisconsin	68.0	63.0
25227, OFFICE PANEL AND MODULAR SYSTEMS FURNITURE AND ALL OTHER NONWOOD OFFICE FURNITURE, N.E.C.		
United States	**2 314.7**	**2 113.8**
California	160.4	219.4
Florida	7.9	2.7
Georgia	62.2	(NA)
Michigan	1 450.8	1 211.0
New Jersey	5.6	(NA)
New York	20.6	24.4
Texas	12.2	2.3
25311, SCHOOL FURNITURE, EXCEPT STONE AND CONCRETE (EXCLUDING LIBRARY FURNITURE)		
United States	**482.6**	**277.2**
California	34.8	29.8
Florida	9.3	(NA)
Indiana	14.5	(NA)
Michigan	26.3	17.4
Minnesota	22.2	16.5
New York	4.5	(NA)
North Carolina	10.1	4.6
Ohio	6.8	(NA)
Pennsylvania	20.3	6.6
Texas	42.7	22.0
Washington	17.7	10.5
Wisconsin	14.1	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
25312, PUBLIC BUILDING AND RELATED FURNITURE, EXCEPT SCHOOL AND RESTAURANT FURNITURE		
United States	**3 429.7**	**1 540.9**
Alabama	57.9	27.8
Arkansas	64.7	20.2
California	190.4	138.9
Florida	7.3	(NA)
Illinois	159.7	32.2
Indiana	285.4	97.4
Iowa	26.4	43.5
Kansas	4.9	3.3
Michigan	774.2	440.5
Mississippi	25.9	(NA)
Missouri	53.3	(NA)
New York	45.3	9.0
North Carolina	90.0	(NA)
Ohio	192.2	38.4
Oregon	7.0	(NA)
Pennsylvania	19.7	22.0
Tennessee	295.9	102.0
Texas	189.9	46.3
Virginia	6.8	(NA)
Washington	4.8	3.5
Wisconsin	242.2	45.3
25411, WOOD PARTITIONS, SHELVING, AND LOCKERS		
United States	**239.7**	**183.7**
California	48.3	9.5
Florida	11.8	5.4
Illinois	19.2	27.5
Indiana	2.2	(NA)
Michigan	7.2	6.1
New Jersey	2.6	(NA)
New York	20.9	11.4
North Carolina	7.0	(NA)
Oregon	4.8	(NA)
Pennsylvania	15.0	24.9
Texas	5.2	4.5
Wisconsin	5.0	5.2
25412, PLASTICS LAMINATED FIXTURE TOPS		
United States	**556.4**	**431.6**
Alabama	9.4	(NA)
Arizona	12.7	6.4
California	49.0	43.8
Colorado	7.8	6.4
Connecticut	8.2	4.3
Florida	12.7	10.6
Georgia	23.4	(NA)
Illinois	23.7	16.1
Indiana	67.4	48.1
Iowa	14.6	(NA)
Kansas	8.6	(NA)
Maine	3.0	(NA)
Maryland	7.1	5.9
Massachusetts	7.4	8.3
Michigan	14.4	7.4
Minnesota	8.4	10.5
Missouri	11.6	9.5
Nebraska	2.1	(NA)
New Hampshire	3.3	(NA)
New Jersey	12.9	6.7
New Mexico	2.4	(NA)
New York	27.3	23.0
North Carolina	5.5	15.4
Ohio	32.3	24.8
Oregon	7.6	3.1
Pennsylvania	29.5	25.8
Rhode Island	2.7	(NA)
South Carolina	2.5	(NA)
South Dakota	3.0	(NA)
Texas	16.4	18.2
Utah	5.3	(NA)
Virginia	10.9	7.4
Washington	9.3	4.4
Wisconsin	42.1	28.0
25413, WOOD FIXTURES FOR STORES, BANKS, AND OFFICES, AND OTHER MISCELLANEOUS FIXTURES		
United States	**1 655.5**	**1 420.1**
Alabama	14.6	12.8
Arizona	7.0	10.8
Arkansas	34.7	17.2
California	233.7	169.8
Colorado	9.0	9.0
Connecticut	15.3	14.2
Florida	35.6	34.8
Georgia	28.5	24.0
Illinois	116.5	121.4
Indiana	31.1	12.1
Iowa	5.5	(NA)
Kansas	3.5	(NA)
Kentucky	14.4	7.7
Maryland	27.0	9.5
Massachusetts	27.2	30.2
Michigan	84.1	49.5
Minnesota	99.7	66.3
Missouri	27.3	25.4
Nevada	5.8	7.2
New Jersey	64.7	77.9
New York	80.3	152.7
North Carolina	95.7	90.7
Ohio	106.9	70.0
Oregon	28.9	8.8
Pennsylvania	75.2	78.3
Rhode Island	21.0	17.2
South Carolina	32.4	(NA)
Tennessee	11.7	13.1
Texas	87.6	64.7
Virginia	17.8	22.6
Washington	24.7	30.3
Wisconsin	49.4	34.1
25421, PARTITIONS, PREFABRICATED (ASSEMBLED OR KNOCKED-DOWN), EXCEPT WOOD		
United States	**219.8**	**170.3**
California	15.4	(NA)
Florida	11.6	(NA)
New York	57.8	58.5
Ohio	5.4	(NA)
Pennsylvania	12.2	7.4
25422, SHELVING AND LOCKERS, EXCEPT WOOD		
United States	**739.2**	**527.6**
California	15.3	18.5
Georgia	19.3	22.7
Illinois	178.5	125.4
Indiana	61.5	(NA)
Michigan	26.0	(NA)
Missouri	22.9	(NA)
New Jersey	46.2	34.2
New York	17.0	16.3
Ohio	58.7	51.0
Pennsylvania	58.7	71.8
Texas	13.5	(NA)
Wisconsin	23.2	(NA)
25423, STORAGE RACKS AND ACCESSORIES, EXCEPT WOOD		
United States	**647.9**	**425.7**
California	68.3	48.1
Georgia	18.2	14.5
Illinois	92.0	100.9
Michigan	92.8	51.8
Missouri	13.1	(NA)
New York	13.3	8.8
North Carolina	9.2	(NA)
Ohio	41.9	22.7
Pennsylvania	41.2	54.0
Texas	27.8	(NA)
Wisconsin	4.7	4.5

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
25424, FIXTURES FOR STORES, BANKS, AND OFFICES, AND MISCELLANEOUS FIXTURES, EXCEPT WOOD		
United States	**1 279.3**	**961.4**
Alabama	77.5	64.9
California	117.4	97.7
Colorado	23.4	(NA)
Connecticut	7.5	3.2
Florida	17.7	(NA)
Georgia	40.9	43.8
Illinois	97.5	128.5
Indiana	76.6	40.9
Kansas	28.8	(NA)
Maryland	3.1	(NA)
Massachusetts	23.0	(NA)
Michigan	37.1	43.4
Minnesota	136.7	(NA)
Missouri	48.9	33.9
New Jersey	32.3	44.2
New York	63.8	62.5
North Carolina	7.2	7.6
Ohio	40.0	38.4
Oregon	3.4	(NA)
Pennsylvania	72.9	88.3
Rhode Island	9.7	(NA)
Tennessee	7.3	(NA)
Texas	48.4	38.6
Washington	14.2	(NA)
Wisconsin	25.4	3.8
25913, WINDOW SHADES AND ACCESSORIES		
United States	**287.7**	**208.4**
Arkansas	7.8	(NA)
California	104.7	29.7
Connecticut	5.8	(NA)
Florida	18.7	20.9
Georgia	11.4	(NA)
Illinois	25.8	22.9
Indiana	34.2	17.7
Michigan	15.2	(NA)
New Jersey	12.1	(NA)
North Carolina	2.2	(NA)
Pennsylvania	4.3	3.3
South Carolina	6.1	(NA)
Tennessee	15.3	(NA)
Texas	5.8	6.7
Virginia	3.3	(NA)
Wisconsin	6.2	(NA)
25914, VENETIAN BLINDS		
United States	**891.8**	**810.9**
Arizona	22.5	(NA)
California	211.7	188.4
Florida	35.4	45.5
Georgia	55.1	(NA)
Hawaii	2.5	(NA)
Illinois	53.8	45.9
Indiana	26.9	(NA)
Iowa	8.8	(NA)
Kentucky	9.3	(NA)
Maryland	12.4	3.3
Michigan	27.0	(NA)
Nebraska	5.7	(NA)
Nevada	7.2	(NA)
New Jersey	40.6	(NA)
New York	9.2	10.2
Ohio	3.2	2.2
Pennsylvania	74.8	(NA)
South Carolina	11.2	(NA)
Tennessee	12.5	4.3
Texas	146.8	54.4
Utah	30.3	(NA)
Virginia	2.5	(NA)
Washington	2.7	11.7
West Virginia	18.2	(NA)
Wisconsin	52.2	(NA)
25915, OTHER SHADES AND BLINDS, N.E.C., AND CURTAIN AND DRAPERY RODS, POLES, AND FIXTURES		
United States	**395.4**	**414.5**
Arkansas	12.2	(NA)
California	21.1	35.2
Connecticut	14.9	(NA)
Florida	8.6	6.1
Illinois	57.5	(NA)
Indiana	5.6	(NA)
Michigan	100.8	(NA)
New York	2.9	(NA)
Pennsylvania	16.5	19.8
Rhode Island	72.7	(NA)
Tennessee	10.2	(NA)
Washington	6.9	(NA)
Wisconsin	52.1	(NA)
25991, HOSPITAL BEDS		
United States	**372.4**	**182.1**
Ohio	3.1	(NA)
25992, RESTAURANT, CAFETERIA, AND BAR FURNITURE AND FIXTURES		
United States	**912.3**	**721.5**
Alabama	9.6	5.6
Arkansas	46.1	(NA)
California	98.3	103.4
Colorado	28.7	(NA)
Connecticut	4.0	3.8
Florida	41.3	31.4
Georgia	28.7	22.4
Illinois	40.9	41.1
Indiana	7.7	(NA)
Kansas	30.8	(NA)
Massachusetts	20.9	16.1
Michigan	30.4	43.1
Minnesota	38.7	25.9
Missouri	85.1	30.0
New Jersey	33.5	12.6
New York	17.7	65.4
North Carolina	39.8	(NA)
Ohio	24.8	40.6
Oregon	11.2	(NA)
Pennsylvania	11.9	28.6
South Carolina	21.4	(NA)
Tennessee	112.0	127.4
Texas	19.9	5.9
Virginia	5.5	(NA)
Washington	6.9	4.5
Wisconsin	38.4	29.4
25994, ALL OTHER FURNITURE AND FIXTURES, N.E.C.		
United States	**380.4**	**279.6**
Alabama	2.8	(NA)
California	69.2	31.4
Florida	11.3	18.2
Illinois	37.0	37.6
Indiana	7.5	11.6
Massachusetts	2.8	3.4
Michigan	29.8	25.1
Minnesota	8.7	4.2
Missouri	14.8	13.6
New York	12.3	2.9
North Carolina	5.4	3.5
Ohio	22.8	11.3
Pennsylvania	20.1	15.6
South Carolina	4.1	15.6
Texas	5.2	(NA)
Washington	11.9	(NA)
Wisconsin	8.6	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2521-	**Wood office furniture**	**1 947.2**	**1 854.0**	**2 176.4**	**2 233.4**	**1 982.3**	**2 016.5**	**1 132.1**	**562.2**
25210	Wood office furniture	1 947.2	1 854.0	2 176.4	2 233.4	1 982.3	2 016.5	1 132.1	562.2
2522-	**Office furniture, except wood**	**5 760.4**	**5 276.2**	**5 703.1**	**5 817.7**	**5 578.3**	**5 243.0**	**2 951.6**	**1 353.0**
25221	Office seating, including upholstered, except wood	1 425.2	1 293.5	1 359.2	1 343.6	1 269.6	1 174.8	708.0	388.1
25225	Office desks and extensions, except wood	373.6	233.4	265.0	289.0	303.0	322.2	232.2	230.7
25226	Office storage units, files, and tables, except wood	1 506.5	1 400.4	1 494.4	1 525.7	1 481.4	1 417.7	991.1	(NA)
25227	Office panel and modular systems furniture and all other nonwood office furniture, n.e.c.	2 314.7	2 282.3	2 489.1	2 571.8	2 281.2	2 113.8	969.8	700.7
25220	Office furniture, except wood, n.s.k.	140.5	66.6	95.4	87.7	243.1	214.5	50.6	33.5
2531-	**Public building and related furniture**	**4 101.1**	**3 202.7**	**3 238.5**	**2 885.2**	**2 707.3**	**2 029.8**	**1 052.5**	**724.7**
25311	School furniture, except stone and concrete (excluding library furniture)	482.7	430.1	446.2	425.2	321.5	277.2	229.5	185.4
25312	Public building and related furniture, except school and restaurant furniture	3 429.7	2 458.7	2 484.6	2 205.2	2 173.8	1 540.9	744.1	479.5
25310	Public building and related furniture, n.s.k.	188.7	313.9	307.8	254.8	212.0	211.8	79.0	59.8
2541-	**Wood partitions and fixtures**	**3 107.5**	**2 835.4**	**3 093.1**	**2 968.1**	**2 831.8**	**2 778.0**	**1 676.8**	**1 070.8**
25411	Wood partitions, shelving, and lockers	239.7	168.4	156.2	166.3	159.2	183.7	152.5	135.6
25412	Plastics laminated fixture tops	556.4	653.8	664.6	693.2	503.2	431.6	236.9	204.2
25413	Wood fixtures for stores, banks, and offices, and other miscellaneous fixtures	1 655.5	1 378.5	1 530.5	1 420.0	1 408.5	1 420.1	997.0	561.1
25410	Wood partitions and fixtures, n.s.k.	656.0	634.8	741.8	688.6	760.9	742.7	290.3	169.9
2542-	**Partitions and fixtures, except wood**	**3 214.1**	**2 892.5**	**2 884.7**	**2 698.3**	**2 580.9**	**2 434.0**	**1 828.2**	**1 215.8**
25421	Partitions, prefabricated (assembled or knocked-down), except wood	219.9	223.3	210.2	210.2	188.8	170.3	218.0	96.7
25422	Shelving and lockers, except wood	739.2	603.8	588.5	576.2	555.4	527.6	469.4	349.4
25423	Storage racks and accessories, except wood	647.9	366.3	383.5	411.9	443.4	425.7	342.9	275.6
25424	Fixtures for stores, banks, and offices, and miscellaneous fixtures, except wood	1 279.3	1 338.7	1 345.4	1 159.4	1 018.3	961.4	636.3	391.0
25420	Partitions and fixtures, except wood, n.s.k.	327.9	360.5	357.1	340.7	375.0	349.1	161.6	103.1
2591-	**Drapery hardware and blinds and shades**	**1 808.3**	**1 708.1**	**1 873.3**	**1 805.8**	**1 695.9**	**1 671.9**	**1 001.2**	**615.3**
25913	Window shades and accessories	287.7	241.8	262.1	245.3	219.6	208.4	181.0	140.3
25914	Venetian blinds	891.8	848.4	982.1	970.3	835.8	810.9	406.5	99.0
25915	Other shades and blinds, n.e.c., and curtain and drapery rods, poles, and fixtures	395.4	386.2	384.3	370.2	392.2	414.5	301.8	320.3
25910	Drapery hardware and blinds and shades, n.s.k.	233.4	231.7	244.9	220.0	248.3	238.2	111.9	55.7
2599-	**Furniture and fixtures, n.e.c.**	**2 095.9**	**2 142.8**	**2 193.3**	**2 032.9**	**1 954.5**	**1 878.1**	**1 271.3**	**687.4**
25991	Hospital beds	372.4	315.1	276.5	252.1	221.8	182.1		
25992	Restaurant, cafeteria, and bar furniture and fixtures	912.3	657.6	668.3	681.2	727.5	721.5		
25994	All other furniture and fixtures, n.e.c.	380.4	433.9	468.1	429.0	278.9	279.6	1 271.3	687.4
25990	Furniture and fixtures, n.e.c., n.s.k.	430.9	736.2	780.4	670.6	726.3	694.8		

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2521, WOOD OFFICE FURNITURE		
	Materials, ingredients, containers, and supplies	**753.2**	**710.0**
	Fabricated metal products (except forgings):		
346901	Metal stampings	4.1	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	9.9	(1)
346000	Forgings	.2	(1)
330091	Castings (rough and semifinished)	.3	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	4.0	
331085	All other steel shapes and forms	5.0	26.5
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	(Z)	
335011	All other (except sheet, plate, foil, and welded tubing)	.8	3.3
335091	Other nonferrous	(D)	(1)
242111	Hardwood lumber, rough and dressed	53.3	82.5
242123	Softwood lumber, rough and dressed	5.3	4.1
242600	Hardwood dimension and parts, including wood furniture frames	51.3	(1)
243530	Hardwood veneer	33.5	51.8
	Plywood:		
243510	Hardwood	57.0	32.2
243601	Softwood	(D)	16.8
249310	Particleboard (wood)	45.7	48.8
249330	Medium density fiberboard (MDF)	5.7	3.4
249340	Hardboard (wood fiberboard)	8.5	7.2
308301	Plastics laminated sheets	26.6	18.0
308971	Plastics furniture parts and components	8.9	10.2
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	8.7	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	13.4	33.2
220125	Uncoated broadwoven fabrics	23.0	(1)
321101	Flat glass (plate, float, and sheet)	2.6	(1)
289100	Adhesives and sealants	3.1	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2521, WOOD OFFICE FURNITURE—Con.		
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	17.2	18.3
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	62.3	52.6
265001	Paperboard containers, boxes, and corrugated paperboard	28.3	24.1
970099	All other materials and components, parts, containers, and supplies	71.4	[1]104.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	177.2	172.2
	INDUSTRY 2522, OFFICE FURNITURE, EXCEPT WOOD		
	Materials, ingredients, containers, and supplies	**2 267.4**	**1 799.8**
	Fabricated metal products (except forgings):		
346901	Metal stampings	(D)	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	41.2	(1)
346000	Forgings	(D)	(1)
330091	Castings (rough and semifinished)	17.4	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	323.4	453.2
331085	All other steel shapes and forms	63.0	
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	10.2	48.2
335011	All other (except sheet, plate, foil, and welded tubing)	31.5	
335091	Other nonferrous	(D)	(1)
242111	Hardwood lumber, rough and dressed	26.0	17.0
242123	Softwood lumber, rough and dressed	3.1	9.0
242600	Hardwood dimension and parts, including wood furniture frames	121.2	(1)
243530	Hardwood veneer	7.3	21.1
	Plywood:		
243510	Hardwood	8.9	7.1
243601	Softwood	4.4	7.7
249310	Particleboard (wood)	23.6	34.7
249330	Medium density fiberboard (MDF)	(D)	(1)
249340	Hardboard (wood fiberboard)	10.7	6.8
308301	Plastics laminated sheets	28.2	41.5
308971	Plastics furniture parts and components	100.2	98.3
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	48.4	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	189.8	182.2
220125	Uncoated broadwoven	209.5	(1)
321101	Flat glass (plate, float, and sheet)	1.5	(1)
289100	Adhesives and sealants	8.3	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	63.0	59.8
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	147.7	94.4
265001	Paperboard containers, boxes, and corrugated paperboard	85.0	90.9
970099	All other materials and components, parts, containers, and supplies	241.0	[1]428.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	277.5	199.9
	INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE		
	Materials, ingredients, containers, and supplies	**2 393.7**	**1 102.4**
	Fabricated metal products (except forgings):		
346901	Metal stampings	178.9	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	199.3	(1)
346000	Forgings	2.6	(1)
330091	Castings (rough and semifinished)	3.9	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	71.1	183.6
331085	All other steel shapes and forms	131.4	
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	35.0	37.9
335011	All other (except sheet, plate, foil, and welded tubing)	21.0	
335091	Other nonferrous	.1	(1)
242111	Hardwood lumber, rough and dressed	30.9	30.4
242123	Softwood lumber, rough and dressed	3.8	4.4
242600	Hardwood dimension and parts, including wood furniture frames	129.1	(1)
243530	Hardwood veneer	7.0	4.7
	Plywood:		
243510	Hardwood	16.7	8.8
243601	Softwood	5.2	3.4
249310	Particleboard (wood)	16.3	14.4
249330	Medium density fiberboard (MDF)	6.3	1.6
249340	Hardboard (wood fiberboard)	4.3	3.1
308301	Plastics laminated sheets	24.1	14.7
308971	Plastics furniture parts and components	122.2	50.2
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	147.2	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	498.8	310.7
220125	Uncoated broadwoven	148.5	(1)
321101	Flat glass (plate, float, and sheet)	1.2	(1)
289100	Adhesives and sealants	4.7	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	11.4	11.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2531, PUBLIC BUILDING AND RELATED FURNITURE—Con.		
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	89.8	62.8
265001	Paperboard containers, boxes, and corrugated paperboard	23.0	11.4
970099	All other materials and components, parts, containers, and supplies	267.7	[1]204.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	192.0	145.0
	INDUSTRY 2541, WOOD PARTITIONS AND FIXTURES		
	Materials, ingredients, containers, and supplies	**1 141.0**	**1 045.2**
	Fabricated metal products (except forgings):		
346901	Metal stampings	(D)	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	25.1	(1)
346000	Forgings	(D)	(1)
330091	Castings (rough and semifinished)	.6	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	10.2	28.4
331085	All other steel shapes and forms	8.0	
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	.4	6.2
335011	All other (except sheet, plate, foil, and welded tubing)	5.6	
335091	Other nonferrous	2.2	(1)
242111	Hardwood lumber, rough and dressed	36.9	43.0
242123	Softwood lumber, rough and dressed	9.5	14.2
242600	Hardwood dimension and parts, including wood furniture frames	9.0	(1)
243530	Hardwood veneer	11.3	8.8
	Plywood:		
243510	Hardwood	25.9	22.9
243601	Softwood	14.3	13.4
249310	Particleboard (wood)	102.0	81.8
249330	Medium density fiberboard (MDF)	33.3	21.6
249340	Hardboard (wood fiberboard)	11.8	11.6
308301	Plastics laminated sheets	113.2	100.9
308971	Plastics furniture parts and components	25.2	17.0
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	.6	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	.9	5.1
220125	Uncoated broadwoven	.9	(1)
321101	Flat glass (plate, float, and sheet)	11.9	(1)
289100	Adhesives and sealants	10.0	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	15.9	16.3
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	35.8	31.9
265001	Paperboard containers, boxes, and corrugated paperboard	15.7	16.3
970099	All other materials and components, parts, containers, and supplies	175.1	[1]147.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	411.9	458.3
	INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD		
	Materials, ingredients, containers, and supplies	**1 334.7**	**1 048.4**
	Fabricated metal products (except forgings):		
346901	Metal stampings	19.1	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	56.2	(1)
346000	Forgings	.1	(1)
330091	Castings (rough and semifinished)	3.6	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	438.3	491.5
331085	All other steel shapes and forms	119.0	
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	6.0	18.1
335011	All other (except sheet, plate, foil, and welded tubing)	15.5	
335091	Other nonferrous	5.3	(1)
242111	Hardwood lumber, rough and dressed	9.9	2.0
242123	Softwood lumber, rough and dressed	3.1	3.4
242600	Hardwood dimension and parts, including wood furniture frames	31.8	(1)
243530	Hardwood veneer	2.5	(1)
	Plywood:		
243510	Hardwood	4.3	7.0
243601	Softwood	1.9	2.7
249310	Particleboard (wood)	31.9	14.9
249330	Medium density fiberboard (MDF)	4.1	3.8
249340	Hardboard (wood fiberboard)	14.0	22.1
308301	Plastics laminated sheets	27.9	11.8
308971	Plastics furniture parts and components	5.6	9.5
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	.3	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	2.7	2.9
220125	Uncoated broadwoven	1.3	(1)
321101	Flat glass (plate, float, and sheet)	4.0	(1)
289100	Adhesives and sealants	2.3	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	71.8	41.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2542, PARTITIONS AND FIXTURES, EXCEPT WOOD—Con.		
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	38.1	29.6
265001	Paperboard containers, boxes, and corrugated paperboard	41.8	34.4
970099	All other materials and components, parts, containers, and supplies	195.3	[1]147.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	177.2	206.4
	INDUSTRY 2591, DRAPERY HARDWARE AND BLINDS AND SHADES		
	Materials, ingredients, containers, and supplies	**818.2**	**734.0**
340004	Fabricated metal products, including forgings	43.8	(1)
330091	Castings (rough and semifinished)	.4	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	44.6	54.5
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	(D)	89.1
335011	All other (except sheet, plate, foil, and welded tubing)	57.3	52.6
335091	Other nonferrous shapes and forms	(D)	(1)
229506	Plastics coated fabrics and shade cloth	92.7	64.7
229801	Cordage	(D)	20.2
224110	Woven narrow tape and webbing	2.1	7.2
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	43.2	54.8
265001	Paperboard containers, boxes, and corrugated paperboard	23.4	(1)
970099	All other materials and components, parts, containers, and supplies	118.7	[1]106.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	302.8	284.9
	INDUSTRY 2599, FURNITURE AND FIXTURES, N.E.C.		
	Materials, ingredients, containers, and supplies	**785.9**	**661.8**
	Fabricated metal products (except forgings):		
346901	Metal stampings	3.1	(1)
340068	All other fabricated metal products, except forgings and furniture hardware	22.8	(1)
346000	Forgings	(Z)	(1)
330091	Castings (rough and semifinished)	3.7	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	58.4	67.2
331085	All other steel shapes and forms	29.1	
	Aluminum and aluminum-base alloys:		
335301	Sheet, plate, foil, and welded tubing	5.1	16.3
335011	All other (except sheet, plate, foil, and welded tubing)	3.3	
335091	Other nonferrous	3.9	(1)
242111	Hardwood lumber, rough and dressed	43.0	34.4
242123	Softwood lumber, rough and dressed	2.7	4.0
242600	Hardwood dimension and parts, including wood furniture frames	29.2	(1)
243530	Hardwood veneer	1.0	1.3
	Plywood:		
243510	Hardwood	9.5	5.2
243601	Softwood	3.3	4.0
249310	Particleboard (wood)	5.4	5.9
249330	Medium density fiberboard (MDF)	1.9	2.1
249340	Hardboard (wood fiberboard)	1.3	1.5
308301	Plastics laminated sheets	11.3	11.4
308971	Plastics furniture parts and components	14.1	6.2
308601	Formed and slab stock for pillows, cushions, seating, etc. (urethane)	6.3	(1)
	Fabrics for upholstery:		
229508	Coated or laminated fabrics, including vinyl coated	12.2	20.3
220125	Uncoated broadwoven	4.6	(1)
321101	Flat glass (plate, float, and sheet)	2.6	(1)
289100	Adhesives and sealants	2.1	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	8.4	9.0
342901	Furniture and builders' hardware, including cabinet hardware, casters, glides, handles, hinges, locks, etc.	46.1	31.2
265001	Paperboard containers, boxes, and corrugated paperboard	12.4	8.8
970099	All other materials and components, parts, containers, and supplies	159.1	[1]149.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	280.2	283.4

[1]In 1987, data for this material code were collected under code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
25113 31	25113 33	25117 48	25117 49	25147 98	25147 99	25312 34	25312 35
25113 31	25113 35	25117 75	25117 69			25312 41	25312 43
		25117 79	25117 69	25152 47	25156 15	25312 41	25312 45
25115 98	25115 91					25312 41	25312 47
25115 98	25115 99	25145 97	25145 19	25155 00	25155 12	25420	25425
		25145 97	25145 98	25155 00	25155 16	25420 00	25425 00
25117 25	25117 21					25424 99	25424 81
25117 25	25117 29	25147 88	25147 85	25170 18	25170 12	25424 99	25424 97
25117 48	25117 43	25147 88	25147 87	25170 18	25170 14		
25117 48	25117 45	25147 98	25147 55			25992 36	25992 35
25117 48	25117 47	25147 98	25147 91	25312 34	25312 33	25992 36	25992 37

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
25113 33	25113 31	25117 49	25117 48	25147 99	25147 98	25312 35	25312 34
25113 35	25113 31	25117 69	25117 75			25312 43	25312 41
		25117 69	25117 79	25155 12	25155 00	25312 45	25312 41
25115 91	25115 98			25155 16	25155 00	25312 47	25312 41
25115 99	25115 98	25145 19	25145 97			25424 81	25424 99
		25145 98	25145 97	25156 15	25152 47	25424 97	25424 99
25117 21	25117 25					25425	25420
25117 29	25117 25	25147 55	25147 98	25170 12	25170 18	25425 00	25420 00
25117 43	25117 48	25147 85	25147 88	25170 14	25170 18		
25117 45	25117 48	25147 87	25147 88			25992 35	25992 36
25117 47	25117 48	25147 91	25147 98	25312 33	25312 34	25992 37	25992 36

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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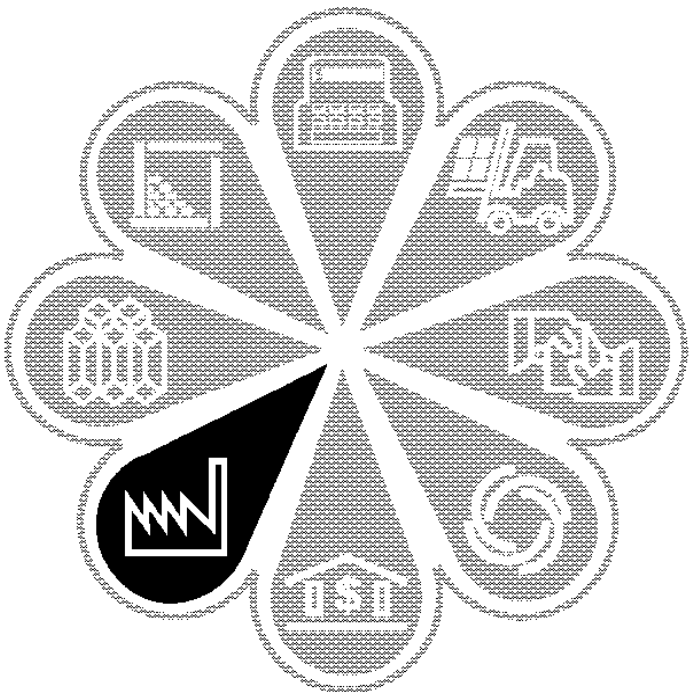
1992 Census of Manufactures

MC92-I-26A

INDUSTRY SERIES

Pulp, Paper, and Board Mills

Industries 2611, 2621, and 2631



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 3 OUTPUT: Thu May 11 10:12:28 1995 / pssw02/ disk2/ economic/ mc92i/ 26a/ 01cvr

1992 Census of Manufactures

MC92-I-26A

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2611	Pulp Mills
2621	Paper Mills
2631	Paperboard Mills

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2611, PULP MILLS

This industry is made up of establishments primarily engaged in manufacturing pulp from wood or from other materials, such as rags, linters, wastepaper, and straw. Establishments engaged in integrated logging and pulp mill operations are classified according to the primary products shipped. Establishments engaged in integrated operations of producing pulp and manufacturing paperboard or products thereof are classified in industry 2621 if primarily shipping paper or paper products; in industry 2631, if primarily shipping paperboard or paperboard products; and in industry 2611, if primarily shipping pulp. Establishments primarily engaged in cutting pulpwood are classified in industry 2411.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2611, Pulp Mills, had employment of 15.9 thousand. The employment figure was 12 percent above the 14.2 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, Florida, North Carolina, and Washington. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2611 shipped $4.4 billion of pulp mill products considered primary to the industry, $1.0 billion of secondary products, and had $53.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 81 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 72 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 69 percent.

The products primary to industry 2611, no matter in what industry they were produced, appear in table 6a and aggregate to $6.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pulp mill industry amounted to $3.0 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2621, PAPER MILLS

This industry is made up of establishments primarily engaged in manufacturing paper from wood pulp and other fiber pulp, and which may also manufacture converted paper products. Establishments primarily engaged in integrated operations of producing pulp and manufacturing paper are included in this industry if primarily shipping paper or paper products. Establishments primarily engaged in manufacturing converted paper products from purchased paper stock are classified in industry group 265 or 267.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2621, Paper Mills, had employment of 130.6 thousand. The employment figure was 1 percent above the 129.1 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Maine, Alabama, and New York, accounting for approximately 37 percent of the industry's employment. These same States were the leaders in 1987 when they also accounted for 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $32.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2621 shipped $29.2 billion of paper mill products considered primary to the industry, $3.1 billion of secondary products, and had $446.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2621, no matter in what industry they were produced, appear in table 6a and aggregate to $30.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paper mill industry amounted to $18.0 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2631, PAPERBOARD MILLS

This industry is made up of establishments primarily engaged in manufacturing paperboard, including paperboard coated on the paperboard machine, from wood pulp and other fiber pulp; and which may also manufacture converted paperboard products. Establishments primarily engaged in integrated operations of producing pulp and manufacturing paperboard are included in this industry if primarily shipping paperboard or paperboard products. Establishments primarily engaged in manufacturing converted paperboard products from purchased paperboard are classified in industry group 265 or 267. Establishments primary engaged in manufacturing insulation board and other reconstituted wood fiberboard are classified in industry 2493.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2631, Paperboard Mills, had employment of 51.5 thousand. The employment figure was 2 percent above the 52.3 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, Virginia, Alabama, and Texas. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $16.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2631 shipped $14.6 billion of paperboard mill products

considered primary to the industry, $1.3 billion of secondary products, and had $201.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2631, no matter in what industry they were produced, appear in table 6a and aggregate to $16.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paperboard mill industry amounted to $8.0 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
INDUSTRY 2611, PULP MILLS															
1992 Census	29	45	44	15.9	689.1	12.1	26.3	501.6	2 554.7	2 957.7	5 465.6	772.3	738.7	81	72
1991 ASM	(NA)	(NA)	(NA)	16.8	697.3	12.8	27.6	506.6	2 446.2	2 889.6	5 329.4	990.9	735.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.1	668.0	12.3	27.7	484.3	3 416.4	2 885.3	6 239.1	1 053.6	693.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.2	602.6	11.7	25.4	442.8	3 938.6	2 547.5	6 416.1	696.8	584.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.4	559.5	11.2	23.9	413.1	3 116.5	2 159.5	5 260.1	309.2	448.6	(NA)	(NA)
1987 Census	26	39	38	14.2	535.1	11.0	23.9	396.8	2 281.4	2 019.4	4 313.7	231.2	406.8	87	69
1986 ASM	(NA)	(NA)	(NA)	15.3	593.7	11.8	25.6	448.7	1 590.8	2 212.7	3 837.3	874.6	437.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.3	555.4	12.4	25.5	413.0	1 133.1	2 095.0	3 228.0	745.0	453.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.8	549.0	12.9	26.5	411.8	1 599.4	2 267.3	3 841.1	600.4	479.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.9	508.7	12.9	25.9	376.8	1 239.4	2 003.8	3 261.4	915.7	422.7	(NA)	(NA)
1982 Census	29	43	41	16.7	467.5	12.8	24.8	344.1	1 113.8	1 986.5	3 110.4	658.6	451.5	85	72
1981 ASM	(NA)	(NA)	(NA)	15.9	408.1	12.3	25.1	310.4	1 221.7	1 960.1	3 141.8	521.5	399.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.2	404.6	12.8	26.5	304.4	1 292.7	1 776.9	3 031.9	250.3	357.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.7	338.9	12.2	25.1	252.4	1 117.2	1 417.2	2 544.1	239.7	264.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	306.3	11.7	24.3	226.2	855.5	1 268.0	2 152.4	194.6	253.9	(NA)	(NA)
1977 Census	26	45	42	16.2	293.2	12.5	25.4	220.7	906.1	1 212.0	2 091.1	301.1	257.0	86	72
INDUSTRY 2621, PAPER MILLS															
1992 Census	127	280	276	130.6	5 420.5	100.4	215.2	3 916.7	14 847.7	17 971.4	32 786.4	2 911.5	3 689.2	90	95
1991 ASM	(NA)	(NA)	(NA)	130.3	5 223.5	99.4	212.1	3 778.7	15 510.3	17 983.1	33 344.0	3 637.7	3 670.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	130.1	5 061.5	98.6	210.6	3 670.6	16 599.8	18 861.1	35 321.8	4 277.5	3 483.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	130.1	4 927.1	100.6	214.0	3 629.4	17 100.6	18 481.0	35 387.1	5 236.6	3 335.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	130.4	4 773.0	101.1	215.1	3 533.4	16 866.2	16 782.1	33 545.8	3 299.5	3 067.3	(NA)	(NA)
1987 Census	122	282	276	129.1	4 597.0	99.2	210.4	3 403.0	14 024.3	14 856.0	28 918.0	2 759.9	2 748.0	91	96
1986 ASM	(NA)	(NA)	(NA)	128.8	4 405.0	99.4	210.1	3 283.3	12 032.9	13 640.9	25 705.9	2 153.3	2 512.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	131.8	4 259.4	101.5	212.0	3 181.8	11 074.4	13 929.7	24 980.1	2 484.3	2 512.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	129.5	4 021.6	100.6	214.7	3 032.9	11 165.7	14 162.5	25 195.0	2 412.4	2 447.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	128.6	3 703.5	100.0	210.5	2 790.1	9 701.6	12 552.1	22 284.0	2 239.3	2 236.0	(NA)	(NA)
1982 Census	135	299	281	129.0	3 430.6	100.1	208.4	2 563.6	8 954.1	12 136.7	20 994.6	1 856.1	2 247.1	92	95
1981 ASM	(NA)	(NA)	(NA)	130.4	3 236.2	101.6	212.3	2 408.9	8 534.3	12 135.3	20 544.1	2 434.8	1 990.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	130.1	2 936.4	101.0	212.2	2 195.2	7 707.6	10 738.6	18 326.1	1 896.6	1 808.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	131.6	2 696.6	103.1	216.1	2 027.8	7 398.7	9 073.4	16 391.1	1 714.1	1 495.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	125.9	2 336.8	98.7	207.0	1 740.1	6 061.7	7 494.2	13 603.9	1 423.9	1 283.2	(NA)	(NA)
1977 Census	172	339	287	127.0	2 167.0	100.4	210.4	1 631.7	5 406.6	7 221.6	12 613.3	1 115.2	1 259.5	92	92
INDUSTRY 2631, PAPERBOARD MILLS															
1992 Census	89	204	200	51.5	2 136.4	39.4	88.4	1 535.0	8 195.3	8 013.4	16 140.0	2 040.7	1 221.8	92	89
1991 ASM	(NA)	(NA)	(NA)	50.6	2 027.4	39.0	86.5	1 461.5	7 257.2	7 781.1	15 013.1	2 152.3	1 068.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	53.1	2 048.7	40.7	90.5	1 487.7	8 123.0	7 804.8	15 919.3	2 976.6	1 048.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	52.1	1 958.3	40.3	89.2	1 450.4	8 798.6	7 563.6	16 319.3	1 653.3	995.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	53.6	1 964.4	41.1	90.8	1 450.1	8 778.5	7 340.6	16 094.2	1 517.5	926.4	(NA)	(NA)
1987 Census	91	205	200	52.3	1 858.8	40.1	88.5	1 377.3	6 914.3	6 839.7	13 729.7	772.6	843.5	91	90
1986 ASM	(NA)	(NA)	(NA)	51.0	1 713.9	39.2	85.3	1 281.5	4 947.2	6 133.3	11 160.3	999.6	758.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	53.9	1 668.4	41.1	86.5	1 241.3	4 299.6	6 171.7	10 494.0	1 043.4	815.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	55.7	1 677.6	42.5	90.0	1 272.2	5 238.5	6 708.7	11 880.6	680.2	848.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	53.6	1 558.7	41.4	87.0	1 174.8	3 985.7	6 098.4	10 099.9	527.3	738.6	(NA)	(NA)
1982 Census	106	222	212	55.6	1 501.5	43.0	88.5	1 117.7	3 739.8	5 842.3	9 531.1	1 286.7	759.6	89	90
1981 ASM	(NA)	(NA)	(NA)	61.7	1 570.1	48.4	102.3	1 191.7	4 304.9	6 622.9	10 881.8	974.2	761.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	64.0	1 514.3	49.9	107.1	1 143.9	3 824.9	6 090.7	9 872.3	1 538.7	697.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	64.2	1 353.8	49.9	106.4	1 015.9	3 465.5	5 040.7	8 505.8	1 229.0	544.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	67.4	1 291.0	52.5	112.4	975.4	3 253.5	4 445.7	7 743.3	999.8	509.6	(NA)	(NA)
1977 Census	117	249	232	67.6	1 175.8	53.0	112.5	888.0	3 080.7	4 049.8	7 124.3	933.7	537.5	84	92

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2611, PULP MILLS								
1992 Census	43 340	76	2 174	19.07	54	67	160 673	27	97.14
1991 ASM	41 506	76	2 156	18.36	54	67	145 607	29	88.63
1990 ASM	41 491	76	2 252	17.48	46	57	212 199	20	123.34
1989 ASM	39 645	77	2 171	17.43	40	49	259 118	15	155.06
1988 ASM	38 854	78	2 134	17.28	41	52	216 424	18	130.40
1987 Census	37 683	77	2 173	16.60	47	59	160 662	23	95.46
1986 ASM	38 804	77	2 169	17.53	58	73	103 974	37	62.14
1985 ASM	34 074	76	2 056	16.20	65	82	69 515	49	44.44
1984 ASM	32 679	77	2 054	15.54	59	73	95 202	34	60.35
1983 ASM	30 101	76	2 008	14.55	61	77	73 337	41	47.85
1982 Census	27 994	77	1 937	13.88	64	79	66 695	42	44.91
1981 ASM	25 667	77	2 041	12.37	62	75	76 836	33	48.67
1980 ASM	24 975	79	2 070	11.49	59	72	79 796	31	48.78
1979 ASM	21 586	78	2 057	10.06	56	69	71 159	30	44.51
1978 ASM	20 285	77	2 077	9.31	59	73	56 656	36	35.21
1977 Census	18 099	77	2 032	8.69	58	72	55 932	32	35.67
	INDUSTRY 2621, PAPER MILLS								
1992 Census	41 505	77	2 143	18.20	55	71	113 688	37	68.99
1991 ASM	40 088	76	2 134	17.82	54	70	119 035	34	73.13
1990 ASM	38 905	76	2 136	17.43	53	68	127 593	30	78.82
1989 ASM	37 872	77	2 127	16.96	52	66	131 442	29	79.91
1988 ASM	36 603	78	2 128	16.43	50	64	129 342	28	78.41
1987 Census	35 608	77	2 121	16.17	51	67	108 631	33	66.66
1986 ASM	34 200	77	2 114	15.63	53	70	93 423	37	57.27
1985 ASM	32 317	77	2 089	15.01	56	73	84 024	38	52.24
1984 ASM	31 055	78	2 134	14.13	56	72	86 222	36	52.01
1983 ASM	28 799	78	2 105	13.25	56	73	75 440	38	46.09
1982 Census	26 594	78	2 082	12.30	58	74	69 412	38	42.97
1981 ASM	24 817	78	2 090	11.35	59	75	65 447	38	40.20
1980 ASM	22 570	78	2 101	10.34	59	75	59 244	38	36.32
1979 ASM	20 491	78	2 096	9.38	55	72	56 221	36	34.24
1978 ASM	18 561	78	2 097	8.41	55	72	48 147	39	29.28
1977 Census	17 063	79	2 096	7.76	57	74	42 572	40	25.70
	INDUSTRY 2631, PAPERBOARD MILLS								
1992 Census	41 483	77	2 244	17.36	50	63	159 132	26	92.71
1991 ASM	40 067	77	2 218	16.90	52	65	143 423	28	83.90
1990 ASM	38 582	77	2 224	16.44	49	62	152 976	25	89.76
1989 ASM	37 587	77	2 213	16.26	46	58	168 879	22	98.64
1988 ASM	36 649	77	2 209	15.97	46	58	163 778	22	96.68
1987 Census	35 541	77	2 207	15.56	50	63	132 205	27	78.13
1986 ASM	33 606	77	2 176	15.02	55	70	97 004	35	58.00
1985 ASM	30 954	76	2 105	14.35	59	75	79 770	39	49.71
1984 ASM	30 118	76	2 118	14.14	56	71	94 048	32	58.21
1983 ASM	29 080	77	2 101	13.50	60	76	74 360	39	45.81
1982 Census	27 005	77	2 058	12.63	61	77	67 263	40	42.26
1981 ASM	25 447	78	2 114	11.65	61	75	69 771	36	42.08
1980 ASM	23 661	78	2 146	10.68	62	77	59 764	40	35.71
1979 ASM	21 087	78	2 132	9.55	59	75	53 980	39	32.57
1978 ASM	19 154	78	2 141	8.68	57	74	48 272	40	28.95
1977 Census	17 393	78	2 123	7.89	57	73	45 572	38	27.38

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2611, PULP MILLS														
United States	–	**45**	**44**	**15.9**	**689.1**	**12.1**	**26.3**	**501.6**	**2 554.7**	**2 957.7**	**5 465.6**	**772.3**	**14.2**	**2 281.4**
Alabama	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	310.6
Alaska	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	3	3	2.0	78.6	1.5	3.2	51.9	299.4	392.9	673.9	(D)	G	(D)
Georgia	–	4	4	2.6	99.3	1.9	4.2	68.1	476.4	405.5	886.9	(D)	2.5	404.7
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.4	.4	44.2
Washington	–	5	5	1.7	74.3	1.2	2.5	51.9	145.4	245.2	388.0	22.3	G	(D)
Wisconsin	–	6	5	.6	25.5	.5	1.0	18.2	105.2	122.7	227.3	58.9	F	(D)
INDUSTRY 2621, PAPER MILLS														
United States	–	**280**	**276**	**130.6**	**5 420.5**	**100.4**	**215.2**	**3 916.7**	**14 847.7**	**17 971.4**	**32 786.4**	**2 911.5**	**129.1**	**14 024.3**
Alabama	–	7	7	8.8	404.1	6.9	15.8	301.6	1 199.7	1 126.8	2 314.3	341.9	8.7	1 269.2
Arizona	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	5	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.8	450.2
California	–	9	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Delaware	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	7	7	3.3	146.0	2.5	5.8	101.5	600.7	627.6	1 224.2	78.6	2.9	473.3
Illinois	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	7	7	4.5	200.8	3.5	7.6	151.5	830.0	800.7	1 629.6	188.1	4.1	731.0
Maine	–	13	13	12.5	521.1	9.6	21.2	382.2	1 156.3	1 787.0	2 934.5	248.3	12.6	1 228.3
Maryland	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E1	26	25	4.7	168.5	3.5	7.5	109.3	382.7	507.4	879.9	64.8	(NA)	(D)
Michigan	–	18	18	6.2	263.1	4.6	10.7	183.3	735.0	820.8	1 563.4	68.2	7.2	679.6
Minnesota	–	7	7	5.4	228.1	4.5	8.8	175.8	587.6	759.0	1 340.4	117.4	4.6	466.5
Mississippi	–	6	6	2.1	91.5	1.6	3.7	62.9	357.2	357.8	709.9	(D)	F	(D)
New Hampshire	–	10	10	2.4	68.1	1.8	3.4	45.2	175.4	197.8	369.4	(D)	(NA)	(D)
New Jersey	–	6	6	1.5	69.0	1.2	2.8	49.8	169.8	193.1	362.7	(D)	1.7	171.3
New York	–	32	31	7.4	278.8	5.5	12.3	193.0	664.7	891.2	1 567.1	97.4	7.6	613.6
North Carolina	–	3	3	5.0	215.0	3.9	8.0	157.1	471.0	482.3	963.9	(D)	(NA)	(D)
Ohio	–	11	11	6.0	248.7	4.7	10.7	187.7	669.6	680.5	1 364.4	101.1	6.9	543.2
Oklahoma	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	6	6	2.6	122.9	2.0	3.9	94.2	234.6	599.0	830.7	74.2	2.5	441.9
Pennsylvania	–	16	16	6.3	247.9	4.7	10.3	174.6	648.9	812.1	1 453.9	256.6	7.3	658.1
South Carolina	–	4	4	2.5	118.8	1.8	4.1	80.2	488.2	488.8	975.1	26.8	2.8	537.9
Tennessee	–	6	6	3.6	145.7	2.9	5.5	109.1	431.6	376.2	802.5	38.1	2.9	431.9
Texas	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Vermont	–	4	3	.7	21.9	.5	1.1	13.7	67.0	72.6	138.3	9.3	F	(D)
Virginia	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	13	13	7.1	307.2	5.6	11.2	231.1	793.0	1 307.6	2 098.8	207.7	6.6	933.7
Wisconsin	–	35	35	19.2	754.6	14.9	31.1	538.1	2 011.3	2 439.7	4 446.7	417.7	18.9	1 536.8
INDUSTRY 2631, PAPERBOARD MILLS														
United States	–	**204**	**200**	**51.5**	**2 136.4**	**39.4**	**88.4**	**1 535.0**	**8 195.3**	**8 013.4**	**16 140.0**	**2 040.7**	**52.3**	**6 914.3**
Alabama	–	8	8	4.2	190.1	3.1	8.0	132.7	789.9	828.9	1 618.4	(D)	3.8	613.8
Arkansas	–	3	3	2.2	91.9	1.7	3.7	69.5	350.0	397.9	737.3	44.6	2.0	281.6
California	–	15	15	1.7	70.5	1.3	2.9	50.7	323.6	276.2	598.7	28.8	2.0	226.9
Connecticut	–	5	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.6	F	(D)
Florida	–	4	4	2.1	84.6	1.6	3.6	55.9	319.4	447.1	760.9	(D)	2.6	370.5
Georgia	–	12	12	5.8	246.1	4.5	10.2	181.6	1 026.8	948.3	1 947.5	255.8	6.0	813.3
Idaho	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	7	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	9	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	E4	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	5	5	2.6	118.8	2.0	4.3	84.5	684.8	577.7	1 262.4	104.3	2.5	582.6
Maryland	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	13	13	2.6	107.8	2.1	5.0	79.5	361.7	245.2	607.7	89.8	(NA)	(D)
Minnesota	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2631, PAPERBOARD MILLS—Con.														
New Jersey	–	8	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.3	F	(D)
New York	–	13	11	.9	24.6	.7	1.3	17.3	77.6	61.2	138.3	11.4	F	(D)
North Carolina	E1	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	15	15	2.0	77.1	1.6	3.9	58.2	262.7	194.6	458.8	(D)	G	(D)
Oklahoma	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	5	5	2.0	92.5	1.5	3.0	66.7	276.6	505.5	779.4	43.2	1.9	382.3
Pennsylvania	E1	12	12	1.3	49.1	1.1	2.5	37.2	167.3	121.9	288.7	10.9	1.5	93.2
South Carolina	–	5	5	2.3	99.8	1.7	3.7	68.1	402.8	317.1	718.1	103.7	2.3	334.8
Tennessee	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	23.2	1.1	225.1
Texas	–	6	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Vermont	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	9	9	4.5	185.7	3.3	7.6	125.4	731.7	572.0	1 290.7	245.1	4.5	532.4
Washington	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	6	1.1	41.3	.8	1.9	29.0	239.1	112.0	351.2	23.2	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Pulp mills (SIC 2611)	Paper mills (SIC 2621)			Paperboard mills (SIC 2631)		
			Total	Integrated with a pulp mill facility (SIC 2621–12)	Not integrated with a pulp mill facility (SIC 2621–14)	Total	Integrated with a pulp mill facility (SIC 2631–12)	Not integrated with a pulp mill facility (SIC 2631–14)
Companies	number	29	127	48	100	89	29	72
All establishments	number	45	280	106	174	204	60	144
With 1 to 19 employees	number	1	4	–	4	4	–	4
With 20 to 99 employees	number	12	61	2	59	75	1	74
With 100 employees or more	number	32	215	104	111	125	59	66
Employment and labor costs:								
Employees	1,000	15.9	130.6	90.9	39.7	51.5	34.5	17.0
Compensation, total	mil dol	884.0	6 860.2	4 948.5	1 911.7	2 668.2	1 882.3	786.0
Annual payroll	mil dol	689.1	5 420.5	3 912.1	1 508.4	2 136.4	1 521.2	615.2
Fringe benefits	mil dol	194.9	1 439.7	1 036.4	403.3	531.9	361.1	170.8
Social Security and other legally required payments	mil dol	70.6	561.8	405.3	156.5	217.1	146.1	71.0
Employer voluntary payments	mil dol	124.3	877.8	631.1	246.8	314.8	215.0	99.8
Production workers:								
Average for year	1,000	12.1	100.4	70.1	30.3	39.4	26.0	13.4
March	1,000	12.2	99.7	69.6	30.1	39.1	25.8	13.3
May	1,000	12.1	100.4	70.0	30.5	39.3	25.9	13.4
August	1,000	12.1	101.8	71.1	30.7	40.0	26.4	13.6
November	1,000	12.1	99.7	69.5	30.2	39.1	25.8	13.3
Hours	millions	26.3	215.2	150.6	64.7	88.4	57.9	30.5
Wages	mil dol	501.6	3 916.7	2 847.8	1 068.9	1 535.0	1 086.7	448.3
Cost of materials[1]	mil dol	2 957.7	17 971.4	12 551.5	5 419.9	8 013.4	6 411.5	1 602.0
Materials, parts, containers, etc., consumed[2]	mil dol	2 532.6	14 644.2	10 051.4	4 592.8	6 319.9	5 206.3	1 113.7
Resales	mil dol	(D)	112.4	70.2	42.2	(D)	7.9	(D)
Fuels	mil dol	212.5	1 448.7	1 081.1	367.6	845.6	605.2	240.4
Purchased electricity	mil dol	117.8	1 393.3	1 044.1	349.2	564.0	381.4	182.7
Contract work	mil dol	(D)	372.9	304.7	68.2	(D)	210.7	(D)
Quantity of electric energy used for heat and power:								
Purchased	mil kWh	2 979.3	37 019.4	29 934.0	7 085.4	13 923.4	10 455.7	3 467.6
Generated less sold	mil kWh	5 844.4	24 518.7	21 521.3	2 997.5	14 128.0	13 020.7	1 107.3
Total value of shipments	mil dol	5 465.6	32 786.4	23 002.3	9 784.1	16 140.0	12 411.3	3 728.7
Value added	mil dol	2 554.7	14 847.7	10 477.3	4 370.4	8 195.3	6 070.8	2 124.5

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pulp mills (SIC 2611)	Paper mills (SIC 2621)			Paperboard mills (SIC 2631)		
		Total	Integrated with a pulp mill facility (SIC 2621–12)	Not integrated with a pulp mill facility (SIC 2621–14)	Total	Integrated with a pulp mill facility (SIC 2631–12)	Not integrated with a pulp mill facility (SIC 2631–14)
Inventories by stage of fabrication:							
Beginning of 1992—mil dol	737.6	3 636.4	2 524.1	1 112.3	1 105.7	915.9	189.8
Finished goods—mil dol	305.0	1 290.6	812.9	477.7	240.7	178.8	61.8
Work in process—mil dol	53.1	311.2	192.5	118.7	51.6	42.5	9.1
Materials and supplies—mil dol	379.5	2 034.6	1 518.7	515.9	813.4	694.5	118.9
End of 1992—mil dol	738.7	3 689.2	2 556.5	1 132.8	1 221.8	1 022.9	198.9
Finished goods—mil dol	356.2	1 322.1	836.1	486.0	305.7	247.2	58.5
Work in process—mil dol	48.7	312.4	195.8	116.6	55.2	45.1	10.2
Materials and supplies—mil dol	333.8	2 054.7	1 524.6	530.2	860.9	730.6	130.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pulp mills (SIC 2611)	Paper mills (SIC 2621)	Paperboard mills (SIC 2631)	Item	Pulp mills (SIC 2611)	Paper mills (SIC 2621)	Paperboard mills (SIC 2631)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	9 525.0	50 474.7	20 580.7	Beginning of year—Con.			
New capital expenditures[1]	772.3	2 911.5	2 040.7	New capital expenditures[1]	708.9	2 700.9	1 786.6
Used capital expenditures	(D)	96.3	(D)	Used capital expenditures	(D)	90.2	(D)
Retirements	(D)	490.8	(D)	Retirements	(D)	464.5	(D)
End of year	10 163.4	52 991.8	22 550.3	End of year	9 437.2	47 568.3	20 585.4
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	664.1	5 233.1	1 695.5	Total	484.0	2 354.6	1 017.5
New capital expenditures	63.4	210.7	254.1	Buildings and other structures	25.5	247.1	66.5
Used capital expenditures	(D)	6.1	(D)	Machinery and equipment	458.5	2 107.6	951.0
Retirements	(D)	26.3	(D)	Rental payments:			
End of year	726.2	5 423.5	1 964.9	Total	21.6	98.6	57.7
Machinery and equipment:				Buildings and other structures	3.1	27.3	13.5
Beginning of year	8 861.0	45 241.7	18 885.2	Machinery and equipment	18.5	71.3	44.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pulp mills (SIC 2611)		Paper mills (SIC 2621)		Paperboard mills (SIC 2631)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	9.4	(X)	77.1	(X)	56.2	(X)
Response coverage ratio (percent)[2]	96.6	(X)	94.5	(X)	86.7	(X)
Machinery	147.3	(X)	716.1	(X)	441.2	(X)
Response coverage ratio (percent)[2]	100.0	(X)	96.3	(X)	91.5	(X)
Other purchased services:						
Communications	4.8	(X)	32.2	(X)	13.2	(X)
Response coverage ratio (percent)[2]	97.2	(X)	94.3	(X)	92.6	(X)
Legal	8.6	(X)	22.7	(X)	8.0	(X)
Response coverage ratio (percent)[2]	96.0	(X)	94.6	(X)	90.4	(X)
Accounting and bookkeeping	1.4	(X)	13.1	(X)	1.0	(X)
Response coverage ratio (percent)[2]	81.9	(X)	84.2	(X)	81.6	(X)
Advertising	.9	(X)	28.0	(X)	1.5	(X)
Response coverage ratio (percent)[2]	89.2	(X)	89.6	(X)	84.7	(X)
Software and other data processing	3.0	(X)	25.8	(X)	8.1	(X)
Response coverage ratio (percent)[2]	95.5	(X)	92.7	(X)	90.8	(X)
Refuse removal, including hazardous waste	14.0	(X)	116.0	(X)	38.7	(X)
Response coverage ratio (percent)[2]	93.7	(X)	93.5	(X)	91.4	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pulp mills (SIC 2611)		Paper mills (SIC 2621)		Paperboard mills (SIC 2631)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	708.9	(X)	2 700.9	(X)	1 786.6	(X)
Automobiles, trucks, etc., for highway use	1.7	7	6.8	3	3.1	3
Computers and peripheral data processing equipment	20.2	3	46.5	1	24.6	9
All other	686.9	1	2 647.6	1	1 758.9	1
Adjustment ratio[3]	1.0	(X)	1.0	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	2 532.6	(X)	14 644.2	(X)	6 319.9	(X)
Materials purchased or transferred from foreign sources[4]	77.5	1	1 359.1	1	54.2	1
Materials purchased or transferred from domestic sources	2 455.1	1	13 285.1	1	6 265.7	1
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.3	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2611, PULP MILLS												
Total	–	**45**	**15.9**	**689.1**	**12.1**	**26.3**	**501.6**	**2 554.7**	**2 957.7**	**5 465.6**	**772.3**	**738.7**
Establishments with an average of—												
10 to 19 employees	–	1	.3	8.1	.2	.4	5.2	44.3	40.3	84.5	31.6	5.4
20 to 49 employees	E2	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	5	.3	12.0	.3	.6	9.1	46.6	47.4	95.3	326.4	4.7
100 to 249 employees	–	8	1.3	63.9	1.0	2.3	46.8	224.0	348.6	567.4	(D)	66.4
250 to 499 employees	–	12	4.5	210.0	3.5	7.2	149.6	535.4	848.6	1 371.1	108.7	226.9
500 to 999 employees	–	10	9.5	395.1	7.2	15.8	290.9	1 704.3	1 672.8	3 347.2	305.6	435.3
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2621, PAPER MILLS												
Total	–	**280**	**130.6**	**5 420.5**	**100.4**	**215.2**	**3 916.7**	**14 847.7**	**17 971.4**	**32 786.4**	**2 911.5**	**3 689.2**
Establishments with an average of—												
1 to 4 employees	–	2	.8	23.7	.6	1.3	17.4	63.1	66.4	129.9	–	9.9
10 to 19 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.5	(D)
20 to 49 employees	–	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	39	2.9	93.7	2.2	4.6	63.9	296.8	421.6	719.4	28.3	60.7
100 to 249 employees	–	65	10.5	392.3	7.9	17.3	275.6	1 283.8	1 575.5	2 857.7	140.5	275.0
250 to 499 employees	–	57	19.9	808.9	15.2	33.6	571.6	2 745.1	3 006.2	5 758.0	353.4	609.3
500 to 999 employees	–	52	36.2	1 537.0	27.8	59.5	1 110.4	4 089.7	5 503.1	9 580.1	799.1	1 050.9
1,000 to 2,499 employees	–	41	60.3	2 564.9	46.7	99.0	1 877.9	6 369.2	7 398.7	13 741.4	1 583.7	1 683.3
INDUSTRY 2631, PAPERBOARD MILLS												
Total	–	**204**	**51.5**	**2 136.4**	**39.4**	**88.4**	**1 535.0**	**8 195.3**	**8 013.4**	**16 140.0**	**2 040.7**	**1 221.8**
Establishments with an average of—												
1 to 4 employees	E9	1	(Z)	1.7	(Z)	.1	1.1	3.2	7.1	9.9	–	.8
10 to 19 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.7	(D)
20 to 49 employees	–	14	.6	20.8	.5	1.0	15.0	61.7	38.0	99.4	(D)	4.6
50 to 99 employees	–	61	4.7	160.7	3.6	8.3	114.4	508.6	405.8	913.4	194.2	52.6
100 to 249 employees	–	61	9.3	352.0	7.1	16.1	254.5	1 337.7	958.4	2 298.4	107.4	121.8
250 to 499 employees	–	31	10.7	461.6	8.2	18.7	335.5	1 929.0	1 808.8	3 724.9	457.4	272.8
500 to 999 employees	–	27	18.7	821.4	14.5	31.5	597.9	3 269.7	3 716.4	6 955.7	836.1	550.2
1,000 to 2,499 employees	–	6	7.5	318.2	5.3	12.7	216.7	1 085.5	1 078.9	2 138.2	440.9	219.0

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.
[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2611	**Pulp mills:**										
	All establishments in industry	45	15.9	689.1	12.1	26.3	501.6	2 554.7	2 957.7	5 465.6	772.3
	Establishments with this product class primary:										
26111	Special alpha and dissolving woodpulp	7	4.0	156.5	3.3	7.2	120.8	462.5	631.2	1 075.5	133.0
26113	Sulfate woodpulp, including soda	19	9.9	454.9	7.3	15.8	328.6	1 812.2	2 032.3	3 811.1	545.2
26114	Sulfite and other woodpulp	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
26115	Pulp, other than wood, and pulp mill byproducts, n.e.c.	17	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2621	**Paper mills:**										
	All establishments in industry	280	130.6	5 420.5	100.4	215.2	3 916.7	14 847.7	17 971.4	32 786.4	2 911.5
	Establishments with this product class primary:										
26211	Newsprint	21	10.5	493.0	8.2	17.4	360.1	1 362.5	1 834.8	3 212.0	174.4
26212	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	7	3.7	151.3	2.9	6.7	113.0	326.2	432.7	756.0	93.9
26213	Clay coated printing and converting paper	36	30.9	1 320.4	23.9	50.5	962.3	3 519.5	4 483.0	7 990.7	485.4
26214	Uncoated freesheet (containing not more than 10 percent mechanical fiber)	67	42.9	1 773.9	33.0	71.0	1 281.0	4 507.5	5 734.3	10 224.3	1 175.8
26215	Bleached bristols (weight more than 150 g/m2), excluding cotton fiber index and bogus	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
26216	Cotton fiber paper and thin paper	15	5.9	219.4	4.5	9.3	147.3	474.7	460.6	941.1	61.1
26217	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper	13	5.9	237.0	4.6	9.4	170.5	694.0	810.9	1 495.5	230.0
26218	Packaging and industrial converting papers, except unbleached kraft	10	1.8	67.4	1.4	3.4	49.3	173.0	281.2	453.8	8.0
26219	Special industrial paper, except specialty packaging	36	7.2	264.2	5.1	11.3	173.9	711.7	808.2	1 515.6	94.0
2621A	Tissue paper and other machine-creped paper	57	19.5	814.3	15.2	32.8	601.0	2 852.1	2 915.6	5 762.0	544.9
2621B	Construction paper	10	.8	24.3	.6	1.2	17.7	62.4	91.5	153.7	7.5
2631	**Paperboard mills:**										
	All establishments in industry	204	51.5	2 136.4	39.4	88.4	1 535.0	8 195.3	8 013.4	16 140.0	2 040.7
	Establishments with this product class primary:										
26311	Unbleached kraft packaging and industrial converting (80 percent or more virgin woodpulp)	36	19.9	876.7	15.0	34.1	627.4	3 638.6	4 157.2	7 770.0	738.4
26312	Bleached packaging and industrial converting paperboard (80 percent or more virgin pulp)	10	9.7	429.0	7.3	15.6	306.3	1 526.9	1 614.3	3 105.6	751.4
26313	Semichemical paperboard, including corrugating medium	9	2.3	103.0	1.7	3.8	71.1	479.8	278.9	758.6	(D)
26314	Recycled paperboard	139	18.8	704.0	14.7	33.7	513.5	2 497.9	1 926.5	4 417.3	491.3
26318	Wet machine board	8	.6	17.6	.5	1.0	12.4	40.9	26.0	67.1	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2611, PULP MILLS			
Total value of shipments	5 465.6	4 313.7	3 110.4
Primary products value of shipments	4 392.2	3 694.9	2 605.7
Secondary products value of shipments	1 019.7	567.8	474.3
Total miscellaneous receipts	53.7	51.0	30.3
Value of resales	(D)	(D)	(D)
Contract receipts	–	–	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Bark	–	(NA)	(D)
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	(D)	(NA)	3.8
Receipts for research and development	–	(NA)	–
Receipts for sold electricity	(D)	(NA)	(NA)
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	–
Primary products specialization ratio	81	87	85
Value of primary products shipments made in all industries	6 103.9	5 356.7	3 644.2
Value of primary products shipments made in this industry	4 392.2	3 694.9	2 605.7
Value of primary products shipments made in other industries	1 711.7	1 661.8	1 038.5
Coverage ratio	72	69	72

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2621, PAPER MILLS			
Total value of shipments	32 786.4	28 918.0	20 994.6
Primary products value of shipments	29 220.8	26 059.5	19 154.7
Secondary products value of shipments	3 119.1	2 591.9	1 721.4
Total miscellaneous receipts	446.4	266.6	118.4
Value of resales	120.5	103.3	59.6
Contract receipts	19.9	(D)	(D)
Other miscellaneous receipts	306.0	(D)	(D)
Bark	4.4	(NA)	(D)
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	13.0	(NA)	11.3
Receipts for research and development	(D)	(NA)	(D)
Receipts for sold electricity	[1](D)	(NA)	(NA)
Other miscellaneous receipts	67.1	(NA)	46.7
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	90	91	92
Value of primary products shipments made in all industries	30 858.6	27 121.6	20 222.2
Value of primary products shipments made in this industry	29 220.8	26 059.5	19 154.7
Value of primary products shipments made in other industries	1 637.8	1 062.1	1 067.5
Coverage ratio	95	96	95
INDUSTRY 2631, PAPERBOARD MILLS			
Total value of shipments	16 140.0	13 729.7	9 531.1
Primary products value of shipments	14 606.5	12 317.9	8 407.8
Secondary products value of shipments	1 332.2	1 259.8	1 068.2
Total miscellaneous receipts	201.4	152.0	55.1
Value of resales	(D)	(D)	26.1
Contract receipts	(D)	(D)	1.0
Other miscellaneous receipts	153.6	123.5	28.0
Bark	1.6	(NA)	(D)
Sales of mill residues other than bark, including sawdust, shavings, slabs, cores, fuel wood, etc.	(D)	(NA)	(D)
Receipts for research and development	(D)	(NA)	–
Receipts for sold electricity	[1](D)	(NA)	(NA)
Other miscellaneous receipts	53.2	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	92	91	89
Value of primary products shipments made in all industries	16 373.0	13 697.1	9 390.0
Value of primary products shipments made in this industry	14 606.5	12 317.9	8 407.8
Value of primary products shipments made in other industries	1 766.5	1 379.2	982.2
Coverage ratio	89	90	90

Note: For qualifications of data, see footnotes on table 1a.

[1]In 1992, Receipts for sold electricity did not meet publication standards.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2611– —	**PULP MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**6 103.9**	**(NA)**	**(X)**	**(X)**	**5 356.7**
26111	Special alpha and dissolving woodpulp	(NA)	(X)	(X)	921.5	(NA)	(X)	(X)	686.9
26111 00	Special alpha and dissolving woodpulp (sulfite and sulfate for chemical conversion, papermaking, and other uses) 1,000 s tons (dry basis)	7	1 518.8	1 498.4	921.5	10	(NA)	(NA)	[3]686.9
26113	Sulfate woodpulp, including soda	(NA)	(X)	(X)	4 411.6	(NA)	(X)	(X)	[3]4 123.8
26113 35	Sulfate, bleached and semibleached, including soda 1,000 s tons (dry basis)	29	27 740.5	9 628.4	4 333.1	(NA)	(NA)	(NA)	(NA)
26113 43	Sulfate, unbleached 1,000 s tons (dry basis)	10	22 733.1	271.4	78.5	(NA)	(NA)	(NA)	(NA)
26113 00	Sulfate woodpulp, including soda, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(NA)

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2611– —	**PULP MILLS**—Con.								
26114	Sulfite and other woodpulp	(NA)	(X)	(X)	280.4	(NA)	(X)	(X)	[3]247.5
26114 32	Sulfite, bleached and unbleached, 1,000 s tons (dry basis)	7	1 685.2	(D)	(D)	(NA)	(NA)	(NA)	(NA)
26114 66	Groundwood (stone, refiner, and thermomechanical), 1,000 s tons (dry basis)	–	5 987.3	–	–	(NA)	(NA)	(NA)	(NA)
26114 72	Semichemical, 1,000 s tons (dry basis)	–	3 703.9	–	–	(NA)	(NA)	(NA)	(NA)
26114 78	Other, including defibrated or exploded, screenings, damaged, etc., 1,000 s tons (dry basis)	1	(D)	(D)	(D)	(NA)	(NA)	(NA)	(NA)
26114 00	Sulfite and other woodpulp, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	(NA)
26115	Pulp, other than wood, and pulp mill byproducts, n.e.c.	(NA)	(X)	(X)	490.3	(NA)	(X)	(X)	297.9
26115 11	Cotton linter pulp, 1,000 s tons (dry basis)	4	(S)	173.9	188.0	5	179.1	176.0	139.2
26115 13	Other pulp, including pulp made from straw, rag, flax, deinked paper, bagasse, etc., 1,000 s tons (dry basis)	13	2 444.4	*457.9	206.2	6	(S)	232.7	76.9
26115 17	Turpentine, sulfate, mil gal	29	*30.4	30.3	26.9	34	**34.9	*34.6	28.8
26115 19	Other cooking liquor byproducts (skimmings, binders, fuel, etc.), 1,000 s tons (dry basis)	18	2 760.0	864.4	69.2	18	(S)	(S)	52.9
26115 00	Pulp, other than wood, and pulp mill byproducts, n.e.c., n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
26110	Pulp mills, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	.6
26110 00	Pulp mills, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	.6
26110 02	Pulp mills, n.s.k.[4]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2621– —	**PAPER MILLS**						
	Total	**(NA)**	**(X)**	**30 858.6**	**(NA)**	**(X)**	**27 121.6**
26211	Newsprint	(NA)	(X)	2 924.9	(NA)	(X)	2 765.7
26211 00	Newsprint, 1,000 s tons	20	7 217.4	2 924.9	19	(NA)	[3]2 765.7
26212	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	(NA)	(X)	823.0	(NA)	(X)	[3]934.4
	Publication and printing:						
26212 15	Supercalendered, 1,000 s tons	5	1 131.0	724.2	(NA)	(NA)	(NA)
26212 19	Other, 1,000 s tons	11			(NA)	(NA)	(NA)
26212 27	Other converting and miscellaneous groundwood, including form bond, wallpaper base and body stock for coating, 1,000 s tons	6	98.8	78.1	(NA)	(NA)	(NA)
26212 00	Uncoated groundwood paper (containing more than 10 percent mechanical fiber), n.s.k.	(NA)	(X)	20.7	(NA)	(X)	(NA)
26213	Clay coated printing and converting paper	(NA)	(X)	7 509.8	(NA)	(X)	[3]5 959.3
26213 15	Coated groundwood (containing more than 10 percent mechanical fiber), 1,000 s tons	15	[5]4 492.0	[5]3 237.8	(NA)	(NA)	(NA)
	Coated freesheet (containing not more than 10 percent mechanical fiber):						
26213 16	Coated, one side, 1,000 s tons	11	772.8	924.2	(NA)	(NA)	(NA)
26213 20	Coated, two sides, 1,000 s tons	16	3 671.2	3 332.7	(NA)	(NA)	(NA)
26213 29	Prime-coated body stock for further coating, 1,000 s tons	2	([5])	([5])	(NA)	(NA)	(NA)
26213 00	Clay coated printing and converting paper, n.s.k.	(NA)	(X)	15.1	(NA)	(X)	(NA)
26214	Uncoated freesheet (containing not more than 10 percent mechanical fiber)	(NA)	(X)	8 693.2	(NA)	(X)	[3]8 143.3
	Writing:						
26214 31	Bond and writing, including protective check, 1,000 s tons	22	2 138.3	1 870.1	(NA)	(NA)	(NA)
26214 32	Form bond in rolls, 1,000 s tons	17	1 883.6	1 093.3	(NA)	(NA)	(NA)
26214 37	Body stock for communication, copying, and related papers, 1,000 s tons	11	406.5	265.2	(NA)	(NA)	(NA)
26214 41	Other technical and reproduction papers, including mimeograph and gelatin and spirit process duplicating, 1,000 s tons	13	1 755.3	1 100.3	(NA)	(NA)	(NA)
26214 47	Tablet, 1,000 s tons	14	353.2	193.7	(NA)	(NA)	(NA)

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2621– —	**PAPER MILLS**—Con.						
26214	Uncoated freesheet (containing not more than 10 percent mechanical fiber)—Con.						
	Writing—Con.						
26214 48	Other, including ledger, onion skin, papeterie and wedding, etc.	1,000 s tons	14	97.5	71.5	(NA)	(NA)	(NA)
	Publication and printing:						
26214 54	Plain, including machine finish, English finish, antique, bulking, eggshell, and supercalendered	1,000 s tons	9	365.2	348.6	(NA)	(NA)	(NA)
26214 55	Offset	1,000 s tons	22	2 143.3	1 499.2	(NA)	(NA)	(NA)
26214 56	Other uncoated publication and printing freesheet	1,000 s tons	22	844.2	629.2	(NA)	(NA)	(NA)
26214 60	Cover and text papers	1,000 s tons	21	391.6	602.4	(NA)	(NA)	(NA)
	Other converting and miscellaneous uncoated freesheet:							
26214 71	Envelope (white wove)	1,000 s tons	15	1 044.9	543.6	(NA)	(NA)	(NA)
26214 73	Kraft envelope (bleached kraft and brown kraft)	1,000 s tons	10	322.0	210.8	(NA)	(NA)	(NA)
26214 89	Body stock for coating (base or raw stock for conversion of off-machine coating) and miscellaneous uncoated freesheet	1,000 s tons	12	285.4	247.1	(NA)	(NA)	(NA)
26214 00	Uncoated freesheet (containing not more than 10 percent mechanical fiber), n.s.k.		(NA)	(X)	18.3	(NA)	(X)	(NA)
26215	Bleached bristols (weight more than 150 g/m2), excluding cotton fiber index and bogus		(NA)	(X)	1 153.7	(NA)	(X)	[3]778.4
	Uncoated bristols:							
26215 31	Tag stock	1,000 s tons	9	199.9	150.1	(NA)	(NA)	(NA)
26215 32	File folder stock	1,000 s tons	10	243.2	180.9	(NA)	(NA)	(NA)
26215 37	Other uncoated bristols, including tabulating card, index, printing, and postcard stock	1,000 s tons	17	330.0	280.3	(NA)	(NA)	(NA)
26215 58	Coated bristols	1,000 s tons	7	548.8	542.3	(NA)	(NA)	(NA)
26215 00	Bleached bristols (weight more than 150 g/m2), excluding cotton fiber index and bogus, n.s.k.		(NA)	(X)	–	(NA)	(X)	(NA)
26216	Cotton fiber paper and thin paper		(NA)	(X)	804.6	(NA)	(X)	[3]737.8
	Cotton fiber paper (containing 25 percent or more cotton or similar fibers):							
26216 11	Bond and writing	1,000 s tons	12	169.4	395.0	(NA)	(NA)	(NA)
26216 19	Other cotton fiber paper	1,000 s tons	5	7.9	16.6	(NA)	(NA)	(NA)
26216 27	Thin paper, including carbonizing; Bible paper; dermatype, mimeotype, and duplicating stencil; India; cigarette; etc.	1,000 s tons	4	157.6	387.0	(NA)	(NA)	(NA)
26216 00	Cotton fiber paper and thin paper, n.s.k.		(NA)	(X)	5.9	(NA)	(X)	(NA)
26217	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper		(NA)	(X)	1 299.2	(NA)	(X)	[3]1 314.3
26217 30	Shipping sack (which meets minimum Federal specifications UU-S-48) and other unbleached kraft shipping sack	1,000 s tons	10	680.7	331.8	(NA)	(NA)	(NA)
26217 50	Bag and sack, except shipping, including grocers' and other unbleached kraft bag and sack for notion, millinery, etc.	1,000 s tons	19	1 552.5	675.9	(NA)	(NA)	(NA)
26217 60	Wrapping and specialty packaging (92 lb or less) (including flour, sugar, dog food, fast foods, dairy products, etc.)	1,000 s tons	14	203.8	107.9	(NA)	(NA)	(NA)
26217 68	Other converting, including creping (92 lb or less) (asphalting paper, coating and laminating, gumming, etc.)	1,000 s tons	10	304.4	177.1	(NA)	(NA)	(NA)
26217 00	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper, n.s.k.		(NA)	(X)	6.4	(NA)	(X)	(NA)
26218	Packaging and industrial converting papers, except unbleached kraft		(NA)	(X)	950.9	(NA)	(X)	[3]952.7
26218 30	Shipping sack, including combination kraft and rope, bleached and semibleached	1,000 s tons	8	186.2	134.2	(NA)	(NA)	(NA)
26218 50	Other bag and sack, except shipping, including grocers', liquor, millinery, notion, variety, etc.	1,000 s tons	7	112.6	75.7	(NA)	(NA)	(NA)
26218 60	Specialty packaging (92 lb or less) and wrapping (butcher, flour, sugar, fast foods, confectionery, etc.)	1,000 s tons	15	496.6	521.1	(NA)	(NA)	(NA)
26218 64	Waxing stock, 19 lb or more	1,000 s tons	6	26.5	38.7	(NA)	(NA)	(NA)

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2621– —	**PAPER MILLS**—Con.						
26218	Packaging and industrial converting papers, except unbleached kraft—Con.						
26218 68	Other converting stock, including asphalting and creping stocks (92 lb or less), coating and laminating, etc. ---- 1,000 s tons	8	141.8	72.5	(NA)	(NA)	(NA)
26218 83	Glassine, greaseproof, and vegetable parchment, all grades regardless of end use (92 lb or less) ---- 1,000 s tons	7	66.0	99.2	(NA)	(NA)	(NA)
26218 00	Packaging and industrial converting papers, except unbleached kraft, n.s.k. ----	(NA)	(X)	9.6	(NA)	(X)	(NA)
26219	Special industrial paper, except specialty packaging ----	(NA)	(X)	1 458.9	(NA)	(X)	1 058.8
26219 00	Special industrial paper, except specialty packaging, including absorbent, battery separator, electrical papers, etc. ---- 1,000 s tons	41	1 131.7	1 458.9	37	(NA)	[3]1 058.8
2621A	Tissue paper and other machine-creped paper ----	(NA)	(X)	5 024.7	(NA)	(X)	[3]4 257.2
	Sanitary paper:						
2621A 11	Toilet tissue ---- 1,000 s tons	15	2 269.0	1 973.7	(NA)	(NA)	(NA)
2621A 30	Facial tissue, except toweling, napkin, and toilet ---- 1,000 s tons	11	363.8	494.0	(NA)	(NA)	(NA)
2621A 51	Napkin stock, except sanitary napkin stock wadding ---- 1,000 s tons	20	672.0	535.2	(NA)	(NA)	(NA)
2621A 60	Toweling, except wiper stock ---- 1,000 s tons	18	1 675.5	1 420.1	(NA)	(NA)	(NA)
2621A 73	Wiper stock, regular, facial, and wadding stock ---- 1,000 s tons	9	88.0	107.3	(NA)	(NA)	(NA)
2621A 78	Other sanitary stock, including sanitary napkin stock wadding, aseptic paper stock, reinforced paper stock, etc. ---- 1,000 s tons	15	283.0	260.5	(NA)	(NA)	(NA)
	Tissue paper, excluding sanitary and thin:						
2621A 81	Wrapping tissue, including florist tissue stock, hosiery paper, interleaving, antitarnish, etc. ---- 1,000 s tons	13	117.5	134.9	(NA)	(NA)	(NA)
2621A 88	Other tissue paper, including waxing tissue stock, creped wadding for interior packaging (excluding sanitary and thin) ---- 1,000 s tons	10	51.6	53.4	(NA)	(NA)	(NA)
2621A 00	Tissue paper and other machine-creped paper, n.s.k. ----	(NA)	(X)	45.5	(NA)	(X)	(NA)
2621B	Construction paper ----	(NA)	(X)	159.0	(NA)	(X)	[3]127.6
2621B 22	Roofing felts, saturating and dry ---- 1,000 s tons	7	298.5	70.2	(NA)	(NA)	(NA)
2621B 28	Other construction paper (including sheathing paper, floor covering felts, automotive, insulating paper blankets, etc.) ---- 1,000 s tons	6	102.6	71.3	(NA)	(NA)	(NA)
2621B 00	Construction paper, n.s.k. ----	(NA)	(X)	17.5	(NA)	(X)	(NA)
26210	Paper mills, n.s.k. ----	(NA)	(X)	56.9	(NA)	(X)	92.0
26210 00	Paper mills, n.s.k. ----	(NA)	(X)	56.9	(NA)	(X)	92.0
26210 02	Paper mills, n.s.k.[4] ----	(NA)	(X)	–	(NA)	(X)	–
2631– —	**PAPERBOARD MILLS**						
	Total ----	**(NA)**	**(X)**	**16 373.0**	**(NA)**	**(X)**	**13 697.1**
26311	Unbleached kraft packaging and industrial converting (80 percent or more virgin woodpulp) ----	(NA)	(X)	7 438.6	(NA)	(X)	[3]6 415.5
26311 10	Unbleached linerboard ---- 1,000 s tons	24	18 432.3	6 242.5	(NA)	(NA)	(NA)
26311 88	Other, including tube, can, and drum; corrugating medium, etc. ---- 1,000 s tons	13	2 752.2	1 196.1	(NA)	(NA)	(NA)
26311 00	Unbleached kraft packaging and industrial converting (80 percent or more virgin woodpulp), n.s.k. ----	(NA)	(X)	–	(NA)	(X)	(NA)
26312	Bleached packaging and industrial converting paperboard (80 percent or more virgin pulp) ----	(NA)	(X)	3 341.9	(NA)	(X)	[3]2 558.8
26312 10	Linerboard ---- 1,000 s tons	8	336.7	208.2	(NA)	(NA)	(NA)
26312 40	Folding carton-type board ---- 1,000 s tons	12	2 153.5	1 557.8	(NA)	(NA)	(NA)
26312 61	Milk carton board ---- 1,000 s tons	5	1 172.9	803.9	(NA)	(NA)	(NA)
26312 62	Heavyweight cup and round nested food container ---- 1,000 s tons	8	616.0	398.4	(NA)	(NA)	(NA)
26312 63	Plate, dish, and tray stock ---- 1,000 s tons	10	378.3	199.1	(NA)	(NA)	(NA)
26312 88	Other solid bleached board, including paperboard for moist, liquid, and oily foods ---- 1,000 s tons	6	295.9	174.5	(NA)	(NA)	(NA)
26312 00	Bleached packaging and industrial converting paperboard (80 percent or more virgin pulp), n.s.k. ----	(NA)	(X)	–	(NA)	(X)	(NA)

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2631– –	**PAPERBOARD MILLS**—Con.						
26313	Semichemical paperboard, including corrugating medium	(NA)	(X)	1 216.6	(NA)	(X)	1 607.7
26313 00	Semichemical paperboard, including corrugating medium (75 percent or more virgin woodpulp) 1,000 s tons	13	3 939.1	1 216.6	21	(NA)	[3]1 607.7
26314	Recycled paperboard	(NA)	(X)	4 261.1	(NA)	(X)	[3]2 997.3
	Shipping containerboard:						
26314 10	Linerboard (less than 80 percent virgin fiber) 1,000 s tons	13	1 679.7	604.0	(NA)	(NA)	(NA)
26314 20	Corrugating medium (less than 75 percent virgin fiber) 1,000 s tons	22	3 549.2	983.7	(NA)	(NA)	(NA)
26314 30	Container chip and filler board 1,000 s tons	11	544.7	182.5	(NA)	(NA)	(NA)
	Folding carton board:						
26314 43	Unlined chipboard 1,000 s tons	16	440.4	147.0	(NA)	(NA)	(NA)
26314 44	Kraft-lined 1,000 s tons	7	56.1	20.8	(NA)	(NA)	(NA)
26314 45	White-lined 1,000 s tons	12	170.3	69.8	(NA)	(NA)	(NA)
26314 46	Clay-coated 1,000 s tons	11	1 954.9	932.5	(NA)	(NA)	(NA)
26314 50	Setup board 1,000 s tons	9	121.2	44.7	(NA)	(NA)	(NA)
	Packaging and industrial converting paperboard:						
26314 81	Tube, can, and drum stock 1,000 s tons	19	1 316.5	421.6	(NA)	(NA)	(NA)
26314 82	Gypsum linerboard 1,000 s tons	9	543.3	161.0	(NA)	(NA)	(NA)
26314 88	Other recycled paperboard, including panelboard and wallboard stock and other special combination packaging 1,000 s tons	25	*1 166.6	457.6	(NA)	(NA)	(NA)
26314 00	Recycled paperboard, n.s.k.	(NA)	(X)	236.0	(NA)	(X)	(NA)
26318	Wet machine board	(NA)	(X)	81.4	(NA)	(X)	64.0
26318 00	Wet machine board, including binders' board and shoe board 1,000 s tons	7	127.9	81.4	8	(NA)	[3]64.0
26310	Paperboard mills, n.s.k.	(NA)	(X)	33.3	(NA)	(X)	53.9
26310 00	Paperboard mills, n.s.k.	(NA)	(X)	33.3	(NA)	(X)	53.9
26310 02	Paperboard mills, n.s.k.[4]	(NA)	(X)	–	(NA)	(X)	–

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, detailed product data were collected and published in the Current Industrial Report (CIR) series MA26A, Pulp, Paper, and Board. Annual data from this survey are available through 1989. The survey was discontinued in 1990.
[4]There were no administrative-record cases for this industry.
[5]For 1992, product code 26213 29 is included with product code 26213 15.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26111, SPECIAL ALPHA AND DISSOLVING WOODPULP		
United States	**921.5**	**686.9**
26113, SULFATE WOODPULP, INCLUDING SODA		
United States	**4 411.6**	**4 123.8**
Alabama	719.0	578.6
Florida	365.0	324.1
Georgia	709.3	580.1
26113, SULFATE WOODPULP, INCLUDING SODA—Con.		
Maine	187.5	237.1
Mississippi	408.1	(NA)
South Carolina	322.1	(NA)
Washington	131.6	191.9
26114, SULFITE AND OTHER WOODPULP		
United States	**280.4**	**247.5**
Washington	170.7	157.8

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26115, PULP, OTHER THAN WOOD, AND PULP MILL BYPRODUCTS, N.E.C.		
United States	**490.3**	**297.9**
Alabama	3.2	3.1
Arkansas	3.1	2.3
Florida	6.0	9.3
Georgia	31.8	22.2
Louisiana	4.5	3.9
South Carolina	8.7	3.7
Tennessee	150.4	90.7
Texas	2.9	2.4
Wisconsin	63.3	(NA)
26211, NEWSPRINT		
United States	**2 924.9**	**2 765.7**
Washington	469.8	(NA)
26212, UNCOATED GROUNDWOOD PAPER (CONTAINING MORE THAN 10 PERCENT MECHANICAL FIBER)		
United States	**823.0**	**934.4**
Maine	319.3	365.5
Wisconsin	52.9	70.4
26213, CLAY COATED PRINTING AND CONVERTING PAPER		
United States	**7 509.8**	**5 959.3**
Maine	1 500.8	1 313.6
Michigan	937.0	703.3
Minnesota	968.2	632.0
New York	282.7	253.3
Ohio	487.5	282.9
Pennsylvania	226.6	198.8
Wisconsin	1 331.2	1 080.4
26214, UNCOATED FREESHEET (CONTAINING NOT MORE THAN 10 PERCENT MECHANICAL FIBER)		
United States	**8 693.2**	**8 143.3**
Alabama	763.2	788.2
Maine	488.7	486.9
Massachusetts	145.3	109.4
Michigan	286.5	314.3
New York	555.5	586.9
North Carolina	429.1	(NA)
Ohio	678.1	668.6
Pennsylvania	639.5	677.4
South Carolina	406.0	(NA)
Washington	538.4	654.1
Wisconsin	1 131.8	894.9
26215, BLEACHED BRISTOLS (WEIGHT MORE THAN 150 G/M2), EXCLUDING COTTON FIBER INDEX AND BOGUS		
United States	**1 153.7**	**778.4**
Wisconsin	84.7	(NA)
26216, COTTON FIBER PAPER AND THIN PAPER		
United States	**804.6**	**737.8**
Massachusetts	287.7	237.9
Wisconsin	194.0	164.6
26217, UNBLEACHED KRAFT (NOT LESS THAN 80 PERCENT) PACKAGING AND INDUSTRIAL CONVERTING PAPER		
United States	**1 299.2**	**1 314.3**
Wisconsin	55.4	(NA)
26218, PACKAGING AND INDUSTRIAL CONVERTING PAPERS, EXCEPT UNBLEACHED KRAFT		
United States	**950.9**	**952.7**
Washington	134.0	86.8
Wisconsin	217.8	239.6
26219, SPECIAL INDUSTRIAL PAPER, EXCEPT SPECIALTY PACKAGING		
United States	**1 458.9**	**1 058.8**
Massachusetts	245.9	266.2
Michigan	180.8	143.5
New Hampshire	125.3	58.1
New York	154.1	129.1
Wisconsin	316.4	127.1
2621A, TISSUE PAPER AND OTHER MACHINE-CREPED PAPER		
United States	**5 024.7**	**4 257.2**
Maine	198.5	201.3
Massachusetts	73.2	(NA)
New Hampshire	38.6	(NA)
New York	339.3	249.4
Wisconsin	984.1	881.7
2621B, CONSTRUCTION PAPER		
United States	**159.0**	**127.6**
26311, UNBLEACHED KRAFT PACKAGING AND INDUSTRIAL CONVERTING (80 PERCENT OR MORE VIRGIN WOODPULP)		
United States	**7 438.6**	**6 415.5**
Alabama	991.5	702.0
Florida	703.7	588.8
Georgia	1 123.4	1 006.9
Louisiana	1 111.2	884.7
Oregon	591.3	538.6
Washington	313.2	(NA)
26312, BLEACHED PACKAGING AND INDUSTRIAL CONVERTING PAPERBOARD (80 PERCENT OR MORE VIRGIN PULP)		
United States	**3 341.9**	**2 558.8**
Alabama	457.9	282.2
Arkansas	626.3	483.1
Georgia	553.8	379.0
26313, SEMICHEMICAL PAPERBOARD, INCLUDING CORRUGATING MEDIUM		
United States	**1 216.6**	**1 607.7**
Louisiana	192.1	182.8
26314, RECYCLED PAPERBOARD		
United States	**4 261.1**	**2 997.3**
California	569.4	490.4
Connecticut	156.4	117.4
Illinois	123.2	121.5
Indiana	264.3	161.1
Michigan	423.2	321.1
New Jersey	95.1	109.3
New York	115.6	87.7
North Carolina	56.6	43.2
Ohio	341.9	261.1
Pennsylvania	250.7	195.7
Tennessee	156.6	76.3
Texas	103.8	(NA)
Virginia	291.3	104.2
Wisconsin	160.5	72.9
26318, WET MACHINE BOARD		
United States	**81.4**	**64.0**

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2611-	**Pulp mills**	**6 103.9**	**5 741.2**	**6 917.3**	**7 718.8**	**6 686.2**	**5 356.7**	**3 644.2**	**2 466.4**
26111	Special alpha and dissolving woodpulp	921.5	904.6	976.2	1 028.7	856.4	686.9	593.8	570.5
26113	Sulfate woodpulp, including soda	4 411.6	4 152.3	5 155.0	5 895.8	5 148.0	4 123.8	2 510.8	
26114	Sulfite and other woodpulp	280.4	269.7	371.7	375.7	336.0	247.5	183.0	1 894.8
26115	Pulp, other than wood, and pulp mill byproducts, n.e.c.	490.3	413.4	412.0	418.1	344.1	297.9	353.0	
26110	Pulp mills, n.s.k.	–	1.2	2.3	.5	1.7	.6	3.6	1.1
2621-	**Paper mills**	**30 858.6**	**31 590.6**	**33 715.2**	**33 403.9**	**31 922.9**	**27 121.6**	**20 222.2**	**12 730.0**
26211	Newsprint	2 924.9	3 104.5	3 158.2	2 988.8	3 168.1	2 765.7	2 161.6	989.3
26212	Uncoated groundwood paper (containing more than 10 percent mechanical fiber)	823.0	1 035.7	1 167.5	1 186.9	1 130.7	934.4	841.5	539.0
26213	Clay coated printing and converting paper	7 509.8	7 358.1	7 679.6	7 485.0	7 431.3	5 959.3	3 787.3	2 260.9
26214	Uncoated freesheet (containing not more than 10 percent mechanical fiber)	8 693.2	9 225.0	10 148.3	10 071.1	9 639.5	8 143.3	5 530.6	3 352.7
26215	Bleached bristols (weight more than 150 g/m2), excluding cotton fiber index and bogus	1 153.7	1 038.8	1 044.8	1 061.9	922.6	778.4	605.2	474.3
26216	Cotton fiber paper and thin paper	804.6	847.8	906.5	886.8	876.3	737.8	599.3	496.1
26217	Unbleached kraft (not less than 80 percent) packaging and industrial converting paper	1 299.2	1 211.5	1 373.8	1 520.2	1 480.4	1 314.3	1 199.8	1 098.7
26218	Packaging and industrial converting papers, except unbleached kraft	950.9	1 118.3	1 185.0	1 123.1	1 120.2	952.7	666.7	560.6
26219	Special industrial paper, except specialty packaging	1 458.9	1 147.6	1 212.1	1 170.5	1 175.5	1 058.8	942.8	550.7
2621A	Tissue paper and other machine-creped paper	5 024.7	5 293.6	5 638.6	5 719.4	4 729.5	4 257.2	3 685.4	(NA)
2621B	Construction paper	159.0	91.9	97.7	110.8	132.8	127.6	165.3	291.8
26210	Paper mills, n.s.k.	56.9	118.0	103.1	79.3	115.9	92.0	36.7	(NA)
2631-	**Paperboard mills**	**16 373.0**	**15 557.2**	**15 985.4**	**16 352.3**	**15 497.2**	**13 697.1**	**9 390.0**	**6 434.7**
26311	Unbleached kraft packaging and industrial converting (80 percent or more virgin woodpulp)	7 438.6	6 928.4	7 110.1	7 430.2	7 215.6	6 415.5	4 076.1	2 697.2
26312	Bleached packaging and industrial converting paperboard (80 percent or more virgin pulp)	3 341.9	3 599.8	3 589.3	3 495.6	3 021.6	2 558.8	2 146.0	1 364.6
26313	Semichemical paperboard, including corrugating medium	1 216.6	1 517.6	1 731.1	1 885.7	1 895.0	1 607.7	1 012.5	748.9
26314	Recycled paperboard	4 261.1	3 390.4	3 435.0	3 423.8	3 242.6	2 997.3	2 062.1	1 562.7
26318	Wet machine board	81.4	(S)	(S)	64.4	59.7	64.0	62.8	59.3
26310	Paperboard mills, n.s.k.	33.3	57.5	56.6	52.5	62.7	53.9	30.4	2.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2611, PULP MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 532.6**	**(X)**	**1 666.9**
	Pulpwood:				
	Softwood:				
	Bolts and logs:				
241101	Spruce and true fir, 1,000 standard cords	(D)	(D)	179.3	10.4
241102	Hemlock, 1,000 standard cords	1 183.8	94.9	769.3	43.8
241104	Southern pine, 1,000 standard cords	4 669.2	301.5	3 902.2	247.6
241135	Other softwoods, including Douglas fir and Jack pine, 1,000 standard cords	(D)	(D)	(D)	(D)
242012	Wood chips, slabs, cores, sawdust, bark, and other mill residues, 1,000 standard cords	4 940.6	459.8	(D)	(D)
	Hardwood:				
	Bolts and logs:				
241108	Southern mixed hardwood, 1,000 standard cords	2 866.6	175.3	2 245.5	114.0
241137	Other hardwoods, 1,000 standard cords	1 270.6	80.6	892.9	51.4
242013	Wood chips, slabs, cores, sawdust, bark, and other mill residues, 1,000 standard cords	1 939.1	131.9	1 183.9	66.7
	Chemicals:				
281211	Chlorine (100 percent Cl basis), 1,000 s tons	268.6	24.2	396.6	60.8
281238	Sodium hydroxide (caustic soda)(100 percent NaOH), 1,000 s tons	688.8	178.9	626.7	80.1
281977	Sodium chlorate (100 percent NaClO3), 1,000 s tons	281.6	96.3	136.7	42.4
281010	Other sodium compounds	(X)	10.9	(X)	(2)
281961	Aluminum sulfate (17 percent Al2O3), 1,000 s tons	20.6	2.3	13.7	1.8
289956	Rosin sizing, mil lb (dry basis)	9.1	3.8	5.1	1.5
327401	Lime, 1,000 s tons	314.1	21.1	350.2	18.6
145501	Kaolin and ball clay, 1,000 s tons	114.8	17.3	(D)	(D)
204609	Starch, mil lb	67.2	12.2	(D)	(D)
282130	Synthetic resins, mil lb	(D)	(D)	–	–
281620	Titanium dioxide, composite and pure (100 percent TiO2), mil lb	16.7	14.4	6.6	4.8
281991	Calcium carbonate, precipitated (100 percent CaCO2), 1,000 s tons	(D)	(D)	(NA)	(2)
280004	All other chemicals, including organic	(X)	155.7	(X)	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2611, PULP MILLS—Con.				
	Woodpulp:				
261102	Produced at affiliated or associated mills at other locations—1,000 s tons	(D)	(D)	(D)	(D)
261104	Purchased market wood pulp—1,000 s tons	42.6	21.3	(D)	(D)
	Wastepaper, except plant's own broke paper:				
190006	Mixed—1,000 s tons	(D)	(D)	(D)	(D)
	Mechanical:				
190007	News—1,000 s tons	–	–	–	–
190072	Other—1,000 s tons	–	–	(NA)	(2)
190073	Corrugated, including kraft—1,000 s tons	14.2	.9	–	–
190009	High grade pulp substitutes—1,000 s tons	(D)	(D)	–	–
190010	High grade deinking—1,000 s tons	(D)	(D)	(D)	(D)
	Other materials:				
207431	Cotton linters (net weight)—mil lb	429.7	44.9	366.1	38.6
261151	Linter pulp—1,000 s tons	–	–	(NA)	(NA)
190015	Other fibrous materials, including rags, straw, and bagasse—1,000 s tons	(D)	(D)	(D)	(D)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	3.3	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	527.4	(X)	2432.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	8.7	(X)	119.7
	INDUSTRY 2621, PAPER MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**14 644.2**	**(X)**	**12 104.5**
	Pulpwood:				
	Softwood:				
	Bolts and logs:				
241101	Spruce and true fir—1,000 standard cords	2 476.5	202.2	1 620.3	124.2
241102	Hemlock—1,000 standard cords	1 154.2	94.2	887.9	58.7
241104	Southern pine—1,000 standard cords	9 278.9	628.5	9 601.7	599.6
241135	Other softwoods, including Douglas fir and Jack pine—1,000 standard cords	2 060.8	152.7	1 981.7	115.9
242012	Wood chips, slabs, cores, sawdust, bark, and other mill residues—1,000 standard cords	13 109.1	969.9	10 316.4	619.9
	Hardwood:				
	Bolts and logs:				
241108	Southern mixed hardwood—1,000 standard cords	5 447.5	338.0	4 949.3	266.2
241137	Other hardwoods—1,000 standard cords	3 647.2	203.5	4 126.6	215.7
242013	Wood chips, slabs, cores, sawdust, bark, and other mill residues—1,000 standard cords	6 943.7	462.9	3 670.1	200.7
	Chemicals:				
281211	Chlorine (100 percent Cl basis)—1,000 s tons	671.9	74.4	864.2	128.8
281238	Sodium hydroxide (caustic soda)(100 percent NaOH)—1,000 s tons	1 383.1	314.7	1 210.9	160.2
281977	Sodium chlorate (100 percent NaClO3)—1,000 s tons	436.1	158.8	216.9	67.2
281010	Other sodium compounds	(X)	65.4	(X)	(2)
281961	Aluminum sulfate (17 percent Al2O3)—1,000 s tons	262.2	35.2	289.9	39.3
289956	Rosin sizing—mil lb (dry basis)	*183.2	77.9	*157.6	49.9
327401	Lime—1,000 s tons	768.8	49.8	760.3	48.2
145501	Kaolin and ball clay—1,000 s tons	2 643.3	402.1	2 380.5	326.1
204609	Starch—mil lb	2 189.2	408.9	1 700.5	214.2
282130	Synthetic resins—mil lb	479.3	260.2	*295.0	145.2
281620	Titanium dioxide, composite and pure (100 percent TiO2)—mil lb	445.4	384.1	363.6	279.8
281991	Calcium carbonate, precipitated (100 percent CaCO2)—1,000 s tons	1 168.5	170.5	(NA)	(2)
280004	All other chemicals, including organic	(X)	1 275.1	(X)	(2)
	Woodpulp:				
261102	Produced at affiliated or associated mills at other locations—1,000 s tons	2 268.1	975.2	2 355.2	969.6
261104	Purchased market wood pulp—1,000 s tons	5 308.9	2 480.6	5 191.8	2 568.5
	Wastepaper, except plant's own broke paper:				
190006	Mixed—1,000 s tons	1 239.2	185.6	388.8	66.2
	Mechanical:				
190007	News—1,000 s tons	2 548.7	147.5	1 614.2	122.3
190072	Other—1,000 s tons	280.6	28.5	(NA)	(2)
190073	Corrugated, including kraft—1,000 s tons	766.1	111.6	453.2	51.9
190009	High grade pulp substitutes—1,000 s tons	524.5	159.2	599.5	165.2
190010	High grade deinking—1,000 s tons	1 536.5	210.5	1 171.4	135.6
	Other materials:				
207431	Cotton linters (net weight)—mil lb	42.4	22.9	42.5	17.6
261151	Linter pulp—1,000 s tons	29.5	33.3	23.5	20.4
190015	Other fibrous materials, including rags, straw, and bagasse—1,000 s tons	133.4	65.6	142.3	59.8
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	121.9	(X)	157.8
970099	All other materials and components, parts, containers, and supplies	(X)	3 157.0	(X)	23 332.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	215.8	(X)	776.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2631, PAPERBOARD MILLS				
	Materials, ingredients, containers, and supplies	**(X)**	**6 319.9**	**(X)**	**5 330.7**
	Pulpwood:				
	Softwood:				
	Bolts and logs:				
241101	Spruce and true fir, 1,000 standard cords	480.6	39.6	(D)	(D)
241102	Hemlock, 1,000 standard cords	(D)	(D)	(D)	(D)
241104	Southern pine, 1,000 standard cords	15 610.9	1 138.0	13 302.8	826.4
241135	Other softwoods, including Douglas fir and Jack pine, 1,000 standard cords	769.4	100.9	(D)	(D)
242012	Wood chips, slabs, cores, sawdust, bark, and other mill residues, 1,000 standard cords	10 715.9	794.7	13 364.6	753.2
	Hardwood:				
	Bolts and logs:				
241108	Southern mixed hardwood, 1,000 standard cords	3 980.5	232.2	3 283.9	164.0
241137	Other hardwoods, 1,000 standard cords	1 214.1	84.2	(D)	(D)
242013	Wood chips, slabs, cores, sawdust, bark, and other mill residues, 1,000 standard cords	4 158.2	266.2	3 978.8	216.1
	Chemicals:				
281211	Chlorine (100 percent Cl basis), 1,000 s tons	172.8	20.9	336.5	49.9
281238	Sodium hydroxide (caustic soda)(100 percent NaOH), 1,000 s tons	717.6	174.1	913.4	106.3
281977	Sodium chlorate (100 percent $NaClO_3$), 1,000 s tons	142.5	50.5	81.9	26.4
281010	Other sodium compounds	(X)	52.8	(X)	(2)
281961	Aluminum sulfate (17 percent Al_2O_3), 1,000 s tons	246.9	26.5	214.7	24.0
289956	Rosin sizing, mil lb (dry basis)	*142.7	51.4	**107.8	33.9
327401	Lime, 1,000 s tons	361.3	23.5	380.4	22.0
145501	Kaolin and ball clay, 1,000 s tons	405.8	56.3	268.6	33.7
204609	Starch, mil lb	496.4	103.8	415.8	57.6
282130	Synthetic resins, mil lb	214.9	90.3	70.1	34.1
281620	Titanium dioxide, composite and pure (100 percent TiO_2), mil lb	95.1	85.3	56.4	41.1
281991	Calcium carbonate, precipitated (100 percent $CaCO_2$), 1,000 s tons	92.7	9.8	(NA)	(2)
280004	All other chemicals, including organic	(X)	410.4	(X)	(2)
	Woodpulp:				
261102	Produced at affiliated or associated mills at other locations, 1,000 s tons	(D)	(D)	(D)	(D)
261104	Purchased market wood pulp, 1,000 s tons	86.0	37.2	118.4	50.9
	Wastepaper, except plant's own broke paper:				
190006	Mixed, 1,000 s tons	**1 215.2	44.4	*1 594.8	128.0
	Mechanical:				
190007	News, 1,000 s tons	1 267.6	47.3	1 098.0	67.0
190072	Other, 1,000 s tons	548.4	31.5	(NA)	(2)
190073	Corrugated, including kraft, 1,000 s tons	10 020.5	599.3	6 899.1	637.3
190009	High grade pulp substitutes, 1,000 s tons	546.4	117.1	709.6	112.1
190010	High grade deinking, 1,000 s tons	189.5	35.2	152.0	25.1
	Other materials:				
207431	Cotton linters (net weight), mil lb	(D)	(D)	(NA)	(2)
261151	Linter pulp, 1,000 s tons	–	–	(NA)	(2)
190015	Other fibrous materials, including rags, straw, and bagasse, 1,000 s tons	(D)	(D)	(S)	.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	57.5	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	1 371.0	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	102.8	(X)	179.1

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, data for this material code were included in material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
26113 35	26113 00	26217 30	26217 00	26314 45	26314 00	26751 10	26751 00
26113 43	26113 00	26217 50	26217 00	26314 46	26314 00	26751 11	26751 00
		26217 60	26217 00	26314 50	26314 00	26751 12	26751 00
26114 32	26114 00	26217 68	26217 00	26314 81	26314 00	26751 20	26751 00
26114 66	26114 00			26314 82	26314 00	26751 30	26751 00
26114 72	26114 00	26218 30	26218 00	26314 88	26314 00		
26114 78	26114 00	26218 50	26218 00			26770 10	26770 00
		26218 60	26218 00	26530 98	26530 00	26770 21	26770 00
26212 15	26212 00	26218 64	26218 00			26770 22	26770 00
26212 19	26212 00	26218 68	26218 00	26563 19	26563 14	26770 40	26770 00
26212 27	26212 00	26218 83	26218 00	26563 19	26563 16		
						26781 11	26781 00
26213 15	26213 00	2621A 11	2621A 00			26781 13	26781 00
26213 16	26213 00	2621A 30	2621A 00	26713 20	26713 18	26781 21	26781 00
26213 20	26213 00	2621A 51	2621A 00	26713 20	26713 21		
26213 29	26213 00	2621A 60	2621A 00			26782 12	26782 00
		2621A 73	2621A 00	26714 17	26714 13	26782 13	26782 00
26214 31	26214 00	2621A 78	2621A 00	26714 17	26714 14	26782 21	26782 00
26214 32	26214 00	2621A 81	2621A 00	26714 21	26714 16	26782 35	26782 00
26214 37	26214 00	2621A 88	2621A 00			26782 45	26782 00
26214 41	26214 00					26782 51	26782 00
26214 47	26214 00	2621B 22	2621B 00	26722 12	26722 00	26782 98	26782 00
26214 48	26214 00	2621B 28	2621B 00	26722 30	26722 00		
26214 54	26214 00					26791 22	26791 21
26214 55	26214 00	26311 10	26311 00	26723 13	26723 00	26791 22	26791 23
26214 56	26214 00	26311 88	26311 00	26723 33	26723 00	26791 34	26791 32
26214 60	26214 00			26723 43	26723 00	26791 34	26791 35
26214 71	26214 00	26312 10	26312 00	26723 45	26723 00	26791 36	26791 33
26214 73	26214 00	26312 40	26312 00	26723 53	26723 00	26791 36	26791 35
26214 89	26214 00	26312 61	26312 00	26723 59	26723 00		
		26312 62	26312 00	26723 61	26723 00	26793 11	26793 00
26215 31	26215 00	26312 63	26312 00	26723 75	26723 00	26793 31	26793 00
26215 32	26215 00	26312 88	26312 00	26723 81	26723 00		
26215 37	26215 00			26723 85	26723 00	26795 21	26795 22
26215 58	26215 00	26314 10	26314 00	26723 98	26723 00	26795 21	26795 23
		26314 20	26314 00			26795 98	26795 11
26216 11	26216 00	26314 30	26314 00			26795 98	26795 35
26216 19	26216 00	26314 43	26314 00	26724 69	26724 51	26795 98	26795 45
26216 27	26216 00	26314 44	26314 00	26724 69	26724 59	26795 98	26795 69

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
26113 00	26113 35	26217 00	26217 30	26314 00	26314 45	26751 00	26751 10
26113 00	26113 43	26217 00	26217 50	26314 00	26314 46	26751 00	26751 11
		26217 00	26217 60	26314 00	26314 50	26751 00	26751 12
26114 00	26114 32	26217 00	26217 68	26314 00	26314 81	26751 00	26751 20
26114 00	26114 66			26314 00	26314 82	26751 00	26751 30
26114 00	26114 72	26218 00	26218 30	26314 00	26314 88		
26114 00	26114 78	26218 00	26218 50			26770 00	26770 10
		26218 00	26218 60	26530 00	26530 98	26770 00	26770 21
26212 00	26212 15	26218 00	26218 64			26770 00	26770 22
26212 00	26212 19	26218 00	26218 68	26563 14	26563 19	26770 00	26770 40
26212 00	26212 27	26218 00	26218 83	26563 16	26563 19		
						26781 00	26781 11
26213 00	26213 15	2621A 00	2621A 11			26781 00	26781 13
26213 00	26213 16	2621A 00	2621A 30	26713 18	26713 20	26781 00	26781 21
26213 00	26213 20	2621A 00	2621A 51	26713 21	26713 20		
26213 00	26213 29	2621A 00	2621A 60			26782 00	26782 12
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26214 00	26214 41					26782 00	26782 51
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26214 00	26214 48	2621B 00	2621B 28	26722 00	26722 30		
26214 00	26214 54					26791 21	26791 22
26214 00	26214 55	26311 00	26311 10	26723 00	26723 13	26791 23	26791 22
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26214 00	26214 60			26723 00	26723 43	26791 33	26791 36
26214 00	26214 71	26312 00	26312 10	26723 00	26723 45	26791 35	26791 34
26214 00	26214 73	26312 00	26312 40	26723 00	26723 53	26791 35	26791 36
26214 00	26214 89	26312 00	26312 61	26723 00	26723 59		
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		26314 00	26314 20			26795 23	26795 21
26216 00	26216 11	26314 00	26314 30			26795 35	26795 98
26216 00	26216 19	26314 00	26314 43	26724 51	26724 69	26795 45	26795 98
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TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:19 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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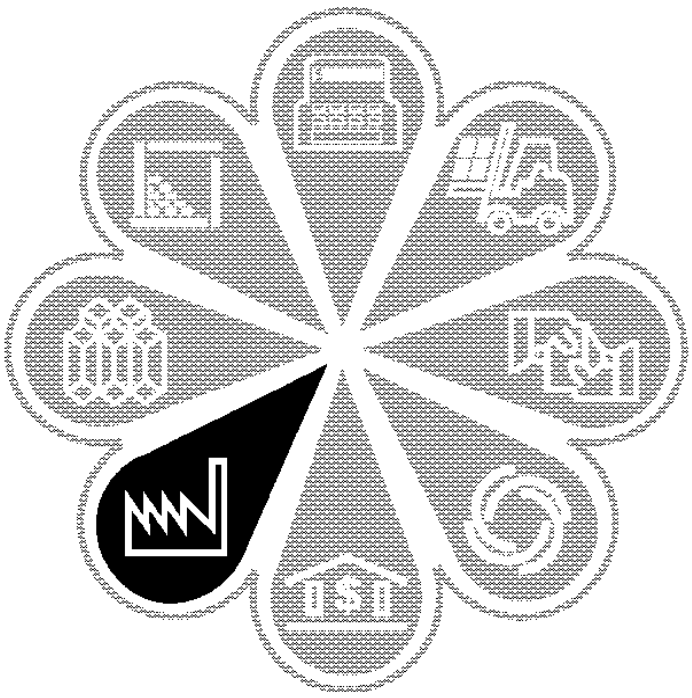
1992 Census of Manufactures

MC92-I-26B

INDUSTRY SERIES

Paperboard Containers and Boxes

Industries 2652, 2653, 2655, 2656, and 2657



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Allen Foreman**, Section Chief, with primary staff assistance by **Brenda Lukenich.**

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2652	Setup Paperboard Boxes
2653	Corrugated and Solid Fiber Boxes
2655	Fiber Cans, Drums, and Similar Products
2656	Sanitary Food Containers
2657	Folding Paperboard Boxes

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2652, SETUP PAPERBOARD BOXES

This industry is made up of establishments primarily engaged in manufacturing setup paperboard boxes from purchased paperboard. Establishments primarily engaged in manufacturing folding paperboard boxes are classified in industry 2657.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2652, Setup Paperboard Boxes, had employment of 6.6 thousand. The employment figure was 24 percent below the 8.7 thousand reported in 1987.

The leading States in employment in 1992 were New York, Massachusetts, North Carolina, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $435.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2652 shipped $406.7 million of setup paperboard boxes considered primary to the industry, $14.5 million of secondary products, and had $14.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 76 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 77 percent.

The products primary to industry 2652, no matter in what industry they were produced, appear in table 6a and aggregate to $532.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the setup paperboard boxes industry amounted to $197.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments

(and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES

This industry is made up of establishments primarily engaged in manufacturing corrugated and solid fiber boxes and related products from purchased paperboard of fiber stock. Important products of this industry include corrugated and solid fiberboard boxes, pads, partitions, display items, pallets, single face products, and corrugated sheets.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2653, Corrugated and Solid Fiber Boxes, had employment of 111.7 thousand. The employment figure was 6 percent above the 105.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, Ohio, and Texas, accounting for approximately 29 percent of the industry's employment. This represents a shift from 1987 when California, Illinois, Pennsylvania, and Ohio accounted for approximately 30 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $19.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2653 shipped $19.0 billion of corrugated and solid fiber boxes products considered primary to the industry, $195.5 million of secondary products, and had $615.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2653, no matter in what industry they were produced, appear in table 6a and aggregate to $19.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the corrugated and solid fiber boxes industry amounted to $13.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing from purchased materials fiber cans, cones, drums, and similar products, with or without metal ends, and vulcanized fiber boxes.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2655, Fiber Cans, Drums, and Similar Products, had employment of 12.4 thousand. The employment figure was 1 percent below the 12.5 thousand reported in 1987.

The leading States in employment in 1992 were New York, North Carolina, Ohio, and South Carolina. This represents a shift from 1987 when Ohio, South Carolina, New Jersey, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2655 shipped $1.8 billion of fiber cans, drums, and similar products considered primary to the industry, $98.6 million of secondary products, and had $66.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2655, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fiber cans, drums, and similar products industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 2656, SANITARY FOOD CONTAINERS

This industry is made up of establishments primarily engaged in manufacturing nonfolding food containers from special food board. Important products of this industry include fluid milk containers; round nested food containers; paper cups for hot or cold drinks; and stamped plates, dishes, spoons, and similar products. Establishments primarily engaged in manufacturing similar items of plastics materials are classified in industry group 308, and those making folding sanitary cartons are classified in industry 2657.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2656, Sanitary Food Containers, had employment of 15.4 thousand. The employment figure was 3 percent below the 15.8 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Maryland, Missouri, Georgia, and Illinois, accounting for approximately 43 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2656 shipped $2.1 billion of sanitary food containers considered primary to the industry, $291.8 million of secondary products, and had $78.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 88 percent.

The products primary to industry 2656, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sanitary food containers industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2657, FOLDING PAPERBOARD BOXES

This industry is made up of establishments primarily engaged in manufacturing folding paperboard boxes from purchased paperboard, including folding sanitary food boxes or cartons, except milk cartons.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2657, Folding Paperboard Boxes, had employment of 52.7 thousand. The employment figure was 4 percent above the 50.7 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Ohio, New York, and California, accounting for approximately 33 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $7.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2657 shipped $7.5 billion of folding paperboard boxes considered primary to the industry, $323.6 million of secondary products, and had $139.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2657, no matter in what industry they were produced, appear in table 6a and aggregate to $7.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the folding paperboard boxes industry amounted to $4.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2652, SETUP PAPERBOARD BOXES															
1992 Census	146	155	102	6.6	129.2	5.1	10.7	84.7	240.3	197.5	435.7	10.0	52.5	97	76
1991 ASM	(NA)	(NA)	(NA)	8.7	149.8	7.3	14.0	102.2	305.1	249.8	554.9	11.0	66.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.8	145.9	7.5	14.5	101.8	312.9	259.0	565.1	14.4	68.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.7	141.2	7.3	14.1	96.1	293.6	243.0	531.1	12.2	58.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.8	135.2	7.5	14.6	91.8	249.0	218.0	464.4	5.9	55.1	(NA)	(NA)
1987 Census	180	200	120	8.7	131.0	7.2	13.9	88.4	236.0	202.7	436.5	10.3	50.8	96	77
1986 ASM	(NA)	(NA)	(NA)	9.1	127.5	7.4	15.4	90.9	267.8	280.0	552.0	13.2	63.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.2	126.8	7.7	15.1	86.3	244.0	230.4	479.0	16.8	61.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.3	131.6	7.7	15.7	88.7	268.3	199.5	466.1	18.0	67.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.3	162.6	10.5	20.1	114.3	323.1	244.9	568.6	14.1	70.0	(NA)	(NA)
1982 Census	241	265	165	10.6	134.7	8.9	16.7	91.3	250.2	184.5	433.2	10.0	62.0	96	83
1981 ASM	(NA)	(NA)	(NA)	13.7	160.2	11.6	29.2	107.9	299.1	215.7	510.5	18.6	72.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.5	148.0	11.6	29.8	101.4	266.6	198.7	465.1	16.2	62.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.4	132.9	11.3	29.5	91.8	270.1	171.6	434.4	14.6	63.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.7	134.9	11.6	20.7	94.1	229.4	178.2	409.2	(S)	55.0	(NA)	(NA)
1977 Census	278	312	209	13.1	115.3	11.2	20.6	80.8	211.6	149.9	360.5	8.8	48.2	93	87
INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES															
1992 Census	966	1 646	1 233	111.7	3 263.9	80.9	173.1	1 970.4	6 738.4	13 079.2	19 789.9	461.0	1 762.4	99	99
1991 ASM	(NA)	(NA)	(NA)	108.7	3 047.4	79.4	166.1	1 843.5	6 063.9	11 959.9	18 025.9	468.1	1 586.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	110.1	2 983.7	80.0	168.0	1 797.5	5 901.9	12 655.7	18 572.2	606.5	1 606.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	111.1	2 927.6	81.3	170.4	1 783.5	5 813.9	13 056.9	18 862.3	606.1	1 651.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	106.1	2 725.7	78.1	162.7	1 696.7	5 630.3	12 232.2	17 806.6	502.8	1 685.4	(NA)	(NA)
1987 Census	952	1 600	1 164	105.7	2 609.2	77.2	160.3	1 637.6	5 475.8	10 685.9	16 104.0	468.8	1 528.2	99	99
1986 ASM	(NA)	(NA)	(NA)	99.2	2 366.9	71.9	146.4	1 480.0	4 737.8	8 754.1	13 465.6	433.5	1 221.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	97.9	2 231.8	71.1	142.3	1 390.2	4 565.1	8 501.0	13 092.9	420.3	1 117.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	98.9	2 185.3	71.5	145.2	1 371.9	4 461.3	8 696.6	13 110.6	426.2	1 325.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	96.9	2 038.1	68.9	139.7	1 264.1	3 974.8	7 450.5	11 410.7	248.1	1 135.2	(NA)	(NA)
1982 Census	906	1 492	1 066	94.4	1 861.8	67.4	132.0	1 147.9	3 659.0	6 883.1	10 558.1	283.5	1 042.2	99	99
1981 ASM	(NA)	(NA)	(NA)	97.3	1 818.7	69.5	139.2	1 118.2	3 635.5	7 128.8	10 760.3	271.2	992.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	97.2	1 667.0	69.4	136.2	1 034.2	3 325.9	6 273.2	9 650.5	420.5	782.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	103.7	1 639.8	75.5	150.1	1 037.8	2 720.1	5 766.5	8 975.9	303.0	766.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	105.8	1 550.7	77.1	152.7	993.9	2 951.2	5 107.8	8 030.3	282.5	702.1	(NA)	(NA)
1977 Census	863	1 472	1 034	101.5	1 374.8	73.5	146.5	867.0	2 704.1	4 660.7	7 351.1	243.3	664.8	99	99
INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS															
1992 Census	153	300	185	12.4	337.1	10.1	21.6	244.2	783.1	1 138.3	1 922.1	46.7	172.0	95	96
1991 ASM	(NA)	(NA)	(NA)	12.9	340.5	10.7	22.5	247.1	770.7	1 138.7	1 912.2	41.6	175.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.3	341.3	11.1	22.9	247.7	750.6	1 134.9	1 884.9	45.8	202.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.3	328.9	11.1	23.6	239.0	730.9	1 101.0	1 829.0	38.3	198.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.4	289.7	10.2	21.0	213.0	650.9	984.9	1 630.9	28.2	169.9	(NA)	(NA)
1987 Census	137	281	187	12.5	280.7	10.1	20.8	204.7	628.2	904.8	1 533.9	34.0	163.3	92	93
1986 ASM	(NA)	(NA)	(NA)	12.6	275.1	10.2	20.8	202.6	594.2	977.5	1 571.3	63.1	158.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.5	284.8	11.0	21.8	208.8	633.5	1 060.2	1 696.7	60.5	161.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.9	280.1	11.4	22.7	207.4	631.3	1 065.1	1 692.2	41.1	169.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.1	275.8	11.4	22.5	203.6	628.2	995.8	1 627.5	35.0	156.6	(NA)	(NA)
1982 Census	152	307	191	14.1	252.5	11.4	22.1	184.3	574.5	897.9	1 473.5	31.1	155.3	95	92
1981 ASM	(NA)	(NA)	(NA)	16.2	277.7	13.1	25.6	200.0	585.5	919.4	1 496.0	37.3	163.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.9	255.6	13.1	25.9	181.8	554.0	816.8	1 369.6	42.9	153.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.1	250.2	14.3	28.7	187.9	515.8	781.9	1 296.6	31.2	150.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.3	217.7	13.7	27.2	164.0	440.1	683.0	1 118.8	23.6	136.6	(NA)	(NA)
1977 Census	166	309	195	16.1	197.3	13.4	26.7	147.6	406.9	606.7	1 011.1	26.7	119.2	93	89
INDUSTRY 2656, SANITARY FOOD CONTAINERS															
1992 Census	46	89	74	15.4	385.9	12.8	25.8	294.7	1 051.8	1 431.6	2 490.8	69.3	371.2	88	88
1991 ASM	(NA)	(NA)	(NA)	17.6	410.9	14.4	28.6	295.9	1 138.5	1 571.8	2 715.6	55.5	402.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.5	392.3	14.3	28.0	289.2	1 074.4	1 454.7	2 518.7	51.4	390.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.2	382.5	14.5	28.1	295.0	1 052.2	1 511.6	2 543.8	64.4	400.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.0	356.5	12.8	25.8	260.4	891.4	1 302.4	2 193.4	79.9	330.5	(NA)	(NA)
1987 Census	57	92	72	15.8	341.0	12.9	25.5	253.8	893.8	1 200.1	2 083.0	95.5	317.4	87	88
INDUSTRY 2657, FOLDING PAPERBOARD BOXES															
1992 Census	446	588	436	52.7	1 590.1	41.7	90.0	1 093.2	3 565.0	4 358.0	7 932.7	295.7	1 080.7	96	97
1991 ASM	(NA)	(NA)	(NA)	50.7	1 443.0	40.9	86.1	997.7	3 252.3	4 127.5	7 368.7	253.8	1 102.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	50.7	1 381.5	40.6	85.9	955.2	3 042.4	3 910.0	6 969.4	279.8	1 065.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	51.8	1 363.8	41.2	86.2	949.4	3 080.3	3 753.7	6 715.2	244.2	1 192.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	51.1	1 330.6	40.5	85.3	904.4	2 772.3	3 398.9	6 098.1	216.6	1 016.4	(NA)	(NA)
1987 Census	461	606	448	50.7	1 255.8	39.9	83.7	870.3	2 586.8	3 144.6	5 705.3	180.5	901.4	95	96

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2652, SETUP PAPERBOARD BOXES								
1992 Census	19 576	77	2 098	7.92	45	75	36 409	54	22.46
1991 ASM	17 218	84	1 918	7.30	45	72	35 069	49	21.79
1990 ASM	16 580	85	1 933	7.02	46	72	35 557	47	21.58
1989 ASM	16 230	84	1 932	6.82	46	72	33 747	48	20.82
1988 ASM	15 364	85	1 947	6.29	47	76	28 295	54	17.05
1987 Census	15 057	83	1 931	6.36	46	76	27 126	56	16.98
1986 ASM	14 011	81	2 081	5.90	51	74	29 429	48	17.39
1985 ASM	13 783	84	1 961	5.72	48	75	26 522	52	16.16
1984 ASM	14 151	83	2 039	5.65	43	71	28 849	49	17.09
1983 ASM	13 220	85	1 914	5.69	43	72	26 268	50	16.07
1982 Census	12 708	84	1 876	5.47	43	74	23 604	54	14.98
1981 ASM	11 693	85	2 517	3.70	42	74	21 832	54	10.24
1980 ASM	10 963	86	2 569	3.40	43	75	19 748	56	8.95
1979 ASM	9 918	84	2 611	3.11	40	70	20 157	49	9.16
1978 ASM	9 847	85	1 784	4.55	44	77	16 745	59	11.08
1977 Census	8 802	85	1 839	3.92	42	74	16 153	54	10.27
	INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES								
1992 Census	29 220	72	2 140	11.38	66	83	60 326	48	38.93
1991 ASM	28 035	73	2 092	11.10	66	83	55 786	50	36.51
1990 ASM	27 100	73	2 100	10.70	68	84	53 605	51	35.13
1989 ASM	26 351	73	2 096	10.47	69	85	52 330	50	34.12
1988 ASM	25 690	74	2 083	10.43	69	84	53 066	48	34.61
1987 Census	24 685	73	2 076	10.22	66	83	51 805	48	34.16
1986 ASM	23 860	72	2 036	10.11	65	83	47 760	50	32.36
1985 ASM	22 797	73	2 001	9.77	65	82	46 630	49	32.08
1984 ASM	22 096	72	2 031	9.45	66	83	45 109	49	30.73
1983 ASM	21 033	71	2 028	9.05	65	83	41 020	51	28.45
1982 Census	19 722	71	1 958	8.70	65	83	38 761	51	27.72
1981 ASM	18 692	71	2 003	8.03	66	83	37 364	50	26.12
1980 ASM	17 150	71	1 963	7.59	65	82	34 217	50	24.42
1979 ASM	15 813	73	1 988	6.91	64	83	26 230	60	18.12
1978 ASM	14 657	73	1 981	6.51	64	83	27 894	53	19.33
1977 Census	13 545	72	1 993	5.92	63	82	26 641	51	18.46
	INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS								
1992 Census	27 185	81	2 139	11.31	59	77	63 153	43	36.25
1991 ASM	26 395	83	2 103	10.98	60	77	59 744	44	34.25
1990 ASM	25 662	83	2 063	10.82	60	78	56 436	45	32.78
1989 ASM	24 729	83	2 126	10.13	60	78	54 955	45	30.97
1988 ASM	23 363	82	2 059	10.14	60	78	52 492	45	31.00
1987 Census	22 456	81	2 059	9.84	59	77	50 256	45	30.20
1986 ASM	21 833	81	2 039	9.74	62	80	47 159	46	28.57
1985 ASM	21 096	81	1 982	9.58	62	79	46 926	45	29.06
1984 ASM	20 151	82	1 991	9.14	63	79	45 417	44	27.81
1983 ASM	19 560	81	1 974	9.05	61	78	44 553	44	27.92
1982 Census	17 908	81	1 939	8.34	61	78	40 745	44	26.00
1981 ASM	17 142	81	1 954	7.81	61	80	36 142	47	22.87
1980 ASM	16 075	82	1 977	7.02	60	78	34 843	46	21.39
1979 ASM	14 632	84	2 007	6.55	60	80	30 164	49	17.97
1978 ASM	13 356	84	1 985	6.03	61	81	27 000	49	16.18
1977 Census	12 255	83	1 993	5.53	60	80	25 273	48	15.24
	INDUSTRY 2656, SANITARY FOOD CONTAINERS								
1992 Census	25 058	83	2 016	11.42	57	73	68 299	37	40.77
1991 ASM	23 347	82	1 986	10.35	58	73	64 688	36	39.81
1990 ASM	22 417	82	1 958	10.33	58	73	61 394	37	38.37
1989 ASM	22 238	84	1 938	10.50	59	74	61 174	36	37.44
1988 ASM	22 281	80	2 016	10.09	59	76	55 713	40	34.55
1987 Census	21 582	82	1 977	9.95	58	74	56 570	38	35.05
	INDUSTRY 2657, FOLDING PAPERBOARD BOXES								
1992 Census	30 173	79	2 158	12.15	55	75	67 647	45	39.61
1991 ASM	28 462	81	2 105	11.59	56	76	64 148	44	37.77
1990 ASM	27 249	80	2 116	11.12	56	76	60 008	45	35.42
1989 ASM	26 328	80	2 092	11.01	56	76	59 465	44	35.73
1988 ASM	26 039	79	2 106	10.60	56	78	54 252	48	32.50
1987 Census	24 769	79	2 098	10.40	55	77	51 022	49	30.91

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2652, SETUP PAPERBOARD BOXES														
United States	**E1**	**155**	**102**	**6.6**	**129.2**	**5.1**	**10.7**	**84.7**	**240.3**	**197.5**	**435.7**	**10.0**	**8.7**	**236.0**
California	–	8	4	.3	5.9	.2	.5	4.0	10.8	9.6	20.3	.7	E	(D)
Illinois	E1	7	4	.2	5.0	.2	.4	2.9	8.2	6.2	14.3	(D)	.5	14.0
Indiana	–	5	3	.2	2.8	.1	.2	1.8	6.2	6.3	12.0	(D)	(NA)	(D)
Maryland	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Massachusetts	E4	17	13	.7	15.9	.5	1.1	9.7	30.6	29.5	60.0	1.0	G	(D)
Missouri	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.0
New Jersey	E1	7	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	25	14	1.3	25.9	1.1	2.2	18.4	43.9	32.9	77.6	(D)	G	(D)
North Carolina	E1	8	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	7	5	.3	6.4	.2	.6	4.3	10.6	13.4	23.4	(D)	E	(D)
Pennsylvania	–	14	10	.7	12.9	.6	1.2	9.2	26.6	17.2	43.7	.9	1.1	29.8
Rhode Island	E4	12	7	.4	7.5	.3	.6	4.7	13.8	14.2	27.9	.5	E	(D)
Texas	E4	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Virginia	–	3	3	.1	2.7	.1	.2	1.3	5.2	2.6	8.0	(D)	(NA)	(NA)
Wisconsin	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES														
United States	**–**	**1 646**	**1 233**	**111.7**	**3 263.9**	**80.9**	**173.1**	**1 970.4**	**6 738.4**	**13 079.2**	**19 789.9**	**461.0**	**105.7**	**5 475.8**
Alabama	–	28	22	1.6	40.9	1.2	2.6	25.1	85.7	184.1	269.8	6.1	G	(D)
Arizona	–	12	8	.6	16.4	.5	1.1	11.1	50.8	91.1	141.7	1.9	.4	25.2
Arkansas	E1	31	22	2.2	57.4	1.7	3.6	38.6	124.1	234.3	357.3	7.3	1.8	84.2
California	–	157	114	11.4	381.3	8.5	18.8	244.5	770.4	1 766.3	2 528.7	44.0	10.9	706.4
Colorado	E1	17	12	1.1	34.8	.8	1.7	19.6	72.1	137.5	210.0	5.9	.9	49.5
Connecticut	–	24	19	1.5	45.7	1.1	2.4	26.1	86.3	140.9	226.8	5.1	1.5	72.3
Delaware	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	44	31	2.9	82.7	2.1	4.8	50.5	178.4	369.3	547.8	13.5	2.7	142.4
Georgia	–	67	49	4.8	134.7	3.5	7.7	85.0	276.3	589.3	862.2	29.2	3.8	192.6
Hawaii	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(D)
Idaho	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	112	89	8.1	248.1	5.6	12.2	136.7	528.1	846.7	1 372.7	43.8	7.8	403.3
Indiana	–	63	48	4.2	112.3	3.1	6.4	69.1	216.7	477.1	693.5	24.8	3.9	176.5
Iowa	–	17	13	1.5	41.7	1.1	2.3	26.8	94.4	208.0	301.8	5.4	1.3	62.1
Kansas	–	9	6	1.1	31.6	.8	1.7	20.8	52.6	113.3	166.3	3.6	G	(D)
Kentucky	–	26	20	1.8	50.0	1.3	2.7	32.0	106.5	216.1	323.0	(D)	G	(D)
Louisiana	–	11	9	1.2	35.9	.9	2.1	23.9	81.0	157.9	239.7	4.8	G	(D)
Maine	–	4	4	.4	12.4	.3	.6	6.4	24.8	42.8	67.6	(D)	E	(D)
Maryland	–	21	16	1.3	36.1	.9	2.1	21.8	79.6	133.0	212.7	2.9	1.4	55.5
Massachusetts	–	35	27	2.6	80.2	1.8	3.8	43.7	147.6	266.0	414.0	6.2	3.3	158.1
Michigan	–	76	56	4.2	119.8	2.8	5.9	67.1	246.1	440.0	685.3	16.1	3.9	203.5
Minnesota	–	28	25	2.8	82.4	2.0	4.3	51.5	188.5	327.8	516.5	14.0	2.5	145.9
Mississippi	–	23	19	1.9	49.3	1.5	3.0	33.1	104.1	197.4	302.2	5.4	G	(D)
Missouri	–	46	33	2.8	78.2	2.0	4.3	44.7	165.2	345.1	510.3	11.7	2.6	142.8
Nebraska	–	5	5	.4	12.0	.3	.7	7.0	28.1	52.8	80.9	(D)	E	(D)
New Hampshire	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	71	54	5.1	158.0	3.7	7.8	89.9	298.3	461.0	759.7	28.4	5.7	274.7
New York	–	87	56	4.7	136.5	3.4	7.1	78.7	284.2	441.3	724.9	10.3	5.8	263.4
North Carolina	–	59	49	4.4	126.7	3.1	6.9	71.3	236.3	454.4	688.1	19.5	3.9	196.7
Ohio	–	125	88	6.6	187.8	4.7	10.0	112.8	395.7	788.7	1 182.8	24.6	6.0	324.4
Oklahoma	–	14	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	8	6	.7	23.4	.5	1.1	14.6	52.8	87.9	140.1	(D)	.7	36.8
Pennsylvania	E1	93	69	6.3	187.3	4.5	9.6	113.3	380.4	723.8	1 103.2	23.2	6.9	357.1
Rhode Island	–	7	5	.3	7.6	.2	.4	4.5	13.8	18.4	32.3	.5	E	(D)
South Carolina	E1	29	27	2.3	57.2	1.7	3.6	34.3	118.4	246.7	364.3	8.6	1.9	87.6
South Dakota	E1	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	58	40	3.5	95.1	2.6	5.5	56.0	184.5	397.8	581.4	12.8	3.2	153.4
Texas	–	95	74	6.3	168.3	4.5	9.3	97.9	368.9	744.0	1 107.9	16.6	(NA)	(D)
Utah	–	6	5	.4	10.6	.3	.6	7.0	20.5	58.1	77.6	(D)	(NA)	(D)
Virginia	–	32	26	2.6	76.4	1.9	4.3	49.4	164.6	290.5	454.0	16.5	2.3	122.5
Washington	–	25	18	1.7	54.7	1.2	2.4	37.4	103.6	294.0	398.5	7.9	1.5	82.0
West Virginia	–	5	3	.2	4.2	.1	.3	3.1	8.7	13.5	22.2	(D)	E	(D)
Wisconsin	–	54	38	4.3	131.7	3.1	6.4	80.1	291.0	478.2	768.6	15.2	3.8	205.7

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 3:33 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:26B_92.DAT;1 5/10/95 09:57:51 UTF:26B_93.DAT;3 5/11/95 15:32:22 META:TIPS96-15323927.DAT;1 5/11/95 15:33:21

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS														
United States	**E1**	**300**	**185**	**12.4**	**337.1**	**10.1**	**21.6**	**244.2**	**783.1**	**1 138.3**	**1 922.1**	**46.7**	**12.5**	**628.2**
Alabama	–	11	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
California	–	18	9	.6	16.4	.5	1.0	11.7	38.5	49.3	88.0	1.3	F	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	12	6	.4	10.1	.3	.5	6.7	15.2	55.8	73.0	(D)	.5	21.9
Georgia	E2	16	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	.8	44.1
Illinois	–	19	14	.8	20.5	.6	1.2	12.9	50.1	66.0	116.4	5.6	F	(D)
Indiana	–	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E3	13	12	.5	13.6	.4	.8	10.1	30.4	32.1	62.5	1.5	E	(D)
Michigan	–	9	6	.2	6.0	.2	.4	4.4	12.7	16.0	28.7	(D)	(NA)	(D)
Missouri	–	6	3	.1	2.5	.1	.2	1.6	7.1	6.6	13.7	(D)	E	(D)
New Jersey	–	16	11	.7	18.7	.6	1.3	14.7	46.0	60.5	106.5	(D)	.9	43.2
New York	–	15	7	.9	25.7	.7	1.7	17.1	59.3	65.7	124.8	3.3	.9	43.7
North Carolina	E1	13	9	.9	23.2	.7	1.6	16.6	51.8	56.4	108.0	3.7	F	(D)
Ohio	E2	25	18	1.2	30.0	1.0	2.0	22.8	65.1	120.9	186.2	3.4	1.1	48.1
Pennsylvania	–	11	9	.5	12.3	.4	.8	9.0	24.3	34.8	59.5	1.0	.7	41.1
Rhode Island	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	E2	10	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	7	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E1	18	10	.6	15.7	.4	1.0	10.6	37.9	52.9	90.4	(D)	E	(D)
Virginia	E2	6	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	15	12	.8	22.8	.6	1.3	16.0	49.0	82.6	131.9	(D)	.6	33.2
INDUSTRY 2656, SANITARY FOOD CONTAINERS														
United States	**–**	**89**	**74**	**15.4**	**385.9**	**12.8**	**25.8**	**294.7**	**1 051.8**	**1 431.6**	**2 490.8**	**69.3**	**15.8**	**893.8**
Arkansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	11	7	1.0	24.4	.8	1.5	18.6	78.2	116.0	193.4	10.2	F	(D)
Connecticut	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	7	6	1.1	27.3	.9	2.1	21.2	66.6	161.0	228.6	(D)	1.3	71.4
Illinois	–	5	5	1.1	21.6	1.0	1.5	18.4	54.0	72.5	125.2	(D)	1.8	88.6
Indiana	E9	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	3	3	.3	7.5	.2	.5	5.2	58.7	44.8	105.4	(D)	E	(D)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	4	3	.4	8.6	.3	.6	6.0	18.9	59.0	80.4	(D)	E	(D)
Missouri	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Mexico	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	4	2	.2	5.8	.2	.5	4.1	11.5	21.2	33.8	(D)	.2	9.0
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	6	5	.9	22.4	.7	1.4	16.7	62.7	87.3	149.3	(D)	F	(D)
Pennsylvania	–	6	5	.7	15.7	.6	1.2	11.4	45.7	58.4	107.6	2.8	.9	54.5
Rhode Island	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2657, FOLDING PAPERBOARD BOXES														
United States	**–**	**588**	**436**	**52.7**	**1 590.1**	**41.7**	**90.0**	**1 093.2**	**3 565.0**	**4 358.0**	**7 932.7**	**295.7**	**50.7**	**2 586.8**
Alabama	E1	10	6	.6	15.1	.6	1.3	12.0	39.4	57.6	96.7	.9	E	(D)
Arkansas	–	6	5	.7	18.4	.6	1.5	14.5	46.7	54.7	100.5	(D)	F	(D)
California	E1	49	35	3.8	126.3	2.9	6.3	85.9	286.8	328.5	615.1	21.9	(NA)	(D)
Colorado	–	5	5	.5	16.4	.4	.8	10.7	47.2	67.2	113.9	2.4	E	(D)
Connecticut	E1	17	14	1.2	36.5	.9	2.1	24.2	63.9	65.4	132.4	(D)	G	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	7	3	.5	13.4	.4	.8	9.7	30.5	31.3	61.7	7.1	.6	26.0
Georgia	–	12	11	1.8	62.0	1.4	3.1	36.8	128.6	207.4	337.2	12.2	1.6	83.3
Illinois	–	55	44	5.7	186.0	4.5	9.9	130.2	401.6	518.6	919.4	31.3	4.5	242.8
Indiana	–	18	15	2.1	64.1	1.6	3.4	41.7	136.4	163.0	298.1	13.1	G	(D)
Iowa	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	6	4	.6	15.3	.5	1.0	11.0	40.2	63.9	104.1	(D)	F	(D)
Louisiana	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	6	6	.8	24.4	.7	1.6	16.6	57.7	50.8	108.7	(D)	G	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 3:33 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:26B_92.DAT;1 5/10/95 09:57:51 UTF:26B_93.DAT;3 5/11/95 15:32:22 META:TIPS96-15323927.DAT;1 5/11/95 15:33:21

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2657, FOLDING PAPERBOARD BOXES—Con.														
Massachusetts	–	23	15	1.8	49.5	1.3	2.9	32.8	108.2	96.8	205.7	6.4	1.5	77.0
Michigan	–	16	12	1.5	47.7	1.1	2.4	34.9	87.2	150.5	239.2	10.0	G	(D)
Minnesota	–	17	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	16	10	1.3	37.7	1.0	2.2	27.4	82.2	110.1	190.0	17.0	1.3	51.5
Nebraska	–	5	4	.6	14.7	.5	.8	9.8	38.2	39.6	77.8	(D)	F	(D)
New Hampshire	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	26	20	2.3	73.1	1.7	3.6	48.0	174.6	117.6	292.6	11.8	2.7	132.8
New York	E1	53	32	3.8	118.9	2.9	6.2	75.7	220.6	240.2	460.9	9.3	4.0	190.2
North Carolina	–	25	23	2.9	86.0	2.3	5.0	58.7	211.5	221.2	435.7	12.8	G	(D)
Ohio	E1	50	38	4.3	120.6	3.5	7.5	86.5	284.3	341.8	628.4	21.0	3.8	188.3
Oregon	–	4	4	.2	6.4	.2	.4	4.6	12.9	16.7	30.1	(D)	(NA)	(D)
Pennsylvania	–	48	28	2.9	78.8	2.3	5.0	56.2	184.4	227.6	411.5	7.2	3.3	166.2
Rhode Island	E5	6	6	.5	15.1	.4	.8	9.3	30.8	18.1	49.3	(D)	.4	14.8
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	26	22	2.3	61.1	1.9	3.9	41.4	148.3	193.2	344.6	14.9	1.5	84.7
Texas	–	23	15	1.4	33.0	1.1	2.4	23.0	75.4	101.0	177.5	4.8	G	(D)
Utah	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	10	9	1.8	54.2	1.4	2.9	38.7	130.2	192.5	325.7	13.7	G	(D)
Washington	E1	6	5	.4	13.7	.3	.7	9.6	29.6	33.6	63.1	(D)	F	(D)
Wisconsin	–	13	11	1.7	52.6	1.4	2.9	40.1	127.9	152.5	282.2	5.6	2.0	114.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Setup paperboard boxes (SIC 2652)	Corrugated and solid fiber boxes (SIC 2653)	Fiber cans, drums, and similar products (SIC 2655)	Sanitary food containers (SIC 2656)	Folding paperboard boxes (SIC 2657)
Companies—number	146	966	153	46	446
All establishments—number	155	1 646	300	89	588
With 1 to 19 employees—number	53	413	115	15	152
With 20 to 99 employees—number	91	746	162	31	242
With 100 employees or more—number	11	487	23	43	194
Employment and labor costs:					
Employees—1,000	6.6	111.7	12.4	15.4	52.7
Compensation, total—mil dol	157.8	4 054.2	420.4	494.3	2 008.7
Annual payroll—mil dol	129.2	3 263.9	337.1	385.9	1 590.1
Fringe benefits—mil dol	28.6	790.3	83.3	108.4	418.6
Social Security and other legally required payments—mil dol	13.9	356.5	33.6	44.5	174.5
Employer voluntary payments—mil dol	14.7	433.7	49.7	63.9	244.2
Production workers:					
Average for year—1,000	5.1	80.9	10.1	12.8	41.7
March—1,000	4.6	80.6	10.1	12.6	41.6
May—1,000	5.0	81.0	10.2	13.2	41.8
August—1,000	5.6	81.4	10.3	12.9	42.2
November—1,000	5.3	80.9	9.9	12.4	41.5
Hours—millions	10.7	173.1	21.6	25.8	90.0
Wages—mil dol	84.7	1 970.4	244.2	294.7	1 093.2
Cost of materials[1]—mil dol	197.5	13 079.2	1 138.3	1 431.6	4 358.0
Materials, parts, containers, etc., consumed[2]—mil dol	179.2	12 267.4	1 061.9	1 336.8	4 072.4
Resales—mil dol	4.8	419.5	46.1	48.9	69.0
Fuels—mil dol	2.0	124.8	8.1	6.8	25.2
Purchased electricity—mil dol	4.4	183.0	18.3	35.6	75.0
Contract work—mil dol	7.0	84.6	4.0	3.6	116.5
Quantity of electric energy used for heat and power:					
Purchased—mil kWh	59.7	2 895.0	286.4	617.5	1 180.0
Generated less sold—mil kWh	–	99.0	(D)	(D)	(D)
Total value of shipments—mil dol	435.7	19 789.9	1 922.1	2 490.8	7 932.7
Value added—mil dol	240.3	6 738.4	783.1	1 051.8	3 565.0

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/11/95 3:33 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:26B_92.DAT;1 5/10/95 09:57:51 UTF:26B_93.DAT;3 5/11/95 15:32:22 META:TIPS96-15323927.DAT;1 5/11/95 15:33:21

Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Setup paperboard boxes (SIC 2652)	Corrugated and solid fiber boxes (SIC 2653)	Fiber cans, drums, and similar products (SIC 2655)	Sanitary food containers (SIC 2656)	Folding paperboard boxes (SIC 2657)
Inventories by stage of fabrication:					
Beginning of 1992 ---mil dol---	52.8	1 688.4	166.4	381.3	1 129.2
Finished goods ---mil dol---	21.8	392.9	44.7	174.2	577.8
Work in process ---mil dol---	6.9	108.8	12.5	34.3	183.8
Materials and supplies ---mil dol---	24.1	1 186.7	109.1	172.8	367.7
End of 1992 ---mil dol---	52.5	1 762.4	172.0	371.2	1 080.7
Finished goods ---mil dol---	23.6	413.0	44.2	167.2	566.6
Work in process ---mil dol---	7.2	116.4	12.4	34.0	185.4
Materials and supplies ---mil dol---	21.7	1 233.1	115.5	170.0	328.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Setup paperboard boxes (SIC 2652)	Corrugated and solid fiber boxes (SIC 2653)	Fiber cans, drums, and similar products (SIC 2655)	Sanitary food containers (SIC 2656)	Folding paperboard boxes (SIC 2657)
Gross book value of depreciable assets:					
Total:					
Beginning of year	142.3	6 874.7	529.4	1 159.2	2 847.1
New capital expenditures[1]	10.0	461.0	46.7	69.3	295.7
Used capital expenditures	2.5	97.2	5.4	15.9	35.4
Retirements	2.6	165.6	11.2	16.0	78.7
End of year	152.3	7 267.4	570.2	1 228.5	3 099.5
Buildings and other structures:					
Beginning of year	27.5	1 338.8	106.2	291.2	488.7
New capital expenditures	1.3	42.9	9.4	4.1	40.9
Used capital expenditures	.2	12.3	.2	4.3	2.5
Retirements	(Z)	10.3	.6	.3	9.8
End of year	29.0	1 383.6	115.3	299.4	522.4
Machinery and equipment:					
Beginning of year	114.8	5 535.9	423.1	868.0	2 358.3
New capital expenditures[1]	8.7	418.1	37.2	65.2	254.9
Used capital expenditures	2.3	85.0	5.1	11.6	32.9
Retirements	2.5	155.3	10.6	15.7	69.0
End of year	123.3	5 883.8	454.9	929.0	2 577.1
Depreciation charges during 1992:					
Total	11.6	411.7	43.0	88.4	241.1
Buildings and other structures	1.4	48.0	7.0	14.5	24.6
Machinery and equipment	10.2	363.6	36.0	73.9	216.5
Rental payments:					
Total	8.0	174.8	19.9	15.3	57.7
Buildings and other structures	3.9	86.9	10.5	7.1	30.7
Machinery and equipment	4.1	87.9	9.5	8.2	26.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Setup paperboard boxes (SIC 2652)		Corrugated and solid fiber boxes (SIC 2653)		Fiber cans, drums, and similar products (SIC 2655)		Sanitary food containers (SIC 2656)		Folding paperboard boxes (SIC 2657)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	.3	(X)	45.6	(X)	2.1	(X)	3.3	(X)	16.4	(X)
Response coverage ratio (percent)[2]	54.4	(X)	90.2	(X)	70.0	(X)	96.9	(X)	89.1	(X)
Machinery	2.4	(X)	216.5	(X)	13.1	(X)	22.1	(X)	83.5	(X)
Response coverage ratio (percent)[2]	74.0	(X)	90.7	(X)	73.4	(X)	91.5	(X)	91.0	(X)
Other purchased services:										
Communications	.9	(X)	45.2	(X)	3.4	(X)	3.6	(X)	14.6	(X)
Response coverage ratio (percent)[2]	74.0	(X)	88.1	(X)	65.8	(X)	96.9	(X)	88.5	(X)
Legal	.1	(X)	11.0	(X)	.4	(X)	1.7	(X)	6.8	(X)
Response coverage ratio (percent)[2]	71.5	(X)	89.5	(X)	70.3	(X)	96.2	(X)	89.1	(X)
Accounting and bookkeeping	.6	(X)	10.0	(X)	.7	(X)	.4	(X)	5.3	(X)
Response coverage ratio (percent)[2]	74.0	(X)	88.4	(X)	73.0	(X)	90.8	(X)	87.5	(X)
Advertising	1.8	(X)	7.7	(X)	1.3	(X)	.9	(X)	3.5	(X)
Response coverage ratio (percent)[2]	71.5	(X)	89.2	(X)	72.9	(X)	89.3	(X)	88.5	(X)
Software and other data processing	.2	(X)	9.9	(X)	.2	(X)	1.4	(X)	4.4	(X)
Response coverage ratio (percent)[2]	71.5	(X)	89.3	(X)	70.4	(X)	96.2	(X)	86.3	(X)
Refuse removal, including hazardous waste	.3	(X)	14.1	(X)	2.8	(X)	2.1	(X)	11.9	(X)
Response coverage ratio (percent)[2]	71.5	(X)	89.1	(X)	74.3	(X)	96.9	(X)	88.6	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Setup paperboard boxes (SIC 2652)		Corrugated and solid fiber boxes (SIC 2653)		Fiber cans, drums, and similar products (SIC 2655)		Sanitary food containers (SIC 2656)		Folding paperboard boxes (SIC 2657)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	8.7	(X)	418.1	(X)	37.2	(X)	65.2	(X)	254.9	(X)
Automobiles, trucks, etc., for highway use	–	(X)	17.2	7	1.8	50	.2	53	4.6	33
Computers and peripheral data processing equipment	(Z)	(X)	18.0	7	.5	17	1.0	3	18.4	7
All other	8.7	1	382.9	1	34.9	4	64.0	1	231.8	1
Adjustment ratio[3]	1.1	(X)	1.1	(X)	1.1	(X)	1.3	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	179.2	(X)	12 267.4	(X)	1 061.9	(X)	1 336.8	(X)	4 072.4	(X)
Materials purchased or transferred from foreign sources[4]	–	(X)	51.7	12	1.4	61	2.0	20	42.9	22
Materials purchased or transferred from domestic sources	(S)	(X)	12 215.7	1	1 060.5	1	1 334.7	1	4 029.5	1
Adjustment ratio[3]	(S)	(X)	1.3	(X)	1.4	(X)	1.1	(X)	1.2	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2652, SETUP PAPERBOARD BOXES												
Total	**E1**	**155**	**6.6**	**129.2**	**5.1**	**10.7**	**84.7**	**240.3**	**197.5**	**435.7**	**10.0**	**52.5**
Establishments with an average of—												
1 to 4 employees	E9	20	(Z)	1.0	(Z)	.1	.7	1.7	3.0	4.7	.1	.3
5 to 9 employees	E6	10	.1	1.3	.1	.1	.9	2.0	3.6	5.8	.1	.7
10 to 19 employees	E4	23	.3	6.4	.3	.5	4.0	10.0	11.6	22.0	.4	2.0
20 to 49 employees	–	53	1.7	36.0	1.3	2.6	22.0	67.9	45.9	113.8	1.4	11.7
50 to 99 employees	E1	38	2.6	52.5	2.0	4.2	33.6	100.5	84.2	183.1	5.4	21.2
100 to 249 employees	E1	10	1.9	32.0	1.5	3.2	23.5	58.2	49.2	106.2	2.5	16.7
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	31	.2	2.6	.1	.2	1.7	3.0	6.2	9.7	.3	.7
INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES												
Total	**–**	**1 646**	**111.7**	**3 263.9**	**80.9**	**173.1**	**1 970.4**	**6 738.4**	**13 079.2**	**19 789.9**	**461.0**	**1 762.4**
Establishments with an average of—												
1 to 4 employees	E7	123	.2	5.6	.1	.3	3.4	14.0	27.6	41.6	1.5	3.8
5 to 9 employees	E5	93	.6	15.5	.4	.9	9.5	30.5	63.0	94.3	2.5	7.6
10 to 19 employees	E2	197	2.8	65.8	2.0	4.0	36.0	122.5	224.6	347.0	21.9	24.2
20 to 49 employees	E1	437	14.3	358.0	10.0	21.2	189.5	742.2	1 174.6	1 917.3	34.3	119.7
50 to 99 employees	–	309	22.3	623.8	16.0	34.4	360.2	1 344.7	2 557.5	3 900.9	82.9	298.6
100 to 249 employees	–	472	66.4	2 054.3	48.7	105.0	1 285.1	4 165.9	8 606.6	12 753.3	298.1	1 233.7
250 to 499 employees	–	14	5.0	140.8	3.6	7.2	86.7	318.7	425.3	735.5	19.9	74.8
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	181	.9	16.7	.6	1.2	10.1	25.8	56.0	81.8	2.6	7.3
INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS												
Total	**E1**	**300**	**12.4**	**337.1**	**10.1**	**21.6**	**244.2**	**783.1**	**1 138.3**	**1 922.1**	**46.7**	**172.0**
Establishments with an average of—												
1 to 4 employees	E8	30	.1	1.5	.1	.1	1.0	3.6	5.6	9.2	.2	.9
5 to 9 employees	E5	25	.2	3.4	.1	.3	2.5	6.9	10.7	17.5	.4	2.1
10 to 19 employees	E2	60	.9	20.8	.7	1.5	14.9	48.8	75.6	124.4	2.8	11.0
20 to 49 employees	–	104	3.4	85.6	2.7	5.6	59.0	218.2	301.2	518.7	9.2	46.7
50 to 99 employees	–	58	4.0	114.3	3.3	6.9	83.8	285.4	423.6	709.6	19.9	60.7
100 to 249 employees	E1	20	3.9	111.5	3.3	7.2	82.9	220.3	321.7	542.7	14.2	50.7
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	46	.2	3.8	.2	.3	2.8	6.7	10.3	17.0	.4	1.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2656, SANITARY FOOD CONTAINERS												
Total	**–**	**89**	**15.4**	**385.9**	**12.8**	**25.8**	**294.7**	**1 051.8**	**1 431.6**	**2 490.8**	**69.3**	**371.2**
Establishments with an average of—												
1 to 4 employees	E9	5	(Z)	.3	(Z)	(Z)	.2	.7	.9	1.6	(Z)	.3
5 to 9 employees	E6	5	(Z)	.8	(Z)	.1	.6	2.2	2.8	4.9	(Z)	.6
10 to 19 employees	E4	5	.1	1.8	.1	.1	1.3	3.1	5.1	8.4	.1	1.2
20 to 49 employees	E2	19	.6	12.7	.5	1.0	8.6	32.7	52.8	84.9	1.4	11.1
50 to 99 employees	E2	12	1.0	24.8	.8	1.7	17.7	68.3	164.9	233.6	2.9	23.7
100 to 249 employees	–	28	4.1	102.2	3.3	6.8	73.0	309.3	574.2	884.9	22.9	110.4
250 to 499 employees	–	8	2.9	73.5	2.3	4.1	55.8	195.8	193.3	390.6	15.3	73.6
500 to 999 employees	–	5	6.8	169.7	5.8	12.1	137.5	439.7	437.7	881.8	26.7	150.5
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	9	.1	1.0	(Z)	.1	.8	1.9	2.6	4.6	.1	.7
INDUSTRY 2657, FOLDING PAPERBOARD BOXES												
Total	**–**	**588**	**52.7**	**1 590.1**	**41.7**	**90.0**	**1 093.2**	**3 565.0**	**4 358.0**	**7 932.7**	**295.7**	**1 080.7**
Establishments with an average of—												
1 to 4 employees	E9	41	.1	2.1	.1	.1	1.5	4.9	6.3	11.2	.4	1.6
5 to 9 employees	E7	47	.3	8.4	.3	.5	6.0	16.4	20.4	36.7	.9	5.4
10 to 19 employees	E2	64	.9	22.7	.7	1.5	13.8	48.8	55.0	103.7	3.8	12.9
20 to 49 employees	E1	121	4.0	102.9	3.1	6.6	66.0	218.0	234.2	452.3	16.8	58.5
50 to 99 employees	–	121	8.8	248.6	6.8	14.2	161.9	570.8	611.6	1 180.8	54.6	163.5
100 to 249 employees	–	159	25.2	769.8	20.1	44.0	536.9	1 750.0	2 071.8	3 828.0	140.1	545.6
250 to 499 employees	–	29	9.5	309.8	7.6	16.2	216.5	697.0	959.6	1 662.3	56.4	209.3
500 to 999 employees	–	6	3.8	125.7	3.2	6.9	90.6	259.1	399.0	657.6	22.7	83.9
Covered by administrative records[2]	E9	74	.4	7.5	.3	.6	5.3	13.5	17.2	30.7	.9	4.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2652	**Setup paperboard boxes:**										
	All establishments in industry	155	6.6	129.2	5.1	10.7	84.7	240.3	197.5	435.7	10.0
2653	**Corrugated and solid fiber boxes:**										
	All establishments in industry	1 646	111.7	3 263.9	80.9	173.1	1 970.4	6 738.4	13 079.2	19 789.9	461.0
2655	**Fiber cans, drums, and similar products:**										
	All establishments in industry	300	12.4	337.1	10.1	21.6	244.2	783.1	1 138.3	1 922.1	46.7
	Establishments with this product class primary:										
26551	Paperboard fiber drums with ends of any material	49	2.8	75.8	2.3	5.0	58.6	170.4	218.9	389.9	10.0
26552	Fiber cans, tubes, and similar fiber products	162	8.3	232.1	6.7	14.3	164.8	549.5	830.4	1 380.2	32.9
2656	**Sanitary food containers:**										
	All establishments in industry	89	15.4	385.9	12.8	25.8	294.7	1 051.8	1 431.6	2 490.8	69.3
	Establishments with this product class primary:										
26561	Milk and milk-type paperboard cartons	19	2.4	66.9	1.9	3.9	48.7	198.8	486.3	685.3	11.3
26562	Cups and liquid-tight paper and paperboard containers	29	10.4	252.4	8.7	17.3	199.2	665.8	698.4	1 366.3	46.9
26563	Other sanitary paper and paperboard food containers, boards, and trays, except folding	22	2.3	57.1	1.9	3.9	40.1	163.2	217.8	387.6	10.6
2657	**Folding paperboard boxes:**										
	All establishments in industry	588	52.7	1 590.1	41.7	90.0	1 093.2	3 565.0	4 358.0	7 932.7	295.7

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2652, SETUP PAPERBOARD BOXES			
Total value of shipments	435.7	436.5	433.2
Primary products value of shipments	406.7	401.3	403.3
Secondary products value of shipments	14.5	15.4	18.8
Total miscellaneous receipts	14.6	19.8	11.1
Value of resales	6.1	12.9	9.7
Contract receipts	8.2	(D)	(D)
Other miscellaneous receipts	.2	(D)	(D)
Sales of scrap and refuse	.2	.7	.4
Other miscellaneous receipts	.1	(D)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	–
Primary products specialization ratio	97	96	96
Value of primary products shipments made in all industries	532.1	517.9	485.1
Value of primary products shipments made in this industry	406.7	401.3	403.3
Value of primary products shipments made in other industries	125.4	116.6	81.8
Coverage ratio	76	77	83
INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES			
Total value of shipments	19 789.9	16 104.0	10 558.1
Primary products value of shipments	18 978.6	15 505.3	10 217.1
Secondary products value of shipments	195.5	139.9	142.5
Total miscellaneous receipts	615.9	458.8	198.5
Value of resales	494.4	273.9	126.0
Contract receipts	9.3	11.3	3.5
Other miscellaneous receipts	112.1	173.6	69.0
Sales of scrap and refuse	95.2	145.3	60.7
Other miscellaneous receipts	13.7	28.3	(D)
Other miscellaneous receipts, n.s.k.	3.2	(NA)	(D)
Primary products specialization ratio	99	99	99
Value of primary products shipments made in all industries	19 098.0	15 602.2	10 303.1
Value of primary products shipments made in this industry	18 978.6	15 505.3	10 217.1
Value of primary products shipments made in other industries	119.5	96.9	86.1
Coverage ratio	99	99	99
INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS			
Total value of shipments	1 922.1	1 533.9	1 473.5
Primary products value of shipments	1 757.1	1 392.5	1 385.1
Secondary products value of shipments	98.6	113.9	71.0
Total miscellaneous receipts	66.4	27.5	17.4
Value of resales	52.7	19.1	10.4
Contract receipts	4.8	(D)	(D)
Other miscellaneous receipts	8.8	(D)	(D)
Sales of scrap and refuse	2.6	3.1	2.6
Other miscellaneous receipts	6.2	(D)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	95	92	95
Value of primary products shipments made in all industries	1 821.5	1 493.9	1 507.3
Value of primary products shipments made in this industry	1 757.1	1 392.5	1 385.1
Value of primary products shipments made in other industries	64.4	101.4	122.2
Coverage ratio	96	93	92
INDUSTRY 2656, SANITARY FOOD CONTAINERS			
Total value of shipments	2 490.8	2 083.0	(NA)
Primary products value of shipments	2 120.7	1 728.7	(NA)
Secondary products value of shipments	291.8	250.2	(NA)
Total miscellaneous receipts	78.3	104.0	(NA)
Value of resales	62.1	85.1	(NA)
Contract receipts	(D)	–	(NA)
Other miscellaneous receipts	(D)	18.9	(NA)
Sales of scrap and refuse	13.5	16.6	(NA)
Other miscellaneous receipts	(D)	2.3	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	88	87	(NA)
Value of primary products shipments made in all industries	2 407.6	1 959.6	(NA)
Value of primary products shipments made in this industry	2 120.7	1 728.7	(NA)
Value of primary products shipments made in other industries	286.9	230.8	(NA)
Coverage ratio	88	88	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2657, FOLDING PAPERBOARD BOXES			
Total value of shipments	7 932.7	5 705.3	(NA)
Primary products value of shipments	7 469.9	5 316.2	(NA)
Secondary products value of shipments	323.6	264.6	(NA)
Total miscellaneous receipts	139.2	124.4	(NA)
Value of resales	81.7	52.4	(NA)
Contract receipts	22.3	36.0	(NA)
Other miscellaneous receipts	35.2	35.9	(NA)
Sales of scrap and refuse	20.3	25.7	(NA)
Other miscellaneous receipts	13.9	10.2	(NA)
Other miscellaneous receipts, n.s.k.	1.0	(NA)	(NA)
Primary products specialization ratio	96	95	(NA)
Value of primary products shipments made in all industries	7 723.2	5 521.8	(NA)
Value of primary products shipments made in this industry	7 469.9	5 316.2	(NA)
Value of primary products shipments made in other industries	253.3	205.6	(NA)
Coverage ratio	97	96	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2652– —	**SETUP PAPERBOARD BOXES**				
	Total	**(NA)**	**532.1**	**(NA)**	**517.9**
26520	Setup (rigid) paperboard boxes, classified by end use	(NA)	532.1	(NA)	517.9
26520 21	Textiles, wearing apparel, and hosiery	31	66.9	32	54.2
26520 31	Department stores and other retail stores	45	74.2	44	108.3
26520 41	Confections	41	53.8	37	63.0
26520 51	Cosmetics, including soap	20	34.9	23	32.3
26520 61	Stationery and office supplies	49	33.6	41	31.2
26520 71	Hardware and household supplies	25	11.9	21	12.7
26520 98	All other end uses not specified above	94	163.0	96	140.8
26520 00	Setup paperboard boxes, n.s.k.[3]	(NA)	84.2	(NA)	53.3
26520 02	Setup paperboard boxes, n.s.k.[4]	(NA)	9.7	(NA)	22.2

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2653– —	**CORRUGATED AND SOLID FIBER BOXES**						
	Total	**(NA)**	**(X)**	**19 098.0**	**(NA)**	**(X)**	**15 602.2**
26530	Corrugated and solid fiber boxes, including pallets	(NA)	(X)	19 098.0	(NA)	(X)	15 602.2
	Corrugated shipping containers, classified by end use:						
26530 12	Food and beverages mil sq ft	185	97 519.4	4 219.7	187	(NA)	3 492.4
26530 14	Carryout boxes for retail food mil sq ft	51	*4 114.5	172.5	54	(NA)	167.7
26530 13	Paper and allied products mil sq ft	214	*42 612.9	1 747.5	200	(NA)	1 578.7
26530 15	Glass, clay, and stone products mil sq ft	124	*14 213.2	586.8	132	(NA)	620.9
26530 16	Metal products, machinery, equipment, and supplies, except electrical mil sq ft	234	**14 734.1	834.1	215	(NA)	855.7
26530 18	Electrical machinery, equipment, supplies, and appliances mil sq ft	197	*12 494.3	680.6	187	(NA)	696.2
26530 21	Chemicals and drugs, including paints, varnishes, cosmetics, and soaps mil sq ft	169	*16 219.4	775.6	162	(NA)	653.5
26530 22	Lumber and wood products, including furniture mil sq ft	154	*9 876.3	522.1	155	(NA)	456.7
26530 30	All other end uses not specified above (leather, rubber, plastics, petroleum, etc.) mil sq ft	336	(S)	[5]4 031.7	248	(NA)	3 218.2
26530 51	Solid fiber containers mil sq ft	41	(S)	435.7	37	(NA)	320.7
26530 67	Corrugated paperboard in sheets and rolls, lined and unlined mil sq ft	113	(S)	1 482.1	88	(NA)	1 036.2
26530 68	Corrugated and solid fiber pallets, pads, and partitions mil sq ft	121	**10 089.1	488.4	92	(NA)	303.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2653– —	**CORRUGATED AND SOLID FIBER BOXES—Con.**						
26530	Corrugated and solid fiber boxes, including pallets—Con.						
26530 98	Other corrugated and solid fiber products, including point-of-purchase displays, etc. ---- mil sq ft	164	(S)	1 370.9	(NA)	(NA)	(NA)
26530 00	Corrugated and solid fiber boxes, n.s.k.[6]	(NA)	(X)	1 666.3	(NA)	(X)	1 753.8
26530 02	Corrugated and solid fiber boxes, n.s.k.[7]	(NA)	(X)	84.2	(NA)	(X)	448.3
2655– —	**FIBER CANS, DRUMS, AND SIMILAR PRODUCTS**						
	Total	**(NA)**	**(X)**	**1 821.5**	**(NA)**	**(X)**	**1 493.9**
26551	Paperboard fiber drums with ends of any material	(NA)	(X)	373.9	(NA)	(X)	311.5
26551 00	Paperboard fiber drums with ends of any material ---- 1,000 s tons	13	(S)	373.9	14	(S)	311.5
26552	Fiber cans, tubes, and similar fiber products	(NA)	(X)	1 290.8	(NA)	(X)	1 069.9
26552 21	Cans, all fiber and composite ---- 1,000 s tons	27	(S)	502.5	32	(S)	448.2
26552 31	Cores and tubes ---- 1,000 s tons	58	*799.9	576.9	47	*817.8	r529.9
26552 71	Paperboard cones, reels, spools, bobbins, and blocks ---- 1,000 s tons	15	(S)	65.3	8	**29.0	48.7
26552 98	All vulcanized fiber products (boxes, cans, tubes, drums, etc.) ---- 1,000 s tons	12	(S)	68.9	9	(NA)	r42.1
26552 00	Fiber cans, tubes, and similar fiber products, n.s.k.	(NA)	(X)	77.2	(NA)	(X)	1.0
26550	Fiber cans, drums, and similar products, n.s.k.	(NA)	(X)	156.8	(NA)	(X)	112.4
26550 00	Fiber cans, drums, and similar products, n.s.k.[6]	(NA)	(X)	139.7	(NA)	(X)	78.2
26550 02	Fiber cans, drums, and similar products, n.s.k.[7]	(NA)	(X)	17.0	(NA)	(X)	34.2
2656– —	**SANITARY FOOD CONTAINERS, EXCEPT FOLDING**						
	Total	**(NA)**	**(X)**	**2 407.6**	**(NA)**	**(X)**	**1 959.6**
26561	Milk and milk-type paperboard cartons	(NA)	(X)	678.0	(NA)	(X)	558.7
26561 00	Milk and milk-type paperboard cartons, including juices, beverages, and other products ---- 1,000 s tons	5	475.8	678.0	9	527.5	558.7
26562	Cups and liquid-tight paper and paperboard containers	(NA)	(X)	1 113.5	(NA)	(X)	848.5
26562 33	Liquid-tight and round-nested food containers, including lids and tops ---- 1,000 s tons	7	*54.9	175.0	12	*24.2	61.3
26562 35	Drinking cups and portion serving cups ---- 1,000 s tons	17	**690.7	929.9	21	**459.5	786.6
26562 00	Cups and liquid-tight paper and paperboard containers, n.s.k.	(NA)	(X)	8.6	(NA)	(X)	.6
26563	Other sanitary paper and paperboard food containers, boards, and trays, except folding	(NA)	(X)	560.9	(NA)	(X)	475.9
26563 10	Pressed plates, dishes, spoons, and similar products ---- 1,000 s tons	20	**298.7	422.3	20	**202.1	273.2
26563 12	Ovenable paperboard food trays ---- 1,000 s tons	5			5	*24.7	55.3
26563 19	Other paper and paperboard items, including tablecloths and soda straws ---- 1,000 s tons	13	**78.1	133.9	(NA)	(NA)	135.1
26563 00	Other sanitary paper and paperboard food containers, boards, and trays, except folding, n.s.k.	(NA)	(X)	4.7	(NA)	(X)	12.3
26560	Sanitary food containers, except folding, n.s.k.	(NA)	(X)	55.3	(NA)	(X)	76.5
26560 00	Sanitary food containers, except folding, n.s.k.[8]	(NA)	(X)	50.7	(NA)	(X)	69.5
26560 02	Sanitary food containers, except folding, n.s.k.[9]	(NA)	(X)	4.6	(NA)	(X)	7.0
2657– —	**FOLDING PAPERBOARD BOXES**						
	Total	**(NA)**	**(X)**	**7 723.2**	**(NA)**	**(X)**	**5 521.8**
26570	Folding paperboard boxes, packaging, and packaging components	(NA)	(X)	7 723.2	(NA)	(X)	5 521.8
26570 14	Dry food and produce, including pet and animal food ---- 1,000 s tons	68	*612.3	815.6	63	*498.9	482.6
26570 15	Biscuits and crackers ---- 1,000 s tons	42	*140.1	172.1	33	**169.0	144.9
26570 21	Bottled and canned beverages, including carriers for alcoholic and nonalcoholic beverages ---- 1,000 s tons	33	595.2	789.3	35	630.8	553.2
26570 31	Soaps and detergents ---- 1,000 s tons	41	*228.5	338.8	37	**207.1	207.1
26570 41	Tobacco ---- 1,000 s tons	28	(S)	365.6	28	*183.0	234.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2657– ––	**FOLDING PAPERBOARD BOXES**—Con.						
26570	Folding paperboard boxes, packaging, and packaging components—Con.						
26570 51	Hardware and household supplies ---- 1,000 s tons	116	(S)	426.3	121	(S)	263.0
26570 61	Candy ---- 1,000 s tons	74	(S)	204.3	76	**83.8	113.4
26570 71	Cosmetics and medicinal products ---- 1,000 s tons	120	(S)	635.5	125	(S)	515.4
26570 81	Paper goods or products, including book mailers ---- 1,000 s tons	103	**356.5	488.0	85	**257.4	317.4
26570 84	Bakery, fresh ---- 1,000 s tons	56	(S)	205.7	67	*161.0	192.1
26570 86	Butter and ice cream packages and food pails ---- 1,000 s tons	39	**159.6	299.0	38	**208.8	258.2
26570 88	Processed meats, margarine, lard, and shortening ---- 1,000 s tons	40	(S)	130.4	44	*69.9	96.1
26570 90	Frozen foods ---- 1,000 s tons	51	**219.7	376.0	46	*296.9	360.0
26570 95	Folding carryout boxes and trays for retail food ---- 1,000 s tons	39	**280.9	355.4	48	*224.2	264.1
26570 96	Paperboard backs for blister and skin packaging ---- 1,000 s tons	37	(S)	77.0	38	(S)	64.8
26570 99	All other end uses, not elsewhere classified ---- 1,000 s tons	192	(S)	1 210.8	184	(S)	778.7
26570 00	Folding paperboard boxes, n.s.k.[6]	(NA)	(X)	802.8	(NA)	(X)	506.2
26570 02	Folding paperboard boxes, n.s.k.[7]	(NA)	(X)	30.7	(NA)	(X)	169.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]For 1992, data for product code 26530 30 includes total shipments of corrugated shipping containers for those establishments unable to provide an end use breakout.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.
[8]Typically for establishments with 25 employees or more.
[9]Typically for establishments with less than 25 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26551, PAPERBOARD FIBER DRUMS WITH ENDS OF ANY MATERIAL		
United States	**373.9**	**311.5**
Illinois	35.1	22.9
New York	21.1	(NA)
Ohio	31.4	(NA)
26552, FIBER CANS, TUBES, AND SIMILAR FIBER PRODUCTS		
United States	**1 290.8**	**1 069.9**
Alabama	27.3	19.9
Arkansas	13.0	(NA)
California	58.0	60.9
Florida	51.8	59.2
Georgia	90.3	61.0
Illinois	72.0	51.5
Kentucky	13.5	9.5
Massachusetts	38.6	30.0
Michigan	18.4	10.9
New Jersey	57.5	54.3
New York	66.4	(NA)
North Carolina	58.9	57.6
Ohio	127.7	108.1
Pennsylvania	41.9	45.3
26552, FIBER CANS, TUBES, AND SIMILAR FIBER PRODUCTS—Con.		
Texas	54.0	(NA)
Wisconsin	93.4	60.9
26561, MILK AND MILK-TYPE PAPERBOARD CARTONS		
United States	**678.0**	**558.7**
26562, CUPS AND LIQUID-TIGHT PAPER AND PAPERBOARD CONTAINERS		
United States	**1 113.5**	**848.5**
California	66.2	35.9
Illinois	141.0	205.0
Pennsylvania	78.2	47.1
26563, OTHER SANITARY PAPER AND PAPERBOARD FOOD CONTAINERS, BOARDS, AND TRAYS, EXCEPT FOLDING		
United States	**560.9**	**475.9**
Kentucky	21.9	15.4
Michigan	53.5	44.4
Wisconsin	47.9	37.7

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2652-	**Setup paperboard boxes**	**532.1**	**599.4**	**602.2**	**573.5**	**520.2**	**517.9**	**485.1**	**377.7**
26520	Setup (rigid) paperboard boxes, classified by end use	532.1	599.4	602.2	573.5	520.2	517.9	485.1	377.7
2653-	**Corrugated and solid fiber boxes**	**19 098.0**	**17 434.4**	**17 978.9**	**18 324.6**	**17 335.1**	**15 602.2**	**10 303.1**	**7 182.8**
26530	Corrugated and solid fiber boxes, including pallets	19 098.0	17 434.4	17 978.9	18 324.6	17 335.1	15 602.2	10 303.1	7 182.8
2655-	**Fiber cans, drums, and similar products**	**1 821.5**	**1 801.5**	**1 795.3**	**1 749.7**	**1 586.4**	**1 493.9**	**1 507.3**	**1 040.4**
26551	Paperboard fiber drums with ends of any material	373.9	374.6	382.3	383.6	339.7	311.5	289.8	223.8
26552	Fiber cans, tubes, and similar fiber products	1 290.8	1 300.9	1 276.5	1 242.7	1 144.7	1 069.9	1 152.3	782.6
26550	Fiber cans, drums, and similar products, n.s.k.	156.8	126.0	136.5	123.4	102.0	112.4	[2]65.2	34.0
2656-	**Sanitary food containers, except folding**	**2 407.6**	**2 583.4**	**2 468.8**	**2 308.7**	**2 097.2**	**1 959.6**	**1 841.0**	**(NA)**
26561	Milk and milk-type paperboard cartons	678.0	644.8	634.8	613.5	578.2	558.7	550.5	480.0
26562	Cups and liquid-tight paper and paperboard containers	1 113.5	1 162.6	1 125.0	1 018.6	924.4	848.5	885.2	594.1
26563	Other sanitary paper and paperboard food containers, boards, and trays, except folding	560.9	693.6	631.8	601.4	528.9	475.9	362.2	(NA)
26560	Sanitary food containers, except folding, n.s.k.	55.3	82.3	77.2	75.2	65.7	76.5	43.1	48.6
2657-	**Folding paperboard boxes**	**7 723.2**	**7 199.6**	**6 793.5**	**6 567.3**	**5 865.8**	**5 521.8**	**4 458.6**	**(NA)**
26570	Folding paperboard boxes, packaging, and packaging components	7 723.2	7 199.6	6 793.5	6 567.3	5 865.8	5 521.8	4 458.6	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]Revised.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2652, SETUP PAPERBOARD BOXES				
	Materials, ingredients, containers, and supplies	**(X)**	**179.2**	**(X)**	**167.6**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	(S)	85.9	(S)	92.1
308011	Fabricated plastics products, including closures, ends, film, and strapping, etc.	(X)	2.3	(X)	[2]
331022	Steel sheet and strip, including tin plate	(X)	.6	(X)	[2]
335302	Aluminum sheet, plate, and foil			(X)	[2]
346611	Metal closures and crowns for containers			(X)	[2]
289101	Glues and adhesives	(X)	3.7	(X)	2.9
289301	Printing inks (complete formulations), mil lb	(S)	2.3	(S)	1.5
970099	All other materials and components, parts, containers, and supplies	(X)	24.7	(X)	[2]28.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	59.6	(X)	42.4
	INDUSTRY 2653, CORRUGATED AND SOLID FIBER BOXES				
	Materials, ingredients, containers, and supplies	**(X)**	**12 267.4**	**(X)**	**[r]10 129.9**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	*27 070.2	10 014.5	26 082.0	8 130.9
308011	Fabricated plastics products, including closures, ends, film, and strapping, etc.	(X)	47.5	(X)	[2]
331022	Steel sheet and strip, including tin plate	(X)	5.5	(X)	5.3
335302	Aluminum sheet, plate, and foil			(X)	3.8
346611	Metal closures and crowns for containers			(X)	[2]
291106	Petroleum wax, mil lb	**286.4	95.0	229.4	69.4
289101	Glues and adhesives	(X)	214.4	(X)	135.2
289301	Printing inks (complete formulations), mil lb	(S)	132.2	(S)	97.5
970099	All other materials and components, parts, containers, and supplies	(X)	609.5	(X)	[2]526.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 148.8	(X)	[r]1 161.5
	INDUSTRY 2655, FIBER CANS, DRUMS, AND SIMILAR PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 061.9**	**(X)**	**[r]861.1**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	1 112.1	424.0	*1 168.8	368.8
308011	Fabricated plastics products, including closures, ends, film, and strapping, etc.	(X)	13.8	(X)	[2]
331022	Steel sheet and strip, including tin plate	(X)	182.7	(X)	51.1
335302	Aluminum sheet, plate, and foil			(X)	33.4
346611	Metal closures and crowns for containers			(X)	[2]
291106	Petroleum wax, mil lb	(S)	1.1	*2.1	.9
289101	Glues and adhesives	(X)	31.1	(X)	28.5
289301	Printing inks (complete formulations), mil lb	**1.0	5.2	(S)	1.6
970099	All other materials and components, parts, containers, and supplies	(X)	265.6	(X)	[2]293.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	138.3	(X)	[r]83.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2656, SANITARY FOOD CONTAINERS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 336.8**	**(X)**	**1 098.5**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	1 236.0	975.8	1 241.0	812.9
308011	Fabricated plastics products, including closures, ends, film, and strapping, etc.	(X)	37.6	(X)	(2)
331022	Steel sheet and strip, including tin plate	(X)	(4)	(X)	–
335302	Aluminum sheet, plate, and foil	(X)	(4)	(X)	2.7
346611	Metal closures and crowns for containers	(X)	–	(X)	(2)
291106	Petroleum wax, mil lb	115.6	36.2	144.5	42.2
289101	Glues and adhesives	(X)	5.8	(X)	4.9
289301	Printing inks (complete formulations), mil lb	*12.9	34.2	**15.5	28.1
970099	All other materials and components, parts, containers, and supplies	(X)	[4]159.6	(X)	[2]175.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	87.5	(X)	32.1
	INDUSTRY 2657, FOLDING PAPERBOARD BOXES				
	Materials, ingredients, containers, and supplies	**(X)**	**4 072.4**	**(X)**	**2 956.4**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	**4 717.2	2 945.5	**4 189.6	2 068.3
308011	Fabricated plastics products, including closures, ends, film, and strapping, etc.	(X)	30.0	(X)	(2)
331022	Steel sheet and strip, including tin plate	(X)	26.7	(X)	2.9
335302	Aluminum sheet, plate, and foil			(X)	13.6
346611	Metal closures and crowns for containers			(X)	(2)
291106	Petroleum wax, mil lb	(S)	5.7	**21.7	8.9
289101	Glues and adhesives	(X)	29.6	(X)	20.5
289301	Printing inks (complete formulations), mil lb	**85.1	219.3	215.0	150.5
970099	All other materials and components, parts, containers, and supplies	(X)	432.4	(X)	[2]372.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	383.2	(X)	318.8

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, data for this material code were included in material code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1992, material codes 331022 and 335302 are included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
26113 35	26113 00	26217 30	26217 00	26314 45	26314 00	26751 10	26751 00
26113 43	26113 00	26217 50	26217 00	26314 46	26314 00	26751 11	26751 00
		26217 60	26217 00	26314 50	26314 00	26751 12	26751 00
26114 32	26114 00	26217 68	26217 00	26314 81	26314 00	26751 20	26751 00
26114 66	26114 00			26314 82	26314 00	26751 30	26751 00
26114 72	26114 00	26218 30	26218 00	26314 88	26314 00		
26114 78	26114 00	26218 50	26218 00			26770 10	26770 00
		26218 60	26218 00	26530 98	26530 00	26770 21	26770 00
26212 15	26212 00	26218 64	26218 00			26770 22	26770 00
26212 19	26212 00	26218 68	26218 00	26563 19	26563 14	26770 40	26770 00
26212 27	26212 00	26218 83	26218 00	26563 19	26563 16		
						26781 11	26781 00
26213 15	26213 00	2621A 11	2621A 00			26781 13	26781 00
26213 16	26213 00	2621A 30	2621A 00	26713 20	26713 18	26781 21	26781 00
26213 20	26213 00	2621A 51	2621A 00	26713 20	26713 21		
26213 29	26213 00	2621A 60	2621A 00			26782 12	26782 00
		2621A 73	2621A 00	26714 17	26714 13	26782 13	26782 00
26214 31	26214 00	2621A 78	2621A 00	26714 17	26714 14	26782 21	26782 00
26214 32	26214 00	2621A 81	2621A 00	26714 21	26714 16	26782 35	26782 00
26214 37	26214 00	2621A 88	2621A 00			26782 45	26782 00
26214 41	26214 00					26782 51	26782 00
26214 47	26214 00	2621B 22	2621B 00	26722 12	26722 00	26782 98	26782 00
26214 48	26214 00	2621B 28	2621B 00	26722 30	26722 00		
26214 54	26214 00					26791 22	26791 21
26214 55	26214 00	26311 10	26311 00	26723 13	26723 00	26791 22	26791 23
26214 56	26214 00	26311 88	26311 00	26723 33	26723 00	26791 34	26791 32
26214 60	26214 00			26723 43	26723 00	26791 34	26791 35
26214 71	26214 00	26312 10	26312 00	26723 45	26723 00	26791 36	26791 33
26214 73	26214 00	26312 40	26312 00	26723 53	26723 00	26791 36	26791 35
26214 89	26214 00	26312 61	26312 00	26723 59	26723 00		
		26312 62	26312 00	26723 61	26723 00	26793 11	26793 00
26215 31	26215 00	26312 63	26312 00	26723 75	26723 00	26793 31	26793 00
26215 32	26215 00	26312 88	26312 00	26723 81	26723 00		
26215 37	26215 00			26723 85	26723 00	26795 21	26795 22
26215 58	26215 00	26314 10	26314 00	26723 98	26723 00	26795 21	26795 23
		26314 20	26314 00			26795 98	26795 11
26216 11	26216 00	26314 30	26314 00			26795 98	26795 35
26216 19	26216 00	26314 43	26314 00	26724 69	26724 51	26795 98	26795 45
26216 27	26216 00	26314 44	26314 00	26724 69	26724 59	26795 98	26795 69

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
26113 00	26113 35	26217 00	26217 30	26314 00	26314 45	26751 00	26751 10
26113 00	26113 43	26217 00	26217 50	26314 00	26314 46	26751 00	26751 11
		26217 00	26217 60	26314 00	26314 50	26751 00	26751 12
26114 00	26114 32	26217 00	26217 68	26314 00	26314 81	26751 00	26751 20
26114 00	26114 66			26314 00	26314 82	26751 00	26751 30
26114 00	26114 72	26218 00	26218 30	26314 00	26314 88		
26114 00	26114 78	26218 00	26218 50			26770 00	26770 10
		26218 00	26218 60	26530 00	26530 98	26770 00	26770 21
26212 00	26212 15	26218 00	26218 64			26770 00	26770 22
26212 00	26212 19	26218 00	26218 68	26563 14	26563 19	26770 00	26770 40
26212 00	26212 27	26218 00	26218 83	26563 16	26563 19		
						26781 00	26781 11
26213 00	26213 15	2621A 00	2621A 11			26781 00	26781 13
26213 00	26213 16	2621A 00	2621A 30	26713 18	26713 20	26781 00	26781 21
26213 00	26213 20	2621A 00	2621A 51	26713 21	26713 20		
26213 00	26213 29	2621A 00	2621A 60			26782 00	26782 12
		2621A 00	2621A 73	26714 13	26714 17	26782 00	26782 13
26214 00	26214 31	2621A 00	2621A 78	26714 14	26714 17	26782 00	26782 21
26214 00	26214 32	2621A 00	2621A 81	26714 16	26714 21	26782 00	26782 35
26214 00	26214 37	2621A 00	2621A 88			26782 00	26782 45
26214 00	26214 41					26782 00	26782 51
26214 00	26214 47	2621B 00	2621B 22	26722 00	26722 12	26782 00	26782 98
26214 00	26214 48	2621B 00	2621B 28	26722 00	26722 30		
26214 00	26214 54					26791 21	26791 22
26214 00	26214 55	26311 00	26311 10	26723 00	26723 13	26791 23	26791 22
26214 00	26214 56	26311 00	26311 88	26723 00	26723 33	26791 32	26791 34
26214 00	26214 60			26723 00	26723 43	26791 33	26791 36
26214 00	26214 71	26312 00	26312 10	26723 00	26723 45	26791 35	26791 34
26214 00	26214 73	26312 00	26312 40	26723 00	26723 53	26791 35	26791 36
26214 00	26214 89	26312 00	26312 61	26723 00	26723 59		
		26312 00	26312 62	26723 00	26723 61	26793 00	26793 11
26215 00	26215 31	26312 00	26312 63	26723 00	26723 75	26793 00	26793 31
26215 00	26215 32	26312 00	26312 88	26723 00	26723 81		
26215 00	26215 37			26723 00	26723 85	26795 11	26795 98
26215 00	26215 58	26314 00	26314 10	26723 00	26723 98	26795 22	26795 21
		26314 00	26314 20			26795 23	26795 21
26216 00	26216 11	26314 00	26314 30			26795 35	26795 98
26216 00	26216 19	26314 00	26314 43	26724 51	26724 69	26795 45	26795 98
26216 00	26216 27	26314 00	26314 44	26724 59	26724 69	26795 69	26795 98

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-26C

INDUSTRY SERIES

Converted Paper and Paperboard Products, Except Containers and Boxes

Industries 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, and 2679

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Converted Paper and Paperboard Products, Except Containers and Boxes

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2671	Paper Coated and Laminated, Packaging
2672	Paper Coated and Laminated, N.E.C.
2673	Bags: Plastics, Laminated, and Coated
2674	Bags: Uncoated Paper and Multiwall
2675	Die-Cut Paper and Board
2676	Sanitary Paper Products
2677	Envelopes
2678	Stationery Products
2679	Converted Paper Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING

This industry is made up of establishments primarily engaged in manufacturing coated or laminated flexible materials made of combinations of paper, plastics film, and similar materials (excluding textiles) for packaging purposes. These are made from purchased sheet materials or plastics resins and may be printed in the same establishment. Establishments primarily engaged in manufacturing coated or laminated paper for other purposes are classified in industry 2672, including establishments manufacturing all gummed or pressure sensitive tape; those manufacturing unsupported plastics film are classified in industry 3081; those manufacturing or converting aluminum foil are classified in industry 3497; and those manufacturing paper from pulp are classified in industry 2621.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2671, Paper Coated and Laminated, Packaging, had employment of 17.3 thousand. The employment figure was 15 percent above the 15.0 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Illinois, Pennsylvania, and Tennessee, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when Wisconsin, Indiana, Pennsylvania, and Illinois accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.5 billion.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2671 shipped $3.0 billion of coated and laminated paper and film packaging products considered primary to the industry, $456.4 million of secondary products, and had $44.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 2671, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paper coated and laminated, packaging, industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing coated, laminated, or processed paper and film from purchased paper, except for packaging. Also included are establishments primarily manufacturing gummed paper products and pressure sensitive tape with backing of any material other than rubber, for any application. Establishments primarily engaged in manufacturing coated and laminated paper for packaging are classified in industry 2671; those manufacturing carbon paper are classified in industry 3995; and those manufacturing photographic and blueprint paper are classified in industry 3861.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2672, Paper Coated and Laminated, N.E.C., had employment of 32.4 thousand. The employment figure was 5 percent above the 30.9 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Ohio, Wisconsin, and Pennsylvania, accounting for approximately 36 percent of the industry's employment. This represents a shift from 1987 when Massachusetts, Ohio, Illinois, and Pennsylvania accounted for approximately 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2672 shipped $6.6 billion of coated and laminated paper products, not elsewhere classified, considered primary to the industry, $912.4 million of secondary products, and had $209.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 2672, no matter in what industry they were produced, appear in table 6a and aggregate to $7.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paper coated and laminated, not elsewhere classified, industry amounted to $4.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED

This industry is made up of establishments primarily engaged in manufacturing bags of unsupported plastics film, coated paper, metal foil, or laminated combinations of these materials, whether or not printed. Establishments primarily engaged in manufacturing uncoated paper bags and multiwall bags and sacks are classified in industry

2674; those manufacturing textile bags are classified in industry 2393; and those manufacturing garment storage bags, except of plastics film and paper, are classified in industry 2392.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2673, Bags: Plastics, Laminated, and Coated, had employment of 38.7 thousand. The employment figure was 6 percent above the 36.6 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Texas, New York, and California, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when New York, Texas, Illinois, and Georgia accounted for approximately 41 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2673 shipped $4.8 billion of bags: plastics, laminated, and coated, products considered primary to the industry, $769.9 million of secondary products, and had $161.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 81 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 2673, no matter in what industry they were produced, appear in table 6a and aggregate to $5.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the bags: plastics, laminated, and coated, industry amounted to $2.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL

This industry is made up of establishments primarily engaged in manufacturing uncoated paper bags, or manufacturing multiwall bags and sacks, whether or not coated or containing plastics film or metal foil. Establishments primarily engaged in manufacturing bags from plastics, unsupported film, foil, coated paper, or laminated or coated combinations of these materials, are classified in industry 2673; and those manufacturing textile bags are classified in industry 2393.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2674, Bags: Uncoated Paper and Multiwall, had employment of 18.6 thousand. The employment figure was 9 percent above the 17.1 thousand reported in 1987.

The leading States in employment in 1992 were Arkansas, Illinois, Kentucky, and Georgia, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when Arkansas, Illinois, Georgia, and Tennessee accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2674 shipped $2.5 billion of uncoated paper and multiwall bags considered primary to the industry, $240.5 million of secondary products, and had $104.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2674, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the uncoated paper and multiwall bag industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2675, DIE-CUT PAPER AND BOARD

This industry is made up of establishments primarily engaged in die-cutting purchased paper and paperboard; and in manufacturing cardboard by laminating, lining, or surface coating paperboard. Establishments primarily engaged in laminating building paper from purchased paper are classified in industry 2679.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2675, Die-Cut Paper and Board, had employment of 15.6 thousand. The employment figure was 1 percent below the 15.7 thousand reported in 1987.

The leading States in employment in 1992 were New York, Illinois, and California, accounting for approximately 33 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2675 shipped $1.7 billion of die-cut paper and board products considered primary to the industry, $99.0 million of secondary products, and had $219.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2675, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the die-cut paper and board industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2676, SANITARY PAPER PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing sanitary paper products from purchased paper, such as facial tissues and handkerchiefs, table napkins, toilet paper, towels, disposable diapers, and sanitary napkins and tampons.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2676, Sanitary Paper Products, had employment of 40.5 thousand. The employment figure was 5 percent above the 38.4 thousand reported in 1987. Compared with 1991, employment increased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Pennsylvania, Georgia, and California, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when Wisconsin, Pennsylvania, New Jersey, and California were the leading States.

The total value of shipments for establishments classified in this industry was $15.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2676 shipped $14.7 billion of sanitary paper products considered primary to the industry, $668.7 million of secondary products, and had $272.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 2676, no matter in what industry they were produced, appear in table 6a and aggregate to $14.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sanitary paper products industry amounted to $7.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments

(and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2677, ENVELOPES

This industry is made up of establishments primarily engaged in manufacturing envelopes of any description from purchased paper and paperboard. Establishments primarily engaged in manufacturing stationery are classified in industry 2678.

In the 1992 Census of Manufactures, Industry 2677, Envelopes, had employment of 24.9 thousand. The employment figure was 10 percent below the 27.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, California, Illinois, and Missouri, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when New York, California, Illinois, and Massachusetts accounted for approximately 39 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2677 shipped $2.6 billion of envelopes considered primary to the industry, $96.1 million of secondary products, and had $202.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 2677, no matter in what industry they were produced, appear in table 6a and aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the envelopes industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2678, STATIONERY PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing stationery, tablets, looseleaf fillers, and related items from purchased paper. Establishments primarily engaged in manufacturing envelopes are classified in industry 2677.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2678, Stationery Products, had employment of 9.5 thousand. The employment figure was 15 percent below the 11.2 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Missouri, California, and Massachusetts. This represents a shift from 1987 when Pennsylvania, Missouri, Massachusetts, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $1.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2678 shipped $1.1 billion of stationery products considered primary to the industry, $271.6 million of secondary products, and had $101.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 79 percent (specialization ratio). In 1987, the specialization ratio was 74 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 74 percent.

The products primary to industry 2678, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the stationery products industry amounted to $730.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of the total value of shipments.

INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing miscellaneous converted paper or paperboard products, not elsewhere classified, from purchased paper or paperboard. Also included in this industry are pressed and molded pulp goods, such as papier-mache articles other than statuary and art goods.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2679, Converted Paper Products, N.E.C., had employment of 31.6 thousand. The employment figure was 7 percent above the 29.6 thousand reported in 1987.

The leading States in employment in 1992 were Tennessee, Pennsylvania, New York, and California, accounting for approximately 35 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2679 shipped $3.7 billion of converted paper products, not elsewhere classified, considered primary to the industry, $442.7 million of secondary products, and had $338.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 2679, no matter in what industry they were produced, appear in table 6a and aggregate to $4.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the converted paper products, not elsewhere classified, industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING															
1992 Census ---	156	204	136	17.3	533.9	12.9	27.8	348.1	1 427.4	2 068.8	3 508.0	129.4	462.6	87	85
1991 ASM------	(NA)	(NA)	(NA)	15.4	492.1	11.0	24.0	311.0	1 261.1	1 907.0	3 145.8	122.7	432.2	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	16.4	488.5	11.4	23.8	299.7	1 133.4	1 899.1	3 026.7	101.4	430.8	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	16.3	458.3	11.3	23.7	285.6	1 094.6	1 845.9	2 938.8	113.9	420.9	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	15.5	434.5	10.9	23.5	276.3	1 018.9	1 648.4	2 640.1	85.2	409.6	(NA)	(NA)
1987 Census ---	91	120	111	15.0	406.2	10.4	22.0	253.6	997.0	1 442.0	2 416.0	128.3	358.2	85	82
INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.															
1992 Census ---	385	453	242	32.4	1 041.6	22.1	47.9	623.1	3 551.2	4 144.1	7 688.3	270.1	774.4	88	88
1991 ASM------	(NA)	(NA)	(NA)	34.2	991.5	23.1	46.8	575.2	3 401.1	3 951.5	7 381.1	243.3	774.7	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	35.0	985.4	23.5	48.2	577.4	3 321.0	3 736.4	7 077.8	290.8	813.8	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	35.9	973.0	24.5	51.4	597.3	3 419.3	3 731.1	7 145.1	217.1	831.2	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	32.5	908.4	22.5	48.0	556.8	3 361.7	3 490.9	6 821.2	203.8	795.7	(NA)	(NA)
1987 Census ---	369	412	226	30.9	838.7	21.1	43.5	502.4	2 861.4	3 034.5	5 891.7	201.3	678.0	87	87
INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED															
1992 Census ---	458	521	306	38.7	988.7	30.5	64.7	673.7	2 853.7	2 871.4	5 708.2	185.6	627.3	86	89
1991 ASM------	(NA)	(NA)	(NA)	35.4	875.1	28.5	61.0	621.1	2 364.3	2 685.8	5 083.6	178.3	559.0	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	37.4	869.9	30.0	63.7	611.7	2 625.1	2 870.3	5 494.6	213.1	668.5	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	39.0	882.1	31.4	65.6	621.3	2 682.7	3 024.3	5 646.3	219.2	698.9	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	36.2	790.1	29.3	61.1	554.3	2 349.0	2 746.7	5 058.0	201.6	657.8	(NA)	(NA)
1987 Census ---	424	483	301	36.6	783.7	29.0	59.8	542.6	2 215.0	2 367.6	4 576.9	199.1	587.6	81	91
INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL															
1992 Census ---	79	143	123	18.6	438.3	15.5	32.0	325.1	1 024.3	1 824.0	2 846.0	55.1	395.2	91	96
1991 ASM------	(NA)	(NA)	(NA)	17.9	398.4	15.0	29.7	298.9	895.5	1 837.4	2 735.8	50.6	393.4	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	16.9	374.3	14.3	29.0	282.3	877.1	1 881.8	2 750.1	63.8	425.3	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	17.0	357.7	14.4	28.7	270.6	910.1	1 899.8	2 787.2	53.5	412.3	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	17.2	364.7	14.5	29.6	281.7	934.5	1 808.8	2 731.8	87.4	369.0	(NA)	(NA)
1987 Census ---	76	132	112	17.1	347.8	14.3	29.0	265.0	874.8	1 588.9	2 448.0	46.2	326.1	94	95
INDUSTRY 2675, DIE-CUT PAPER AND BOARD															
1992 Census ---	355	381	163	15.6	375.2	12.4	25.0	248.1	845.4	1 168.1	2 011.1	52.6	243.4	94	87
1991 ASM------	(NA)	(NA)	(NA)	17.0	407.5	14.0	28.2	279.3	1 053.1	1 240.5	2 290.6	91.3	298.2	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	16.8	395.4	13.5	27.0	253.8	1 045.7	1 068.8	2 119.0	44.1	262.7	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	16.1	384.0	12.8	26.5	252.4	989.6	1 019.9	1 984.2	68.8	272.4	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	16.2	329.4	13.1	25.9	222.5	712.7	1 140.4	1 850.8	31.9	235.6	(NA)	(NA)
1987 Census ---	374	399	172	15.7	307.8	12.5	24.9	205.3	680.8	1 086.1	1 749.3	33.4	230.4	90	88
1986 ASM------	(NA)	(NA)	(NA)	17.9	328.0	14.0	26.7	218.2	788.4	1 011.6	1 794.8	31.0	235.9	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	16.9	302.2	13.6	25.8	204.6	677.9	1 052.9	1 730.3	35.0	232.7	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	17.5	300.4	14.1	27.1	198.6	838.0	1 119.0	1 931.3	46.7	226.5	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	16.3	271.3	13.1	24.7	185.9	813.3	1 088.3	1 897.8	30.4	207.3	(NA)	(NA)
1982 Census ---	358	398	171	15.9	245.9	12.6	23.7	168.6	708.7	975.4	1 680.1	32.7	191.5	91	91
1981 ASM------	(NA)	(NA)	(NA)	17.2	258.1	13.2	24.9	166.8	683.5	1 004.6	1 676.6	23.2	179.4	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	16.6	229.3	12.7	24.0	147.3	610.2	857.0	1 453.5	41.0	158.5	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	17.0	217.2	13.1	25.2	144.0	649.7	836.4	1 468.2	32.7	155.3	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	15.1	194.8	11.8	23.1	129.6	477.8	716.4	1 188.6	26.4	118.3	(NA)	(NA)
1977 Census ---	316	371	141	14.3	174.6	11.3	22.7	119.6	429.5	640.9	1 057.7	15.3	114.3	88	84
INDUSTRY 2676, SANITARY PAPER PRODUCTS															
1992 Census ---	80	150	125	40.5	1 451.1	32.7	68.1	1 095.2	8 220.4	7 369.9	15 622.7	418.5	944.7	96	98
1991 ASM------	(NA)	(NA)	(NA)	38.8	1 342.9	31.1	65.5	1 011.7	8 747.0	6 818.0	15 593.5	460.6	945.7	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	39.0	1 299.2	31.0	65.3	986.7	7 896.2	6 887.4	14 709.2	526.2	963.3	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	37.8	1 234.8	29.6	61.9	925.2	7 741.0	6 627.1	14 332.2	630.2	865.7	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	37.5	1 197.7	29.4	62.1	883.4	6 294.3	6 078.7	12 312.3	478.7	842.7	(NA)	(NA)
1987 Census ---	78	133	111	38.4	1 155.0	29.9	62.5	860.5	6 309.3	5 500.9	11 698.4	430.4	809.0	96	99
1986 ASM------	(NA)	(NA)	(NA)	37.8	1 123.3	29.4	60.8	834.8	5 913.2	5 256.3	11 153.2	466.0	701.7	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	38.0	1 045.7	30.0	61.1	785.7	5 630.3	5 132.2	10 751.3	486.7	683.1	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	38.1	1 003.4	30.0	60.4	754.0	4 992.9	5 351.6	10 326.8	312.8	674.4	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	36.7	900.4	28.4	56.9	673.0	4 332.7	4 925.5	9 239.7	372.6	646.1	(NA)	(NA)
1982 Census ---	84	138	103	36.7	863.3	28.8	59.0	641.3	4 341.0	4 736.6	9 086.0	271.1	640.0	94	98
1981 ASM------	(NA)	(NA)	(NA)	36.6	804.6	28.9	58.4	599.5	3 654.0	4 670.4	8 345.8	248.2	614.5	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	37.7	740.0	29.5	59.5	549.4	3 552.4	4 176.2	7 636.2	250.9	668.1	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	37.7	660.1	30.2	61.2	492.7	3 047.9	3 608.0	6 615.2	265.4	569.8	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	35.0	562.3	27.7	55.2	414.2	2 658.2	2 983.6	5 590.7	210.6	477.0	(NA)	(NA)
1977 Census ---	72	120	89	34.5	509.1	27.4	54.5	381.8	2 194.5	2 781.5	4 921.2	199.1	409.9	93	99
INDUSTRY 2677, ENVELOPES															
1992 Census ---	192	283	207	24.9	672.3	19.0	39.0	445.1	1 361.7	1 488.4	2 854.1	55.3	294.8	96	96
1991 ASM------	(NA)	(NA)	(NA)	24.5	615.5	19.0	38.8	410.1	1 195.1	1 458.1	2 668.9	43.9	282.9	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	26.1	648.4	20.3	42.4	432.6	1 194.9	1 620.6	2 816.6	66.8	320.3	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	27.3	644.8	21.1	43.3	431.9	1 246.9	1 578.3	2 816.0	75.5	332.9	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	27.5	628.4	20.8	42.9	421.1	1 253.1	1 537.5	2 769.4	66.9	359.8	(NA)	(NA)
1987 Census ---	203	298	215	27.6	612.8	20.8	43.4	407.4	1 192.9	1 403.8	2 598.1	61.3	303.6	98	96
1986 ASM------	(NA)	(NA)	(NA)	25.2	545.4	19.2	40.3	370.7	1 048.1	1 292.3	2 336.7	72.8	272.1	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	24.0	503.4	18.6	39.0	343.4	991.6	1 164.3	2 147.4	74.1	251.0	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	25.1	504.4	19.7	40.5	342.4	1 016.5	1 166.1	2 169.3	63.5	254.4	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	24.8	464.7	19.3	38.6	305.4	907.0	999.5	1 888.1	32.6	239.3	(NA)	(NA)
1982 Census ---	196	296	216	24.4	428.7	19.0	37.0	287.5	853.6	919.9	1 771.3	45.1	210.4	98	94
1981 ASM------	(NA)	(NA)	(NA)	25.6	393.8	20.3	39.8	268.8	770.7	837.1	1 600.7	38.1	182.6	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	25.6	362.0	20.4	39.6	246.9	741.1	734.1	1 460.4	55.2	177.9	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	24.9	329.8	19.8	38.8	225.7	665.7	648.6	1 303.6	38.7	155.8	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	22.9	295.6	17.9	35.5	200.2	556.0	569.3	1 120.7	29.3	131.4	(NA)	(NA)
1977 Census ---	182	265	184	22.6	270.0	17.6	34.6	182.4	503.4	493.4	990.5	22.9	122.2	97	93

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2678, STATIONERY PRODUCTS															
1992 Census	160	177	79	9.5	220.9	7.0	13.6	138.1	694.7	730.7	1 423.7	28.0	281.5	79	82
1991 ASM	(NA)	(NA)	(NA)	10.1	209.3	7.6	15.1	137.7	602.2	746.1	1 359.1	25.0	273.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.1	202.6	7.6	14.6	132.2	577.9	751.2	1 332.1	42.1	284.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.5	202.9	8.0	15.5	130.6	568.9	749.8	1 316.1	38.4	290.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.4	215.9	9.5	18.2	144.8	598.1	724.9	1 280.4	19.3	317.1	(NA)	(NA)
1987 Census	170	189	92	11.2	205.9	8.5	16.4	135.3	520.7	690.8	1 216.4	25.1	255.7	74	74
1986 ASM	(NA)	(NA)	(NA)	12.7	229.4	9.5	17.5	142.9	515.8	711.1	1 200.8	43.5	277.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.4	228.3	9.7	18.4	151.5	491.0	620.7	1 101.5	48.9	242.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.6	232.7	10.3	20.1	154.3	486.3	701.5	1 172.8	42.2	234.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.1	209.9	9.9	18.4	140.1	481.2	665.0	1 132.2	20.8	199.0	(NA)	(NA)
1982 Census	194	214	112	12.6	193.1	9.5	18.3	127.1	433.1	600.7	1 034.0	21.4	177.2	79	73
1981 ASM	(NA)	(NA)	(NA)	11.9	168.6	9.0	17.3	110.4	235.7	666.2	892.9	13.1	144.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.0	172.6	9.9	19.1	112.1	219.6	625.5	835.6	12.7	140.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.4	161.4	10.2	19.4	106.2	192.8	587.5	765.8	14.6	137.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.9	156.8	10.7	19.6	105.4	344.6	402.4	747.0	18.4	129.7	(NA)	(NA)
1977 Census	221	242	109	12.6	135.2	9.8	18.5	91.0	291.0	364.4	651.7	15.9	118.2	86	80
INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.															
1992 Census	725	790	311	31.6	802.9	23.6	48.7	514.7	2 167.7	2 294.1	4 437.2	148.5	711.1	89	88
1991 ASM	(NA)	(NA)	(NA)	30.9	710.6	23.4	48.7	474.9	2 017.1	2 259.2	4 301.9	182.1	660.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.7	659.2	23.2	47.0	434.6	1 930.7	2 197.9	4 127.9	155.2	662.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.1	627.4	22.8	45.6	413.3	1 746.3	2 046.5	3 796.4	98.7	648.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.0	621.8	23.0	46.8	397.3	1 878.0	2 154.3	3 998.5	76.2	698.6	(NA)	(NA)
1987 Census	743	821	299	29.6	593.1	21.5	43.5	372.0	1 796.3	1 785.3	3 570.1	74.5	603.1	91	89
1986 ASM	(NA)	(NA)	(NA)	28.4	571.1	20.7	41.2	361.4	1 588.6	1 665.0	3 222.5	73.0	625.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	29.3	556.4	21.6	42.0	353.0	1 595.7	1 575.2	3 136.2	70.4	569.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	31.6	568.7	23.5	45.2	365.5	1 651.5	1 596.4	3 195.7	70.1	547.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	31.7	523.5	23.5	44.6	341.6	1 431.9	1 400.9	2 816.8	36.2	469.7	(NA)	(NA)
1982 Census	742	809	317	30.4	496.3	22.3	43.7	314.4	1 291.3	1 336.0	2 637.7	74.3	444.9	88	82
1981 ASM	(NA)	(NA)	(NA)	33.3	524.3	24.6	48.8	323.8	1 361.4	1 507.6	2 836.2	57.9	502.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.2	488.3	26.2	51.2	312.5	1 213.8	1 360.5	2 553.3	76.5	437.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.7	445.7	26.4	51.7	293.0	1 073.2	1 217.4	2 262.9	92.9	404.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	35.1	436.5	26.0	50.7	277.4	1 027.7	1 120.5	2 126.4	92.8	363.2	(NA)	(NA)
1977 Census	799	871	318	34.3	383.9	25.9	51.7	249.8	988.0	977.4	1 937.8	62.0	302.2	89	83

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING									
1992 Census	30 861	75	2 155	12.52	59	74	82 509	37	51.35
1991 ASM	31 955	71	2 182	12.96	61	76	81 890	39	52.55
1990 ASM	29 787	70	2 088	12.59	63	79	69 110	43	47.62
1989 ASM	28 117	69	2 097	12.05	63	78	67 153	42	46.19
1988 ASM	28 032	70	2 156	11.76	62	79	65 735	43	43.36
1987 Census	27 080	69	2 115	11.53	60	76	66 467	41	45.32
INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.									
1992 Census	32 148	68	2 167	13.01	54	67	109 605	29	74.14
1991 ASM	28 991	68	2 026	12.29	54	67	99 447	29	72.67
1990 ASM	28 154	67	2 051	11.98	53	67	94 886	30	68.90
1989 ASM	27 103	68	2 098	11.62	52	66	95 245	28	66.52
1988 ASM	27 951	69	2 133	11.60	51	64	103 437	27	70.04
1987 Census	27 142	68	2 062	11.55	52	66	92 602	29	65.78
INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED									
1992 Census	25 548	79	2 121	10.41	50	68	73 739	35	44.11
1991 ASM	24 720	81	2 140	10.18	53	70	66 788	37	38.76
1990 ASM	23 259	80	2 123	9.60	52	68	70 190	33	41.21
1989 ASM	22 618	81	2 089	9.47	54	69	68 787	33	40.89
1988 ASM	21 826	81	2 085	9.07	54	70	64 890	34	38.45
1987 Census	21 413	79	2 062	9.07	52	69	60 519	35	37.04

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL								
1992 Census	23 565	83	2 065	10.16	64	79	55 070	43	32.01
1991 ASM	22 257	84	1 980	10.06	67	82	50 028	44	30.15
1990 ASM	22 148	85	2 028	9.73	68	82	51 899	43	30.24
1989 ASM	21 041	85	1 993	9.43	68	81	53 535	39	31.71
1988 ASM	21 203	84	2 041	9.52	66	80	54 331	39	31.57
1987 Census	20 339	84	2 028	9.14	65	79	51 158	40	30.17
	INDUSTRY 2675, DIE-CUT PAPER AND BOARD								
1992 Census	24 051	79	2 016	9.92	58	77	54 192	44	33.82
1991 ASM	23 971	82	2 014	9.90	54	72	61 947	39	37.34
1990 ASM	23 536	80	2 000	9.40	50	69	62 244	38	38.73
1989 ASM	23 851	80	2 070	9.52	51	71	61 466	39	37.34
1988 ASM	20 333	81	1 977	8.59	62	79	43 994	46	27.52
1987 Census	19 605	80	1 992	8.24	62	80	43 363	45	27.34
1986 ASM	18 324	78	1 907	8.17	56	75	44 045	42	29.53
1985 ASM	17 882	80	1 897	7.93	61	78	40 112	45	26.28
1984 ASM	17 166	81	1 922	7.33	58	73	47 886	36	30.92
1983 ASM	16 644	80	1 885	7.53	57	72	49 896	33	32.93
1982 Census	15 465	79	1 881	7.11	58	73	44 572	35	29.90
1981 ASM	15 006	77	1 886	6.70	60	75	39 738	38	27.45
1980 ASM	13 813	77	1 890	6.14	59	75	36 759	38	25.43
1979 ASM	12 776	77	1 924	5.71	57	72	38 218	33	25.78
1978 ASM	12 901	78	1 958	5.61	60	77	31 642	41	20.68
1977 Census	12 210	79	2 009	5.27	61	77	30 035	41	18.92
	INDUSTRY 2676, SANITARY PAPER PRODUCTS								
1992 Census	35 830	81	2 083	16.08	47	56	202 973	18	120.71
1991 ASM	34 611	80	2 106	15.45	44	52	225 438	15	133.54
1990 ASM	33 313	79	2 106	15.11	47	56	202 467	16	120.92
1989 ASM	32 667	78	2 091	14.95	46	55	204 788	16	125.06
1988 ASM	31 939	78	2 112	14.23	49	59	167 848	19	101.36
1987 Census	30 078	78	2 090	13.77	47	57	164 305	18	100.95
1986 ASM	29 717	78	2 068	13.73	47	57	156 434	19	97.26
1985 ASM	27 518	79	2 037	12.86	48	57	148 166	19	92.15
1984 ASM	26 336	79	2 013	12.48	52	62	131 047	20	82.66
1983 ASM	24 534	77	2 004	11.83	53	63	118 057	21	76.15
1982 Census	23 523	78	2 049	10.87	52	62	118 283	20	73.58
1981 ASM	21 984	79	2 021	10.27	56	66	99 836	22	62.57
1980 ASM	19 629	78	2 017	9.23	55	64	94 228	21	59.70
1979 ASM	17 509	80	2 026	8.05	55	65	80 846	22	49.80
1978 ASM	16 066	79	1 993	7.50	53	63	75 949	21	48.16
1977 Census	14 757	79	1 989	7.01	57	67	63 609	23	40.27
	INDUSTRY 2677, ENVELOPES								
1992 Census	27 000	76	2 053	11.41	52	76	54 687	49	34.92
1991 ASM	25 122	78	2 042	10.57	55	78	48 780	52	30.80
1990 ASM	24 843	78	2 089	10.20	58	81	45 782	54	28.18
1989 ASM	23 619	77	2 052	9.97	56	79	45 674	52	28.80
1988 ASM	22 851	76	2 063	9.82	56	78	45 567	50	29.21
1987 Census	22 203	75	2 087	9.39	54	78	43 221	51	27.49
1986 ASM	21 643	76	2 099	9.20	55	79	41 591	52	26.01
1985 ASM	20 975	78	2 097	8.81	54	78	41 317	51	25.43
1984 ASM	20 096	78	2 056	8.45	54	77	40 498	50	25.10
1983 ASM	18 738	78	2 000	7.91	53	78	36 573	51	23.50
1982 Census	17 570	78	1 947	7.77	52	76	34 984	50	23.07
1981 ASM	15 383	79	1 961	6.75	52	77	30 105	51	19.36
1980 ASM	14 141	80	1 941	6.23	50	75	28 949	49	18.71
1979 ASM	13 245	80	1 960	5.82	50	75	26 735	50	17.16
1978 ASM	12 908	78	1 983	5.64	51	77	24 279	53	15.66
1977 Census	11 947	78	1 966	5.27	50	77	22 274	54	14.55
	INDUSTRY 2678, STATIONERY PRODUCTS								
1992 Census	23 253	74	1 943	10.15	51	67	73 126	32	51.08
1991 ASM	20 723	75	1 987	9.12	55	70	59 624	35	39.88
1990 ASM	20 059	75	1 921	9.05	56	72	57 218	35	39.58
1989 ASM	19 324	76	1 938	8.43	57	72	54 181	36	36.70
1988 ASM	17 411	77	1 916	7.96	57	73	48 234	36	32.86
1987 Census	18 384	76	1 929	8.25	57	74	46 491	40	31.75
1986 ASM	18 063	75	1 842	8.17	59	78	40 614	44	29.47
1985 ASM	18 411	78	1 897	8.23	56	77	39 597	46	26.68
1984 ASM	17 110	76	1 951	7.68	60	80	35 757	48	24.19
1983 ASM	16 023	76	1 859	7.61	59	77	36 733	44	26.15
1982 Census	15 325	75	1 926	6.95	58	77	34 373	45	23.67
1981 ASM	14 168	76	1 922	6.38	75	93	19 807	72	13.62
1980 ASM	13 277	76	1 929	5.87	75	96	16 892	79	11.50
1979 ASM	12 045	76	1 902	5.47	77	98	14 388	84	9.94
1978 ASM	11 281	77	1 832	5.38	54	75	24 791	46	17.58
1977 Census	10 730	78	1 888	4.92	56	77	23 095	46	15.73

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.								
1992 Census	25 408	75	2 064	10.57	52	70	68 598	37	44.51
1991 ASM	22 997	76	2 081	9.75	53	69	65 278	35	41.42
1990 ASM	21 472	76	2 026	9.25	53	69	62 889	34	41.08
1989 ASM	20 844	76	2 000	9.06	54	70	58 017	36	38.30
1988 ASM	20 058	74	2 035	8.49	54	69	60 581	33	40.13
1987 Census	20 037	73	2 023	8.55	50	67	60 686	33	41.29
1986 ASM	20 109	73	1 990	8.77	52	69	55 937	36	38.56
1985 ASM	18 990	74	1 944	8.40	50	68	54 461	35	37.99
1984 ASM	17 997	74	1 923	8.09	50	68	52 263	34	36.54
1983 ASM	16 514	74	1 898	7.66	50	68	45 170	37	32.11
1982 Census	16 326	73	1 960	7.19	51	69	42 477	38	29.55
1981 ASM	15 745	74	1 984	6.64	53	72	40 883	39	27.90
1980 ASM	13 872	74	1 954	6.10	53	72	34 483	40	23.71
1979 ASM	12 844	76	1 958	5.67	54	73	30 928	42	20.76
1978 ASM	12 436	74	1 950	5.47	53	73	29 279	42	20.27
1977 Census	11 192	76	1 996	4.83	50	70	28 805	39	19.11

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING														
United States	–	**204**	**136**	**17.3**	**533.9**	**12.9**	**27.8**	**348.1**	**1 427.4**	**2 068.8**	**3 508.0**	**129.4**	**15.0**	**997.0**
Arkansas	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	18	12	1.0	28.7	.7	1.4	17.4	61.2	85.8	146.9	3.6	F	(D)
Georgia	–	9	7	.9	28.6	.7	1.7	22.9	90.7	133.5	227.9	(D)	E	(D)
Illinois	–	17	13	1.3	41.9	1.0	2.1	24.6	111.2	132.1	244.9	3.8	1.1	72.9
Indiana	–	9	6	.7	22.6	.6	1.2	16.7	54.2	62.5	115.6	2.7	1.6	90.7
Iowa	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E1	7	4	.4	13.0	.2	.5	8.1	48.8	88.9	137.5	7.4	.6	40.5
Michigan	–	6	4	.5	14.7	.4	.9	10.4	33.1	72.3	102.6	(D)	.2	11.0
Minnesota	E2	5	4	.4	11.1	.3	.6	7.1	29.5	51.3	79.5	4.7	(NA)	(D)
Missouri	–	7	4	.8	24.8	.7	1.4	16.9	56.7	92.5	150.7	6.7	F	(D)
New Jersey	E3	7	7	.6	22.0	.5	1.1	13.6	49.1	57.5	107.6	1.6	.7	40.6
New York	E2	9	4	.3	8.9	.2	.5	6.5	17.6	21.6	39.4	(D)	F	(D)
North Carolina	E1	5	4	.3	7.5	.2	.4	5.8	26.5	29.8	55.5	5.0	E	(D)
Ohio	–	14	9	.8	23.8	.6	1.3	15.5	62.3	97.0	162.0	9.3	.6	36.9
Oregon	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	10	6	1.1	38.6	.7	1.2	17.9	78.3	92.1	175.0	2.0	1.2	59.5
South Carolina	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	8	6	1.1	27.5	.8	1.3	17.0	75.1	133.8	204.6	8.5	.7	40.4
Texas	–	8	4	.6	13.4	.4	.9	10.1	27.2	51.9	80.4	1.1	F	(D)
Virginia	–	3	3	.3	10.9	.3	.6	7.6	21.9	46.0	67.7	.7	.4	26.8
Washington	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	24	21	3.7	119.4	2.7	6.2	77.0	359.6	494.3	859.3	37.0	2.4	192.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.														
United States	–	**453**	**242**	**32.4**	**1 041.6**	**22.1**	**47.9**	**623.1**	**3 551.2**	**4 144.1**	**7 688.3**	**270.1**	**30.9**	**2 861.4**
California	E1	48	28	2.2	59.4	1.1	2.3	29.4	139.8	150.7	291.7	9.2	G	(D)
Colorado	–	3	1	.2	6.6	.2	.4	4.8	12.3	27.6	39.1	(D)	.2	11.1
Connecticut	E2	10	3	.3	7.8	.1	.3	2.9	25.4	25.5	50.7	.9	.2	16.0
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E7	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)
Georgia	E2	10	7	.5	18.4	.4	.9	12.9	84.9	122.6	207.0	3.6	.8	91.6
Illinois	E1	33	25	3.2	105.5	1.9	3.9	55.2	381.8	305.3	689.8	10.9	2.8	314.9
Indiana	–	10	8	.8	24.8	.6	1.4	17.8	95.4	187.2	283.0	5.7	.5	31.8
Iowa	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	6	2	.2	4.0	.1	.3	2.5	9.7	8.5	18.1	.8	(NA)	(NA)
Massachusetts	–	32	16	2.2	78.9	1.4	2.8	40.5	174.4	164.4	340.2	9.6	3.3	213.7
Michigan	–	9	6	.8	26.3	.5	1.1	13.3	68.5	68.0	135.5	6.7	1.1	62.8
Minnesota	–	13	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	E2	9	4	.4	9.8	.3	.7	6.3	21.1	35.3	55.0	1.2	(NA)	(NA)
Nevada	–	4	4	.2	5.5	.1	.3	2.9	7.2	23.3	29.7	1.6	(NA)	(NA)
New Hampshire	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E2	29	16	2.1	66.8	1.4	3.0	37.0	151.1	220.8	367.8	12.6	1.9	101.8
New York	E3	31	12	1.3	41.6	.9	1.9	24.2	116.3	154.0	271.0	8.8	1.5	86.4
North Carolina	–	10	6	1.0	21.2	.8	1.9	16.7	65.3	114.8	179.5	2.2	1.1	64.7
Ohio	–	37	20	3.0	108.7	2.0	4.8	59.1	331.6	448.4	779.0	12.2	2.9	203.2
Pennsylvania	–	30	22	2.7	98.2	1.9	4.2	60.8	350.0	472.6	821.3	42.5	2.6	315.2
Rhode Island	–	6	4	.3	7.2	.2	.4	4.5	23.2	28.5	52.0	1.5	(NA)	(NA)
South Carolina	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E1	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E2	20	4	.4	9.9	.3	.5	6.2	37.8	44.0	81.5	1.2	F	(D)
Virginia	–	7	3	.3	7.0	.2	.4	4.5	44.4	67.4	110.2	(D)	(NA)	(NA)
Washington	E2	9	3	.1	4.3	.1	.2	2.3	11.9	16.5	28.2	.5	(NA)	(D)
Wisconsin	–	24	17	2.8	94.4	2.1	4.5	61.9	327.5	477.6	804.4	34.4	2.1	199.8
INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED														
United States	–	**521**	**306**	**38.7**	**988.7**	**30.5**	**64.7**	**673.7**	**2 853.7**	**2 871.4**	**5 708.2**	**185.6**	**36.6**	**2 215.0**
Alabama	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	25.0
California	–	75	34	2.9	71.4	2.2	5.0	46.8	258.5	232.3	495.1	12.2	2.3	138.3
Connecticut	E3	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	23	13	1.1	25.2	.9	2.0	16.2	56.7	65.3	121.7	3.6	1.1	48.6
Georgia	–	13	11	1.9	47.4	1.6	3.5	34.4	150.3	156.7	306.4	9.7	2.8	195.3
Illinois	–	37	25	4.1	106.2	3.2	6.8	68.2	354.5	277.7	629.9	17.7	3.5	156.0
Indiana	–	12	11	2.3	61.0	2.0	4.3	48.3	165.7	187.9	353.5	18.4	1.4	69.9
Iowa	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	5	5	.4	10.9	.4	.8	6.7	22.5	33.3	55.5	1.1	(NA)	(NA)
Kentucky	E4	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E4	7	5	.6	11.4	.5	1.0	7.6	33.8	37.9	71.8	2.5	.2	6.2
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E1	5	3	.1	2.7	.1	.2	1.7	10.3	7.5	17.8	(D)	(NA)	(NA)
Massachusetts	E3	17	9	.7	18.3	.5	1.1	11.6	47.3	52.2	99.4	2.0	.7	41.7
Michigan	–	15	5	.8	28.0	.6	1.2	19.6	74.3	87.3	163.1	(D)	.8	164.2
Minnesota	–	13	7	.6	16.5	.4	.9	9.1	40.7	44.9	84.8	1.8	E	(D)
Mississippi	–	4	2	.3	5.5	.3	.6	4.1	16.8	12.2	28.5	(D)	(NA)	(NA)
Missouri	–	11	8	1.0	26.3	.8	1.7	16.8	73.1	65.0	140.4	6.3	.3	9.1
New Hampshire	–	4	3	.4	8.3	.3	.6	5.2	13.5	13.1	26.5	(D)	E	(D)
New Jersey	E1	36	22	1.8	45.7	1.3	2.7	29.0	158.4	142.4	297.2	9.1	1.6	166.9
New York	–	65	35	3.3	87.3	2.3	5.0	51.9	201.7	180.8	379.9	10.1	4.7	209.3
North Carolina	–	14	11	1.4	33.2	1.0	2.0	21.5	103.4	97.9	199.5	13.5	F	(D)
Ohio	–	16	8	1.0	27.0	.7	1.6	19.3	69.1	68.9	137.0	5.4	F	(D)
Oklahoma	E1	6	3	.3	6.6	.2	.3	4.6	23.5	10.4	34.9	(D)	(NA)	(D)
Pennsylvania	–	19	10	1.6	41.0	1.4	2.9	32.0	101.3	115.5	212.9	4.8	1.4	75.0
Rhode Island	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	6	4	.3	6.6	.2	.4	4.0	16.9	19.2	36.3	(D)	G	(D)
South Dakota	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E1	14	10	.9	21.7	.8	1.7	15.9	34.7	78.4	112.7	3.6	F	(D)
Texas	E1	36	19	3.3	80.8	2.6	5.2	50.4	227.1	320.3	545.1	17.4	4.0	289.1
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	6	4	.8	21.4	.6	1.3	16.7	41.4	53.2	93.8	(D)	E	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	17	10	1.9	57.9	1.5	3.1	37.9	143.7	122.5	265.6	8.0	1.4	74.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL														
United States	–	**143**	**123**	**18.6**	**438.3**	**15.5**	**32.0**	**325.1**	**1 024.3**	**1 824.0**	**2 846.0**	**55.1**	**17.1**	**874.8**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	14	13	2.3	51.2	2.0	4.1	39.4	122.7	194.1	314.1	6.5	1.8	86.2
California	–	8	7	.6	14.9	.5	1.0	10.5	40.7	64.3	106.1	(D)	.9	47.1
Florida	–	6	6	.7	16.1	.6	1.2	12.3	45.9	123.8	167.9	(D)	.8	60.6
Georgia	E1	4	4	1.3	29.4	1.1	2.2	21.6	52.8	106.0	157.7	3.1	1.3	45.8
Illinois	–	9	9	1.5	37.7	1.2	2.5	23.6	84.3	118.3	202.1	4.5	1.4	81.9
Indiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	3	.2	3.9	.2	.3	2.9	11.1	14.8	25.6	.3	(NA)	(D)
Kentucky	–	5	5	1.4	34.0	1.2	2.4	26.3	84.5	116.4	202.2	(D)	F	(D)
Louisiana	–	4	3	1.1	26.1	.9	1.8	18.4	47.1	109.4	155.9	(D)	1.0	51.6
Massachusetts	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	E6	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	5	4	.7	15.9	.6	1.2	11.8	48.1	67.9	116.5	.7	F	(D)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E3	5	4	.6	18.0	.5	1.0	12.6	22.4	86.2	109.1	1.1	E	(D)
New York	–	6	3	.7	16.8	.6	1.3	13.1	31.0	53.8	86.3	(D)	(NA)	(NA)
North Carolina	–	5	5	.5	9.3	.4	.7	6.9	30.5	35.1	66.8	.2	(NA)	(D)
Ohio	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	5	5	.4	8.7	.3	.6	6.4	17.7	48.5	66.0	.5	.2	16.7
Pennsylvania	–	4	4	.4	8.2	.3	.6	5.8	24.3	34.3	58.5	.2	(NA)	(D)
South Carolina	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	7	6	.9	21.6	.7	1.6	17.4	54.1	88.2	143.4	1.6	1.2	43.4
Texas	–	8	6	.7	16.4	.6	1.1	11.4	49.4	75.7	124.5	(D)	F	(D)
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	38.4
Washington	–	5	4	.4	12.0	.4	.7	9.8	27.9	44.6	72.5	.5	.4	28.9
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	4	3	.2	4.1	.2	.3	3.2	14.4	23.0	37.1	(D)	(NA)	(D)
INDUSTRY 2675, DIE-CUT PAPER AND BOARD														
United States	–	**381**	**163**	**15.6**	**375.2**	**12.4**	**25.0**	**248.1**	**845.4**	**1 168.1**	**2 011.1**	**52.6**	**15.7**	**680.8**
Alabama	E2	8	5	.2	2.7	.2	.3	1.9	15.4	8.9	24.0	5.8	(NA)	(NA)
Arkansas	–	3	2	.1	1.3	.1	.2	1.0	2.4	1.9	4.3	(D)	(NA)	(NA)
California	–	48	17	1.4	35.0	1.2	2.3	24.2	75.6	106.9	185.7	4.0	1.9	85.1
Florida	–	15	5	.4	8.2	.3	.5	6.2	15.0	25.8	40.1	.5	(NA)	(D)
Georgia	–	11	5	.5	11.4	.4	.8	8.5	32.3	78.1	109.5	(D)	.6	25.6
Illinois	E1	33	13	1.6	40.6	1.3	2.5	24.6	104.9	112.6	217.2	5.1	1.5	64.2
Indiana	–	5	4	.6	14.2	.4	1.0	9.9	28.5	67.1	95.0	(D)	.6	32.3
Massachusetts	E2	9	4	.7	22.3	.5	1.1	12.0	43.7	33.0	77.0	2.2	F	(D)
Michigan	E1	18	6	.3	7.3	.3	.6	4.9	13.9	20.9	34.8	(D)	E	(D)
Minnesota	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E1	10	4	.6	10.5	.5	1.0	7.6	21.3	49.8	73.3	.8	E	(D)
Missouri	–	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	29	13	.9	26.4	.7	1.5	15.9	49.8	48.7	98.5	1.1	1.1	41.4
New York	E1	55	29	2.2	48.8	1.7	3.6	29.3	84.0	66.6	150.3	2.4	2.5	95.6
North Carolina	–	9	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	F	(D)
Ohio	–	19	5	.8	17.6	.7	1.3	13.1	47.9	41.2	88.8	(D)	F	(D)
Oregon	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	19	7	.7	13.8	.6	1.0	9.3	24.0	30.0	53.6	1.3	F	(D)
South Carolina	–	3	2	.2	3.4	.1	.3	2.2	7.3	8.6	15.6	.2	(NA)	(NA)
Texas	–	15	9	.7	15.8	.6	1.1	11.4	33.6	35.1	68.1	.4	.7	31.5
Virginia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	12	8	.5	13.0	.4	.8	9.2	35.7	39.8	75.3	(D)	.5	29.3
INDUSTRY 2676, SANITARY PAPER PRODUCTS														
United States	–	**150**	**125**	**40.5**	**1 451.1**	**32.7**	**68.1**	**1 095.2**	**8 220.4**	**7 369.9**	**15 622.7**	**418.5**	**38.4**	**6 309.3**
Alabama	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	14	11	2.4	86.8	1.9	4.2	65.1	502.9	528.5	1 044.4	(D)	2.6	465.0
Connecticut	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Delaware	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	7	7	2.9	105.3	2.5	5.0	88.3	701.3	710.4	1 411.2	28.3	G	(D)
Idaho	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	4	3	.5	14.0	.4	.8	8.1	40.4	79.7	117.5	6.6	(NA)	(NA)
Maine	–	3	3	1.2	34.4	1.0	2.0	26.7	109.5	107.5	217.5	(D)	1.3	117.6
Massachusetts	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	3	3	.3	7.9	.2	.5	6.4	29.8	47.5	75.8	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/12/95 15:21:59 EPCV23 TLP:26C.BTI;60 6/12/95 13:55:28 DATA:NONE UPF:92MFFI_PUBS:26CDAT.UPF PAGE: 6
TSF:26C_92.DAT;2 6/12/95 13:55:49 UTF:26C_93.DAT;8 6/12/95 15:19:25 META:TIPS96-09131893.DAT;1 6/12/95 15:21:29

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2676, SANITARY PAPER PRODUCTS—Con.														
Missouri	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nevada	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	10	8	1.7	75.8	.9	1.9	27.5	203.5	115.6	319.3	(D)	3.1	265.5
New York	–	16	13	1.5	42.3	1.2	2.7	29.9	152.0	172.6	322.1	12.2	1.7	158.9
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	E2	4	3	.4	11.0	.4	.7	7.2	46.4	52.0	96.8	8.3	E	(D)
Oklahoma	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	12	10	4.6	188.1	3.8	7.4	143.7	1 172.1	878.3	2 067.1	56.8	(NA)	(D)
South Carolina	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E1	4	3	1.1	41.6	.9	2.4	33.4	116.3	289.6	403.1	(D)	F	(D)
Utah	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	4	3	.7	13.9	.6	1.1	10.4	122.2	59.5	181.4	1.9	F	(D)
Washington	–	4	4	1.3	51.2	1.1	2.3	41.5	202.3	452.0	661.5	11.4	1.3	258.6
Wisconsin	–	15	14	7.6	277.4	5.9	12.2	209.7	1 337.9	1 474.2	2 815.7	49.8	7.7	1 131.0
INDUSTRY 2677, ENVELOPES														
United States	**E1**	**283**	**207**	**24.9**	**672.3**	**19.0**	**39.0**	**445.1**	**1 361.7**	**1 488.4**	**2 854.1**	**55.3**	**27.6**	**1 192.9**
Arizona	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E2	35	24	2.1	65.7	1.6	3.3	42.2	138.6	163.1	306.2	4.5	2.6	131.4
Colorado	–	6	3	.4	10.6	.3	.6	6.6	22.6	18.1	40.7	.7	.4	17.8
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	12	8	.8	21.0	.7	1.4	15.4	35.4	49.0	85.2	.7	F	(D)
Georgia	E2	8	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
Illinois	E1	21	16	2.0	54.7	1.5	3.4	38.1	109.8	113.5	223.7	2.8	2.4	99.6
Indiana	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	20.8
Iowa	E3	4	4	.4	9.6	.3	.7	7.6	24.6	29.2	53.9	.4	.3	18.2
Kansas	–	4	4	.5	11.5	.4	.7	8.8	26.8	27.9	54.6	(D)	E	(D)
Kentucky	–	6	4	.4	10.5	.3	.6	6.9	26.5	26.6	52.4	1.1	E	(D)
Maryland	E1	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	19.9
Massachusetts	–	15	10	1.6	44.2	1.2	2.5	30.2	82.5	100.6	182.2	5.0	2.0	70.5
Michigan	–	10	5	.4	10.1	.3	.5	5.4	19.7	18.4	38.1	(D)	.4	15.3
Minnesota	E5	10	7	.8	28.5	.6	1.5	18.0	44.4	54.5	98.7	1.4	F	(D)
Mississippi	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	F	(D)
Missouri	E2	12	10	1.6	42.2	1.2	2.4	28.3	79.9	87.1	166.7	2.0	1.5	61.5
Nebraska	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	12	9	1.3	36.1	.9	2.0	23.4	59.4	77.4	136.9	1.2	1.3	58.8
New York	–	29	18	2.4	61.6	1.8	3.6	42.1	118.4	125.9	246.7	4.0	3.8	157.3
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E1	14	10	1.2	31.1	1.0	2.0	20.8	58.8	85.2	144.9	1.2	1.2	51.0
Oklahoma	–	7	3	.2	6.5	.2	.3	3.9	12.0	13.3	25.4	(D)	(NA)	(NA)
Oregon	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	13	10	1.6	42.8	1.2	2.5	26.3	89.3	107.9	196.3	4.1	1.6	74.0
Tennessee	–	5	5	.9	18.2	.7	1.2	12.5	57.8	42.3	99.7	3.9	.9	37.5
Texas	–	15	12	1.1	26.8	.8	1.7	17.7	57.9	67.0	125.5	2.9	1.3	55.1
Virginia	–	6	5	.8	22.5	.6	1.2	13.4	38.4	37.1	75.0	(D)	F	(D)
Washington	E3	6	5	.3	9.3	.2	.4	6.6	18.8	20.5	39.4	.7	(NA)	(D)
Wisconsin	–	4	4	.7	19.6	.5	.9	12.8	37.1	45.1	81.6	2.0	.6	33.1
INDUSTRY 2678, STATIONERY PRODUCTS														
United States	**E1**	**177**	**79**	**9.5**	**220.9**	**7.0**	**13.6**	**138.1**	**694.7**	**730.7**	**1 423.7**	**28.0**	**11.2**	**520.7**
Alabama	E3	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E4	24	7	.9	25.0	.7	1.5	14.3	77.2	53.3	130.0	2.6	F	(D)
Connecticut	E6	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E5	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	5	3	.4	8.0	.3	.5	4.8	12.4	12.7	25.2	(D)	E	(D)
Louisiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E5	16	6	.8	19.4	.6	1.1	11.8	40.0	53.2	93.0	.8	G	(D)
Michigan	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	6	4	.2	5.3	.1	.3	3.0	14.0	13.0	27.0	1.8	(NA)	(NA)
Missouri	–	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	7	3	.3	5.6	.2	.3	2.4	10.3	12.7	23.2	(D)	E	(D)
New York	E4	22	5	.6	12.5	.4	.9	7.6	29.9	29.4	59.5	1.1	1.0	40.0
Ohio	E1	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Pennsylvania	–	11	6	1.7	35.0	1.2	2.1	22.9	89.3	120.5	212.3	3.9	1.7	82.9
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	12	5	.4	7.2	.3	.5	4.8	37.7	25.1	64.0	(D)	F	(D)
Virginia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	6	3	.3	6.9	.2	.4	4.2	18.0	25.9	43.9	1.0	(NA)	(D)

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/12/95 15:21:59 EPCV23 TLP:26C.BTI;60 6/12/95 13:55:28 DATA:NONE UPF:92MFFI_PUBS:26CDAT.UPF PAGE: 7
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.														
United States	**E1**	**790**	**311**	**31.6**	**802.9**	**23.6**	**48.7**	**514.7**	**2 167.7**	**2 294.1**	**4 437.2**	**148.5**	**29.6**	**1 796.3**
Alabama	–	21	7	.5	11.7	.4	.8	7.6	58.4	36.3	96.0	2.0	E	(D)
Arizona	–	12	2	.5	12.7	.4	.7	9.1	29.1	42.1	70.1	1.2	(NA)	(NA)
California	E2	92	24	2.1	55.9	1.6	3.5	39.6	156.1	153.6	304.5	12.4	2.0	109.8
Connecticut	E1	13	7	.3	8.9	.3	.6	6.1	26.8	29.1	54.0	1.4	(NA)	(D)
Florida	E1	31	5	.4	8.5	.3	.6	4.9	17.5	19.6	37.3	1.4	E	(D)
Georgia	E3	24	11	1.2	29.1	1.0	1.9	21.1	67.9	71.2	138.9	11.2	.9	48.6
Illinois	E1	38	19	1.2	34.7	.9	2.0	23.2	86.9	120.4	205.8	2.6	1.2	88.9
Indiana	E4	19	14	1.8	41.3	1.3	2.5	25.2	109.9	121.0	234.9	12.2	1.2	131.1
Kansas	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	8	5	.4	7.7	.4	.7	5.7	26.3	59.7	85.1	(D)	E	(D)
Louisiana	E2	6	6	.2	4.0	.2	.3	2.8	13.7	17.0	30.6	1.5	(NA)	(D)
Maine	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	E3	7	4	.1	2.5	.1	.2	1.6	7.1	9.0	15.8	.4	(NA)	(NA)
Massachusetts	–	27	14	1.6	38.3	1.2	2.5	26.5	75.2	70.4	144.6	4.0	1.1	54.2
Michigan	E1	31	15	.9	21.9	.6	1.4	13.3	53.1	46.9	99.3	3.8	F	(D)
Minnesota	E3	11	3	.1	2.6	.1	.2	1.5	6.1	7.1	13.2	.3	(NA)	(NA)
Mississippi	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	E5	7	2	.1	2.5	.1	.2	1.7	6.4	7.5	14.3	(D)	(NA)	(NA)
New Jersey	–	35	14	1.3	35.1	.9	1.8	21.7	72.5	100.4	172.1	3.6	1.9	95.0
New York	E1	80	27	2.3	58.0	1.7	3.5	37.4	149.8	166.6	312.2	9.2	2.7	131.5
North Carolina	E5	36	16	1.0	23.7	.7	1.4	14.8	64.9	66.7	131.6	5.4	F	(D)
Ohio	–	41	15	2.0	55.1	1.5	3.2	37.6	127.1	145.8	271.5	9.1	1.4	82.8
Oklahoma	E8	8	2	.1	1.8	.1	.2	1.1	4.9	6.4	11.6	.3	(NA)	(NA)
Pennsylvania	–	46	26	2.5	59.0	1.9	3.8	34.4	161.0	167.2	325.5	9.5	2.7	138.0
Rhode Island	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	14	5	.4	9.9	.3	.6	5.8	29.7	76.0	104.4	1.0	.2	12.6
Tennessee	–	14	7	4.3	93.0	3.2	6.4	58.3	230.2	292.2	528.2	15.2	3.5	214.6
Texas	E5	38	11	.8	20.8	.6	1.1	11.1	52.1	67.4	117.2	3.3	F	(D)
Utah	–	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Virginia	–	13	9	.7	18.7	.5	1.3	11.8	37.6	60.4	98.0	2.4	.6	27.8
Washington	–	15	9	.5	11.7	.3	.8	7.1	33.7	36.7	69.5	(D)	.4	21.3
West Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	30	10	.8	20.0	.6	1.1	11.3	56.9	78.5	133.1	8.1	.8	42.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Paper coated and laminated, packaging (SIC 2671)	Paper coated and laminated, n.e.c. (SIC 2672)	Bags: plastics, laminated, and coated (SIC 2673)	Bags: uncoated paper and multiwall (SIC 2674)	Die-cut paper and board (SIC 2675)	Sanitary paper products (SIC 2676)	Envelopes (SIC 2677)	Stationery products (SIC 2678)	Converted paper products, n.e.c. (SIC 2679)
Companies	number	156	385	458	79	355	80	192	160	725
All establishments	number	204	453	521	143	381	150	283	177	790
With 1 to 19 employees	number	68	211	215	20	218	25	76	98	479
With 20 to 99 employees	number	75	150	190	57	126	45	112	54	244
With 100 employees or more	number	61	92	116	66	37	80	95	25	67
Employment and labor costs:										
Employees	1,000	17.3	32.4	38.7	18.6	15.6	40.5	24.9	9.5	31.6
Compensation, total	mil dol	671.3	1 318.9	1 230.4	561.9	474.6	1 864.5	838.7	281.1	1 011.7
Annual payroll	mil dol	533.9	1 041.6	988.7	438.3	375.2	1 451.1	672.3	220.9	802.9
Fringe benefits	mil dol	137.4	277.3	241.7	123.5	99.3	413.4	166.3	60.2	208.8
Social Security and other legally required payments	mil dol	56.3	113.4	103.4	53.1	41.0	146.5	76.7	26.9	89.4
Employer voluntary payments	mil dol	81.1	163.9	138.4	70.4	58.4	266.8	89.6	33.3	119.4
Production workers:										
Average for year	1,000	12.9	22.1	30.5	15.5	12.4	32.7	19.0	7.0	23.6
March	1,000	12.8	21.8	30.2	15.6	12.3	32.6	19.2	7.1	23.2
May	1,000	12.9	22.0	30.4	15.4	12.3	32.9	19.2	7.4	23.6
August	1,000	12.9	22.4	30.8	15.5	12.6	32.9	19.0	7.2	24.4
November	1,000	12.9	22.1	30.7	15.6	12.6	32.5	18.8	6.3	23.4
Hours	millions	27.8	47.9	64.7	32.0	25.0	68.1	39.0	13.6	48.7
Wages	mil dol	348.1	623.1	673.7	325.1	248.1	1 095.2	445.1	138.1	514.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paper coated and laminated, packaging (SIC 2671)	Paper coated and laminated, n.e.c. (SIC 2672)	Bags: plastics, laminated, and coated (SIC 2673)	Bags: uncoated paper and multiwall (SIC 2674)	Die-cut paper and board (SIC 2675)	Sanitary paper products (SIC 2676)	Envelopes (SIC 2677)	Stationery products (SIC 2678)	Converted paper products, n.e.c. (SIC 2679)
Cost of materials[1] ---- mil dol	2 068.8	4 144.1	2 871.4	1 824.0	1 168.1	7 369.9	1 488.4	730.7	2 294.1
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 975.5	3 866.7	2 574.6	1 716.2	1 060.4	7 087.0	1 273.8	646.1	1 978.3
Resales ---- mil dol	25.6	127.4	140.2	75.7	80.8	131.8	132.0	69.4	168.6
Fuels ---- mil dol	16.4	48.0	14.5	5.8	3.9	24.0	6.3	2.3	37.4
Purchased electricity ---- mil dol	40.9	69.2	117.7	23.9	14.1	95.4	39.3	8.4	73.0
Contract work ---- mil dol	10.4	32.9	24.4	2.3	9.0	31.8	37.1	4.5	36.8
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	748.1	1 210.8	2 077.3	451.9	207.0	2 227.2	571.3	132.7	1 260.0
Generated less sold ---- mil kWh	–	(Z)	(D)	–	–	(D)	–	–	(Z)
Total value of shipments ---- mil dol	3 508.0	7 688.3	5 708.2	2 846.0	2 011.1	15 622.7	2 854.1	1 423.7	4 437.2
Value added ---- mil dol	1 427.4	3 551.2	2 853.7	1 024.3	845.4	8 220.4	1 361.7	694.7	2 167.7
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	480.5	765.3	603.1	395.3	241.1	1 006.4	303.6	275.8	668.4
Finished goods ---- mil dol	242.4	263.0	279.9	126.0	107.0	591.8	148.9	172.7	378.7
Work in process ---- mil dol	68.5	186.6	53.0	24.7	22.5	60.7	27.0	25.4	50.7
Materials and supplies ---- mil dol	169.6	315.7	270.2	244.6	111.6	353.8	127.7	77.7	239.1
End of 1992 ---- mil dol	462.6	774.4	627.3	395.2	243.4	944.7	294.8	281.5	711.1
Finished goods ---- mil dol	232.6	266.2	294.7	128.2	106.9	557.6	145.5	175.2	402.2
Work in process ---- mil dol	66.5	190.4	55.2	24.9	25.1	62.5	26.4	24.7	51.8
Materials and supplies ---- mil dol	163.5	317.8	277.4	242.2	111.4	324.6	122.9	81.6	257.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paper coated and laminated, packaging (SIC 2671)	Paper coated and laminated, n.e.c. (SIC 2672)	Bags: plastics, laminated, and coated (SIC 2673)	Bags: uncoated paper and multiwall (SIC 2674)	Die-cut paper and board (SIC 2675)	Sanitary paper products (SIC 2676)	Envelopes (SIC 2677)	Stationery products (SIC 2678)	Converted paper products, n.e.c. (SIC 2679)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 277.3	2 666.2	2 453.9	769.2	498.5	5 182.9	859.7	363.2	1 344.7
New capital expenditures[1]	129.4	270.1	185.6	55.1	52.6	418.5	55.3	28.0	148.5
Used capital expenditures	9.9	8.4	23.0	7.8	8.4	36.5	12.0	6.7	15.2
Retirements	23.5	101.5	75.2	16.6	10.2	188.4	23.6	7.0	32.2
End of year	1 393.0	2 843.1	2 587.4	815.4	549.3	5 449.5	903.4	390.9	1 476.2
Buildings and other structures:									
Beginning of year	236.2	495.4	438.6	172.7	119.9	912.1	172.4	86.5	309.5
New capital expenditures	18.6	21.0	26.6	4.8	11.5	35.8	8.8	2.8	24.6
Used capital expenditures	.5	2.4	3.6	.8	(D)	3.3	.8	(D)	1.7
Retirements	3.9	12.4	4.3	.9	(D)	3.3	1.8	(D)	5.9
End of year	251.5	506.4	464.5	177.3	132.4	947.9	180.2	89.2	329.9
Machinery and equipment:									
Beginning of year	1 041.0	2 170.7	2 015.3	596.5	378.6	4 270.7	687.3	276.7	1 035.2
New capital expenditures[1]	110.8	249.1	159.1	50.3	41.1	382.8	46.5	25.2	123.9
Used capital expenditures	9.3	6.0	19.4	7.0	(D)	33.2	11.2	(D)	13.5
Retirements	19.6	89.1	70.9	15.7	(D)	185.1	21.8	(D)	26.3
End of year	1 141.5	2 336.7	2 122.9	638.1	416.9	4 501.7	723.2	301.6	1 146.3
Depreciation charges during 1992:									
Total	93.5	200.4	181.4	49.8	33.6	336.9	61.8	24.9	91.1
Buildings and other structures	8.9	21.4	15.5	5.9	5.0	33.2	8.4	3.5	12.8
Machinery and equipment	84.6	179.1	165.9	43.9	28.6	303.7	53.4	21.4	78.3
Rental payments:									
Total	18.1	39.7	44.2	17.6	20.6	45.0	29.6	14.1	51.6
Buildings and other structures	9.1	20.5	26.6	8.5	11.5	24.5	19.2	7.4	28.7
Machinery and equipment	9.1	19.2	17.6	9.1	9.1	20.4	10.4	6.7	23.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paper coated and laminated, packaging (SIC 2671)		Paper coated and laminated, n.e.c. (SIC 2672)		Bags: plastics, laminated, and coated (SIC 2673)		Bags: uncoated paper and multiwall (SIC 2674)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	4.0	(X)	7.2	(X)	5.0	(X)	4.1	(X)
Response coverage ratio (percent)[2]	85.3	(X)	88.9	(X)	81.6	(X)	91.4	(X)
Machinery	20.9	(X)	108.6	(X)	67.7	(X)	23.3	(X)
Response coverage ratio (percent)[2]	88.9	(X)	90.7	(X)	82.5	(X)	87.0	(X)
Other purchased services:								
Communications	3.7	(X)	13.6	(X)	8.4	(X)	3.9	(X)
Response coverage ratio (percent)[2]	83.6	(X)	85.4	(X)	78.7	(X)	87.8	(X)
Legal	1.7	(X)	4.1	(X)	4.5	(X)	.8	(X)
Response coverage ratio (percent)[2]	83.5	(X)	88.2	(X)	80.5	(X)	91.4	(X)
Accounting and bookkeeping	1.0	(X)	2.9	(X)	3.5	(X)	4.3	(X)
Response coverage ratio (percent)[2]	84.5	(X)	83.8	(X)	80.9	(X)	90.5	(X)
Advertising	.9	(X)	15.2	(X)	6.9	(X)	.7	(X)
Response coverage ratio (percent)[2]	82.0	(X)	81.9	(X)	80.5	(X)	90.6	(X)
Software and other data processing	2.1	(X)	8.6	(X)	4.9	(X)	.7	(X)
Response coverage ratio (percent)[2]	86.4	(X)	83.0	(X)	79.0	(X)	92.2	(X)
Refuse removal, including hazardous waste	7.8	(X)	20.1	(X)	5.7	(X)	2.7	(X)
Response coverage ratio (percent)[2]	89.2	(X)	90.4	(X)	79.5	(X)	91.4	(X)
New machinery and equipment expenditures	110.8	(X)	249.1	(X)	159.1	(X)	50.3	(X)
Automobiles, trucks, etc., for highway use	.4	22	.8	14	1.6	19	.7	39
Computers and peripheral data processing equipment	3.7	17	9.4	13	6.8	7	1.3	3
All other	106.7	1	238.9	1	150.7	1	48.3	1
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.3	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 975.5	(X)	3 866.7	(X)	2 574.6	(X)	1 716.2	(X)
Materials purchased or transferred from foreign sources[4]	66.2	48	(S)	(X)	46.2	23	24.2	5
Materials purchased or transferred from domestic sources	1 909.2	3	(S)	(X)	2 528.4	1	1 692.0	1
Adjustment ratio[3]	1.6	(X)	(S)	(X)	1.5	(X)	1.3	(X)

Item	Die-cut paper and board (SIC 2675)		Sanitary paper products (SIC 2676)		Envelopes (SIC 2677)		Stationery products (SIC 2678)		Converted paper products, n.e.c. (SIC 2679)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	2.9	(X)	16.1	(X)	2.5	(X)	1.6	(X)	7.1	(X)
Response coverage ratio (percent)[2]	72.7	(X)	95.4	(X)	82.5	(X)	77.8	(X)	78.1	(X)
Machinery	13.8	(X)	59.0	(X)	29.8	(X)	8.4	(X)	38.9	(X)
Response coverage ratio (percent)[2]	76.0	(X)	96.4	(X)	84.8	(X)	80.5	(X)	75.3	(X)
Other purchased services:										
Communications	4.8	(X)	14.1	(X)	7.4	(X)	1.6	(X)	7.2	(X)
Response coverage ratio (percent)[2]	70.0	(X)	90.3	(X)	85.8	(X)	80.5	(X)	78.6	(X)
Legal	1.7	(X)	6.3	(X)	2.4	(X)	.4	(X)	3.0	(X)
Response coverage ratio (percent)[2]	75.8	(X)	92.7	(X)	85.8	(X)	80.5	(X)	79.4	(X)
Accounting and bookkeeping	3.1	(X)	1.5	(X)	1.9	(X)	.6	(X)	3.3	(X)
Response coverage ratio (percent)[2]	77.2	(X)	92.3	(X)	84.0	(X)	77.0	(X)	79.4	(X)
Advertising	4.3	(X)	70.3	(X)	4.3	(X)	.9	(X)	8.8	(X)
Response coverage ratio (percent)[2]	72.3	(X)	94.3	(X)	84.2	(X)	77.8	(X)	79.4	(X)
Software and other data processing	1.0	(X)	11.8	(X)	1.5	(X)	1.6	(X)	1.9	(X)
Response coverage ratio (percent)[2]	74.8	(X)	93.6	(X)	83.2	(X)	77.0	(X)	75.2	(X)
Refuse removal, including hazardous waste	3.0	(X)	14.8	(X)	2.1	(X)	.7	(X)	5.3	(X)
Response coverage ratio (percent)[2]	74.2	(X)	94.8	(X)	85.1	(X)	80.5	(X)	80.4	(X)
New machinery and equipment expenditures	41.1	(X)	382.8	(X)	46.5	(X)	25.2	(X)	123.9	(X)
Automobiles, trucks, etc., for highway use	.7	56	.4	1	.5	23	.6	35	1.7	34
Computers and peripheral data processing equipment	1.7	10	10.1	1	2.8	9	2.5	35	3.9	13
All other	38.7	2	372.3	1	43.2	1	22.1	5	118.2	1
Adjustment ratio[3]	1.2	(X)	1.1	(X)	1.4	(X)	1.8	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	1 060.4	(X)	7 087.0	(X)	1 273.8	(X)	646.1	(X)	1 978.3	(X)
Materials purchased or transferred from foreign sources[4]	17.2	32	225.0	1	.8	5	12.8	6	36.8	19
Materials purchased or transferred from domestic sources	1 043.2	1	6 861.9	1	1 273.0	1	633.3	1	1 941.5	1
Adjustment ratio[3]	1.1	(X)	1.2	(X)	1.6	(X)	1.6	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING												
Total	**–**	**204**	**17.3**	**533.9**	**12.9**	**27.8**	**348.1**	**1 427.4**	**2 068.8**	**3 508.0**	**129.4**	**462.6**
Establishments with an average of—												
1 to 4 employees	E9	30	.1	1.3	(Z)	.1	.8	3.0	4.9	7.9	.3	1.1
5 to 9 employees	E4	20	.1	3.3	.1	.2	1.7	7.7	11.1	18.7	.5	3.0
10 to 19 employees	E5	18	.3	6.7	.2	.3	4.1	17.2	27.3	44.9	1.2	5.9
20 to 49 employees	–	38	1.3	37.9	1.0	2.2	24.2	97.4	165.1	267.4	5.6	27.6
50 to 99 employees	–	37	2.6	80.2	1.9	4.1	48.4	222.5	338.3	551.9	29.3	78.1
100 to 249 employees	–	45	7.0	217.6	5.1	11.1	137.2	625.0	874.7	1 510.6	54.6	177.2
250 to 499 employees	–	14	5.9	186.9	4.6	9.9	131.7	454.5	647.4	1 106.5	37.9	169.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	35	.1	2.1	.1	.1	1.3	4.6	7.5	12.1	.4	1.7
INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.												
Total	**–**	**453**	**32.4**	**1 041.6**	**22.1**	**47.9**	**623.1**	**3 551.2**	**4 144.1**	**7 688.3**	**270.1**	**774.4**
Establishments with an average of—												
1 to 4 employees	E7	65	.1	3.1	.1	.2	1.8	11.2	14.3	25.2	.8	3.0
5 to 9 employees	E5	65	.4	11.0	.3	.6	6.7	34.7	41.7	76.9	2.4	8.3
10 to 19 employees	E4	81	1.2	32.2	.8	1.7	18.4	95.7	122.8	218.8	7.4	25.7
20 to 49 employees	E2	93	3.0	86.7	2.0	4.3	48.4	246.3	299.3	545.0	13.8	61.3
50 to 99 employees	E1	57	3.9	111.2	2.7	5.7	65.5	320.9	407.3	720.6	17.0	80.2
100 to 249 employees	–	62	9.2	306.2	6.1	13.2	177.4	853.1	1 261.3	2 104.0	85.7	239.2
250 to 499 employees	–	19	6.3	190.5	4.0	7.9	102.2	464.7	583.5	1 050.6	142.9	125.5
500 to 999 employees	–	10	8.2	300.7	6.1	14.3	202.6	1 524.5	1 413.9	2 947.2	(D)	231.3
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	82	.3	5.4	.2	.4	3.3	15.6	16.7	32.4	1.4	3.5
INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED												
Total	**–**	**521**	**38.7**	**988.7**	**30.5**	**64.7**	**673.7**	**2 853.7**	**2 871.4**	**5 708.2**	**185.6**	**627.3**
Establishments with an average of—												
1 to 4 employees	E8	76	.2	3.9	.1	.2	2.8	12.8	12.9	25.7	.8	2.9
5 to 9 employees	E6	55	.4	7.7	.3	.6	5.4	22.9	22.4	45.3	1.3	4.8
10 to 19 employees	E2	84	1.2	26.8	.9	1.9	16.7	69.6	78.3	147.5	3.7	15.3
20 to 49 employees	E1	101	3.4	80.0	2.6	5.5	48.8	217.0	216.9	433.5	10.4	43.9
50 to 99 employees	–	89	6.1	149.6	4.7	9.8	91.1	380.8	401.1	784.8	21.4	75.4
100 to 249 employees	E1	82	12.3	306.4	9.6	20.8	203.2	907.1	882.1	1 780.0	66.3	216.4
250 to 499 employees	–	24	7.9	205.0	6.4	13.4	153.5	527.9	585.5	1 107.4	33.6	130.9
500 to 999 employees	–	9	7.2	209.3	5.9	12.4	152.2	715.6	672.1	1 384.1	48.1	137.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	117	.5	9.6	.4	.8	6.9	25.6	25.1	50.7	1.9	6.1
INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL												
Total	**–**	**143**	**18.6**	**438.3**	**15.5**	**32.0**	**325.1**	**1 024.3**	**1 824.0**	**2 846.0**	**55.1**	**395.2**
Establishments with an average of—												
1 to 4 employees	E2	5	(Z)	.3	(Z)	(Z)	.2	.7	1.5	2.2	1.3	.3
5 to 9 employees	–	5	(Z)	.6	(Z)	(Z)	.4	.9	2.1	2.9	(D)	.4
10 to 19 employees	–	10	.1	3.2	.1	.2	1.9	5.8	15.6	20.9	(D)	3.2
20 to 49 employees	–	34	1.2	25.3	.9	1.8	17.2	77.1	162.5	239.3	2.2	28.0
50 to 99 employees	–	23	1.7	41.8	1.3	2.8	28.1	139.8	209.4	349.5	3.2	44.5
100 to 249 employees	–	43	7.2	161.8	5.9	12.4	119.8	365.2	713.7	1 075.6	14.7	151.9
250 to 499 employees	–	19	6.2	147.7	5.4	11.1	119.2	309.5	586.9	896.5	16.8	132.1
500 to 999 employees	–	4	2.2	57.6	1.9	3.6	38.2	125.2	132.3	259.1	16.9	34.8
Covered by administrative records[2]	E1	8	(Z)	.9	(Z)	.1	.7	1.4	3.1	4.5	.1	.6
INDUSTRY 2675, DIE-CUT PAPER AND BOARD												
Total	**–**	**381**	**15.6**	**375.2**	**12.4**	**25.0**	**248.1**	**845.4**	**1 168.1**	**2 011.1**	**52.6**	**243.4**
Establishments with an average of—												
1 to 4 employees	E9	86	.2	3.4	.1	.3	2.2	7.1	7.5	14.6	.2	1.8
5 to 9 employees	E6	71	.5	9.7	.4	.7	6.5	19.0	20.7	39.9	.5	4.7
10 to 19 employees	E1	61	.9	21.7	.6	1.2	11.8	44.3	43.2	87.3	3.3	8.3
20 to 49 employees	E1	80	2.5	57.2	1.9	3.7	34.7	115.5	114.0	228.4	12.0	27.6
50 to 99 employees	E1	46	3.2	83.9	2.5	5.1	47.4	179.4	276.5	457.1	6.4	51.2
100 to 249 employees	–	25	3.7	89.0	2.9	5.9	61.1	227.4	403.2	629.1	13.9	62.3
250 to 499 employees	–	11	4.7	110.3	4.0	8.1	84.5	252.7	303.1	554.7	16.4	87.5
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	133	.6	10.0	.5	.9	6.5	20.6	21.3	41.9	.6	5.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2676, SANITARY PAPER PRODUCTS												
Total	**–**	**150**	**40.5**	**1 451.1**	**32.7**	**68.1**	**1 095.2**	**8 220.4**	**7 369.9**	**15 622.7**	**418.5**	**944.7**
Establishments with an average of—												
1 to 4 employees	E6	8	(Z)	.5	(Z)	(Z)	.3	2.4	2.0	4.5	.1	.3
5 to 9 employees	E8	13	.1	2.1	.1	.1	1.4	11.0	10.5	21.5	6.0	1.3
10 to 19 employees	E1	4	.1	2.2	(Z)	.1	1.0	7.0	7.4	14.3	(D)	1.1
20 to 49 employees	E3	22	.7	18.5	.5	1.1	12.1	75.4	95.8	168.0	6.0	19.2
50 to 99 employees	E1	23	1.7	38.5	1.3	2.6	25.0	159.3	189.2	350.5	8.1	37.5
100 to 249 employees	–	29	4.6	123.3	3.6	7.3	87.6	533.2	625.6	1 160.3	56.2	88.5
250 to 499 employees	–	22	8.0	255.8	6.7	14.1	201.1	1 423.8	1 402.9	2 837.8	60.4	185.7
500 to 999 employees	–	22	15.2	598.7	12.3	26.2	452.3	3 223.9	3 035.3	6 269.2	157.0	388.0
1,000 to 2,499 employees	–	7	10.2	411.6	8.2	16.6	314.3	2 784.2	2 001.1	4 796.7	124.7	223.0
Covered by administrative records[2]	E9	5	(Z)	.3	(Z)	(Z)	.2	1.3	1.2	2.5	.1	.2
INDUSTRY 2677, ENVELOPES												
Total	**E1**	**283**	**24.9**	**672.3**	**19.0**	**39.0**	**445.1**	**1 361.7**	**1 488.4**	**2 854.1**	**55.3**	**294.8**
Establishments with an average of—												
1 to 4 employees	E9	22	(Z)	1.1	(Z)	.1	.7	2.2	2.9	5.0	.1	.6
5 to 9 employees	E7	22	.2	3.6	.1	.3	2.5	5.0	9.2	14.1	.3	1.9
10 to 19 employees	E4	32	.4	9.3	.3	.6	5.8	17.6	19.6	37.1	1.0	4.4
20 to 49 employees	E1	49	1.6	43.7	1.1	2.4	27.3	86.5	95.3	183.7	4.4	15.7
50 to 99 employees	E2	63	4.6	123.0	3.5	7.3	80.9	257.6	263.4	522.6	12.4	55.5
100 to 249 employees	E1	77	12.1	338.0	9.3	19.4	226.1	709.4	800.1	1 510.2	29.0	156.1
250 to 499 employees	–	15	4.4	117.1	3.5	6.7	80.7	222.6	221.1	445.7	8.1	45.0
500 to 999 employees	–	3	1.6	36.7	1.2	2.2	21.0	60.8	76.9	135.6	(D)	15.6
Covered by administrative records[2]	E9	50	.4	6.5	.3	.5	4.3	10.5	14.0	24.5	.5	2.8
INDUSTRY 2678, STATIONERY PRODUCTS												
Total	**E1**	**177**	**9.5**	**220.9**	**7.0**	**13.6**	**138.1**	**694.7**	**730.7**	**1 423.7**	**28.0**	**281.5**
Establishments with an average of—												
1 to 4 employees	E8	44	.1	1.9	.1	.1	1.2	5.4	5.8	11.1	.5	2.2
5 to 9 employees	E6	17	.1	3.0	.1	.2	1.9	6.9	7.1	13.9	.4	2.9
10 to 19 employees	E4	37	.5	10.2	.3	.6	5.4	20.0	18.9	39.0	1.2	6.9
20 to 49 employees	E1	35	1.1	24.5	.8	1.6	14.1	68.3	104.1	174.1	3.8	24.9
50 to 99 employees	E3	19	1.5	37.3	1.0	2.1	20.9	120.9	123.3	243.9	5.6	40.7
100 to 249 employees	E1	18	3.2	72.5	2.4	4.7	46.3	278.8	217.7	496.3	8.9	98.0
250 to 499 employees	E1	5	3.0	71.5	2.3	4.5	48.4	194.4	253.8	445.4	7.6	105.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	49	.2	3.0	.1	.2	1.9	7.9	8.3	16.2	.6	3.4
INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.												
Total	**E1**	**790**	**31.6**	**802.9**	**23.6**	**48.7**	**514.7**	**2 167.7**	**2 294.1**	**4 437.2**	**148.5**	**711.1**
Establishments with an average of—												
1 to 4 employees	E8	226	.4	8.2	.3	.6	5.5	23.6	25.8	49.4	2.4	6.8
5 to 9 employees	E5	116	.8	16.1	.6	1.2	11.2	40.0	50.8	90.8	3.3	11.1
10 to 19 employees	E2	137	1.9	41.1	1.3	2.6	24.9	100.1	122.8	221.7	7.0	28.0
20 to 49 employees	E2	155	5.0	120.5	3.5	7.3	69.4	312.9	416.6	728.1	18.3	85.1
50 to 99 employees	E1	89	6.1	146.4	4.5	9.5	89.4	415.7	508.7	912.4	35.8	119.8
100 to 249 employees	E1	46	6.8	178.1	5.1	10.4	114.0	475.8	550.6	1 026.8	33.1	159.7
250 to 499 employees	–	15	5.4	139.3	4.5	9.0	105.7	348.1	287.5	625.4	25.5	108.8
500 to 999 employees	–	5	5.3	153.2	3.9	8.2	94.5	451.5	331.3	782.6	23.1	191.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	219	.6	11.5	.5	.9	7.7	33.0	35.4	68.4	3.2	10.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2671	**Paper coated and laminated, packaging:**										
	All establishments in industry	204	17.3	533.9	12.9	27.8	348.1	1 427.4	2 068.8	3 508.0	129.4
	Establishments with this product class primary:										
26711	Single-web paper, coated rolls and sheets, including waxed, for packaging uses	40	4.1	132.3	3.0	6.6	82.7	354.0	601.7	954.1	42.0
26712	Single-web film, coated rolls and sheets, including coextruded, for packaging uses	31	4.4	139.9	3.3	6.8	89.0	387.7	444.6	835.6	25.2
26713	Paper/ paper multiweb laminated rolls and sheets for packaging uses	7	.6	21.0	.4	.9	12.2	66.4	94.8	160.8	4.5
26714	Multiweb laminated rolls and sheets, except paper/ paper and foil, for packaging uses	56	7.3	217.6	5.5	12.1	149.1	560.6	824.8	1 396.2	53.4
2672	**Paper coated and laminated, n.e.c.:**										
	All establishments in industry	453	32.4	1 041.6	22.1	47.9	623.1	3 551.2	4 144.1	7 688.3	270.1
	Establishments with this product class primary:										
26721	Printing paper coated at establishments other than where paper was produced	18	.9	26.6	.6	1.3	17.2	101.0	112.4	213.7	3.7
26722	Gummed products	12	1.7	46.0	.9	2.0	24.7	91.9	164.1	255.9	4.0
26723	Pressure-sensitive products	149	20.2	671.9	13.8	30.3	400.6	2 408.1	2 629.2	5 027.3	194.5
26724	Other coated and processed papers, except for packaging uses	55	5.2	179.7	3.7	7.9	110.9	604.3	889.8	1 498.4	40.3
2673	**Bags: plastics, laminated, and coated:**										
	All establishments in industry	521	38.7	988.7	30.5	64.7	673.7	2 853.7	2 871.4	5 708.2	185.6
	Establishments with this product class primary:										
26731	Specialty bags and liners, single-web paper, coated	29	2.1	45.6	1.7	3.5	31.8	132.1	124.3	251.8	2.3
26732	Specialty bags and liners, single-web film	256	28.6	744.7	22.7	48.5	511.7	2 282.6	2 114.1	4 385.9	149.1
26733	Specialty bags and liners, multiweb laminations and foil	23	3.5	96.1	2.5	5.2	59.9	167.5	263.8	431.6	15.4
2674	**Bags: uncoated paper and multiwall:**										
	All establishments in industry	143	18.6	438.3	15.5	32.0	325.1	1 024.3	1 824.0	2 846.0	55.1
	Establishments with this product class primary:										
26741	Grocers' bags and sacks and variety and shopping bags, uncoated paper	59	6.7	167.7	5.5	11.3	124.1	375.1	871.7	1 245.6	14.3
26742	Shipping sacks and multiwall bags, all materials except textiles	66	11.5	264.0	9.7	20.0	196.0	638.9	930.5	1 568.6	40.2
2675	**Die-cut paper and board:**										
	All establishments in industry	381	15.6	375.2	12.4	25.0	248.1	845.4	1 168.1	2 011.1	52.6
	Establishments with this product class primary:										
26751	Die-cut paper and paperboard office supplies	75	8.1	187.8	6.6	13.2	133.5	420.5	486.4	907.1	22.1
26752	Die-cut paper and paperboard products, except office supplies	37	1.2	26.8	.9	1.9	15.0	56.1	61.4	117.4	2.8
26753	Pasted, lined, laminated, or surface-coated paperboard	37	2.5	80.5	1.9	4.1	49.1	229.0	508.1	734.8	22.0
2676	**Sanitary paper products:**										
	All establishments in industry	150	40.5	1 451.1	32.7	68.1	1 095.2	8 220.4	7 369.9	15 622.7	418.5
	Establishments with this product class primary:										
26761	Sanitary napkins and tampons	14	5.0	166.2	3.6	7.2	95.3	1 059.2	397.5	1 450.8	48.9
26763	Disposable diapers, except adult, including disposable training pants	24	10.9	421.5	9.3	20.3	343.2	2 803.8	2 481.9	5 298.5	171.0
26764	Sanitary tissue paper products	79	23.8	838.6	19.1	39.2	639.2	4 236.5	4 374.2	8 636.6	191.3
2677	**Envelopes:**										
	All establishments in industry	283	24.9	672.3	19.0	39.0	445.1	1 361.7	1 488.4	2 854.1	55.3
2678	**Stationery products:**										
	All establishments in industry	177	9.5	220.9	7.0	13.6	138.1	694.7	730.7	1 423.7	28.0
	Establishments with this product class primary:										
26781	Stationery	25	1.9	41.7	1.3	2.7	22.2	112.6	88.9	202.6	3.4
26782	Tablets, pads, and related products	63	6.2	152.7	4.7	9.0	98.7	513.3	571.9	1 082.5	17.8
2679	**Converted paper products, n.e.c.:**										
	All establishments in industry	790	31.6	802.9	23.6	48.7	514.7	2 167.7	2 294.1	4 437.2	148.5
	Establishments with this product class primary:										
26791	Wallcoverings	44	4.0	128.7	2.9	6.5	91.0	314.8	290.3	601.9	12.9
26792	Gift wrap paper	15	4.8	120.5	3.4	6.6	65.5	342.7	284.3	625.8	18.6
26793	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, n.e.c.	29	2.1	46.5	1.6	3.2	30.1	191.2	278.3	465.2	11.3
26794	Molded pulp goods	20	3.0	87.0	2.5	5.9	71.7	246.4	109.4	353.4	(D)
26795	Other converted paper and paperboard products	245	12.1	289.1	8.9	17.6	169.7	704.8	973.8	1 667.6	38.9

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING			
Total value of shipments	3 508.0	2 416.0	(NA)
Primary products value of shipments	3 006.8	2 029.1	(NA)
Secondary products value of shipments	456.4	355.8	(NA)
Total miscellaneous receipts	44.8	31.1	(NA)
Value of resales	35.2	21.2	(NA)
Contract receipts	2.4	4.4	(NA)
Other miscellaneous receipts	7.2	5.5	(NA)
Sales of scrap and refuse	2.4	2.2	(NA)
Receipts for research and development	–	(NA)	(NA)
Other miscellaneous receipts	5.0	3.3	(NA)
Other miscellaneous receipts, n.s.k.	(Z)	(NA)	(NA)
Primary products specialization ratio	87	85	(NA)
Value of primary products shipments made in all industries	3 530.0	2 460.1	(NA)
Value of primary products shipments made in this industry	3 006.8	2 029.1	(NA)
Value of primary products shipments made in other industries	523.3	431.0	(NA)
Coverage ratio	85	82	(NA)
INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.			
Total value of shipments	7 688.3	5 891.7	(NA)
Primary products value of shipments	6 566.0	4 762.3	(NA)
Secondary products value of shipments	912.4	741.0	(NA)
Total miscellaneous receipts	209.9	388.4	(NA)
Value of resales	177.8	354.7	(NA)
Contract receipts	23.7	27.0	(NA)
Other miscellaneous receipts	8.4	6.7	(NA)
Sales of scrap and refuse	1.5	(D)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	88	87	(NA)
Value of primary products shipments made in all industries	7 420.3	5 497.7	(NA)
Value of primary products shipments made in this industry	6 566.0	4 762.3	(NA)
Value of primary products shipments made in other industries	854.3	735.4	(NA)
Coverage ratio	88	87	(NA)
INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED			
Total value of shipments	5 708.2	4 576.9	(NA)
Primary products value of shipments	4 777.1	3 573.2	(NA)
Secondary products value of shipments	769.9	835.5	(NA)
Total miscellaneous receipts	161.2	168.1	(NA)
Value of resales	135.2	155.0	(NA)
Contract receipts	15.5	2.8	(NA)
Other miscellaneous receipts	10.6	10.3	(NA)
Sales of scrap and refuse	5.0	7.5	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	4.1	2.8	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	86	81	(NA)
Value of primary products shipments made in all industries	5 385.0	3 936.5	(NA)
Value of primary products shipments made in this industry	4 777.1	3 573.2	(NA)
Value of primary products shipments made in other industries	607.9	363.3	(NA)
Coverage ratio	89	91	(NA)
INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL			
Total value of shipments	2 846.0	2 448.0	(NA)
Primary products value of shipments	2 501.3	2 231.1	(NA)
Secondary products value of shipments	240.5	153.6	(NA)
Total miscellaneous receipts	104.2	63.4	(NA)
Value of resales	93.8	46.5	(NA)
Contract receipts	(D)	.5	(NA)
Other miscellaneous receipts	(D)	16.4	(NA)
Sales of scrap and refuse	7.1	14.1	(NA)
Receipts for research and development	–	(NA)	(NA)
Other miscellaneous receipts	(D)	2.3	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	91	94	(NA)
Value of primary products shipments made in all industries	2 614.7	2 360.6	(NA)
Value of primary products shipments made in this industry	2 501.3	2 231.1	(NA)
Value of primary products shipments made in other industries	113.4	129.5	(NA)
Coverage ratio	96	95	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2675, DIE-CUT PAPER AND BOARD			
Total value of shipments	2 011.1	1 749.3	1 680.1
Primary products value of shipments	1 693.1	1 496.2	1 457.5
Secondary products value of shipments	99.0	167.6	146.8
Total miscellaneous receipts	219.0	85.5	75.8
Value of resales	118.2	58.9	49.3
Contract receipts	97.2	18.7	22.9
Other miscellaneous receipts	3.6	7.9	3.6
Sales of scrap and refuse	1.7	6.8	1.4
Receipts for research and development	–	(NA)	(D)
Other miscellaneous receipts	1.5	1.1	(D)
Other miscellaneous receipts, n.s.k.	.3	(NA)	(D)
Primary products specialization ratio	94	90	91
Value of primary products shipments made in all industries	1 942.2	1 701.1	1 605.1
Value of primary products shipments made in this industry	1 693.1	1 496.2	1 457.5
Value of primary products shipments made in other industries	249.1	204.9	147.6
Coverage ratio	87	88	91
INDUSTRY 2676, SANITARY PAPER PRODUCTS			
Total value of shipments	15 622.7	11 698.4	9 086.0
Primary products value of shipments	14 681.5	11 092.1	8 223.9
Secondary products value of shipments	668.7	456.9	493.7
Total miscellaneous receipts	272.5	149.4	368.4
Value of resales	260.2	131.6	359.2
Contract receipts	(D)	6.8	(D)
Other miscellaneous receipts	(D)	11.1	(D)
Sales of scrap and refuse	5.9	8.2	8.2
Receipts for research and development	–	(NA)	–
Other miscellaneous receipts	(D)	2.9	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	96	96	94
Value of primary products shipments made in all industries	14 939.7	11 171.7	8 373.5
Value of primary products shipments made in this industry	14 681.5	11 092.1	8 223.9
Value of primary products shipments made in other industries	258.2	79.7	149.6
Coverage ratio	98	99	98
INDUSTRY 2677, ENVELOPES			
Total value of shipments	2 854.1	2 598.1	1 771.3
Primary products value of shipments	2 555.4	2 398.6	1 643.3
Secondary products value of shipments	96.1	48.1	37.7
Total miscellaneous receipts	202.6	151.5	90.3
Value of resales	141.4	104.1	54.5
Contract receipts	13.4	8.7	7.5
Other miscellaneous receipts	47.7	38.6	28.3
Sales of scrap and refuse	40.7	35.3	23.9
Receipts for research and development	–	(NA)	(D)
Other miscellaneous receipts	5.4	3.3	3.4
Other miscellaneous receipts, n.s.k.	1.6	(NA)	(D)
Primary products specialization ratio	96	98	98
Value of primary products shipments made in all industries	2 657.4	2 499.5	1 751.6
Value of primary products shipments made in this industry	2 555.4	2 398.6	1 643.3
Value of primary products shipments made in other industries	102.0	100.9	108.2
Coverage ratio	96	96	94
INDUSTRY 2678, STATIONERY PRODUCTS			
Total value of shipments	1 423.7	1 216.4	1 034.0
Primary products value of shipments	1 050.7	829.0	701.3
Secondary products value of shipments	271.6	295.4	185.7
Total miscellaneous receipts	101.3	92.1	146.9
Value of resales	90.1	86.2	142.8
Contract receipts	5.1	3.1	1.1
Other miscellaneous receipts	6.1	2.8	3.0
Sales of scrap and refuse	4.2	2.4	2.3
Receipts for research and development	(D)	(NA)	–
Other miscellaneous receipts	(D)	.4	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	79	74	79
Value of primary products shipments made in all industries	1 277.9	1 115.2	959.2
Value of primary products shipments made in this industry	1 050.7	829.0	701.3
Value of primary products shipments made in other industries	227.1	286.3	257.9
Coverage ratio	82	74	73

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.			
Total value of shipments	4 437.2	3 570.1	2 637.7
Primary products value of shipments	3 656.2	3 001.9	2 195.8
Secondary products value of shipments	442.7	285.5	312.5
Total miscellaneous receipts	338.4	282.6	129.4
Value of resales	241.6	235.8	110.7
Contract receipts	83.6	29.4	12.7
Other miscellaneous receipts	13.2	17.5	6.0
Sales of scrap and refuse	9.5	3.9	(D)
Receipts for research and development	(D)	(NA)	–
Other miscellaneous receipts	1.7	13.6	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	1.1
Primary products specialization ratio	89	91	88
Value of primary products shipments made in all industries	4 152.9	3 385.5	2 678.4
Value of primary products shipments made in this industry	3 656.2	3 001.9	2 195.8
Value of primary products shipments made in other industries	496.7	383.6	482.6
Coverage ratio	88	89	82

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2671– —	**PAPER COATING AND LAMINATING, PACKAGING**						
	Total	**(NA)**	**(X)**	**3 530.0**	**(NA)**	**(X)**	**[3]2 460.1**
26711	Single-web paper, coated rolls and sheets, including waxed, for packaging uses	(NA)	(X)	822.7	(NA)	(X)	474.4
26711 11	Plastics-coated, 1,000 s tons	23	177.4	336.0	26	*91.2	168.5
26711 15	Other, 1,000 s tons	45	*190.6	463.2	34	156.1	285.1
26711 00	Single-web paper, coated rolls and sheets, including waxed, for packaging uses, n.s.k.	(NA)	(X)	23.5	(NA)	(X)	20.7
26712	Single-web film, coated rolls and sheets, including coextruded, for packaging uses	(NA)	(X)	993.4	(NA)	(X)	879.1
26712 11	Single-web film, coated, 1,000 s tons	52	(S)	506.7	54	*197.4	483.4
26712 12	Coextruded film, 1,000 s tons	29	(S)	453.3	20	110.7	343.1
26712 00	Single-web film, coated rolls and sheets, including coextruded, for packaging uses, n.s.k.	(NA)	(X)	33.3	(NA)	(X)	52.5
26713	Paper/ paper multiweb laminated rolls and sheets for packaging uses	(NA)	(X)	189.3	(NA)	(X)	249.1
	Polyethylene laminations:						
26713 13	Coated, 1,000 s tons	8	(S)	66.3	12	(S)	105.8
26713 14	Uncoated, 1,000 s tons	5	94.8	90.8	6	44.8	46.4
26713 20	Other laminations, 1,000 s tons	6			(NA)	*69.9	62.4
26713 00	Paper/ paper multiweb laminated rolls and sheets for packaging uses, n.s.k.	(NA)	(X)	32.1	(NA)	(X)	34.6
26714	Multiweb laminated rolls and sheets, except paper/ paper and foil, for packaging uses	(NA)	(X)	1 349.9	(NA)	(X)	857.6
26714 11	Film/ paper multiweb laminations, 1,000 s tons	18	(S)	141.0	15	31.0	95.3
	Film/ film multiweb laminations:						
26714 12	Polypropylene/ polypropylene, 1,000 s tons	30	*98.7	466.0	20	42.4	205.9
26714 15	Metalized film/ film laminates, 1,000 s tons	28	30.3	151.0	19	14.6	72.3
26714 17	Cellophane/ other film, 1,000 s tons	20	*9.9	45.0	(NA)	(NA)	24.5
26714 21	Other film/ film laminates, 1,000 s tons	33	77.3	394.8	27	99.9	364.1
26714 00	Multiweb laminated rolls and sheets, except paper/ paper and foil, for packaging uses, n.s.k.	(NA)	(X)	152.1	(NA)	(X)	95.4

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2671– —	**PAPER COATING AND LAMINATING, PACKAGING**—Con.						
26710	Paper coating and laminating, packaging, n.s.k.	(NA)	(X)	174.7	(NA)	(X)	(3)
26710 00	Paper coating and laminating, packaging, n.s.k.[4]	(NA)	(X)	162.6	(NA)	(X)	(3)
26710 02	Paper coating and laminating, packaging, n.s.k.[5]	(NA)	(X)	12.1	(NA)	(X)	(3)
2672– —	**PAPER COATING AND LAMINATING, N.E.C.**						
	Total	**(NA)**	**(X)**	**7 420.3**	**(NA)**	**(X)**	**[3]5 497.7**
26721	Printing paper coated at establishments other than where paper was produced	(NA)	(X)	238.6	(NA)	(X)	464.5
26721 13	Coated, one side (for labels and similar uses) 1,000 s tons	23	(S)	99.6	38	(S)	301.7
26721 53	Coated, two sides (for printing of magazines, directories, catalogs, and similar uses) 1,000 s tons	15	(S)	133.3	19	(S)	156.8
26721 00	Printing paper coated at establishments other than where paper was produced, n.s.k.	(NA)	(X)	5.8	(NA)	(X)	5.9
26722	Gummed products	(NA)	(X)	236.7	(NA)	(X)	218.4
26722 12	Gummed sealing tape, paper base and reinforced base, used for sealing and securing	10	(X)	156.4	(NA)	(X)	(NA)
26722 30	Other gummed products, including flat gummed papers, unprinted stock labels, corrugators' kraft tapes, etc.	10	(X)	61.8	(NA)	(X)	(NA)
26722 00	Gummed products, n.s.k.	(NA)	(X)	18.5	(NA)	(X)	(NA)
26723	Pressure-sensitive products	(NA)	(X)	4 756.0	(NA)	(X)	3 100.0
	Pressure-sensitive tape, excluding surgical tapes and rubber-backed tapes:						
	Single-faced tape:						
26723 13	Paper backing, excluding electrical	24	(X)	544.2	(NA)	(X)	(NA)
26723 33	Cloth backing, excluding electrical	12	(X)	127.7	(NA)	(X)	(NA)
26723 43	Film backing, excluding electrical	28	(X)	1 192.1	(NA)	(X)	(NA)
26723 45	Electrical, all backings	12	(X)	202.8	(NA)	(X)	(NA)
26723 53	Reinforced and laminated tape, all backings	12	(X)	120.0	(NA)	(X)	(NA)
26723 59	Other single-faced tape, exluding surgical and rubber-backed tape	12	(X)	107.5	(NA)	(X)	(NA)
26723 61	Double-faced tape	12	(X)	228.4	(NA)	(X)	(NA)
26723 75	Pressure-sensitive labels, unprinted	29	(X)	253.3	(NA)	(X)	(NA)
	Pressure-sensitive base stock:						
26723 81	For labels	42	(X)	1 219.7	(NA)	(X)	(NA)
26723 85	For other than labels	10	(X)	98.0	(NA)	(X)	(NA)
26723 98	Other pressure-sensitive products, n.e.c., unprinted	23	(X)	322.7	(NA)	(X)	(NA)
26723 00	Pressure-sensitive products, n.s.k.	(NA)	(X)	339.8	(NA)	(X)	(NA)
26724	Other coated and processed papers, except for packaging uses	(NA)	(X)	1 516.0	(NA)	(X)	1 200.0
26724 45	Processed paper (embossed, leatherette, etc.) 1,000 s tons	8	(S)	52.3	7	53.2	64.2
26724 53	Waxed and wax-laminated paper for nonpackaging uses, including household 1,000 s tons	12	71.7	122.8	11	(S)	104.0
26724 56	Plastics-coated paper 1,000 s tons	14	(S)	70.5	7	(D)	(6)
26724 55	Carbonless paper 1,000 s tons	6			4	(D)	(6)
26724 69	Other coated and processed paper, including oiled, soap impregnated, treated, etc., but excluding sensitized paper 1,000 s tons	54	(S)	1 152.7	(NA)	(NA)	[6]963.9
26724 00	Other coated and processed papers, except for packaging uses, n.s.k.	(NA)	(X)	117.7	(NA)	(X)	68.0
26720	Paper coating and laminating, n.e.c., n.s.k.	(NA)	(X)	672.9	(NA)	(X)	[3]514.7
26720 00	Paper coating and laminating, n.e.c., n.s.k.[4]	(NA)	(X)	641.2	(NA)	(X)	[3]339.5
26720 02	Paper coating and laminating, n.e.c., n.s.k.[5]	(NA)	(X)	31.7	(NA)	(X)	[3]175.2
2673– —	**BAGS: PLASTICS, LAMINATED, AND COATED**						
	Total	**(NA)**	**(X)**	**5 385.0**	**(NA)**	**(X)**	**[7]3 936.5**
26731	Specialty bags and liners, single-web paper, coated	(NA)	(X)	258.9	(NA)	(X)	262.4
26731 00	Specialty bags and liners, single-web paper, coated 1,000 s tons	42	(S)	258.9	34	(S)	262.4
26732	Specialty bags and liners, single-web film	(NA)	(X)	4 166.6	(NA)	(X)	2 856.9
	Polyethylene:						
26732 11	Grocery and variety 1,000 s tons	55	(S)	724.0	52	*265.5	485.8
26732 12	Refuse 1,000 s tons	46	*682.9	1 146.8	57	567.5	878.3
26732 13	Produce 1,000 s tons	34	(S)	124.9	31	*63.2	109.9
26732 14	Textile and clothing 1,000 s tons	42	*129.1	216.1	40	*77.5	116.2
26732 15	Drum and box liners 1,000 s tons	35	*108.2	129.6	36	*71.8	118.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2673– —	**BAGS: PLASTICS, LAMINATED, AND COATED**—Con.						
26732	Specialty bags and liners, single-web film—Con.						
	Polyethylene—Con.						
26732 16	Shipping sacks ---- 1,000 s tons	14	(S)	70.1	19	*20.7	29.6
26732 17	Household food storage (sandwich and freezer) ---- 1,000 s tons	16	136.8	384.0	22	(S)	350.6
26732 18	Other ---- 1,000 s tons	82	**276.8	475.2	67	(S)	268.0
26732 21	Coextruded film ---- 1,000 s tons	21	**184.5	364.3	16	(S)	148.9
26732 23	Other film ---- 1,000 s tons	29	(S)	145.7	14	(S)	106.1
26732 00	Specialty bags and liners, single-web film, n.s.k. ----	(NA)	(X)	386.0	(NA)	(X)	245.5
26733	Specialty bags and liners, multiweb laminations and foil ----	(NA)	(X)	486.2	(NA)	(X)	387.7
26733 11	Paper combinations, except paper/ foil ---- 1,000 s tons	12	*35.2	67.4	8	(S)	59.0
26733 12	Foil and foil combinations ---- 1,000 s tons	16	*18.2	53.4	13	(S)	39.4
26733 14	Other multiweb laminations ---- 1,000 s tons	28	**58.6	351.1	10	(S)	276.7
26733 00	Specialty bags and liners, multiweb laminations and foil, n.s.k. ----	(NA)	(X)	14.2	(NA)	(X)	12.5
26730	Bags: plastics, laminated, and coated, n.s.k. ----	(NA)	(X)	473.3	(NA)	(X)	[7]429.6
26730 00	Bags: plastics, laminated, and coated, n.s.k.[4] ----	(NA)	(X)	422.6	(NA)	(X)	[7]261.7
26730 02	Bags: plastics, laminated, and coated, n.s.k.[5] ----	(NA)	(X)	50.7	(NA)	(X)	[7]167.9
2674– —	**BAGS: UNCOATED PAPER AND MULTIWALL**						
	Total ----	**(NA)**	**(X)**	**2 614.7**	**(NA)**	**(X)**	[7]**2 360.6**
26741	Grocers' bags and sacks and variety and shopping bags, uncoated paper ----	(NA)	(X)	1 126.5	(NA)	(X)	1 141.8
26741 11	Grocers' bags and sacks, uncoated paper ---- 1,000 s tons	18	*1 143.2	765.2	19	1 403.6	916.4
26741 12	Variety bags (merchandise), uncoated paper ---- 1,000 s tons	18	*71.2	89.6	13	123.1	106.7
26741 13	Shopping bags, uncoated paper ---- 1,000 s tons	8	(S)	110.1	5	35.1	60.8
26741 15	Other uncoated paper bags, n.e.c., including uncoated specialty bags, mothproof bags, etc. ---- 1,000 s tons	24	(S)	139.8	9	(S)	24.7
26741 00	Grocers' bags and sacks and variety and shopping bags, uncoated paper, n.s.k. ----	(NA)	(X)	21.8	(NA)	(X)	33.3
26742	Shipping sacks and multiwall bags, all materials except textiles ----	(NA)	(X)	1 452.9	(NA)	(X)	1 196.6
26742 11	Single and double wall ---- 1,000 s tons	28	**197.1	242.9	32	*347.2	374.9
26742 12	Multiwall (three plies or more) ---- 1,000 s tons	27	1 039.5	1 175.9	25	**787.5	792.9
26742 00	Shipping sacks and multiwall bags, all materials except textiles, n.s.k. ----	(NA)	(X)	34.1	(NA)	(X)	28.8
26740	Bags: uncoated paper and multiwall, n.s.k. ----	(NA)	(X)	35.3	(NA)	(X)	[7]22.1
26740 00	Bags: uncoated paper and multiwall, n.s.k.[8] ----	(NA)	(X)	30.9	(NA)	(X)	([7])
26740 02	Bags: uncoated paper and multiwall, n.s.k.[9] ----	(NA)	(X)	4.4	(NA)	(X)	22.1
2675– —	**DIE-CUT PAPER AND PAPERBOARD**						
	Total ----	**(NA)**	**(X)**	**1 942.2**	**(NA)**	**(X)**	**1 701.1**
26751	Die-cut paper and paperboard office supplies ----	(NA)	(X)	912.0	(NA)	(X)	892.7
	File folders, all types and materials:						
26751 10	Hanging folders ---- mil units	22	*1 019.7	170.9	(NA)	(NA)	(NA)
26751 11	Expanding file folders, including wallets ---- mil units	18	*102.2	95.0	(NA)	(NA)	(NA)
26751 12	Other file folders, including file jackets and file pockets ---- mil units	47	*3 594.5	347.6	(NA)	(NA)	(NA)
26751 20	Tabulating cards, single-cut ---- mil units	11	(S)	33.0	(NA)	(NA)	(NA)
26751 30	Other paper and paperboard office supplies, including index cards, guide cards, presentation and report covers, etc. ---- mil units	77	*2 098.2	223.1	(NA)	(NA)	(NA)
26751 00	Die-cut paper and paperboard office supplies, n.s.k. ----	(NA)	(X)	42.3	(NA)	(X)	(NA)
26752	Die-cut paper and paperboard products, except office supplies ----	(NA)	(X)	123.8	(NA)	(X)	164.4
26752 61	Cards, die-cut and designed, not printed ----	14	(X)	36.7	21	(X)	48.0
26752 71	Automotive board products (for panel, trim, etc.) ----	5	(X)	81.4	7	(X)	([10])
26752 97	Other, including fillers and flats for egg cases (except molded pulp), bottle caps, closures and lids; excluding labels ----	39			31	(X)	[10]112.7
26752 00	Die-cut paper and paperboard products, except office supplies, n.s.k. ----	(NA)	(X)	5.7	(NA)	(X)	3.7
26753	Pasted, lined, laminated, or surface-coated paperboard ----	(NA)	(X)	730.6	(NA)	(X)	457.6
26753 00	Pasted, lined, laminated, or surface-coated paperboard ---- 1,000 s tons	47	*900.1	730.6	42	*633.1	457.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2675– —	**DIE-CUT PAPER AND PAPERBOARD**—Con.						
26750	Die-cut paper and paperboard, n.s.k.	(NA)	(X)	175.8	(NA)	(X)	186.4
26750 00	Die-cut paper and paperboard, n.s.k.[11]	(NA)	(X)	134.7	(NA)	(X)	92.7
26750 02	Die-cut paper and paperboard, n.s.k.[12]	(NA)	(X)	41.1	(NA)	(X)	93.8
2676– —	**SANITARY PAPER PRODUCTS**						
	Total	**(NA)**	**(X)**	**14 939.7**	**(NA)**	**(X)**	**11 171.7**
26761	Sanitary napkins and tampons	(NA)	(X)	1 673.1	(NA)	(X)	1 350.0
26761 14	Sanitary napkins, including maternity pads millions	10	16 805.7	1 660.2	9	12 598.8	1 074.3
26761 51	Tampons millions	3			4	2 861.0	269.3
26761 00	Sanitary napkins and tampons, n.s.k.	(NA)	(X)	12.8	(NA)	(X)	6.5
26763	Disposable diapers, except adult, including disposable training pants	(NA)	(X)	4 146.3	(NA)	(X)	3 202.9
26763 00	Disposable diapers, except adult (usually containing pulp or cellulose fibers), including disposable training pants millions	13	18 895.9	4 146.3	12	15 248.9	3 202.9
26764	Sanitary tissue paper products	(NA)	(X)	8 887.8	(NA)	(X)	6 503.2
26764 11	Facial tissues and handkerchiefs, including sputum wipes 1,000 s tons	12	301.2	773.0	13	310.7	729.8
	Table napkins, including plain, creped, and facial tissue type:						
	Industrial (bulk and dispenser type):						
	Regular type, single-ply:						
26764 25	Bulk 1,000 s tons	13	177.6	225.1	10	*147.3	200.5
26764 27	Dispenser 1,000 s tons	10	219.8	307.3	7	185.0	230.7
26764 33	Facial tissue type, 2-ply or more 1,000 s tons	8	103.7	169.2	8	120.9	167.5
	Retail packages (resale):						
26764 35	Regular type, single-ply 1,000 s tons	11	129.3	233.1	9	123.3	156.3
26764 37	Facial tissue type, 2-ply or more 1,000 s tons	11	161.9	363.2	13	121.7	202.4
	Toilet tissue:						
	Rolls and ovals:						
	Industrial:						
26764 41	Facial tissue type, 2-ply or more 1,000 s tons	14	*391.9	566.6	14	*259.7	319.6
26764 43	Regular type, single-ply 1,000 s tons	15	332.1	458.1	9	342.2	450.0
	Retail packages (resale):						
26764 45	Facial tissue type, 2-ply or more 1,000 s tons	15	699.3	1 152.1	(NA)	980.6	1 439.1
26764 47	Regular type, single-ply 1,000 s tons	14	693.1	1 448.5			
26764 55	Interfolded and flat package 1,000 s tons	3	(13)	(13)	2	(D)	(14)
	Towels (rolled, folded, or interfolded):						
26764 71	Industrial 1,000 s tons	16	*754.1	891.2	16	473.5	525.5
	Retail packages (resale):						
26764 76	Single-ply 1,000 s tons	11	431.0	627.8	8	486.8	544.3
26764 77	2-ply or more 1,000 s tons	15	633.2	1 329.3	11	747.5	803.0
26764 81	Wipers (windshield, industrial, and lithographic plate), except nonwoven 1,000 s tons	7	73.2	108.6	8	98.2	220.4
26764 99	Other sanitary paper products, including absorbent pads, toilet seat covers, bibs, headrests, tray covers, etc. 1,000 s tons	21	13177.0	13180.9	18	(S)	14131.4
26764 00	Sanitary tissue paper products, n.s.k.	(NA)	(X)	53.9	(NA)	(X)	382.8
26760	Sanitary paper products, n.s.k.	(NA)	(X)	232.5	(NA)	(X)	115.6
26760 00	Sanitary paper products, n.s.k.[15]	(NA)	(X)	230.1	(NA)	(X)	92.5
26760 02	Sanitary paper products, n.s.k.[16]	(NA)	(X)	2.5	(NA)	(X)	23.2
2677– —	**ENVELOPES**						
	Total	**(NA)**	**(X)**	**2 657.4**	**(NA)**	**(X)**	**2 499.5**
26770	Envelopes, commercial, all types and materials	(NA)	(X)	2 657.4	(NA)	(X)	2 499.5
26770 10	Clasp and string-and-button types, including mailing mil units	30	2 257.9	100.6	(NA)	(NA)	(NA)
	Mailing envelopes, except clasp and string-and-button types:						
26770 21	White or colored mailing envelopes mil units	87	121 613.1	1 627.0	(NA)	(NA)	(NA)
26770 22	Kraft mailing envelopes mil units	58	*10 054.2	231.9	(NA)	(NA)	(NA)
26770 40	All other commercial envelopes, including padded shipping envelopes mil units	45	*13 811.3	289.7	(NA)	(NA)	(NA)
26770 00	Envelopes, n.s.k.[4]	(NA)	(X)	383.7	(NA)	(X)	(NA)
26770 02	Envelopes, n.s.k.[5]	(NA)	(X)	24.5	(NA)	(X)	76.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2678– —	**STATIONERY, TABLETS, AND RELATED PRODUCTS**						
	Total	**(NA)**	**(X)**	**1 277.9**	**(NA)**	**(X)**	**1 115.2**
26781	Stationery	(NA)	(X)	333.3	(NA)	(X)	283.2
26781 11	Boxed stationery and portfolios	31	(X)	106.9	(NA)	(X)	(NA)
26781 13	Wedding and social announcements, paper, cards, and envelopes	15	(X)	84.5	(NA)	(X)	(NA)
26781 21	All other, including packaged paper and envelopes, noncommercial	22	(X)	106.0	(NA)	(X)	(NA)
26781 00	Stationery, n.s.k.	(NA)	(X)	36.0	(NA)	(X)	(NA)
26782	Tablets, pads, and related products	(NA)	(X)	818.5	(NA)	(X)	705.9
	Tablets and pads:						
26782 12	8 1/2 inches by 11 inches, and 8 1/2 inches by 14 inches, except columnar — mil units	22	(S)	66.1	(NA)	(NA)	(NA)
26782 13	Columnar, including bound and wire bound — mil units	9	(S)	19.2	(NA)	(NA)	(NA)
26782 21	All other, tablets and pads — mil units	40	(S)	137.9	(NA)	(NA)	(NA)
26782 35	Notebooks, bound with wire (except columnar), staples, plastics, etc. (including composition, memo, and stenographic) — mil units	34	(S)	222.4	(NA)	(NA)	(NA)
26782 45	Looseleaf fillers, school and commercial types (quantity is on 100-sheet basis) — mil units	17	(S)	101.1	(NA)	(NA)	(NA)
26782 51	Wrapped ream paper (exclude looseleaf fillers, sensitized photographic and photocopy paper, and paper for fax machines) — mil units	13	*73.2	87.4	(NA)	(NA)	(NA)
26782 98	Other tablets, pads, and related products, not listed elsewhere — mil units	20	(S)	25.7	(NA)	(NA)	(NA)
26782 00	Tablets, pads, and related products, n.s.k.	(NA)	(X)	158.6	(NA)	(X)	(NA)
26780	Stationery, tablets, and related products, n.s.k.	(NA)	(X)	126.1	(NA)	(X)	126.1
26780 00	Stationery, tablets, and related products, n.s.k.[15]	(NA)	(X)	109.9	(NA)	(X)	76.8
26780 02	Stationery, tablets, and related products, n.s.k.[16]	(NA)	(X)	16.2	(NA)	(X)	49.4
2679– —	**CONVERTED PAPER PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**4 152.9**	**(NA)**	**(X)**	**3 385.5**
26791	Wallcoverings	(NA)	(X)	460.1	(NA)	(X)	530.2
26791 22	Paper with less than 2 mils of coating	16	(X)	143.8	(NA)	(X)	214.0
	Paperbacked, coated, or laminated with 2 mils or more of plastics:						
26791 26	Prepasted	7	(X)	48.0	6	(X)	38.2
26791 28	Nonpasted	16	(X)	21.9	13	(X)	23.8
	Fabric-backed, coated, or laminated:						
26791 34	Woven	11	(X)	131.7			
26791 36	Nonwoven	9	(X)	92.4			
26791 41	Other wallcoverings, including scenic and panel decorations, but excluding those that contain no paper and/or fabrics	6	(X)	3.8	(NA)	(X)	222.4
26791 00	Wallcoverings, n.s.k.	(NA)	(X)	18.5	(NA)	(X)	31.8
26792	Gift wrap paper	(NA)	(X)	602.2	(NA)	(X)	591.7
	Retail counter items, all types and weights:						
26792 82	Rolls — 1,000 s tons	9	(S)	252.7	25	(S)	479.1
26792 91	Folds — 1,000 s tons	8	(S)	183.5	13	(S)	91.2
26792 96	Other paper gift wrapping, including counter rolls and flat sheets for stores' own use — 1,000 s tons	8	(S)	153.5	5	3.5	19.0
26792 00	Gift wrap paper, n.s.k.	(NA)	(X)	12.6	(NA)	(X)	2.4
26793	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, n.e.c.	(NA)	(X)	413.2	(NA)	(X)	228.6
26793 11	Rolls for adding and other business machines, except rolls for facsimile and photocopy machines — mil units	18	(S)	182.4			
26793 31	Other, including safety paper, facsimile paper, manifold carbon paper sets, teletype paper, etc.	18	(X)	162.3	39	(X)	228.6
26793 00	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, n.e.c., n.s.k.	(NA)	(X)	68.5			
26794	Molded pulp goods	(NA)	(X)	354.4	(NA)	(X)	272.9
26794 00	Molded pulp goods, including egg cartons, florist pots, food trays, etc.	12	(X)	354.4	14	(X)	272.9
26795	Other converted paper and paperboard products	(NA)	(X)	1 672.3	(NA)	(X)	1 227.7
26795 21	Party and holiday goods and accessories (novelties, decorations (except crepe paper), party hats, displays, etc.)	21	(X)	149.0	(NA)	(X)	169.5
26795 31	Cellulose insulation	32	(X)	56.9	28	(X)	58.4
	Miscellaneous paper products:						
26795 41	Doilies, place mats, and tray doilies (or tray covers) — 1,000 s tons	12	**20.1	54.3	5	(S)	44.8
26795 48	Folders and mounts, all types, except file folders	17	(X)	67.3	11	(X)	40.2
	Paper filters:						
26795 51	Coffee	6	(X)	97.9	5	(X)	65.0
26795 55	All other	11	(X)	18.5	4	(X)	10.9
26795 61	Paper wrapping products, not elsewhere classified, including creped wadding and crepe paper (except fine crepe paper)	30	(X)	82.1	18	(X)	61.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2679– ––	**CONVERTED PAPER PRODUCTS, N.E.C.—** Con.						
26795	Other converted paper and paperboard products—Con.						
	Miscellaneous paper products—Con.						
26795 98	Other misc. paper and board products, including fine crepe paper, laminated and tiled wallboard, unprinted tags, etc.	201	(X)	1 007.3	(NA)	(X)	666.3
26795 00	Other converted paper and paperboard products, n.s.k.	(NA)	(X)	139.1	(NA)	(X)	110.9
26790	Converted paper products, n.e.c., n.s.k.	(NA)	(X)	650.8	(NA)	(X)	534.4
26790 00	Converted paper products, n.e.c., n.s.k.[11]	(NA)	(X)	582.4	(NA)	(X)	392.3
26790 02	Converted paper products, n.e.c., n.s.k.[12]	(NA)	(X)	68.4	(NA)	(X)	142.2

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Data for 1987 are not completely comparable at the four-digit product level due to the 1987 Standard Industrial Classifications (SIC) change which split old Industry 2641, Paper Coating and Glazing, into new industries 2671 and 2672. The "n.s.k." for industries 2671 and 2672 is included in industry 2672 since the information needed to correctly classify the "n.s.k." is not available.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]For 1987, product codes 26724 55 and 26724 56 were included in product code 26724 69.
[7]Data for 1987 are not completely comparable at the four-digit product level due to the 1987 Standard Industrial Classification (SIC) change which split old Industry 2643, Bags, Except Textile Bags, into new industries 2673 and 2674. The "n.s.k." for industries 2673 and 2674 is included in industry 2673 since the information needed to correctly classify the "n.s.k." is not available.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]For 1987, product code 26752 71 is included with product code 26752 97.
[11]Typically for establishments with 5 employees or more.
[12]Typically for establishments with less than 5 employees.
[13]For 1992, product code 26764 55 is included with product code 26764 99.
[14]For 1987, product code 26764 55 is included with product code 26764 99.
[15]Typically for establishments with 10 employees or more.
[16]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26711, SINGLE-WEB PAPER, COATED ROLLS AND SHEETS, INCLUDING WAXED, FOR PACKAGING USES		
United States	**822.7**	**474.4**
California	14.5	14.5
Illinois	33.7	17.0
Michigan	59.6	27.1
New Jersey	27.3	14.2
Ohio	52.7	32.6
Pennsylvania	16.3	28.3
Wisconsin	231.2	170.6
26712, SINGLE-WEB FILM, COATED ROLLS AND SHEETS, INCLUDING COEXTRUDED, FOR PACKAGING USES		
United States	**993.4**	**879.1**
California	46.9	11.3
Illinois	46.4	62.6
Indiana	110.0	160.0
Missouri	20.2	18.8
New Jersey	13.0	38.2
New York	24.1	40.4
Ohio	28.8	(NA)
26712, SINGLE-WEB FILM, COATED ROLLS AND SHEETS, INCLUDING COEXTRUDED, FOR PACKAGING USES—Con.		
Wisconsin	318.2	(NA)
26713, PAPER/ PAPER MULTIWEB LAMINATED ROLLS AND SHEETS FOR PACKAGING USES		
United States	**189.3**	**249.1**
Missouri	6.1	(NA)
26714, MULTIWEB LAMINATED ROLLS AND SHEETS, EXCEPT PAPER/ PAPER AND FOIL, FOR PACKAGING USES		
United States	**1 349.9**	**857.6**
California	40.9	31.9
Illinois	159.8	87.0
Minnesota	56.9	(NA)
New Jersey	43.9	46.8
New York	8.7	(NA)
Pennsylvania	77.8	56.5
Texas	73.1	(NA)
Wisconsin	234.3	70.3

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26721, PRINTING PAPER COATED AT ESTABLISHMENTS OTHER THAN WHERE PAPER WAS PRODUCED		
United States	**238.6**	**464.5**
California	4.1	(NA)
Indiana	12.0	(NA)
Wisconsin	100.2	108.5
26722, GUMMED PRODUCTS		
United States	**236.7**	**218.4**
Wisconsin	67.5	81.4
26723, PRESSURE-SENSITIVE PRODUCTS		
United States	**4 756.0**	**3 100.0**
California	182.3	123.4
Illinois	484.9	388.2
Indiana	239.7	32.9
Massachusetts	135.9	114.6
Michigan	129.4	(NA)
Missouri	65.4	(NA)
New Jersey	174.9	144.2
New York	156.3	121.2
Ohio	506.6	316.0
Pennsylvania	359.5	264.3
Tennessee	38.2	26.4
Texas	59.7	32.1
Wisconsin	200.7	47.3
26724, OTHER COATED AND PROCESSED PAPERS, EXCEPT FOR PACKAGING USES		
United States	**1 516.0**	**1 200.0**
California	34.4	66.9
Illinois	110.5	39.6
Massachusetts	184.6	151.2
Missouri	3.4	(NA)
New York	55.0	31.8
North Carolina	15.4	(NA)
Ohio	96.2	38.5
Rhode Island	20.4	(NA)
Washington	16.3	(NA)
26731, SPECIALTY BAGS AND LINERS, SINGLE-WEB PAPER, COATED		
United States	**258.9**	**262.4**
California	18.9	14.8
Illinois	35.3	(NA)
New York	21.1	58.1
Texas	24.5	8.4
26732, SPECIALTY BAGS AND LINERS, SINGLE-WEB FILM		
United States	**4 166.6**	**2 856.9**
California	397.7	282.9
Florida	82.6	57.3
Georgia	307.2	297.9
Illinois	406.7	248.4
Indiana	258.5	122.8
Iowa	33.0	(NA)
Kansas	42.0	(NA)
Kentucky	103.3	90.1
Louisiana	62.4	23.8
Maryland	19.5	(NA)
Massachusetts	31.9	67.3
Michigan	64.9	(NA)
Minnesota	67.3	51.3
Missouri	91.3	(NA)
New Jersey	203.8	191.7
New York	264.5	244.9
North Carolina	176.4	82.5
Ohio	126.0	47.9
Pennsylvania	162.7	83.3
South Carolina	35.3	(NA)
Tennessee	67.2	64.9
Texas	326.3	246.8
Washington	56.7	45.1
Wisconsin	149.7	77.9
26733, SPECIALTY BAGS AND LINERS, MULTIWEB LAMINATIONS AND FOIL		
United States	**486.2**	**387.7**
California	6.5	(NA)
Illinois	86.1	19.8
Missouri	22.3	(NA)
New Jersey	13.2	22.6
New York	11.4	(NA)
Pennsylvania	45.6	(NA)
Wisconsin	5.8	(NA)
26741, GROCERS' BAGS AND SACKS AND VARIETY AND SHOPPING BAGS, UNCOATED PAPER		
United States	**1 126.5**	**1 141.8**
California	48.7	64.2
Florida	57.3	108.8
Illinois	90.6	(NA)
New Jersey	90.2	(NA)
New York	76.2	(NA)
Oregon	43.4	45.9
Texas	93.0	87.1
26742, SHIPPING SACKS AND MULTIWALL BAGS, ALL MATERIALS EXCEPT TEXTILES		
United States	**1 452.9**	**1 196.6**
Arkansas	263.9	188.8
Florida	58.6	(NA)
Georgia	109.5	100.1
Illinois	97.2	94.3
Missouri	108.0	73.6
North Carolina	33.7	(NA)
26751, DIE-CUT PAPER AND PAPERBOARD OFFICE SUPPLIES		
United States	**912.0**	**892.7**
California	116.1	145.8
Georgia	53.7	48.1
Illinois	90.6	47.3
Maryland	6.7	(NA)
Minnesota	70.0	(NA)
New Jersey	28.9	81.8
New York	41.3	85.3
Ohio	89.1	47.8
Pennsylvania	47.2	44.5
Texas	51.4	58.3
Wisconsin	32.8	25.9
26752, DIE-CUT PAPER AND PAPERBOARD PRODUCTS, EXCEPT OFFICE SUPPLIES		
United States	**123.8**	**164.4**
California	17.4	17.3
Illinois	4.7	15.6
New York	13.6	41.0
Ohio	11.1	(NA)
Pennsylvania	6.6	12.8
Rhode Island	6.6	(NA)
26753, PASTED, LINED, LAMINATED, OR SURFACE-COATED PAPERBOARD		
United States	**730.6**	**457.6**
Georgia	86.4	64.3
Michigan	15.1	(NA)
New Jersey	39.8	(NA)
New York	20.5	8.5
Texas	23.2	(NA)
26761, SANITARY NAPKINS AND TAMPONS		
United States	**1 673.1**	**1 350.0**
26763, DISPOSABLE DIAPERS, EXCEPT ADULT, INCLUDING DISPOSABLE TRAINING PANTS		
United States	**4 146.3**	**3 202.9**
California	539.1	457.0

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
26764, SANITARY TISSUE PAPER PRODUCTS		
United States	**8 887.8**	**6 503.2**
California	446.3	366.7
Michigan	34.6	(NA)
Minnesota	8.4	(NA)
New York	240.8	220.8
Ohio	6.4	7.3
Washington	610.0	550.0
Wisconsin	2 119.8	1 832.3
26781, STATIONERY		
United States	**333.3**	**283.2**
California	31.8	14.5
Illinois	28.8	56.7
Massachusetts	18.3	20.3
Michigan	6.7	(NA)
New York	5.1	5.2
Ohio	21.9	5.4
Texas	4.8	14.3
26782, TABLETS, PADS, AND RELATED PRODUCTS		
United States	**818.5**	**705.9**
California	41.9	47.1
Maryland	2.7	8.1
Massachusetts	54.0	71.3
New Jersey	18.1	26.3
New York	40.6	38.0
Pennsylvania	79.3	86.0
Wisconsin	33.9	35.5
26791, WALLCOVERINGS		
United States	**460.1**	**530.2**
Florida	5.9	5.6
Illinois	7.9	18.3
New Jersey	43.7	104.2
Pennsylvania	56.0	60.1
26792, GIFT WRAP PAPER		
United States	**602.2**	**591.7**
Tennessee	226.0	151.2
26793, PAPER SUPPLIES FOR BUSINESS MACHINES AND OTHER MISCELLANEOUS UNPRINTED PAPER OFFICE SUPPLIES, N.E.C.		
United States	**413.2**	**228.6**
California	46.0	10.8
Massachusetts	25.4	12.2
Pennsylvania	16.0	9.2
Texas	30.9	12.4
26794, MOLDED PULP GOODS		
United States	**354.4**	**272.9**
Wisconsin	4.5	(NA)
26795, OTHER CONVERTED PAPER AND PAPERBOARD PRODUCTS		
United States	**1 672.3**	**1 227.7**
California	79.0	127.4
Connecticut	34.6	(NA)
Florida	16.3	10.9
Georgia	86.9	61.0
Illinois	123.6	112.3
Indiana	41.5	(NA)
Iowa	5.9	(NA)
Kansas	49.6	52.5
Kentucky	17.0	3.7
Louisiana	22.3	(NA)
Maryland	8.9	(NA)
Massachusetts	70.8	48.9
Michigan	73.4	49.1
Minnesota	18.3	(NA)
New Hampshire	7.4	(NA)
New Jersey	66.1	35.8
New York	94.8	79.2
North Carolina	47.3	29.7
Ohio	123.7	144.1
Pennsylvania	195.0	146.0
South Carolina	85.4	(NA)
Texas	18.8	21.3
Virginia	80.5	56.2
Washington	30.1	24.2
Wisconsin	133.9	56.7

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2671-	**Paper coating and laminating, packaging**	**3 530.0**	**3 069.6**	**2 979.9**	**2 850.1**	**2 712.6**	**2 460.1**	**1 329.2**	**(NA)**
26711	Single-web paper, coated rolls and sheets, including waxed, for packaging uses	822.7	626.3	637.1	644.4	610.3	474.4	433.9	(NA)
26712	Single-web film, coated rolls and sheets, including coextruded, for packaging uses	993.4	1 001.4	1 010.8	1 020.6	904.2	879.1	168.2	(NA)
26713	Paper/ paper multiweb laminated rolls and sheets for packaging uses	189.3	241.9	235.4	207.4	228.5	249.1	182.3	(NA)
26714	Multiweb laminated rolls and sheets, except paper/ paper and foil, for packaging uses	1 349.9	1 075.7	976.1	920.8	965.9	857.6	544.8	(NA)
26710	Paper coating and laminating, packaging, n.s.k.	174.7	124.3	120.7	56.9	3.6	(NA)	(NA)	(NA)
2672-	**Paper coating and laminating, n.e.c.**	**7 420.3**	**6 933.2**	**6 678.3**	**6 674.1**	**6 148.2**	**5 497.7**	**3 574.0**	**(NA)**
26721	Printing paper coated at establishments other than where paper was produced	238.6	360.3	453.6	485.7	413.7	464.5	241.6	172.0
26722	Gummed products	236.7	246.2	249.2	245.3	230.6	218.4	211.9	187.6
26723	Pressure-sensitive products	4 756.0	4 151.7	3 882.3	3 896.3	3 642.9	3 100.0	1 867.6	1 177.7
26724	Other coated and processed papers, except for packaging uses	1 516.0	1 509.5	1 463.6	1 380.2	1 300.9	1 200.0	900.3	(NA)
26720	Paper coating and laminating, n.e.c., n.s.k.	672.9	665.5	629.5	666.6	560.1	514.7	352.6	(NA)
2673-	**Bags: plastics, laminated, and coated**	**5 385.0**	**4 806.4**	**5 127.8**	**5 117.3**	**4 557.5**	**3 936.5**	**2 762.6**	**(NA)**
26731	Specialty bags and liners, single-web paper, coated	258.9	282.0	335.5	354.9	271.5	262.4	205.5	(NA)
26732	Specialty bags and liners, single-web film	4 166.6	3 684.0	3 834.8	3 836.7	3 413.0	2 856.9	1 964.0	(NA)
26733	Specialty bags and liners, multiweb laminations and foil	486.2	331.4	428.9	405.8	424.7	387.7	222.1	(NA)
26730	Bags: plastics, laminated, and coated, n.s.k.	473.3	509.0	528.4	519.9	448.2	429.6	371.0	(NA)
2674-	**Bags: uncoated paper and multiwall**	**2 614.7**	**2 527.9**	**2 621.3**	**2 638.8**	**2 574.2**	**2 360.6**	**2 010.3**	**(NA)**
26741	Grocers' bags and sacks and variety and shopping bags, uncoated paper	1 126.5	1 045.1	1 175.4	1 249.4	1 167.2	1 141.8	1 163.8	(NA)
26742	Shipping sacks and multiwall bags, all materials except textiles	1 452.9	1 432.9	1 398.2	1 352.7	1 375.2	1 196.6	846.5	672.6
26740	Bags: uncoated paper and multiwall, n.s.k.	35.3	49.9	47.8	36.7	31.9	22.1	(NA)	(NA)
2675-	**Die-cut paper and paperboard**	**1 942.2**	**2 206.6**	**2 093.2**	**1 962.0**	**1 866.2**	**1 701.1**	**1 605.1**	**1 034.3**

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2675-	**Die-cut paper and paperboard**—Con.								
26751	Die-cut paper and paperboard office supplies	912.0	945.9	926.7	891.0	947.5	892.7	597.9	484.9
26752	Die-cut paper and paperboard products, except office supplies	123.8	221.2	199.3	202.0	183.8	164.4	199.4	
26753	Pasted, lined, laminated, or surface-coated paperboard	730.6	646.3	629.4	565.3	529.8	457.6	684.8	438.4
26750	Die-cut paper and paperboard, n.s.k.	175.8	393.2	337.8	303.6	205.1	186.4	123.0	111.0
2676-	**Sanitary paper products**	**14 939.7**	**14 755.7**	**14 007.5**	**13 637.2**	**11 853.4**	**11 171.7**	**8 373.5**	**4 562.6**
26761	Sanitary napkins and tampons	1 673.1	1 421.2	1 360.5	1 313.7	1 262.2	1 350.0	915.1	588.7
26763	Disposable diapers, except adult, including disposable training pants	4 146.3	4 686.6	4 105.9	3 952.4	3 223.8	3 202.9	2 158.5	3 948.3
26764	Sanitary tissue paper products	8 887.8	8 562.1	8 449.0	8 262.1	7 249.9	6 503.2	5 259.8	
26760	Sanitary paper products, n.s.k.	232.5	85.8	92.1	108.9	117.5	115.6	40.1	25.6
2677-	**Envelopes**	**2 657.4**	**2 492.3**	**2 602.4**	**2 603.7**	**2 650.2**	**2 499.5**	**1 751.6**	**980.6**
26770	Envelopes, commercial, all types and materials	2 657.4	2 492.3	2 602.4	2 603.7	2 650.2	2 499.5	1 751.6	980.6
2678-	**Stationery, tablets, and related products**	**1 277.9**	**1 237.1**	**1 197.2**	**1 156.8**	**1 166.1**	**1 115.2**	**959.2**	**630.5**
26781	Stationery	333.3	398.4	342.3	307.1	304.2	283.2	261.8	141.2
26782	Tablets, pads, and related products	818.5	732.8	748.9	747.6	735.7	705.9	603.1	425.5
26780	Stationery, tablets, and related products, n.s.k.	126.1	105.8	105.9	102.0	126.2	126.1	94.4	63.8
2679-	**Converted paper products, n.e.c.**	**4 152.9**	**4 122.0**	**3 963.8**	**3 626.9**	**3 685.9**	**3 385.5**	**2 678.4**	**1 988.4**
26791	Wallcoverings	460.1	557.6	547.7	517.7	533.8	530.2	396.9	306.5
26792	Gift wrap paper	602.2	626.4	621.0	591.4	571.1	591.7	389.6	[2]1 199.6
26793	Paper supplies for business machines and other miscellaneous unprinted paper office supplies, n.e.c.	413.2	347.5	366.8	339.9	255.8	228.6	221.8	
26794	Molded pulp goods	354.4	391.2	370.2	326.1	288.4	272.9	242.3	239.6
26795	Other converted paper and paperboard products	1 672.3	1 532.8	1 490.2	1 364.3	1 475.8	1 227.7	1 082.6	[2](NA)
26790	Converted paper products, n.e.c., n.s.k.	650.8	666.5	568.1	487.6	561.0	534.4	345.2	242.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]For 1977, product class 26795 was included with product classes 26792 and 26793.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2671, PAPER COATED AND LAMINATED, PACKAGING				
	Materials, ingredients, containers, and supplies	**(X)**	**1 975.5**	**(X)**	**1 359.1**
262108	Paper, 1,000 s tons	*515.9	506.0	463.0	366.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	*525.3	330.6	**520.9	223.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	513.0	(X)	312.5
335335	Aluminum foil, plain, mil lb	30.8	47.8	**25.9	34.9
339915	Metal powders	(X)	(2)	(X)	(3)
289101	Glues and adhesives	(X)	47.4	(X)	35.8
289301	Printing inks (complete formulations), mil lb	(S)	99.3	(S)	63.9
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	29.2	(X)	15.9
970099	All other materials and components, parts, containers, and supplies	(X)	[2]273.0	(X)	[3]207.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	129.2	(X)	98.6
	INDUSTRY 2672, PAPER COATED AND LAMINATED, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 866.7**	**(X)**	**2 676.3**
262108	Paper, 1,000 s tons	**1 421.9	1 526.0	(S)	1 059.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	(S)	192.4	(S)	134.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	178.3	(X)	97.7
335335	Aluminum foil, plain, mil lb	(S)	22.4	(S)	5.7
339915	Metal powders	(X)	(2)	(X)	(3)
289101	Glues and adhesives	(X)	329.0	(X)	243.5
289301	Printing inks (complete formulations), mil lb	(S)	33.2	(S)	23.8
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	90.5	(X)	84.1
970099	All other materials and components, parts, containers, and supplies	(X)	[2]1 015.5	(X)	[3]646.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	479.3	(X)	380.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2673, BAGS: PLASTICS, LAMINATED, AND COATED				
	Materials, ingredients, containers, and supplies	**(X)**	**2 574.6**	**(X)**	**2 128.4**
262108	Paper, 1,000 s tons	(S)	107.8	(S)	166.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	*3 453.5	1 200.6	*2 762.2	1 058.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	325.3	(X)	159.5
335335	Aluminum foil, plain, mil lb	**10.0	20.5	(D)	(3)
339915	Metal powders	(X)	(2)	(X)	(3)
289101	Glues and adhesives	(X)	39.0	(X)	28.4
289301	Printing inks (complete formulations), mil lb	(S)	69.8	**37.1	52.8
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	182.6	(X)	116.3
970099	All other materials and components, parts, containers, and supplies	(X)	[2]239.2	(X)	[3]227.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	389.9	(X)	319.5
	INDUSTRY 2674, BAGS: UNCOATED PAPER AND MULTIWALL				
	Materials, ingredients, containers, and supplies	**(X)**	**1 716.2**	**(X)**	**1 516.8**
262108	Paper, 1,000 s tons	*2 384.0	1 316.4	2 529.7	1 202.2
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	*227.0	91.5	244.0	78.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	43.7	(X)	29.7
335335	Aluminum foil, plain, mil lb	–	–	(D)	(3)
339915	Metal powders	(X)	(2)	(X)	(3)
289101	Glues and adhesives	(X)	43.9	(X)	30.8
289301	Printing inks (complete formulations), mil lb	*39.7	63.8	**31.3	41.1
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	25.5	(X)	28.0
970099	All other materials and components, parts, containers, and supplies	(X)	[2]95.7	(X)	[3]66.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	35.6	(X)	39.4
	INDUSTRY 2675, DIE-CUT PAPER AND BOARD				
	Materials, ingredients, containers, and supplies	**(X)**	**1 060.4**	**(X)**	**1 019.6**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	*1 249.7	727.2	(NA)	721.4
308100	Plastics film and sheets, unsupported	(X)	47.6	(X)	(3)
262188	Glassine film	(X)	2.2	(X)	(3)
289101	Glues and adhesives, mil lb	(S)	13.8	(S)	14.2
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	29.7	(X)	34.5
970099	All other materials and components, parts, containers, and supplies	(X)	112.5	(X)	[3]89.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	127.4	(X)	160.3
	INDUSTRY 2676, SANITARY PAPER PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**7 087.0**	**(X)**	**5 279.8**
262108	Paper, 1,000 s tons	4 357.7	3 340.8	*3 776.4	2 507.5
261105	Woodpulp (air dry basis), 1,000 s tons	1 274.9	654.7	*857.2	455.4
241131	Pulpwood, 1,000 standard cords	(D)	(5)	(NA)	(3)
242015	Wood chips, slabs, cores, sawdust, bark, and mill residues, 1,000 s tons	(D)	(5)	(NA)	(3)
190005	Wastepaper, all types, 1,000 s tons	446.7	64.7	(NA)	(3)
289101	Glues and adhesives, mil lb	176.7	149.8	*120.6	123.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., mil lb	149.6	176.0	(S)	54.4
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	333.0	(X)	245.4
229710	Nonwoven fabrics, mil sq yd	*11 196.8	483.6	**5 095.0	235.5
267102	Packaging paper and plastics film, coated, laminated, printed, etc.	(X)	371.1	(X)	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	437.7	(X)	487.0
970099	All other materials and components, parts, containers, and supplies	(X)	[5]925.2	(X)	[3]986.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	150.4	(X)	185.2
	INDUSTRY 2677, ENVELOPES				
	Materials, ingredients, containers, and supplies	**(X)**	**1 273.8**	**(X)**	**1 229.2**
260003	Paper and paperboard, except boxes and containers, 1,000 s tons	**1 111.2	788.3	(NA)	854.0
308100	Plastics film and sheets, unsupported	(X)	34.6	(X)	(3)
262188	Glassine film	(X)	17.1	(X)	(3)
289101	Glues and adhesives, mil lb	(S)	36.5	*73.7	42.3
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	72.0	(X)	55.5
970099	All other materials and components, parts, containers, and supplies	(X)	102.6	(X)	[3]151.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	222.6	(X)	125.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2678, STATIONERY PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**646.1**	**(X)**	**610.5**
260003	Paper and paperboard, except boxes and containers 1,000 s tons	**594.2	396.4	*644.0	420.3
190005	Wastepaper, all types 1,000 s tons	(D)	([6])	(NA)	([3])
289101	Glues and adhesives	(X)	4.7	(X)	2.3
289301	Printing inks (complete formulations)	(X)	4.0	(X)	2.5
229508	Coated or laminated fabrics, including vinyl coated	(X)	4.6	(X)	([3])
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	21.7	(X)	30.7
970099	All other materials and components, parts, containers, and supplies	(X)	[6]46.1	(X)	[3]45.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	168.7	(X)	108.8
	INDUSTRY 2679, CONVERTED PAPER PRODUCTS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 978.3**	**(X)**	**1 527.4**
260003	Paper and paperboard, except boxes and containers 1,000 s tons	(S)	863.5	(NA)	654.6
190005	Wastepaper, all types 1,000 s tons	(S)	57.2	(S)	39.5
289101	Glues and adhesives	(X)	11.1	(X)	12.5
289301	Printing inks (complete formulations)	(X)	46.3	(X)	44.6
229508	Coated or laminated fabrics, including vinyl coated	(X)	24.3	(X)	([3])
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	49.1	(X)	53.5
970099	All other materials and components, parts, containers, and supplies	(X)	423.5	(X)	[3]258.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	503.4	(X)	464.2

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1992, material code 339915 was included with material code 970099.

[3]For 1987, data for this material code were included in material code 970099.

[4]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[5]For 1992, material codes 241131 and 242015 were included with material code 970099.

[6]For 1992, material code 190005 was included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
26113 35	26113 00	26217 30	26217 00	26314 45	26314 00	26751 10	26751 00
26113 43	26113 00	26217 50	26217 00	26314 46	26314 00	26751 11	26751 00
		26217 60	26217 00	26314 50	26314 00	26751 12	26751 00
26114 32	26114 00	26217 68	26217 00	26314 81	26314 00	26751 20	26751 00
26114 66	26114 00			26314 82	26314 00	26751 30	26751 00
26114 72	26114 00	26218 30	26218 00	26314 88	26314 00		
26114 78	26114 00	26218 50	26218 00			26770 10	26770 00
		26218 60	26218 00	26530 98	26530 00	26770 21	26770 00
26212 15	26212 00	26218 64	26218 00			26770 22	26770 00
26212 19	26212 00	26218 68	26218 00	26563 19	26563 14	26770 40	26770 00
26212 27	26212 00	26218 83	26218 00	26563 19	26563 16		
						26781 11	26781 00
26213 15	26213 00	2621A 11	2621A 00			26781 13	26781 00
26213 16	26213 00	2621A 30	2621A 00	26713 20	26713 18	26781 21	26781 00
26213 20	26213 00	2621A 51	2621A 00	26713 20	26713 21		
26213 29	26213 00	2621A 60	2621A 00			26782 12	26782 00
		2621A 73	2621A 00	26714 17	26714 13	26782 13	26782 00
26214 31	26214 00	2621A 78	2621A 00	26714 17	26714 14	26782 21	26782 00
26214 32	26214 00	2621A 81	2621A 00	26714 21	26714 16	26782 35	26782 00
26214 37	26214 00	2621A 88	2621A 00			26782 45	26782 00
26214 41	26214 00					26782 51	26782 00
26214 47	26214 00	2621B 22	2621B 00	26722 12	26722 00	26782 98	26782 00
26214 48	26214 00	2621B 28	2621B 00	26722 30	26722 00		
26214 54	26214 00					26791 22	26791 21
26214 55	26214 00	26311 10	26311 00	26723 13	26723 00	26791 22	26791 23
26214 56	26214 00	26311 88	26311 00	26723 33	26723 00	26791 34	26791 32
26214 60	26214 00			26723 43	26723 00	26791 34	26791 35
26214 71	26214 00	26312 10	26312 00	26723 45	26723 00	26791 36	26791 33
26214 73	26214 00	26312 40	26312 00	26723 53	26723 00	26791 36	26791 35
26214 89	26214 00	26312 61	26312 00	26723 59	26723 00		
		26312 62	26312 00	26723 61	26723 00	26793 11	26793 00
26215 31	26215 00	26312 63	26312 00	26723 75	26723 00	26793 31	26793 00
26215 32	26215 00	26312 88	26312 00	26723 81	26723 00		
26215 37	26215 00			26723 85	26723 00	26795 21	26795 22
26215 58	26215 00	26314 10	26314 00	26723 98	26723 00	26795 21	26795 23
		26314 20	26314 00			26795 98	26795 11
26216 11	26216 00	26314 30	26314 00			26795 98	26795 35
26216 19	26216 00	26314 43	26314 00	26724 69	26724 51	26795 98	26795 45
26216 27	26216 00	26314 44	26314 00	26724 69	26724 59	26795 98	26795 69

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
26113 00	26113 35	26217 00	26217 30	26314 00	26314 45	26751 00	26751 10
26113 00	26113 43	26217 00	26217 50	26314 00	26314 46	26751 00	26751 11
		26217 00	26217 60	26314 00	26314 50	26751 00	26751 12
26114 00	26114 32	26217 00	26217 68	26314 00	26314 81	26751 00	26751 20
26114 00	26114 66			26314 00	26314 82	26751 00	26751 30
26114 00	26114 72	26218 00	26218 30	26314 00	26314 88		
26114 00	26114 78	26218 00	26218 50			26770 00	26770 10
		26218 00	26218 60	26530 00	26530 98	26770 00	26770 21
26212 00	26212 15	26218 00	26218 64			26770 00	26770 22
26212 00	26212 19	26218 00	26218 68	26563 14	26563 19	26770 00	26770 40
26212 00	26212 27	26218 00	26218 83	26563 16	26563 19		
						26781 00	26781 11
26213 00	26213 15	2621A 00	2621A 11			26781 00	26781 13
26213 00	26213 16	2621A 00	2621A 30	26713 18	26713 20	26781 00	26781 21
26213 00	26213 20	2621A 00	2621A 51	26713 21	26713 20		
26213 00	26213 29	2621A 00	2621A 60			26782 00	26782 12
		2621A 00	2621A 73	26714 13	26714 17	26782 00	26782 13
26214 00	26214 31	2621A 00	2621A 78	26714 14	26714 17	26782 00	26782 21
26214 00	26214 32	2621A 00	2621A 81	26714 16	26714 21	26782 00	26782 35
26214 00	26214 37	2621A 00	2621A 88			26782 00	26782 45
26214 00	26214 41					26782 00	26782 51
26214 00	26214 47	2621B 00	2621B 22	26722 00	26722 12	26782 00	26782 98
26214 00	26214 48	2621B 00	2621B 28	26722 00	26722 30		
26214 00	26214 54					26791 21	26791 22
26214 00	26214 55	26311 00	26311 10	26723 00	26723 13	26791 23	26791 22
26214 00	26214 56	26311 00	26311 88	26723 00	26723 33	26791 32	26791 34
26214 00	26214 60			26723 00	26723 43	26791 33	26791 36
26214 00	26214 71	26312 00	26312 10	26723 00	26723 45	26791 35	26791 34
26214 00	26214 73	26312 00	26312 40	26723 00	26723 53	26791 35	26791 36
26214 00	26214 89	26312 00	26312 61	26723 00	26723 59		
		26312 00	26312 62	26723 00	26723 61	26793 00	26793 11
26215 00	26215 31	26312 00	26312 63	26723 00	26723 75	26793 00	26793 31
26215 00	26215 32	26312 00	26312 88	26723 00	26723 81		
26215 00	26215 37			26723 00	26723 85	26795 11	26795 98
26215 00	26215 58	26314 00	26314 10	26723 00	26723 98	26795 22	26795 21
		26314 00	26314 20			26795 23	26795 21
26216 00	26216 11	26314 00	26314 30			26795 35	26795 98
26216 00	26216 19	26314 00	26314 43	26724 51	26724 69	26795 45	26795 98
26216 00	26216 27	26314 00	26314 44	26724 59	26724 69	26795 69	26795 98

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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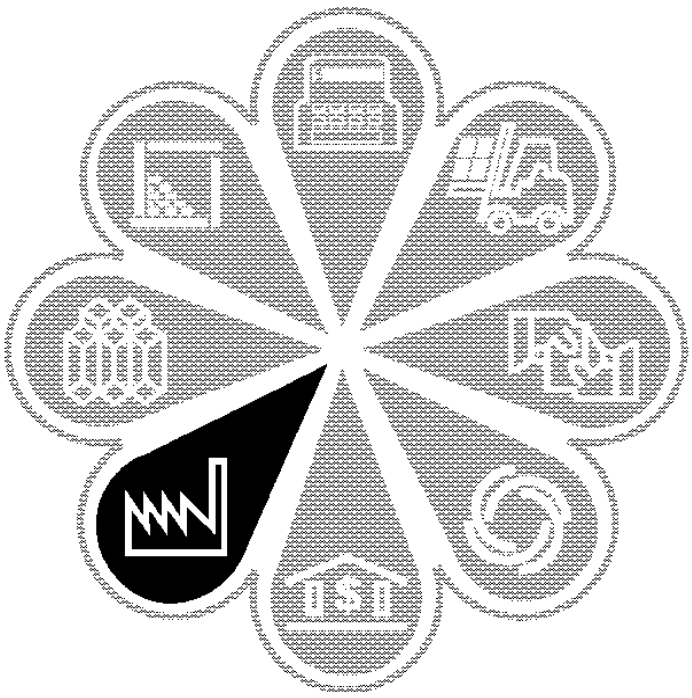

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BUREAU OF THE CENSUS

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1992 Census of Manufactures

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-15553500.DAT;1 6/15/95 15:55:38 UTF:TIPS93-15553500.DAT;1 6/15/95 15:55:38 META:TIPS96-15553500.DAT;1 6/15/95 15:55:52

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2711	Newspapers
2721	Periodicals
2731	Book Publishing
2732	Book Printing
2741	Miscellaneous Publishing

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2711, NEWSPAPERS

This industry is made up of establishments primarily engaged in publishing newspapers, or in publishing and printing newspapers. These establishments carry on the various operations necessary for issuing newspapers, including the gathering of news and the preparation of editorials and advertisements, but may or may not perform their own printing. Commercial printing is frequently carried on by establishments engaged in publishing and printing newspapers, but, even though the commercial printing may be of major importance, such establishments are included in this industry. Establishments not engaged in publishing newspapers, but which print newspapers for publishers, are classified in industry group 275. News syndicates are classified in services, industry 7383. The term ''newspaper'' includes those publications issued at regular frequencies which contain news of interest to the general public whether or not they are published in the English language. Publications have been classified as periodicals (industry 2721) rather than as newspapers if their news and editorial presentations do not appear to be directed to the public at large. Among the types of publications sometimes considered newspapers, but treated in the census as periodicals, are the following: trade journals, house organs, local church or school papers, and like publications with very limited or specialized news treatment. Generally, publications issued by nonprofit organizations (educational, religious, charitable, labor, business, professional, etc.) are classified as periodicals, as are magazine and comic supplements for Sunday newspapers.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2711, Newspapers, had employment of 417.0 thousand. The employment figure was 4 percent below the 434.4 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, Florida, and Pennsylvania, accounting for approximately 31 percent of the industry's employment. This represents a shift from 1987 when California, New York, Texas, and Florida accounted for approximately 33 percent of the industry's employment.

The total receipts for establishments classified in this industry were $34.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2711 shipped $32.3 billion of products considered primary to the industry, $1.4 billion of secondary products, and had $492.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 100 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 100 percent.

The products primary to industry 2711, no matter in what industry they were produced, appear in table 6a and aggregate to $32.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the newspaper publishing industry amounted to $6.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2721, PERIODICALS

This industry is made up of establishments primarily engaged in publishing periodicals, or in publishing and printing periodicals. These establishments carry on the various operations necessary for issuing periodicals, but may or may not perform their own printing. Establishments not engaged in publishing periodicals, but which print periodicals for publishers, are classified in industry group 275. Data on the periodical publishing activities of nonprofit organizations (religious, educational, social, charitable, etc.) have been included to the extent that the employees of such organizations are covered under the Social Security system. For the distinction between newspapers and periodicals for the census of manufactures, see the foregoing statements under industry 2711.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2721, Periodicals, had employment of 116.2 thousand. The employment figure was 6 percent above the 110.0 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, Illinois, California, and Pennsylvania, accounting for approximately 53 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 56 percent of the industry's employment.

The total receipts for establishments classified in this industry were $22.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2721 shipped $19.8 billion of products considered primary to the industry, $1.1 billion of secondary products, and had $1.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2721, no matter in what industry they were produced, appear in table 6a and aggregate to $20.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the periodical publishing industry amounted to $6.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 21 percent of the total value of shipments.

INDUSTRY 2731, BOOK PUBLISHING

This industry is made up of establishments primarily engaged in publishing or in publishing and printing books and pamphlets. Establishments primarily engaged in printing or printing and binding books and pamphlets for publishers, but not publishing themselves, are classified in industry 2732. Industry 2731 also includes data on book publishing activities obtained from nonprofit organizations whose employees are covered under the Social Security system and were able to report their book publishing operations as a separate establishment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2731, Book Publishing, had employment of 79.6 thousand. The employment figure was 14 percent above the 70.1 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, California, New Jersey, and Minnesota, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when New York, California, Illinois, and New Jersey accounted for approximately 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $16.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2731 shipped $14.1 billion of products considered primary to the industry, $1.3 billion of secondary products, and had $1.4 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio also was 92 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 95 percent.

The products primary to industry 2731, no matter in what industry they were produced, appear in table 6a and aggregate to $14.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the book publishing industry amounted to $5.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2732, BOOK PRINTING

This industry is made up of establishments primarily engaged in printing or in printing and binding books and pamphlets, but not engaged in publishing. Establishments primarily engaged in publishing, or in publishing and printing books and pamphlets are classified in industry 2731. Establishments engaged in both printing and binding books, but primarily binding books printed elsewhere, are classified in industry 2789. Establishments classified in industry 2732 are similar in character to some establishments primarily engaged in commercial printing (industries 2752, 2754, and 2759). The distinction is that all the establishments classified in industry 2732 derive the greater part of their revenue from printing books and pamphlets, while such operations are secondary activities for establishments classified in industries 2752, 2754, and 2759.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2732, Book Printing, had employment of 50.9 thousand. The employment figure was 17 percent above the 43.5 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Indiana, and Tennessee. This represents a shift from 1987 when Pennsylvania, Tennessee, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $4.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2732 shipped $4.0 billion of products considered primary to the industry, $514.1 million of secondary products, and had $131.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio also was 89 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2732, no matter in what industry they were produced, appear in table 6a and aggregate to $4.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the book printing industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2741, MISCELLANEOUS PUBLISHING

This industry is made up of establishments primarily engaged in miscellaneous publishing activities, not elsewhere classified, whether or not engaged in printing. Establishments primarily engaged in offering financial, credit, or other business services, and which may publish directories as part of this service, are classified in Division l, Services.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2741, Miscellaneous Publishing, had employment of 65.4 thousand. The employment figure was 6 percent below the 69.5 thousand reported in 1987.

The leading States in employment in 1992 were New York, California, Pennsylvania, and Illinois, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when New York, California, Michigan, and New Jersey accounted for approximately 38 percent of the industry's employment.

The total receipts for establishments classified in this industry were $11.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2741 shipped $10.5 billion of miscellaneous publishing products considered primary to the industry, $269.0 million of secondary products, and had $232.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 91 percent.

The products primary to industry 2741, no matter in what industry they were produced, appear in table 6a and aggregate to $11.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the miscellaneous publishing industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2711, NEWSPAPERS															
1992 Census	6 762	8 679	2 629	417.0	10 506.4	135.3	235.8	3 038.8	27 247.0	6 874.0	34 124.3	1 667.4	767.4	96	100
1991 ASM	(NA)	(NA)	(NA)	428.4	10 308.7	145.1	251.6	3 086.6	26 092.7	7 606.2	33 702.1	1 537.8	915.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	443.4	10 407.1	149.2	253.2	3 133.0	26 559.6	8 087.2	34 641.7	1 885.9	974.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	430.9	9 842.3	147.4	253.8	2 999.4	25 929.7	8 218.4	34 145.8	1 984.5	880.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	432.4	9 348.9	146.4	262.5	2 998.1	24 891.9	8 038.3	32 926.8	1 631.3	979.1	(NA)	(NA)
1987 Census	7 473	9 091	2 619	434.4	9 021.7	148.4	262.4	2 985.1	24 311.3	7 533.6	31 850.1	1 522.7	857.1	97	100
1986 ASM	(NA)	(NA)	(NA)	420.0	8 380.5	151.9	270.0	2 913.0	22 168.6	7 024.5	29 205.9	1 296.0	783.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	411.0	7 904.7	151.3	265.9	2 829.0	20 426.3	6 584.6	27 014.7	1 429.7	833.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	398.6	7 366.7	148.5	264.9	2 712.1	18 871.7	6 429.3	25 302.2	1 086.6	829.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	404.1	7 059.1	150.0	263.6	2 600.2	17 298.2	5 991.5	23 259.4	991.3	795.4	(NA)	(NA)
1982 Census	7 520	8 846	2 554	401.5	6 554.7	147.2	259.3	2 386.6	15 275.3	6 006.4	21 276.3	1 029.2	754.9	96	100
1981 ASM	(NA)	(NA)	(NA)	419.0	6 288.9	164.6	286.9	2 411.8	14 257.6	5 793.0	20 050.2	1 023.1	681.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	414.0	5 761.5	163.0	279.2	2 264.4	12 809.5	5 153.7	17 962.7	974.7	516.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	396.2	5 213.7	157.6	273.0	2 083.6	11 629.5	4 568.1	16 196.7	765.3	415.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	365.5	4 796.4	151.7	261.5	1 958.8	10 522.4	4 035.4	14 557.5	625.5	394.3	(NA)	(NA)
1977 Census	7 836	8 867	2 147	349.9	4 306.0	147.2	252.5	1 805.3	9 519.1	3 539.2	13 055.9	478.1	382.1	96	100
INDUSTRY 2721, PERIODICALS															
1992 Census	4 390	4 699	991	116.2	4 074.5	20.1	39.0	522.5	15 833.0	6 200.9	22 033.9	234.4	1 066.7	95	95
1991 ASM	(NA)	(NA)	(NA)	110.6	3 661.0	20.7	35.4	467.7	13 794.4	6 459.0	20 345.1	223.0	1 012.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	115.2	3 658.5	21.6	35.4	463.4	13 847.7	6 579.6	20 396.7	274.8	1 117.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	115.9	3 422.8	20.7	32.6	405.9	13 248.4	6 581.0	19 787.2	272.2	1 106.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	111.4	3 152.1	19.1	33.8	405.2	12 439.6	6 201.9	18 611.8	246.1	1 056.7	(NA)	(NA)
1987 Census	3 759	4 020	876	110.0	2 982.7	18.3	32.4	358.2	11 452.1	5 872.7	17 329.2	246.4	899.2	95	96
1986 ASM	(NA)	(NA)	(NA)	98.1	2 710.9	14.2	24.9	288.9	10 196.0	5 558.1	15 719.4	274.1	783.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	95.8	2 554.5	16.2	28.4	272.4	9 678.1	5 579.8	15 246.4	339.7	817.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	93.5	2 231.7	16.2	28.8	250.8	8 943.9	5 117.6	14 052.6	267.4	803.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	93.4	2 073.7	17.3	31.9	256.3	7 868.9	4 603.6	12 436.7	251.7	774.2	(NA)	(NA)
1982 Census	3 143	3 328	690	94.0	1 986.1	17.4	31.9	243.2	6 910.9	4 568.1	11 478.0	194.8	723.9	93	97
1981 ASM	(NA)	(NA)	(NA)	79.9	1 564.0	14.1	24.4	183.8	6 075.3	3 789.7	9 843.0	170.9	585.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	77.8	1 427.7	13.3	22.7	163.2	5 599.8	3 374.0	8 964.6	132.6	552.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	76.3	1 253.3	14.1	20.6	143.9	4 986.7	3 055.9	8 311.3	119.5	488.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	74.8	1 169.8	12.1	22.3	132.9	4 430.7	2 760.9	7 160.0	89.8	429.2	(NA)	(NA)
1977 Census	2 863	2 994	525	69.9	1 019.8	10.6	20.5	115.7	3 762.7	2 289.2	6 056.5	78.9	349.6	90	96
INDUSTRY 2731, BOOK PUBLISHING															
1992 Census	2 504	2 644	500	79.6	2 675.7	18.6	35.5	443.3	11 494.4	5 337.7	16 731.1	326.7	2 944.1	92	95
1991 ASM	(NA)	(NA)	(NA)	77.3	2 514.1	17.1	30.0	381.6	11 683.3	5 001.4	16 596.1	330.5	2 817.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	73.5	2 299.9	17.3	31.2	364.5	10 919.5	4 465.5	15 317.9	329.1	2 769.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	73.9	2 132.3	17.1	30.2	349.1	9 915.5	4 365.5	14 074.2	319.1	2 642.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	70.2	2 009.8	16.5	30.4	327.1	9 851.9	3 988.1	13 570.7	302.4	2 318.3	(NA)	(NA)
1987 Census	2 182	2 298	424	70.1	1 859.8	15.9	28.7	306.1	9 110.7	3 663.2	12 619.5	239.7	2 090.9	92	95
1986 ASM	(NA)	(NA)	(NA)	71.6	1 775.6	14.4	25.6	259.4	7 755.9	3 099.8	10 731.5	202.8	1 982.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	70.9	1 672.1	15.6	28.6	279.8	7 395.8	3 021.1	10 196.2	232.1	1 895.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	69.4	1 600.3	14.9	27.2	268.3	6 722.9	2 890.1	9 459.2	199.4	1 713.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	69.3	1 474.9	17.1	33.0	277.9	5 823.8	2 683.2	8 427.4	163.6	1 521.1	(NA)	(NA)
1982 Census	2 007	2 130	419	67.1	1 327.3	15.2	30.8	237.1	5 291.5	2 420.0	7 740.0	174.1	1 379.9	94	91
1981 ASM	(NA)	(NA)	(NA)	63.5	1 123.3	14.3	27.4	194.3	4 623.2	2 165.7	6 760.4	153.0	1 324.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	64.5	1 035.4	14.4	27.1	177.1	4 148.8	1 999.9	6 114.4	126.3	1 223.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	63.4	946.6	13.3	24.6	159.9	3 783.5	1 858.8	5 574.2	117.4	1 174.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	63.5	910.5	13.5	24.5	155.8	3 739.0	1 735.1	5 398.2	97.4	1 062.8	(NA)	(NA)
1977 Census	1 652	1 745	346	59.5	830.2	13.3	24.9	140.1	3 261.9	1 544.2	4 793.9	79.8	992.0	94	88
INDUSTRY 2732, BOOK PRINTING															
1992 Census	575	623	293	50.9	1 360.7	38.8	76.2	923.9	2 833.6	1 868.4	4 687.9	198.2	419.1	89	85
1991 ASM	(NA)	(NA)	(NA)	48.5	1 185.8	37.9	72.6	819.1	2 388.0	1 752.8	4 140.0	163.5	375.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	48.7	1 162.7	37.5	74.7	797.2	2 400.9	1 740.8	4 132.0	211.7	378.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	47.3	1 077.5	37.7	73.0	753.9	2 212.7	1 624.8	3 838.8	179.8	342.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	45.5	1 108.6	36.2	68.7	778.3	2 026.6	1 555.8	3 565.9	170.0	335.1	(NA)	(NA)
1987 Census	519	561	269	43.5	961.4	34.4	67.7	675.6	1 996.5	1 269.3	3 256.3	154.4	297.0	89	88
1986 ASM	(NA)	(NA)	(NA)	43.5	930.4	34.0	68.2	648.6	1 883.3	1 234.5	3 102.4	181.3	300.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	43.4	886.7	33.9	66.5	618.1	1 765.3	1 174.9	2 919.4	202.1	273.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.2	848.7	32.7	64.8	594.1	1 671.2	1 169.6	2 828.2	113.3	277.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	43.6	812.1	33.3	64.8	557.4	1 535.5	1 029.7	2 572.3	100.3	250.3	(NA)	(NA)
1982 Census	637	681	308	44.7	762.5	34.5	64.7	542.6	1 429.9	948.1	2 392.4	98.6	243.6	89	84
1981 ASM	(NA)	(NA)	(NA)	50.1	800.0	39.6	75.9	576.5	1 526.4	1 030.8	2 556.1	103.7	245.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	48.2	695.4	37.7	71.9	499.3	1 346.2	903.6	2 244.8	94.4	233.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.2	617.2	37.1	72.0	453.5	1 214.9	808.3	2 024.0	80.9	220.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	49.1	614.8	39.5	77.0	444.3	1 163.2	757.1	1 923.8	102.8	209.7	(NA)	(NA)
1977 Census	900	950	370	46.9	548.2	37.6	72.6	404.1	1 029.2	662.6	1 691.8	54.3	194.0	85	78
INDUSTRY 2741, MISCELLANEOUS PUBLISHING															
1992 Census	3 159	3 390	570	65.4	1 732.9	23.7	43.3	467.8	8 524.9	2 476.7	10 977.1	190.4	902.4	97	91
1991 ASM	(NA)	(NA)	(NA)	65.0	1 779.7	22.6	43.4	416.7	7 353.6	2 469.8	9 762.0	165.5	721.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	65.2	1 707.8	22.3	40.2	377.9	6 656.2	2 266.7	8 874.7	178.6	676.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	62.4	1 594.2	22.1	40.2	371.5	6 060.0	2 056.3	8 021.2	144.0	623.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	68.2	1 553.4	24.5	43.0	376.0	6 248.1	1 953.8	8 154.4	162.0	597.1	(NA)	(NA)
1987 Census	2 129	2 369	598	69.5	1 513.1	23.8	43.3	359.6	6 023.0	1 791.0	7 809.5	133.0	467.9	98	91
1986 ASM	(NA)	(NA)	(NA)	53.1	1 129.1	18.4	31.3	275.3	3 631.5	1 246.9	4 887.4	102.6	347.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	52.0	1 047.4	17.1	29.5	239.2	3 264.6	1 199.5	4 437.0	109.7	349.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.0	775.9	16.6	28.2	210.9	2 321.9	949.4	3 222.9	69.1	307.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	44.8	712.2	18.4	29.9	211.6	2 105.4	943.4	3 011.7	82.5	298.3	(NA)	(NA)
1982 Census	1 952	2 057	430	45.3	705.9	17.9	29.2	206.2	1 958.2	909.6	2 871.3	67.1	244.4	95	86
1981 ASM	(NA)	(NA)	(NA)	41.7	666.2	20.3	36.8	232.1	1 891.7	788.6	2 674.5	60.0	230.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	47.4	643.6	22.2	39.2	211.2	1 792.9	732.6	2 505.4	58.7	219.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.4	568.7	21.4	38.1	194.7	1 535.0	624.3	2 142.0	55.1	180.6	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2741, MISCELLANEOUS PUBLISHING—Con.														
1978 ASM	(NA)	(NA)	(NA)	42.4	525.4	16.4	27.7	162.8	1 310.9	565.2	1 894.6	65.8	139.9	(NA)	(NA)
1977 Census	2 277	2 352	335	42.1	503.0	15.4	27.1	150.3	1 290.7	569.9	1 850.9	39.1	139.1	95	89

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2711, NEWSPAPERS								
1992 Census	25 195	32	1 743	12.89	20	51	65 341	39	115.55
1991 ASM	24 063	34	1 734	12.27	23	53	60 907	40	103.71
1990 ASM	23 471	34	1 697	12.37	23	53	59 900	39	104.90
1989 ASM	22 841	34	1 722	11.82	24	53	60 176	38	102.17
1988 ASM	21 621	34	1 793	11.42	24	53	57 567	38	94.83
1987 Census	20 768	34	1 768	11.38	24	52	55 965	37	92.65
1986 ASM	19 954	36	1 777	10.79	24	53	52 782	38	82.11
1985 ASM	19 233	37	1 757	10.64	24	54	49 699	39	76.82
1984 ASM	18 481	37	1 784	10.24	25	55	47 345	39	71.24
1983 ASM	17 469	37	1 757	9.86	26	56	42 807	41	65.62
1982 Census	16 326	37	1 762	9.20	28	59	38 046	43	58.91
1981 ASM	15 009	39	1 743	8.41	29	60	34 028	44	49.70
1980 ASM	13 917	39	1 713	8.11	29	61	30 941	45	45.88
1979 ASM	13 159	40	1 732	7.63	28	60	29 353	45	42.60
1978 ASM	13 123	42	1 724	7.49	28	61	28 789	46	40.24
1977 Census	12 306	42	1 715	7.15	27	60	27 205	45	37.70
	INDUSTRY 2721, PERIODICALS								
1992 Census	35 065	17	1 940	13.40	28	47	136 256	26	405.97
1991 ASM	33 101	19	1 710	13.21	32	50	124 723	27	389.67
1990 ASM	31 758	19	1 639	13.09	32	50	120 206	26	391.18
1989 ASM	29 532	18	1 575	12.45	33	51	114 309	26	406.39
1988 ASM	28 295	17	1 770	11.99	33	50	111 666	25	368.04
1987 Census	27 115	17	1 770	11.06	34	51	104 110	26	353.46
1986 ASM	27 634	14	1 754	11.60	35	53	103 935	27	409.48
1985 ASM	26 665	17	1 753	9.59	37	53	101 024	26	340.78
1984 ASM	23 868	17	1 778	8.71	36	52	95 657	25	310.55
1983 ASM	22 202	19	1 844	8.03	37	54	84 249	26	246.67
1982 Census	21 129	19	1 833	7.62	40	57	73 520	29	216.64
1981 ASM	19 574	18	1 730	7.53	39	54	76 036	26	248.99
1980 ASM	18 351	17	1 707	7.19	38	54	71 977	25	246.69
1979 ASM	16 426	18	1 461	6.99	37	52	65 356	25	242.07
1978 ASM	15 639	16	1 843	5.96	39	55	59 234	26	198.69
1977 Census	14 589	15	1 934	5.64	38	55	53 830	27	183.55
	INDUSTRY 2731, BOOK PUBLISHING								
1992 Census	33 614	23	1 909	12.49	32	48	144 402	23	323.79
1991 ASM	32 524	22	1 754	12.72	30	45	151 142	22	389.44
1990 ASM	31 291	24	1 803	11.68	29	44	148 565	21	349.98
1989 ASM	28 854	23	1 766	11.56	31	46	134 175	22	328.33
1988 ASM	28 630	24	1 842	10.76	29	44	140 340	20	324.08
1987 Census	26 531	23	1 805	10.67	29	44	129 967	20	317.45
1986 ASM	24 799	20	1 778	10.13	29	45	108 323	23	302.96
1985 ASM	23 584	22	1 833	9.78	30	46	104 313	23	258.59
1984 ASM	23 059	21	1 826	9.86	31	47	96 872	24	247.17
1983 ASM	21 283	25	1 930	8.42	32	49	84 038	25	176.48
1982 Census	19 781	23	2 026	7.70	31	48	78 860	25	171.80
1981 ASM	17 690	23	1 916	7.09	32	49	72 806	24	168.73
1980 ASM	16 053	22	1 882	6.54	33	50	64 322	25	153.09
1979 ASM	14 931	21	1 850	6.50	33	50	59 677	25	153.80
1978 ASM	14 339	21	1 815	6.36	32	49	58 882	24	152.61
1977 Census	13 953	22	1 872	5.63	32	50	54 822	25	131.00

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2732, BOOK PRINTING								
1992 Census	26 733	76	1 964	12.12	40	69	55 670	48	37.19
1991 ASM	24 449	78	1 916	11.28	42	71	49 237	50	32.89
1990 ASM	23 875	77	1 992	10.67	42	70	49 300	48	32.14
1989 ASM	22 780	80	1 936	10.33	42	70	46 780	49	30.31
1988 ASM	24 365	80	1 898	11.33	44	75	44 541	55	29.50
1987 Census	22 101	79	1 968	9.98	39	69	45 897	48	29.49
1986 ASM	21 389	78	2 006	9.51	40	70	43 294	49	27.61
1985 ASM	20 431	78	1 962	9.29	40	71	40 675	50	26.55
1984 ASM	20 111	77	1 982	9.17	41	71	39 602	51	25.79
1983 ASM	18 626	76	1 946	8.60	40	72	35 218	53	23.70
1982 Census	17 058	77	1 875	8.39	40	72	31 989	53	22.10
1981 ASM	15 968	79	1 917	7.60	40	72	30 467	52	20.11
1980 ASM	14 427	78	1 907	6.94	40	71	27 929	52	18.72
1979 ASM	13 359	80	1 941	6.30	40	70	26 297	51	16.87
1978 ASM	12 521	80	1 949	5.77	39	71	23 690	53	15.11
1977 Census	11 689	80	1 931	5.57	39	72	21 945	53	14.18
	INDUSTRY 2741, MISCELLANEOUS PUBLISHING								
1992 Census	26 495	36	1 827	10.80	23	38	130 350	20	196.88
1991 ASM	27 380	35	1 920	9.60	25	44	113 132	24	169.44
1990 ASM	26 193	34	1 803	9.40	26	45	102 089	26	165.58
1989 ASM	25 548	35	1 819	9.24	26	46	97 115	26	150.75
1988 ASM	22 777	36	1 755	8.74	24	43	91 614	25	145.30
1987 Census	21 771	34	1 819	8.30	23	42	86 662	25	139.10
1986 ASM	21 264	35	1 701	8.80	26	49	68 390	31	116.02
1985 ASM	20 142	33	1 725	8.11	27	51	62 781	32	110.66
1984 ASM	18 474	40	1 699	7.48	29	54	55 283	33	82.34
1983 ASM	15 897	41	1 625	7.08	31	55	46 996	34	70.41
1982 Census	15 583	40	1 631	7.06	32	56	43 227	36	67.06
1981 ASM	15 976	49	1 813	6.31	29	54	45 365	35	51.40
1980 ASM	13 578	47	1 766	5.39	29	55	37 825	36	45.74
1979 ASM	12 256	46	1 780	5.11	29	56	33 082	37	40.29
1978 ASM	12 392	39	1 689	5.88	30	58	30 917	40	47.32
1977 Census	11 948	37	1 760	5.55	31	58	30 658	39	47.63

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2711, NEWSPAPERS														
United States	**E1**	**8 679**	**2 629**	**417.0**	**10 506.4**	**135.3**	**235.8**	**3 038.8**	**27 247.0**	**6 874.0**	**34 124.3**	**1 667.4**	**434.4**	**24 311.3**
Alabama	–	132	33	4.1	92.6	1.6	3.2	28.6	248.0	54.4	302.5	6.6	4.2	222.6
Alaska	E5	37	10	1.2	22.7	.3	.5	5.7	42.2	12.4	55.4	2.2	1.2	45.8
Arizona	E1	110	34	6.3	163.2	2.1	3.9	47.2	479.6	112.7	592.3	(D)	6.7	403.8
Arkansas	E1	117	43	3.5	58.3	1.4	2.5	20.2	146.3	42.4	188.7	7.0	3.7	118.0
California	E1	692	249	52.3	1 395.5	14.5	25.6	331.0	3 555.9	887.0	4 443.4	148.7	52.1	3 066.9
Colorado	–	150	42	6.8	159.1	2.2	3.6	47.7	365.3	116.7	482.0	70.4	7.2	322.3
Connecticut	–	91	35	7.2	186.0	1.7	2.7	38.7	437.3	88.4	525.7	13.4	8.2	455.8
Delaware	–	18	6	.9	22.6	.3	.5	5.7	75.8	19.0	94.8	(D)	F	(D)
District of Columbia	E1	33	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.0	(NA)	(D)
Florida	–	329	89	22.8	605.0	7.6	13.0	162.6	1 757.0	431.8	2 189.3	49.3	25.2	1 524.7
Georgia	–	233	56	10.2	234.2	3.1	5.8	59.6	550.8	144.6	695.6	49.3	8.9	505.9
Hawaii	–	23	8	1.5	49.6	.7	1.2	20.7	232.0	30.3	261.4	5.0	G	(D)
Idaho	E1	60	16	1.7	29.7	.6	1.0	10.1	80.2	17.1	97.3	2.2	1.7	63.5
Illinois	E2	430	125	19.7	492.7	6.4	11.0	145.8	1 443.8	344.9	1 788.3	66.7	19.4	1 187.3
Indiana	–	208	84	10.3	217.1	3.6	6.2	73.2	502.1	118.9	621.1	30.7	9.7	419.4
Iowa	E1	241	59	6.1	105.3	2.2	3.5	35.2	299.7	76.2	375.9	10.6	5.9	255.6
Kansas	E1	184	46	4.1	76.2	1.5	2.4	24.4	182.7	37.7	220.7	4.8	(NA)	(D)
Kentucky	–	156	44	4.4	99.8	1.4	2.6	27.3	258.0	62.7	320.9	9.9	4.5	223.4
Louisiana	–	107	38	4.3	100.2	1.5	2.7	31.7	261.0	81.4	342.5	12.8	4.7	258.1
Maine	–	68	18	2.4	56.2	.9	1.4	17.3	115.2	25.7	140.9	3.4	2.6	113.6
Maryland	E1	86	30	4.9	148.3	1.7	2.6	41.4	405.1	81.4	486.6	13.1	6.1	372.4
Massachusetts	–	188	69	14.8	441.0	4.4	7.7	114.1	978.8	211.4	1 191.2	32.6	16.1	1 030.6
Michigan	–	230	88	14.1	361.5	4.3	7.7	109.9	790.0	235.0	1 025.4	52.8	13.1	668.5
Minnesota	E1	287	63	8.5	209.1	2.8	4.6	63.8	483.9	112.8	596.6	15.1	8.2	432.5
Mississippi	–	105	28	2.6	47.5	.9	1.8	16.0	128.2	37.5	165.7	5.0	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2711, NEWSPAPERS—Con.														
Missouri	E1	292	68	8.2	190.3	2.7	4.5	55.8	520.8	144.4	665.3	20.6	8.2	441.9
Montana	E1	76	14	1.5	26.2	.6	.9	7.5	78.8	16.2	94.9	2.3	1.5	66.5
Nebraska	E1	139	29	3.2	56.6	1.0	1.8	15.6	155.0	39.3	194.2	5.1	3.2	122.9
Nevada	–	37	10	1.6	37.0	.8	1.5	18.6	163.6	35.7	199.3	2.3	1.6	94.7
New Hampshire	E1	55	17	2.1	44.4	.7	1.0	12.5	97.7	20.5	118.4	2.6	2.2	107.3
New Jersey	E1	186	54	11.9	329.4	3.2	5.1	87.6	872.7	261.9	1 134.6	67.7	14.1	879.2
New Mexico	E1	57	22	2.1	39.9	.7	1.3	11.7	114.3	26.0	140.3	5.3	1.8	105.3
New York	E1	504	167	31.6	1 111.5	10.0	18.7	343.0	2 639.4	702.4	3 341.4	187.3	38.8	2 659.0
North Carolina	–	215	83	9.9	214.2	3.5	6.0	67.6	539.9	132.5	671.9	17.2	(NA)	(D)
North Dakota	E3	68	14	1.5	26.1	.6	1.1	10.1	70.7	14.5	85.2	1.6	G	(D)
Ohio	E1	286	113	16.6	422.6	6.1	11.1	140.2	1 091.3	272.4	1 364.0	123.6	17.4	970.3
Oklahoma	–	175	45	4.7	100.1	1.6	2.8	32.1	274.2	62.9	337.1	14.7	4.9	229.8
Oregon	–	121	40	4.8	113.8	1.6	2.7	36.9	288.3	82.6	370.8	24.0	4.6	219.7
Pennsylvania	E1	306	126	21.9	572.9	7.5	12.1	179.7	1 334.4	342.5	1 677.1	273.4	22.7	1 163.7
Rhode Island	E1	22	11	2.3	72.9	.8	1.2	21.3	124.9	37.6	162.4	(D)	2.6	128.4
South Carolina	E1	105	30	4.5	92.5	1.4	2.4	23.1	249.4	60.1	309.7	11.3	4.3	201.8
South Dakota	E1	91	16	1.6	24.0	.6	.9	7.3	65.4	16.0	81.5	2.4	1.5	51.0
Tennessee	–	167	53	7.4	136.0	2.1	3.7	36.7	404.4	84.5	489.0	11.1	7.8	393.3
Texas	E1	634	131	20.8	482.8	7.5	14.4	148.8	1 458.0	480.3	1 938.4	32.7	25.5	1 335.8
Utah	–	58	13	2.8	48.9	.8	1.6	13.8	131.7	32.0	163.6	3.2	1.3	19.9
Vermont	E1	53	15	1.1	21.2	.5	.7	7.0	55.3	12.6	67.9	(D)	1.1	52.8
Virginia	–	174	63	11.3	283.5	3.3	5.4	55.3	828.5	236.9	1 065.6	19.2	10.9	668.5
Washington	E2	186	57	10.4	255.8	3.7	6.2	95.2	589.7	130.3	720.1	36.8	9.5	493.7
West Virginia	E2	80	21	2.9	47.3	1.3	2.4	23.7	121.8	29.8	151.6	4.0	2.6	106.7
Wisconsin	–	235	79	10.9	199.7	3.3	5.6	60.5	497.1	127.8	624.8	16.8	11.2	420.7
Wyoming	E2	42	14	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	27.0
INDUSTRY 2721, PERIODICALS														
United States	**E2**	**4 699**	**991**	**116.2**	**4 074.5**	**20.1**	**39.0**	**522.5**	**15 833.0**	**6 200.9**	**22 033.9**	**234.4**	**110.0**	**11 452.1**
Alabama	–	42	12	1.0	30.2	.2	.3	2.5	162.3	49.7	212.0	1.2	.9	128.2
Arizona	E2	72	9	.6	15.7	.1	.3	2.2	39.2	20.5	59.4	(D)	E	(D)
Arkansas	E4	18	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E2	646	144	11.1	374.1	2.3	4.6	49.3	1 411.0	512.0	1 923.9	17.3	9.0	888.8
Colorado	E1	99	15	1.1	34.1	.2	.4	5.0	103.3	37.1	140.9	2.0	.6	61.1
Connecticut	E1	108	27	2.6	93.0	.5	1.1	14.2	336.7	127.2	463.5	4.6	2.1	213.5
District of Columbia	–	84	26	4.6	194.6	.4	.8	11.8	722.1	246.3	956.0	15.6	5.0	563.6
Florida	E1	281	31	3.4	87.1	.6	1.3	12.7	250.8	117.3	368.7	4.2	3.0	182.9
Georgia	E3	108	23	2.4	71.6	.9	1.6	19.7	227.7	91.4	319.5	4.1	1.6	115.3
Hawaii	E1	28	3	.2	6.2	(Z)	.1	.9	20.3	7.9	28.1	(D)	(NA)	(D)
Idaho	–	21	5	.3	7.5	.1	.2	2.7	21.1	8.2	29.8	.3	E	(D)
Illinois	E2	249	66	11.9	340.5	2.2	4.2	56.0	1 036.6	414.8	1 451.1	16.3	12.0	877.1
Indiana	E4	65	13	1.1	29.2	.3	.6	6.0	90.5	40.7	131.3	1.1	F	(D)
Iowa	–	40	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	35	6	.5	14.8	(Z)	.1	.6	82.0	29.5	111.2	1.8	F	(D)
Kentucky	E2	45	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	E	(D)
Louisiana	E4	36	3	.2	4.3	(Z)	.1	.6	10.3	5.0	15.3	.1	.3	14.5
Maine	E3	23	4	.2	6.9	(Z)	.1	.6	16.9	7.9	24.3	.3	.2	14.4
Maryland	E1	103	15	1.6	50.7	.3	.7	10.2	158.4	58.9	222.1	4.4	1.9	136.1
Massachusetts	E4	183	45	3.6	131.1	.5	1.0	12.1	461.1	178.6	634.4	6.3	3.6	350.4
Michigan	E1	106	19	1.9	49.3	.4	.7	8.2	134.1	47.2	181.6	2.4	1.4	88.4
Minnesota	–	109	19	1.6	41.0	.3	.5	5.3	233.5	61.1	294.2	(D)	2.7	195.1
Missouri	E2	77	15	2.4	57.2	.6	1.2	12.3	131.7	46.3	176.6	2.8	2.4	123.0
Nebraska	–	26	2	.4	11.0	.1	.2	2.4	34.7	14.7	49.4	(D)	(NA)	(D)
Nevada	E2	18	1	.1	3.1	.1	.1	1.2	10.1	3.4	13.5	(D)	(NA)	(NA)
New Hampshire	–	33	10	.6	20.4	.1	.1	1.2	104.1	27.8	131.9	.6	.9	88.1
New Jersey	E1	195	44	4.0	154.2	.9	1.7	20.0	496.1	182.5	683.4	9.2	3.4	285.5
New Mexico	E4	28	2	.1	3.1	(Z)	(Z)	.3	7.9	4.0	11.9	.1	(NA)	(NA)
New York	E1	622	199	34.0	1 537.0	4.0	7.8	169.6	6 912.0	2 706.6	9 618.1	97.8	33.3	5 012.2
North Carolina	E3	77	18	1.1	28.5	.3	.6	6.6	88.7	44.7	133.1	1.9	F	(D)
Ohio	–	120	38	3.5	99.3	.7	1.4	14.9	362.1	113.0	476.2	6.2	3.5	278.1
Oklahoma	E8	33	2	.4	9.8	(Z)	.1	.7	76.9	16.8	93.8	(D)	.8	59.9
Oregon	E1	46	9	.5	11.7	.2	.3	3.5	48.1	21.6	69.0	.9	.4	21.8
Pennsylvania	E6	159	34	4.7	151.1	.5	.9	11.3	762.7	427.5	1 192.4	6.3	6.8	795.9
Rhode Island	E1	13	2	.2	5.5	(Z)	.1	.8	16.9	4.4	21.3	(D)	(NA)	(NA)
South Carolina	E6	35	1	.2	3.2	(Z)	.1	.5	9.7	5.0	14.6	(D)	(NA)	(NA)
Tennessee	E1	68	11	2.4	66.8	.5	.8	8.9	166.8	29.3	196.4	(D)	F	(D)
Texas	E2	204	26	3.1	80.2	.8	1.7	14.7	221.7	85.7	301.2	(D)	2.5	170.3
Utah	E4	23	3	.3	8.6	.1	.2	2.0	26.7	10.5	36.8	.7	(NA)	(D)
Vermont	E1	20	6	.3	8.0	.1	.1	1.3	30.0	14.2	44.3	.3	.2	14.8
Virginia	E2	133	24	1.8	53.8	.4	.7	7.1	148.1	46.2	194.7	1.8	1.0	67.5
Washington	E3	102	14	.9	26.2	.2	.4	6.2	52.3	20.9	76.4	1.1	.6	38.0
Wisconsin	E1	97	17	2.0	47.2	.5	1.0	8.7	221.3	75.3	296.3	6.3	1.3	90.5

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/15/95 15:49:58 EPCV23 TLP:27A.BTI;59 6/12/95 18:17:44 DATA:NONE UPF:92MFFI_PUBS:27ADAT.UPF PAGE: 4
TSF:27A_92.DAT;1 6/12/95 18:18:09 UTF:27A_93.DAT;3 6/15/95 15:41:01 META:TIPS96-15483659.DAT;1 6/15/95 15:49:30

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2731, BOOK PUBLISHING														
United States	**E1**	**2 644**	**500**	**79.6**	**2 675.7**	**18.6**	**35.5**	**443.3**	**11 494.4**	**5 337.7**	**16 731.1**	**326.7**	**70.1**	**9 110.7**
Alabama	–	27	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	E5	44	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	10	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E3	405	70	6.8	215.0	1.6	2.9	35.7	879.4	329.1	1 194.9	19.0	6.2	537.5
Colorado	E1	60	6	1.3	35.3	.6	1.0	14.9	121.5	17.3	137.0	3.5	1.0	83.0
Connecticut	–	63	14	1.3	34.8	.2	.4	6.6	170.6	74.3	241.5	(D)	2.3	99.2
Florida	–	90	11	1.4	42.3	.4	.7	8.2	177.8	42.5	226.2	1.6	.9	74.9
Georgia	E5	30	4	.3	7.5	.1	.2	2.5	24.6	7.9	32.2	.4	.6	51.7
Illinois	E1	157	40	5.5	200.6	.9	1.7	19.9	698.7	319.3	1 028.2	9.2	6.1	893.9
Indiana	–	36	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	18	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E6	25	2	.1	1.9	(Z)	(Z)	.2	4.5	3.3	9.0	(D)	(NA)	(NA)
Kentucky	E4	20	7	.9	10.7	.6	.5	4.8	47.9	18.7	66.9	.7	(NA)	(D)
Louisiana	E3	15	2	.1	2.3	(Z)	.1	.5	6.6	2.4	8.4	(D)	(NA)	(NA)
Maine	E3	14	2	.1	3.2	(Z)	.1	.7	12.4	3.7	15.9	(D)	(NA)	(D)
Maryland	E4	64	10	.8	23.5	.2	.4	3.8	66.5	33.8	99.3	2.7	.8	45.8
Massachusetts	E1	103	27	4.8	172.6	.6	1.2	15.3	734.6	416.1	1 133.4	11.5	4.1	647.6
Michigan	–	58	16	1.5	40.0	.4	.7	8.8	231.7	77.0	295.3	3.7	1.0	72.6
Minnesota	E1	48	11	6.2	184.4	2.9	6.0	65.7	518.7	318.0	833.9	(D)	(NA)	(D)
Missouri	E1	53	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.5	1.3	105.3
Nebraska	E1	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	E1	11	3	.2	4.4	(Z)	.1	.7	17.0	4.2	21.1	(D)	(NA)	(D)
New Jersey	–	116	36	6.3	206.8	.9	1.6	22.7	1 017.8	325.0	1 350.9	18.7	4.5	545.0
New Mexico	E4	24	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	383	95	20.4	838.4	3.1	6.0	75.8	4 244.0	2 089.7	6 272.3	96.1	21.0	4 195.2
North Carolina	E2	46	8	.5	13.4	.2	.3	2.1	72.0	35.6	106.3	1.0	E	(D)
Ohio	E4	64	10	3.8	134.7	1.8	3.8	64.4	397.8	94.7	495.6	(D)	(NA)	(D)
Oklahoma	E2	22	2	.2	3.6	(Z)	.1	.5	14.7	8.1	23.1	(D)	(NA)	(NA)
Oregon	E1	53	5	.4	10.3	.1	.2	2.4	32.8	23.2	56.8	.7	.3	18.3
Pennsylvania	–	78	20	3.3	115.0	.6	1.1	17.5	610.7	232.9	835.8	7.4	1.8	134.6
South Carolina	E7	21	1	.1	1.9	(Z)	.1	.8	5.9	1.9	7.7	(D)	(NA)	(NA)
Tennessee	E6	67	15	1.5	39.1	.3	.6	6.4	130.7	90.7	222.6	3.6	2.5	191.9
Texas	E2	116	20	3.2	85.5	.5	.9	7.2	381.0	124.6	517.4	8.1	1.5	171.7
Utah	E5	28	1	.1	2.5	(Z)	(Z)	.3	7.1	4.7	12.0	.4	.2	31.1
Vermont	E6	25	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	52	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	158.0
Washington	E4	61	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	14.1
Wisconsin	–	39	6	1.1	33.5	.7	1.4	23.0	28.5	193.3	211.9	2.5	1.3	110.6
INDUSTRY 2732, BOOK PRINTING														
United States	**–**	**623**	**293**	**50.9**	**1 360.7**	**38.8**	**76.2**	**923.9**	**2 833.6**	**1 868.4**	**4 687.9**	**198.2**	**43.5**	**1 996.5**
California	E1	79	31	2.8	87.1	1.7	3.5	44.0	197.9	92.8	284.3	9.7	2.0	99.9
Colorado	–	13	7	.8	17.1	.5	1.0	9.6	31.6	21.8	53.0	4.6	.3	12.8
Florida	E1	26	9	.5	12.3	.3	.6	7.4	22.0	14.0	35.8	1.9	.2	9.8
Georgia	E4	14	4	.3	9.6	.3	.5	7.0	19.6	15.7	35.3	1.5	.4	15.2
Illinois	–	49	20	2.0	61.4	1.3	2.8	33.6	110.7	76.5	186.9	4.6	1.8	86.5
Indiana	–	12	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	10	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	9	6	1.4	40.2	1.0	2.0	27.2	79.4	49.0	128.7	3.4	G	(D)
Maryland	E1	25	15	1.7	53.1	1.2	2.7	32.1	78.9	92.4	171.1	4.7	1.6	69.1
Massachusetts	E1	29	23	3.1	92.7	2.4	4.9	67.0	168.5	114.6	285.8	10.8	3.3	147.0
Michigan	E1	26	18	2.9	68.2	2.1	4.1	45.0	150.4	90.9	242.1	5.2	2.2	92.7
Minnesota	E2	8	6	.3	7.2	.2	.4	3.2	15.9	5.7	21.5	(D)	E	(D)
Missouri	–	12	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.1	1.7	82.5
Nebraska	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	24	10	.7	28.7	.5	1.0	14.9	63.7	19.0	82.5	3.0	.7	34.1
New York	–	53	17	3.2	95.1	2.5	4.6	68.6	172.4	107.8	277.3	10.0	2.7	114.5
North Carolina	–	14	5	1.4	33.0	1.1	2.2	22.5	61.2	37.1	98.1	1.6	G	(D)
Ohio	–	19	7	2.4	66.7	2.0	4.0	50.6	159.7	97.0	256.5	(D)	G	(D)
Oregon	–	6	4	.3	9.3	.2	.4	5.1	29.0	14.4	43.3	4.5	(NA)	(NA)
Pennsylvania	–	33	21	5.2	128.4	4.2	8.3	96.1	289.8	156.4	444.3	23.5	5.0	227.6
South Carolina	–	5	3	.2	4.7	.1	.3	3.4	13.8	2.8	16.1	.3	(NA)	(NA)
Tennessee	–	11	7	3.9	94.4	3.2	6.4	74.4	210.7	113.1	323.8	3.9	3.5	157.7
Texas	–	27	11	2.2	56.0	1.5	3.0	35.3	93.2	72.9	167.0	10.9	1.8	81.0
Utah	–	10	7	.8	15.8	.6	1.2	10.3	38.1	39.7	79.3	4.8	.4	16.0
Vermont	E7	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	E1	13	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	82.6
Washington	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	18	8	2.4	76.5	1.8	3.7	51.7	142.4	154.5	298.3	12.6	2.5	142.7

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/15/95 15:49:58 EPCV23 TLP:27A.BTI;59 6/12/95 18:17:44 DATA:NONE UPF:92MFFI_PUBS:27ADAT.UPF PAGE: 5
TSF:27A_92.DAT;1 6/12/95 18:18:09 UTF:27A_93.DAT;3 6/15/95 15:41:01 META:TIPS96-15483659.DAT;1 6/15/95 15:49:30

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2741, MISCELLANEOUS PUBLISHING														
United States	**E1**	**3 390**	**570**	**65.4**	**1 732.9**	**23.7**	**43.3**	**467.8**	**8 524.9**	**2 476.7**	**10 977.1**	**190.4**	**69.5**	**6 023.0**
Alabama	E1	25	3	.4	7.6	.2	.5	3.9	22.5	8.2	30.3	.9	E	(D)
Arizona	–	41	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	E5	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	29.7
California	E1	473	69	8.5	240.4	3.2	5.9	63.4	1 640.3	355.7	1 965.2	37.6	8.4	1 170.3
Colorado	E1	79	18	3.4	95.9	1.7	3.3	39.3	440.9	92.8	533.4	20.6	3.6	313.0
Connecticut	E2	60	10	1.1	30.3	.5	.8	8.7	84.5	27.8	112.6	1.7	1.9	104.2
District of Columbia	E2	26	5	.3	11.5	.1	.1	1.2	27.8	5.7	33.4	.6	.4	36.3
Florida	E4	199	25	2.9	59.0	1.0	1.8	16.2	171.1	54.5	225.6	4.4	3.2	120.5
Georgia	E5	65	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Hawaii	E7	12	3	.2	8.8	.1	.2	2.2	29.7	12.0	41.7	.6	(NA)	(D)
Idaho	–	20	5	.2	3.5	.1	.1	.8	11.5	2.7	14.1	.3	(NA)	(NA)
Illinois	E1	136	26	3.5	109.9	1.2	2.1	34.4	388.7	352.2	741.5	5.3	3.5	368.9
Indiana	E2	44	6	.6	12.5	.2	.4	4.1	41.6	13.0	54.8	(D)	1.5	79.3
Iowa	E3	51	11	1.0	17.4	.3	.6	4.5	57.6	15.5	73.2	.6	.7	27.4
Kansas	–	43	12	2.0	51.0	.5	1.1	10.9	386.6	57.1	443.3	4.1	1.4	277.0
Kentucky	–	33	6	.8	19.1	.4	.7	6.4	107.9	13.2	122.6	.6	F	(D)
Louisiana	E4	31	4	.2	3.5	.1	.1	.9	11.5	4.0	15.5	(D)	.2	29.2
Maine	E1	19	1	.2	4.9	.1	.1	1.0	15.8	2.5	18.7	.4	(NA)	(NA)
Maryland	E4	77	15	1.7	51.3	.4	.7	7.0	173.6	41.8	215.3	3.1	1.5	84.0
Massachusetts	–	96	14	2.5	76.4	.5	1.0	11.1	768.9	248.5	1 018.1	(D)	3.4	632.0
Michigan	–	100	19	3.1	95.2	1.1	2.1	26.0	993.3	121.6	1 112.8	10.4	5.1	297.6
Minnesota	–	75	14	1.0	26.1	.5	.8	8.6	129.2	39.0	167.8	(D)	1.5	107.6
Missouri	E6	46	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	46.2
Montana	E3	13	2	.1	1.6	(Z)	.1	.4	6.0	1.6	7.7	(D)	(NA)	(NA)
Nebraska	–	13	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	E4	23	3	.2	3.6	.1	.1	1.0	10.8	4.1	14.9	.3	(NA)	(NA)
New Jersey	E3	118	16	2.5	86.7	.7	1.2	17.2	200.2	54.9	255.5	3.7	3.9	183.1
New Mexico	E4	14	3	.1	1.3	.1	.1	.4	3.1	1.0	4.1	(D)	(NA)	(NA)
New York	E3	382	75	9.0	258.3	2.6	4.3	57.6	832.4	296.5	1 127.7	15.1	9.4	882.0
North Carolina	E6	47	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Dakota	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E2	103	20	1.8	37.9	.7	1.2	10.4	128.6	36.0	163.3	(D)	2.6	138.6
Oklahoma	E6	26	6	.3	6.3	.1	.2	1.0	24.0	9.0	33.1	.2	.2	6.4
Oregon	–	51	4	.7	18.3	.3	.5	6.9	105.5	18.6	127.9	1.9	.6	66.3
Pennsylvania	E1	116	34	3.9	94.1	2.1	4.3	38.3	589.6	189.8	779.7	9.8	2.5	171.8
South Carolina	E2	33	1	.2	5.0	.1	.1	1.7	14.2	4.6	18.1	.2	(NA)	(NA)
Tennessee	E3	106	10	1.3	29.5	.8	1.8	16.8	85.1	57.3	143.8	1.9	.8	38.7
Texas	E4	196	29	2.4	63.9	.7	1.3	12.8	223.3	79.9	307.5	2.9	2.4	119.4
Utah	–	20	5	1.6	38.8	.4	.9	6.4	98.8	53.4	147.3	(D)	.3	16.0
Vermont	E2	16	2	.3	5.6	.2	.4	3.1	8.3	1.9	10.3	(D)	.3	7.8
Virginia	E2	86	16	1.0	28.2	.4	.7	6.5	84.8	24.0	109.1	1.3	1.1	71.3
Washington	E1	88	9	1.0	25.7	.4	.7	7.5	136.8	42.7	186.0	1.4	.4	102.4
Wisconsin	E1	92	26	1.6	23.0	.6	.8	7.0	53.1	21.1	73.8	1.4	1.2	35.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Newspapers (SIC 2711)			Periodicals (SIC 2721)		
	Total	Daily (SIC 2711–11)	Weekly and others (SIC 2711–13)	Total	Publishing only (SIC 2721–11)	Publishing and printing (SIC 2721–13)
Companies—number	6 762	573	6 350	4 390	4 062	340
All establishments—number	8 679	1 526	7 153	4 699	4 336	363
With 1 to 19 employees—number	6 050	135	5 915	3 708	3 504	204
With 20 to 99 employees—number	1 863	749	1 114	790	673	117
With 100 employees or more—number	766	642	124	201	159	42
Employment and labor costs:						
Employees—1,000	417.0	317.2	99.8	116.2	94.4	21.8
Compensation, total—mil dol	12 938.0	10 742.8	2 195.2	4 860.3	4 066.2	794.1
Annual payroll—mil dol	10 506.4	8 683.6	1 822.8	4 074.5	3 418.6	655.9
Fringe benefits—mil dol	2 431.6	2 059.3	372.3	785.8	647.6	138.2
Social Security and other legally required payments—mil dol	1 009.2	844.8	164.4	316.4	267.3	49.1
Employer voluntary payments—mil dol	1 422.4	1 214.5	207.9	469.5	380.3	89.1

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Newspapers (SIC 2711)			Periodicals (SIC 2721)		
	Total	Daily (SIC 2711–11)	Weekly and others (SIC 2711–13)	Total	Publishing only (SIC 2721–11)	Publishing and printing (SIC 2721–13)
Production workers:						
Average for year ---- 1,000	135.3	100.2	35.1	20.1	13.1	7.0
March ---- 1,000	136.1	100.1	36.0	20.4	13.4	7.0
May ---- 1,000	135.9	100.3	35.6	20.1	13.2	6.9
August ---- 1,000	135.6	100.2	35.4	20.2	13.2	7.0
November ---- 1,000	134.1	100.3	33.8	19.8	12.9	7.0
Hours ---- millions	235.8	175.5	60.3	39.0	25.5	13.5
Wages ---- mil dol	3 038.8	2 500.7	538.1	522.5	324.1	198.3
Cost of materials[1] ---- mil dol	6 874.0	5 455.3	1 418.7	6 200.9	5 620.0	580.9
Materials, parts, containers, etc., consumed[2] ---- mil dol	5 850.3	4 822.7	1 027.5	2 417.1	2 076.2	341.0
Resales ---- mil dol	96.4	43.6	52.9	168.3	134.4	33.9
Fuels ---- mil dol	51.3	40.5	10.8	10.4	8.5	1.9
Purchased electricity ---- mil dol	244.9	207.8	37.1	33.7	23.9	9.7
Contract work ---- mil dol	631.1	340.6	290.5	3 571.3	3 377.0	194.4
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	3 652.5	3 078.8	573.8	423.9	291.6	132.3
Generated less sold ---- mil kWh	(D)	(D)	(D)	–	–	–
Total value of shipments ---- mil dol	34 124.3	28 212.2	5 912.1	22 033.9	19 477.0	2 556.9
Value added ---- mil dol	27 247.0	22 754.6	4 492.3	15 833.0	13 845.6	1 987.4
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	819.7	634.9	184.7	1 071.4	877.4	194.0
Finished goods ---- mil dol	24.4	12.4	12.0	445.3	358.1	87.1
Work in process ---- mil dol	8.7	4.7	4.1	187.7	143.0	44.7
Materials and supplies ---- mil dol	786.5	617.9	168.7	438.4	376.3	62.1
End of 1992 ---- mil dol	767.4	592.7	174.7	1 066.7	861.1	205.6
Finished goods ---- mil dol	22.3	11.5	10.8	431.6	344.1	87.5
Work in process ---- mil dol	7.5	3.2	4.3	201.3	145.6	55.7
Materials and supplies ---- mil dol	737.7	578.0	159.6	433.8	371.4	62.3

Item	Book publishing (SIC 2731)			Book printing (SIC 2732)	Miscellaneous publishing (SIC 2741)		
	Total	Publishing only (SIC 2731–11)	Publishing and printing (SIC 2731–13)		Total	Publishing only (SIC 2741–11)	Publishing and printing (SIC 2741–13)
Companies ---- number	2 504	2 335	178	575	3 159	3 011	161
All establishments ---- number	2 644	2 464	180	623	3 390	3 219	171
With 1 to 19 employees ---- number	2 144	2 032	112	330	2 820	2 749	71
With 20 to 99 employees ---- number	364	322	42	191	437	375	62
With 100 employees or more ---- number	136	110	26	102	133	95	38
Employment and labor costs:							
Employees ---- 1,000	79.6	60.9	18.6	50.9	65.4	52.2	13.2
Compensation, total ---- mil dol	3 245.4	2 541.5	703.8	1 670.5	2 074.7	1 672.5	402.2
Annual payroll ---- mil dol	2 675.7	2 086.6	589.2	1 360.7	1 732.9	1 401.7	331.2
Fringe benefits ---- mil dol	569.6	454.9	114.7	309.8	341.8	270.8	71.0
Social Security and other legally required payments ---- mil dol	223.0	176.9	46.2	137.9	135.7	104.4	31.3
Employer voluntary payments ---- mil dol	346.6	278.1	68.5	171.9	206.2	166.5	39.7
Production workers:							
Average for year ---- 1,000	18.6	10.1	8.6	38.8	23.7	17.4	6.3
March ---- 1,000	18.7	10.1	8.6	39.8	23.7	17.5	6.3
May ---- 1,000	18.9	10.3	8.6	39.2	24.0	17.7	6.3
August ---- 1,000	18.6	9.9	8.6	38.2	24.1	17.5	6.6
November ---- 1,000	18.4	10.0	8.4	38.0	23.2	17.0	6.2
Hours ---- millions	35.5	18.2	17.3	76.2	43.3	31.4	11.8
Wages ---- mil dol	443.3	215.8	227.6	923.9	467.8	343.0	124.8
Cost of materials[1] ---- mil dol	5 337.7	4 562.5	775.2	1 868.4	2 476.7	2 143.5	333.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 613.7	1 124.0	489.6	1 587.6	708.6	474.7	233.9
Resales ---- mil dol	270.7	235.6	35.1	18.7	83.7	71.2	12.5
Fuels ---- mil dol	8.9	7.1	1.8	13.0	6.8	4.7	2.1
Purchased electricity ---- mil dol	29.9	18.4	11.5	49.5	23.9	16.4	7.5
Contract work ---- mil dol	3 414.5	3 177.4	237.1	199.6	1 653.7	1 576.5	77.2
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	418.6	226.7	191.9	886.1	346.5	221.8	124.8
Generated less sold ---- mil kWh	–	–	–	–	–	–	–
Total value of shipments ---- mil dol	16 731.1	14 550.8	2 180.3	4 687.9	10 977.1	9 471.8	1 505.2
Value added ---- mil dol	11 494.4	10 084.5	1 410.0	2 833.6	8 524.9	7 355.3	1 169.6
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	2 840.4	2 522.9	317.5	405.2	874.7	785.3	89.4
Finished goods ---- mil dol	2 262.3	2 067.5	194.8	52.9	508.9	477.1	31.8
Work in process ---- mil dol	363.9	285.8	78.1	174.3	222.8	205.5	17.3
Materials and supplies ---- mil dol	214.3	169.6	44.7	178.1	143.0	102.7	40.3
End of 1992 ---- mil dol	2 944.1	2 620.6	323.5	419.1	902.4	818.7	83.7
Finished goods ---- mil dol	2 342.5	2 146.3	196.1	57.8	524.9	489.4	35.5
Work in process ---- mil dol	384.7	303.2	81.5	183.4	231.3	220.1	11.2
Materials and supplies ---- mil dol	216.9	171.1	45.8	177.9	146.3	109.2	37.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Newspapers (SIC 2711)	Periodicals (SIC 2721)	Book publishing (SIC 2731)	Book printing (SIC 2732)	Miscellaneous publishing (SIC 2741)
Gross book value of depreciable assets:					
Total:					
Beginning of year	18 824.9	2 621.7	2 228.9	2 194.6	1 083.8
New capital expenditures[1]	1 667.4	234.4	326.7	198.2	190.4
Used capital expenditures	71.1	20.6	9.6	24.8	10.5
Retirements	521.5	107.8	163.0	82.0	58.2
End of year	20 041.9	2 768.8	2 402.2	2 335.7	1 226.5
Buildings and other structures:					
Beginning of year	5 609.7	989.7	755.6	455.1	230.2
New capital expenditures	399.5	38.9	77.0	18.6	51.3
Used capital expenditures	19.8	9.6	3.5	7.2	2.3
Retirements	59.1	21.7	50.1	14.6	5.7
End of year	5 969.8	1 016.4	785.9	466.3	278.1
Machinery and equipment:					
Beginning of year	13 215.2	1 632.0	1 473.3	1 739.5	853.6
New capital expenditures[1]	1 267.9	195.5	249.7	179.6	139.1
Used capital expenditures	51.4	11.0	6.1	17.6	8.2
Retirements	462.4	86.0	112.9	67.4	52.5
End of year	14 072.0	1 752.5	1 616.3	1 869.4	948.5
Depreciation charges during 1992:					
Total	1 214.3	245.1	225.7	158.6	115.7
Buildings and other structures	226.0	51.6	42.1	19.5	14.2
Machinery and equipment	988.3	193.5	183.5	139.2	101.4
Rental payments:					
Total	344.4	485.1	240.3	53.7	155.6
Buildings and other structures	239.2	393.3	177.9	29.2	106.6
Machinery and equipment	105.2	91.8	62.4	24.5	49.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Newspapers (SIC 2711)		Periodicals (SIC 2721)		Book publishing (SIC 2731)		Book printing (SIC 2732)		Miscellaneous publishing (SIC 2741)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	83.8	(X)	17.0	(X)	10.7	(X)	11.7	(X)	9.7	(X)
Response coverage ratio (percent)[2]	85.7	(X)	71.6	(X)	66.8	(X)	88.6	(X)	74.0	(X)
Machinery	178.8	(X)	28.7	(X)	24.0	(X)	52.2	(X)	25.2	(X)
Response coverage ratio (percent)[2]	86.0	(X)	70.3	(X)	66.5	(X)	90.5	(X)	74.9	(X)
Other purchased services:										
Communications	204.0	(X)	99.3	(X)	81.5	(X)	13.1	(X)	40.7	(X)
Response coverage ratio (percent)[2]	84.7	(X)	69.9	(X)	64.1	(X)	86.8	(X)	72.2	(X)
Legal	78.1	(X)	46.0	(X)	19.9	(X)	7.1	(X)	19.5	(X)
Response coverage ratio (percent)[2]	86.1	(X)	71.1	(X)	68.0	(X)	90.2	(X)	74.7	(X)
Accounting and bookkeeping	46.0	(X)	15.1	(X)	8.9	(X)	4.3	(X)	8.0	(X)
Response coverage ratio (percent)[2]	83.6	(X)	64.5	(X)	67.5	(X)	90.5	(X)	73.6	(X)
Advertising	191.0	(X)	595.3	(X)	315.9	(X)	7.2	(X)	163.8	(X)
Response coverage ratio (percent)[2]	85.2	(X)	70.1	(X)	70.5	(X)	84.5	(X)	74.7	(X)
Software and other data processing	59.6	(X)	39.4	(X)	34.1	(X)	3.8	(X)	22.1	(X)
Response coverage ratio (percent)[2]	83.9	(X)	69.6	(X)	64.8	(X)	86.1	(X)	74.1	(X)
Refuse removal, including hazardous waste	17.2	(X)	1.3	(X)	2.3	(X)	5.5	(X)	1.4	(X)
Response coverage ratio (percent)[2]	84.5	(X)	67.9	(X)	65.3	(X)	89.5	(X)	71.5	(X)
New machinery and equipment expenditures	1 267.9	(X)	195.5	(X)	249.7	(X)	179.6	(X)	139.1	(X)
Automobiles, trucks, etc., for highway use	58.1	5	5.7	28	4.5	25	3.7	47	3.1	52
Computers and peripheral data processing equipment	271.9	3	106.2	4	134.0	2	16.7	7	50.0	11
All other	938.0	1	83.5	5	111.3	3	159.2	2	86.1	8
Adjustment ratio[3]	1.1	(X)	1.4	(X)	1.1	(X)	1.4	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	5 850.3	(X)	2 417.1	(X)	1 613.7	(X)	1 587.6	(X)	708.6	(X)
Materials purchased or transferred from foreign sources[4]	1 271.3	4	12.5	18	58.5	52	26.6	20	(S)	(X)
Materials purchased or transferred from domestic sources	4 579.0	1	2 404.6	1	1 555.1	3	1 561.0	1	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.6	(X)	1.3	(X)	1.8	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2711, NEWSPAPERS												
Total	**E1**	**8 679**	**417.0**	**10 506.4**	**135.3**	**235.8**	**3 038.8**	**27 247.0**	**6 874.0**	**34 124.3**	**1 667.4**	**767.4**
Establishments with an average of—												
1 to 4 employees	E8	2 952	5.3	91.5	1.6	3.3	26.4	295.6	87.2	382.8	21.7	9.5
5 to 9 employees	E6	1 752	11.8	181.7	4.1	6.7	54.1	471.4	136.6	608.0	28.5	16.1
10 to 19 employees	E2	1 346	18.5	299.2	6.9	12.2	98.2	696.2	200.7	896.8	29.8	27.1
20 to 49 employees	E1	1 280	39.7	697.9	14.3	24.8	213.0	1 735.3	440.3	2 175.8	59.9	58.9
50 to 99 employees	E1	583	40.0	725.6	13.4	23.1	211.8	2 162.1	487.4	2 650.2	72.3	75.0
100 to 249 employees	E1	464	71.7	1 528.8	23.7	41.2	438.8	3 946.9	1 022.5	4 970.3	156.5	116.1
250 to 499 employees	E1	164	56.1	1 316.9	16.8	28.4	358.8	3 093.1	722.5	3 816.8	146.6	96.9
500 to 999 employees	E1	75	52.1	1 435.7	18.5	32.2	451.8	3 996.5	1 022.3	5 019.8	173.3	103.5
1,000 to 2,499 employees	E1	51	75.9	2 594.8	23.9	42.3	737.2	6 840.0	1 763.8	8 603.6	352.1	159.1
2,500 employees or more	–	12	45.7	1 634.4	12.0	21.7	448.7	4 009.9	990.9	5 000.3	626.7	105.1
Covered by administrative records[2]	E9	4 313	18.0	240.5	6.0	10.3	69.7	652.4	190.4	842.8	49.7	21.0
INDUSTRY 2721, PERIODICALS												
Total	**E2**	**4 699**	**116.2**	**4 074.5**	**20.1**	**39.0**	**522.5**	**15 833.0**	**6 200.9**	**22 033.9**	**234.4**	**1 066.7**
Establishments with an average of—												
1 to 4 employees	E6	2 178	3.8	98.1	.7	2.0	20.7	382.2	180.7	564.6	5.2	26.8
5 to 9 employees	E3	866	5.7	143.9	1.5	2.9	28.5	459.8	196.5	657.1	5.8	31.7
10 to 19 employees	E2	664	9.0	259.7	2.3	4.3	48.3	824.6	335.6	1 159.6	9.6	57.8
20 to 49 employees	E2	586	18.1	561.4	3.8	6.9	85.0	1 873.7	739.1	2 603.5	26.3	124.8
50 to 99 employees	E2	204	14.0	442.9	3.2	6.3	72.0	1 560.3	584.2	2 145.6	28.0	90.0
100 to 249 employees	E2	134	20.9	741.1	3.9	7.1	94.9	2 806.9	1 106.9	3 927.0	37.8	215.1
250 to 499 employees	E1	40	13.2	492.8	2.6	5.6	70.3	2 133.2	868.5	3 001.4	35.1	140.6
500 to 999 employees	E4	16	11.3	486.4	.8	1.4	73.8	2 046.2	790.8	2 837.7	31.1	114.3
1,000 to 2,499 employees	–	9	20.2	848.2	1.2	2.4	28.9	3 746.1	1 398.6	5 137.4	55.5	265.7
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2 062	4.8	83.9	1.1	2.4	17.8	292.9	139.1	432.0	4.5	23.7
INDUSTRY 2731, BOOK PUBLISHING												
Total	**E1**	**2 644**	**79.6**	**2 675.7**	**18.6**	**35.5**	**443.3**	**11 494.4**	**5 337.7**	**16 731.1**	**326.7**	**2 944.1**
Establishments with an average of—												
1 to 4 employees	E7	1 442	2.4	54.5	.6	1.3	11.2	270.0	119.6	385.9	4.9	89.8
5 to 9 employees	E5	445	2.9	62.3	.8	1.5	12.1	255.4	115.3	368.5	4.2	74.7
10 to 19 employees	E2	257	3.5	90.8	.9	1.6	15.8	310.2	147.2	452.7	6.4	106.9
20 to 49 employees	E2	246	7.5	202.8	1.9	3.5	35.7	730.3	348.4	1 070.4	11.8	225.0
50 to 99 employees	E2	118	8.3	258.3	1.7	3.4	40.9	990.8	417.1	1 389.9	15.9	306.2
100 to 249 employees	E1	74	11.1	375.4	2.5	4.7	59.3	2 130.1	837.5	2 913.9	38.4	627.2
250 to 499 employees	E1	32	11.4	416.5	1.5	2.7	40.2	2 131.7	929.5	3 096.8	36.0	479.4
500 to 999 employees	–	16	10.6	363.1	2.7	4.7	63.4	1 339.4	828.3	2 150.9	31.9	369.4
1,000 to 2,499 employees	–	13	21.9	852.0	5.9	12.0	164.7	3 336.7	1 594.8	4 901.9	177.3	665.4
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 507	3.7	64.8	1.1	2.1	14.6	259.7	109.1	368.8	5.1	67.8
INDUSTRY 2732, BOOK PRINTING												
Total	**–**	**623**	**50.9**	**1 360.7**	**38.8**	**76.2**	**923.9**	**2 833.6**	**1 868.4**	**4 687.9**	**198.2**	**419.1**
Establishments with an average of—												
1 to 4 employees	E8	127	.2	5.1	.2	.4	3.6	11.1	8.1	19.2	1.1	1.8
5 to 9 employees	E6	100	.7	15.0	.5	1.0	10.1	32.1	23.2	54.9	2.7	6.8
10 to 19 employees	E3	103	1.4	36.3	1.0	2.1	22.0	70.3	44.4	116.4	5.1	9.5
20 to 49 employees	–	128	4.1	114.4	2.9	6.1	67.8	246.2	132.8	378.2	13.6	26.1
50 to 99 employees	–	63	4.6	137.5	3.2	6.7	83.9	284.4	186.2	469.2	15.9	33.4
100 to 249 employees	E1	48	7.5	211.4	5.5	11.2	134.7	420.4	325.7	746.9	27.8	56.0
250 to 499 employees	–	33	11.8	314.6	9.0	17.5	222.3	656.1	519.4	1 170.6	52.0	120.8
500 to 999 employees	–	15	10.0	253.9	7.7	14.8	172.5	560.0	276.0	831.5	80.1	76.9
1,000 to 2,499 employees	–	5	10.5	272.5	8.7	16.3	207.0	553.0	352.8	900.9	(D)	87.8
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	218	1.1	21.1	.9	1.7	14.9	38.6	30.1	68.7	4.0	6.3
INDUSTRY 2741, MISCELLANEOUS PUBLISHING												
Total	**E1**	**3 390**	**65.4**	**1 732.9**	**23.7**	**43.3**	**467.8**	**8 524.9**	**2 476.7**	**10 977.1**	**190.4**	**902.4**
Establishments with an average of—												
1 to 4 employees	E7	1 829	3.0	67.1	.9	1.9	17.1	248.7	88.9	337.1	5.1	27.6
5 to 9 employees	E3	584	3.9	85.4	1.4	2.4	21.8	242.0	86.3	328.7	4.5	26.0
10 to 19 employees	E2	407	5.5	126.7	2.0	3.4	31.9	381.4	146.4	524.0	7.3	51.9
20 to 49 employees	E2	317	9.6	212.1	3.1	4.9	46.6	602.6	210.8	812.7	12.4	71.5
50 to 99 employees	E3	120	7.9	207.6	2.6	4.9	45.7	646.7	218.0	864.1	14.2	62.4
100 to 249 employees	E2	87	13.3	357.8	5.3	9.7	105.8	1 564.4	676.1	2 248.8	24.0	114.0
250 to 499 employees	E1	32	11.0	321.0	4.5	8.5	114.1	1 973.9	373.0	2 351.7	26.2	97.5
500 to 999 employees	–	12	11.2	355.2	3.8	7.6	84.8	2 865.2	677.3	3 510.0	96.7	451.6
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 664	3.7	63.6	1.2	2.1	15.0	224.2	78.9	303.1	5.0	23.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2711	**Newspapers:**										
	All establishments in industry	8 679	417.0	10 506.4	135.3	235.8	3 038.8	27 247.0	6 874.0	34 124.3	1 667.4
	Establishments with this product class primary:										
27111	Daily and Sunday newspapers: receipts from subscriptions and sales	49	7.9	237.7	2.0	3.4	43.2	495.1	227.2	723.4	13.5
27112	Daily and Sunday newspapers: receipts from advertising	1 440	306.4	8 335.5	97.5	170.5	2 435.3	22 210.7	5 202.5	27 415.6	1 444.7
27113	Weekly and other newspapers: receipts from subscriptions and sales	99	2.3	60.1	.7	1.3	12.0	280.8	89.8	371.3	3.6
27114	Weekly and other newspapers: receipts from advertising	1 670	46.9	890.3	17.5	29.9	266.0	1 907.9	620.1	2 527.8	48.8
2721	**Periodicals:**										
	All establishments in industry	4 699	116.2	4 074.5	20.1	39.0	522.5	15 833.0	6 200.9	22 033.9	234.4
	Establishments with this product class primary:										
27211	Farm periodicals: receipts from subscriptions, sales, and advertising	54	1.3	38.3	.4	.8	7.4	127.8	45.2	172.8	1.7
27213	Specialized business and professional periodicals: receipts from subscriptions and single copy sales	285	16.2	599.2	3.2	6.2	76.6	1 775.4	497.6	2 271.6	42.3
27214	Specialized business and professional periodicals: receipts from advertising	637	25.8	931.5	3.5	6.9	127.8	3 168.3	1 035.2	4 207.3	39.3
2721A	General and consumer periodicals: receipts from subscriptions	163	10.4	314.2	1.4	2.7	41.5	1 745.3	726.5	2 452.4	31.9
2721B	General and consumer periodicals: receipts from single copy sales	91	4.5	170.9	1.2	2.2	33.7	691.4	399.9	1 089.2	8.4
2721C	General and consumer periodicals: receipts from advertising	370	25.2	1 129.7	3.0	5.7	85.8	5 444.8	2 167.5	7 627.5	63.5
2721D	Other periodicals, except shopping news, catalogs, or directories, n.e.c.	159	8.4	226.4	2.1	4.1	43.2	578.5	194.4	776.8	11.5
2731	**Book publishing:**										
	All establishments in industry	2 644	79.6	2 675.7	18.6	35.5	443.3	11 494.4	5 337.7	16 731.1	326.7
	Establishments with this product class primary:										
27311	Textbooks, including teachers' editions	130	18.0	647.1	2.7	5.3	72.7	2 966.0	1 349.5	4 338.7	51.9
27313	Technical, scientific, and professional books	156	18.8	636.1	7.5	14.9	204.1	2 129.7	673.9	2 769.5	147.6
27314	Religious books	63	4.7	114.7	1.4	2.1	23.1	438.8	278.5	731.6	8.0
2731A	Mass market paperbound books, rack-size	12	2.9	121.9	(Z)	.1	1.0	786.0	457.6	1 245.4	12.0
2731B	Book club books	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2731C	Mail order books	34	4.7	213.9	.4	.7	7.1	1 266.7	628.0	1 887.7	(D)
2731D	Adult trade and juvenile books	134	9.2	350.0	1.3	2.2	31.4	1 620.8	820.8	2 379.4	28.3
2731E	General reference books	28	2.6	98.5	.2	.4	6.8	264.8	168.1	439.5	7.5
2731F	Other books, excluding pamphlets	87	3.4	96.2	.6	1.2	14.1	311.4	130.6	432.2	5.7
2731G	Pamphlets (5 through 48 pages)	19	1.0	28.4	.2	.4	4.6	79.1	24.0	102.5	1.9
2731H	Audio books (books recorded on audio cassettes), publishing	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2732	**Book printing:**										
	All establishments in industry	623	50.9	1 360.7	38.8	76.2	923.9	2 833.6	1 868.4	4 687.9	198.2
	Establishments with this product class primary:										
27323	Textbooks, printing and binding	41	4.9	143.0	3.9	7.8	100.6	313.1	273.2	582.7	22.3
27324	Technical, scientific, and professional books, printing and binding	89	12.6	335.3	9.7	19.1	231.5	686.5	512.0	1 198.0	69.5
27325	Religious books, printing and binding	14	1.0	26.9	.6	1.2	15.2	48.5	34.2	84.0	2.9
27326	General books (trade, etc.), printing and binding	47	14.8	386.2	12.1	23.6	295.4	819.5	518.1	1 336.5	41.7
2732A	Other books, n.e.c., printing and binding	40	7.8	200.6	5.8	11.0	124.3	436.6	220.3	650.9	28.1
2732B	Books, printing only, not bound	21	1.2	33.0	.9	1.8	20.6	73.9	39.8	114.3	3.5
2732C	Pamphlets, printing only or printing and binding (excluding advertising pamphlets)	51	1.7	51.2	1.2	2.4	30.1	95.0	58.0	152.9	4.2
2741	**Miscellaneous publishing:**										
	All establishments in industry	3 390	65.4	1 732.9	23.7	43.3	467.8	8 524.9	2 476.7	10 977.1	190.4
	Establishments with this product class primary:										
27416	Telephone directories, publishing	143	11.4	370.9	2.3	4.4	55.2	3 853.2	993.2	4 826.3	69.9
27417	Catalogs and directories, except telephone directories, publishing	125	4.5	149.7	1.4	2.5	29.1	388.4	149.2	537.4	9.6
27418	Business service publications, publishing	167	5.7	193.5	1.8	3.5	61.3	492.9	90.2	584.5	9.1
27419	Patterns, including clothing patterns	14	1.3	34.2	.8	1.5	19.6	192.4	34.0	226.0	(D)
2741A	Shopping news, publishing	350	12.9	224.3	5.0	7.6	66.3	550.0	180.8	732.3	12.2
2741B	Other miscellaneous publishing	246	14.0	383.5	7.0	14.3	148.4	1 675.5	557.5	2 232.3	57.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2711, NEWSPAPERS			
Total value of shipments	34 124.3	31 850.1	21 276.3
Primary products value of shipments	32 261.5	30 494.7	20 313.7
Secondary products value of shipments	1 370.3	1 037.0	798.4
Total miscellaneous receipts	492.6	318.4	164.2
Value of resales	109.4	61.4	27.4
Contract receipts	(1)	(D)	4.9
Other miscellaneous receipts	383.1	(D)	131.9
Sales of scrap and refuse	18.7	(NA)	14.4
Other miscellaneous receipts	[1]354.4	(NA)	105.0
Other miscellaneous receipts, n.s.k.	10.1	(NA)	12.5
Primary products specialization ratio	96	97	96
Value of primary products shipments made in all industries	32 261.5	30 494.7	20 313.7
Value of primary products shipments made in this industry	32 261.5	30 494.7	20 313.7
Value of primary products shipments made in other industries	–	–	–
Coverage ratio	100	100	100
INDUSTRY 2721, PERIODICALS			
Total value of shipments	22 033.9	17 329.2	11 478.0
Primary products value of shipments	19 821.5	15 793.1	10 278.6
Secondary products value of shipments	1 115.1	769.2	786.4
Total miscellaneous receipts	1 097.4	766.8	413.0
Value of resales	326.8	196.4	186.6
Contract receipts	(1)	51.6	29.1
Other miscellaneous receipts	770.6	518.8	197.3
Receipts for publishing prepackaged computer software	3.9	(NA)	(NA)
Other miscellaneous receipts	[1]673.0	(NA)	194.4
Other miscellaneous receipts, n.s.k.	93.8	(NA)	2.9
Primary products specialization ratio	95	95	93
Value of primary products shipments made in all industries	20 890.3	16 492.1	10 625.8
Value of primary products shipments made in this industry	19 821.5	15 793.1	10 278.6
Value of primary products shipments made in other industries	1 068.9	698.9	347.1
Coverage ratio	95	96	97
INDUSTRY 2731, BOOK PUBLISHING			
Total value of shipments	16 731.1	12 619.5	7 740.0
Primary products value of shipments	14 097.0	11 010.8	7 077.4
Secondary products value of shipments	1 281.5	1 011.6	443.5
Total miscellaneous receipts	1 352.6	597.2	219.0
Value of resales	605.3	277.2	70.9
Contract receipts	(1)	17.2	53.9
Other miscellaneous receipts	747.3	302.8	94.2
Receipts for publishing prepackaged computer software	21.8	(NA)	(NA)
Other miscellaneous receipts	[1]649.0	(NA)	92.5
Other miscellaneous receipts, n.s.k.	76.6	(NA)	1.7
Primary products specialization ratio	92	92	94
Value of primary products shipments made in all industries	14 785.6	11 629.9	7 812.6
Value of primary products shipments made in this industry	14 097.0	11 010.8	7 077.4
Value of primary products shipments made in other industries	688.7	619.2	735.2
Coverage ratio	95	95	91
INDUSTRY 2732, BOOK PRINTING			
Total value of shipments	4 687.9	3 256.3	2 392.4
Primary products value of shipments	4 042.6	2 866.8	2 092.3
Secondary products value of shipments	514.1	354.0	256.5
Total miscellaneous receipts	131.3	35.5	43.6
Value of resales	34.7	21.5	10.0
Contract receipts	(1)	(D)	2.3
Other miscellaneous receipts	96.6	(D)	31.3
Receipts for photocopying and duplicating	10.8	(NA)	(NA)
Sales of scrap and refuse	17.7	(NA)	7.2
Receipts for services as print broker	.9	(NA)	(NA)
Other miscellaneous receipts	[1]66.5	(NA)	23.8
Other miscellaneous receipts, n.s.k.	.8	(NA)	.3
Primary products specialization ratio	89	89	89
Value of primary products shipments made in all industries	4 736.1	3 240.9	2 501.9
Value of primary products shipments made in this industry	4 042.6	2 866.8	2 092.3
Value of primary products shipments made in other industries	693.5	374.1	409.5
Coverage ratio	85	88	84

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2741, MISCELLANEOUS PUBLISHING			
Total value of shipments	10 977.1	7 809.5	2 871.3
Primary products value of shipments	10 475.3	7 419.0	2 662.9
Secondary products value of shipments	269.0	147.3	127.9
Total miscellaneous receipts	232.8	243.3	80.5
Value of resales	135.3	54.7	57.8
Contract receipts	(1)	1.8	3.9
Other miscellaneous receipts	97.4	186.9	18.8
Receipts for publishing prepackaged computer software	9.4	(NA)	(NA)
Other miscellaneous receipts	178.0	(NA)	18.0
Other miscellaneous receipts, n.s.k.	10.1	(NA)	.8
Primary products specialization ratio	97	98	95
Value of primary products shipments made in all industries	11 567.1	8 176.6	3 096.6
Value of primary products shipments made in this industry	10 475.3	7 419.0	2 662.9
Value of primary products shipments made in other industries	1 091.8	757.6	433.7
Coverage ratio	91	91	86

Note: For qualifications of data, see footnotes on table 1a.

[1]For 1992, contract receipts are included in "other miscellaneous receipts."

Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with receipts of $100,000 or more	Aggregate average circulation per issue[1 2 3] (1,000)	Total receipts[1] (million dollars)	Number of companies with receipts of $100,000 or more	Aggregate average circulation per issue[1 2 3] (1,000)	Total receipts[1] (million dollars)
2711– —	**NEWSPAPERS**						
	Total	**(NA)**	**(X)**	**32 261.5**	**(NA)**	**(X)**	**30 494.7**
27111	Daily and Sunday newspapers: receipts from subscriptions and sales	(NA)	(X)	6 541.6	(NA)	(X)	5 212.0
27111 01	Morning (no Sunday editions)	121	*5 047.6	462.4	87	8 330.5	511.0
27111 11	Evening (no Sunday editions)	212	(S)	278.1	247	*7 729.5	437.0
27111 22	Morning and Sunday combinations	143	(X)	3 533.5	117	(X)	2 105.0
27111 24	Morning editions	(NA)	36 508.4	(X)	(NA)	25 464.1	(X)
27111 26	Sunday editions	(NA)	42 065.3	(X)	(NA)	31 761.6	(X)
27111 32	Evening and Sunday combinations	130	(X)	554.7	134	(X)	474.5
27111 34	Evening editions	(NA)	6 557.4	(X)	(NA)	7 543.9	(X)
27111 36	Sunday editions	(NA)	7 370.0	(X)	(NA)	9 492.3	(X)
27111 42	Morning and evening combinations (no Sunday editions)	15	(X)	15.8	22	(X)	91.0
27111 44	Morning editions	(NA)	277.4	(X)	(NA)	*1 065.2	(X)
27111 46	Evening editions	(NA)	177.4	(X)	(NA)	*948.7	(X)
27111 52	Morning, evening, and Sunday combinations	46	(X)	1 091.1	74	(X)	1 155.2
27111 54	Morning editions	(NA)	6 651.1	(X)	(NA)	8 574.0	(X)
27111 56	Evening editions	(NA)	4 021.2	(X)	(NA)	5 586.2	(X)
27111 58	Sunday editions	(NA)	12 619.7	(X)	(NA)	13 638.2	(X)
27111 00	Daily and Sunday newspapers: receipts from subscriptions and sales, n.s.k.	(NA)	(X)	605.1	(NA)	(X)	438.2
27112	Daily and Sunday newspapers: receipts from advertising	(NA)	(X)	20 123.8	(NA)	(X)	20 176.2
27112 01	Morning (no Sunday editions)	140	(X)	907.9	110	(X)	1 044.2
27112 11	Evening (no Sunday editions)	219	(X)	792.5	261	(X)	1 329.2
27112 22	Morning and Sunday combinations	145	(X)	11 845.7	119	(X)	9 404.2
27112 32	Evening and Sunday combinations	129	(X)	1 585.8	137	(X)	1 929.5
27112 42	Morning and evening combinations (no Sunday editions)	15	(X)	35.1	23	(X)	199.6
27112 52	Morning, evening, and Sunday combinations	47	(X)	3 462.6	77	(X)	5 004.0
27112 00	Daily and Sunday newspapers: receipts from advertising, n.s.k.	(NA)	(X)	1 494.1	(NA)	(X)	1 265.6
27113	Weekly and other newspapers: receipts from subscriptions and sales	(NA)	(X)	645.5	(NA)	(X)	573.0
27113 62	Weekly newspapers, including those issued on Sunday only	410	*55 388.6	512.1	315	*46 257.4	474.0
27113 98	Other newspapers (those issued 2 or 3 times a week or less than once a week)	196	**10 139.1	114.3	128	(S)	74.3
27113 00	Weekly and other newspapers: receipts from subscriptions and sales, n.s.k.	(NA)	(X)	19.1	(NA)	(X)	24.8
27114	Weekly and other newspapers: receipts from advertising	(NA)	(X)	2 108.3	(NA)	(X)	1 687.5
27114 62	Weekly newspapers, including those issued on Sunday only	977	(X)	1 496.4	824	(X)	1 114.8
27114 98	Other newspapers (those issued 2 or 3 times a week or less than once a week)	367	(X)	462.3	293	(X)	449.8
27114 00	Weekly and other newspapers: receipts from advertising, n.s.k.	(NA)	(X)	149.7	(NA)	(X)	122.9
27110	Newspapers, n.s.k.	(NA)	(X)	2 842.4	(NA)	(X)	2 845.9
27110 00	Newspapers, n.s.k.[4]	(NA)	(X)	1 999.5	(NA)	(X)	1 969.4
27110 02	Newspapers, n.s.k.[5]	(NA)	(X)	842.8	(NA)	(X)	876.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2721– ––	**PERIODICAL PUBLISHING**				
	Total	**(NA)**	**20 890.3**	**(NA)**	**16 492.1**
27211	Farm periodicals: receipts from subscriptions, sales, and advertising	(NA)	199.9	(NA)	183.5
27211 12	Subscriptions and single copy sales	37	54.6	(NA)	170.7
27211 14	Advertising	57	145.3		
27211 00	Farm periodicals: receipts from subscriptions, sales, and advertising, n.s.k.	(NA)	(Z)	(NA)	12.8
27213	Specialized business and professional periodicals: receipts from subscriptions and single copy sales	(NA)	2 527.3	(NA)	1 427.1
	Business publications:				
	Paid circulation, single copy and subscriptions:				
27213 24	Manufacturing (excluding electronics)	16	31.0	11	65.8
27213 25	Wholesale and retail trade, including merchandising	30	59.6	18	25.3
27213 27	Medical and health care	52	247.4	33	119.0
27213 28	Electronics/ data management	23	66.8	13	68.9
27213 30	Services (excluding data management)	29	416.4	20	29.5
27213 32	Business publications, n.e.c.	198	894.2	114	530.1
	Controlled circulation, single copy and subscriptions:				
27213 34	Manufacturing (excluding electronics)	12	28.3	6	2.8
27213 35	Wholesale and retail trade, including merchandising	10	6.1	7	9.3
27213 37	Medical and health care	23	40.6	20	27.8
27213 38	Electronics/ data management	7	5.5	10	16.2
27213 40	Services (excluding data management)	7	7.1	5	3.5
27213 42	Business publications, n.e.c.	48	54.0	29	38.4
	Professional journals, subscriptions and single copy sales:				
27213 44	Scholarly journals	67	183.6	36	110.2
27213 46	Other professional journals	57	336.5	54	141.1
27213 00	Specialized business and professional periodicals: receipts from subscriptions and single copy sales, n.s.k.	(NA)	150.3	(NA)	239.3
27214	Specialized business and professional periodicals: receipts from advertising	(NA)	3 717.4	(NA)	2 614.5
	Business publications:				
	Paid circulation, advertising:				
27214 24	Manufacturing (excluding electronics)	13	16.9	13	64.4
27214 25	Wholesale and retail trade, including merchandising	40	159.5	25	138.9
27214 27	Medical and health care	41	104.7	23	163.0
27214 28	Electronics/ data management	20	187.8	7	104.7
27214 30	Services (excluding data management)	28	64.8	12	17.3
27214 32	Business publications, n.e.c.	179	772.0	87	405.5
	Controlled circulation, advertising:				
27214 34	Manufacturing (excluding electronics)	36	126.0	26	186.1
27214 35	Wholesale and retail trade, including merchandising	65	195.5	43	199.5
27214 37	Medical and health care	58	268.0	28	133.6
27214 38	Electronics/ data management	27	72.7	18	207.6
27214 40	Services (excluding data management)	36	119.6	20	171.5
27214 42	Business publications, n.e.c.	165	864.5	99	365.9
	Professional journals, advertising:				
27214 44	Scholarly journals	20	57.3	11	8.0
27214 46	Other professional journals	52	64.6	42	121.3
27214 00	Specialized business and professional periodicals: receipts from advertising, n.s.k.	(NA)	643.3	(NA)	327.3
2721A	General and consumer periodicals: receipts from subscriptions	(NA)	3 621.0	(NA)	2 749.2
2721A 20	Women's, home, and fashion publications, including domestic science, child care, housekeeping, health, gardening, etc.	35	620.5	25	510.5
2721A 50	General news, including weeklies and biweeklies with news of interest to the general public	18	414.6	16	383.8
2721A 60	Business news, concerning business and industry, directed to a broader readership than those in business for a living	17	166.2	21	141.0
2721A 70	Regional, metropolitan, and city magazines	31	73.1	36	33.5
2721A 80	Special interest publications: hobby, sports, entertainment, art, photography, science, automotive, aviation, etc.	222	1 239.3	142	769.7
2721A 90	General interest publications: general articles, pictures, fiction, literature, geography, travel, history, humor, etc.	56	977.7	44	704.3
2721A 00	General and consumer periodicals: receipts from subscriptions, n.s.k.	(NA)	129.5	(NA)	206.4
2721B	General and consumer periodicals: receipts from single copy sales	(NA)	1 860.5	(NA)	1 365.0
2721B 10	Comics (subscriptions and single copy sales)	14	213.3	5	(D)
2721B 20	Women's, home, and fashion publications, including domestic science, child care, housekeeping, health, gardening, etc.	32	384.8	23	342.6
2721B 50	General news, including weeklies and biweeklies with news of interest to the general public	14	122.5	13	51.6
2721B 60	Business news concerning business and industry, directed to a broader readership than those in business for a living	5	18.6	9	13.5
2721B 70	Regional, metropolitan, and city magazines	14	6.8	15	(D)
2721B 80	Special interest publications: hobby, sports, entertainment, art, photography, science, automotive, aviation, etc.	159	688.5	104	512.8
2721B 90	General interest publications: general articles, pictures, fiction, literature, geography, travel, history, humor, etc.	36	316.4	35	216.7
2721B 00	General and consumer periodicals: receipts from single copy sales, n.s.k.	(NA)	109.6	(NA)	156.3
2721C	General and consumer periodicals: receipts from advertising	(NA)	5 133.5	(NA)	4 298.5
2721C 10	Comics	6	7.6	3	2.2
2721C 20	Women's, home, and fashion publications, including domestic science, child care, housekeeping, health, gardening, etc.	48	1 472.4	33	1 110.4
2721C 50	General news, including weeklies and biweeklies with news of interest to the general public	55	626.6	38	608.5
2721C 60	Business news, concerning business and industry, directed to a broader readership than those in business for a living	23	408.2	19	353.6
2721C 70	Regional, metropolitan, and city magazines	74	126.2	50	146.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2721– —	**PERIODICAL PUBLISHING**—Con.				
2721C	General and consumer periodicals: receipts from advertising—Con.				
2721C 80	Special interest publications: hobby, sports, entertainment, art, photography, science, automotive, aviation, etc.	268	1 511.3	153	1 034.1
2721C 90	General interest publications: general articles, pictures, fiction, literature, geography, travel, history, humor, etc.	70	732.2	50	617.7
2721C 00	General and consumer periodicals: receipts from advertising, n.s.k.	(NA)	249.1	(NA)	425.3
2721D	Other periodicals, except shopping news, catalogs, or directories, n.e.c.	(NA)	689.1	(NA)	671.8
	Religious: religion, theology, church bulletins, local church papers, etc.:				
2721D 10	Receipts from subscriptions and single copy sales	53	242.2	41	207.9
2721D 15	Receipts from advertising	32	51.1	26	41.0
	Magazine and comic supplements for Sunday newspapers:				
2721D 24	Receipts from sales and advertising	4	1.6	3	(D)
	Periodicals, n.e.c., except shopping news, catalogs, or directories:				
2721D 31	Receipts from subscriptions	47	169.8	39	142.1
2721D 33	Receipts from single copy sales	18	37.0	17	27.3
2721D 35	Receipts from advertising	64	108.3	43	106.9
2721D 00	Other periodicals, except shopping news, catalogs, or directories, n.e.c., n.s.k.	(NA)	79.0	(NA)	(D)
27210	Periodical publishing, n.s.k.	(NA)	3 141.8	(NA)	3 182.4
27210 00	Periodical publishing, n.s.k.[4]	(NA)	2 709.7	(NA)	2 509.2
27210 02	Periodical publishing, n.s.k.[5]	(NA)	432.0	(NA)	673.2

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2731– —	**BOOK PUBLISHING**						
	Total	**(NA)**	**(X)**	**14 785.6**	**(NA)**	**(X)**	**11 629.9**
27311	Textbooks, including teachers' editions[6]	(NA)	(X)	3 873.7	(NA)	(X)	2 953.5
	Elementary textbooks (grades K through 8):						
27311 11	Hardbound, including teachers' editions mil units	29	53.3	656.8	24	(S)	512.4
27311 12	Paperbound, including teachers' editions mil units	27	27.1	206.5	28	*35.8	171.4
	High school textbooks (grades 9 through 12):						
27311 13	Hardbound, including teachers' editions mil units	18	*18.9	428.8	18	**19.8	318.7
27311 14	Paperbound, including teachers' editions mil units	25	*14.7	178.0	18	(S)	55.0
	College textbooks, grade 13 and up, for post high school level courses:						
27311 15	Hardbound mil units	47	**49.9	1 117.5	43	(S)	734.5
27311 16	Paperbound mil units	56	(S)	383.0	37	*16.8	213.9
	Workbooks, textbook-related objective tests, manuals, etc., paperbound:						
27311 21	Elementary (grades K through 8) mil units	38	**46.9	279.5	36	*62.7	231.6
27311 23	High school (grades 9 through 12) mil units	19	*9.3	84.1	17	**10.8	63.3
27311 25	College mil units	23	(S)	141.6	22	**6.2	44.9
27311 31	Standardized tests, including both tests and answer sheets, paperbound mil units	17	**14.0	211.0	15	(S)	104.0
27311 00	Textbooks, including teachers' editions, n.s.k.	(NA)	(X)	187.1	(NA)	(X)	503.9
27313	Technical, scientific, and professional books[6]	(NA)	(X)	2 487.9	(NA)	(X)	1 827.5
	Law books, including supplements (designed for the profession):						
27313 15	Hardbound mil units	36	*14.0	837.5	21	*13.8	565.6
27313 17	Paperbound mil units	25	*10.3	269.9	15	5.5	149.2
	Medical books, including dental subjects (designed for the profession):						
27313 25	Hardbound mil units	34	**10.8	373.3	32	(S)	229.6
27313 27	Paperbound mil units	21	**3.6	89.2	16	(S)	24.7
	Business books (nonfiction for readers in the profession):						
27313 35	Hardbound mil units	26	(S)	99.6	30	(S)	158.0
27313 37	Paperbound mil units	30	(S)	179.1	24	*9.2	86.4
	Other technical, scientific, and professional books:						
27313 45	Hardbound mil units	68	(S)	326.8	53	(S)	233.6
27313 47	Paperbound mil units	72	(S)	185.6	59	40.9	162.1
27313 00	Technical, scientific, and professional books, n.s.k.	(NA)	(X)	126.9	(NA)	(X)	218.3
27314	Religious books[6]	(NA)	(X)	730.2	(NA)	(X)	492.1
	Bibles and testaments:						
27314 11	Hardbound, including flexible covers mil units	19	(S)	82.1	18	*8.1	62.4
27314 13	Paperbound mil units	15	*6.0	18.7	14	10.5	34.6
27314 23	Hymnals and devotionals, including prayer books and missals, hardbound and paperbound mil units	15	(S)	22.6	18	(S)	21.9
	Other religious books, including subscription reference books:						
27314 26	Hardbound mil units	36	**23.5	141.7	37	(S)	198.0
27314 28	Paperbound mil units	56	(S)	122.4	48	**44.7	107.9
27314 00	Religious books, n.s.k.	(NA)	(X)	342.7	(NA)	(X)	67.2
2731A	Mass market paperbound books, rack-size[6]	(NA)	(X)	916.8	(NA)	(X)	836.6
2731A 00	Mass market paperbound books, rack-size mil units	19	(S)	916.8	19	**411.9	836.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2731– —	**BOOK PUBLISHING**—Con.						
2731B	Book club books[6]	(NA)	(X)	745.8	(NA)	(X)	650.2
2731B 15	Hardbound mil units	14					
2731B 17	Paperbound mil units	11	(X)	745.8	(NA)	(X)	650.2
2731B 00	Book club books, n.s.k.	(NA)					
2731C	Mail order books[6]	(NA)	(X)	711.2	(NA)	(X)	698.1
2731C 73	Hardbound mil units	30	(S)	642.3	17	**52.8	582.6
2731C 75	Paperbound mil units	42	**6.3	59.7	25	(S)	36.8
2731C 00	Mail order books, n.s.k.	(NA)	(X)	9.2	(NA)	(X)	78.7
2731D	Adult trade and juvenile books[6]	(NA)	(X)	2 647.3	(NA)	(X)	1 939.4
	Adult trade books whether published by trade or mass market publishers:						
2731D 41	Hardbound mil units	98	**162.2	1 202.7	75	(S)	866.9
2731D 47	Paperbound (excluding mass market rack-size) mil units	104	(S)	531.8	80	(S)	466.7
	Juvenile books, fiction and nonfiction, excluding toy and coloring books:						
2731D 51	Hardbound mil units	39	**78.5	369.7	25	*50.7	313.2
2731D 53	Paperbound mil units	27	*46.4	108.6	21	(S)	106.1
2731D 00	Adult trade and juvenile books, n.s.k.	(NA)	(X)	434.5	(NA)	(X)	186.5
2731E	General reference books[6]	(NA)	(X)	490.9	(NA)	(X)	510.8
2731E 21	Encyclopedias 1,000 sets	10	(S)	162.3	8	(D)	(D)
2731E 41	Dictionaries and thesauruses mil units	10	**6.8	56.9	10	5.1	53.2
2731E 57	Other mil units	33	**37.0	239.2	41	(D)	(D)
2731E 00	General reference books, n.s.k.	(NA)	(X)	32.5	(NA)	(X)	20.0
2731F	Other books, excluding pamphlets[6]	(NA)	(X)	390.4	(NA)	(X)	[7]166.8
	University press books:						
2731F 13	Hardbound mil units	55	*4.4	109.5	7	.8	17.4
2731F 15	Paperbound mil units	45	7.6	79.7	5	*.7	5.7
2731F 16	Music books, hardbound and paperbound mil units	19	**19.6	94.7	19	**16.2	60.8
	Other books, n.e.c.:						
2731F 17	Hardbound mil units	15	(S)	58.8	15	(S)	30.0
2731F 19	Paperbound mil units	22	(S)	35.4	29	(S)	40.9
2731F 00	Other books, excluding pamphlets, n.s.k.	(NA)	(X)	12.3	(NA)	(X)	12.0
2731G	Pamphlets (5 through 48 pages)[6]	(NA)	(X)	134.8	(NA)	(X)	140.7
2731G 43	Music mil units	9	*20.9	31.3	13	(S)	67.0
2731G 59	Other, including religious and text mil units	31	(S)	102.6	25	*99.4	73.7
2731G 00	Pamphlets (5 through 48 pages), n.s.k.	(NA)	(X)	1.0	(NA)	(X)	–
2731H	Audio books (books recorded on audio cassettes), publishing[6]	(NA)	(X)	36.1	(NA)	(X)	([8])
2731H 00	Audio books (books recorded on audio cassettes), publishing mil units	16	(S)	36.1	(NA)	(NA)	([8])
27310	Book publishing, n.s.k.	(NA)	(X)	1 620.5	(NA)	(X)	1 414.3
27310 00	Book publishing, n.s.k.[4]	(NA)	(X)	1 251.7	(NA)	(X)	1 083.3
27310 02	Book publishing, n.s.k.[5]	(NA)	(X)	368.8	(NA)	(X)	331.0
2732– —	**BOOK PRINTING**						
	Total	**(NA)**	**(X)**	**4 736.1**	**(NA)**	**(X)**	**3 240.9**
27323	Textbooks, printing and binding	(NA)	(X)	678.7	(NA)	(X)	515.7
	Elementary and high school textbooks (grades K through 12):						
27323 10	Hardbound, including teachers' editions mil units	21	(S)	162.3	18	(NA)	123.4
27323 12	Paperbound, including teachers' editions mil units	57	(S)	168.1	33	(NA)	123.5
	College textbooks (grade 13 and up, for any post high school level courses):						
27323 14	Hardbound mil units	24	(S)	140.3	27	(NA)	108.7
27323 16	Paperbound mil units	62	(S)	150.7	41	(NA)	86.4
27323 18	Workbooks and standardized tests, all grade levels mil units	30	**131.7	47.3	24	(NA)	59.5
27323 00	Textbooks, printing and binding, n.s.k.	(NA)	(X)	10.0	(NA)	(X)	14.3
27324	Technical, scientific, and professional books, printing and binding	(NA)	(X)	1 003.1	(NA)	(X)	589.5
27324 22	Hardbound mil units	45	**64.7	152.8	50	(NA)	192.2
27324 25	Paperbound mil units	261	(S)	798.9	152	(NA)	376.0
27324 00	Technical, scientific, and professional books, printing and binding, n.s.k.	(NA)	(X)	51.5	(NA)	(X)	21.3
27325	Religious books, printing and binding	(NA)	(X)	207.0	(NA)	(X)	141.4
27325 32	Hardbound, including flexible covers mil units	25	(S)	76.8	26	(NA)	75.2
27325 35	Paperbound mil units	69	(S)	89.1	51	(NA)	65.4
27325 00	Religious books, printing and binding, n.s.k.	(NA)	(X)	41.1	(NA)	(X)	.9
27326	General books (trade, etc.), printing and binding	(NA)	(X)	1 126.2	(NA)	(X)	709.8
	Book club and mail order books:						
27326 42	Hardbound mil units	13	(S)	128.5	16	(NA)	110.6
27326 43	Paperbound mil units	38	304.8	81.2	17	(NA)	32.0
27326 44	Mass market paperbound books, rack-size, distributed predominantly to mass market outlets mil units	28	755.5	132.2	18	(NA)	149.4
	Adult trade books, sold primarily through retail or wholesale book sellers:						
27326 45	Hardbound mil units	36	(S)	364.8	26	(NA)	191.1
27326 46	Paperbound mil units	62	(S)	280.1	35	(NA)	126.8
	Juvenile books, fiction and nonfiction, including toy and coloring books:						
27326 47	Hardbound mil units	12	**48.8	44.7	11	(NA)	45.7
27326 48	Paperbound mil units	33	*133.5	47.9	23	(NA)	40.6
27326 00	General books (trade, etc.), printing and binding, n.s.k.	(NA)	(X)	46.8	(NA)	(X)	13.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2732– —	**BOOK PRINTING**—Con.						
2732A	Other books, n.e.c., printing and binding	(NA)	(X)	732.1	(NA)	(X)	642.6
2732A 52	Encyclopedias 1,000 sets	3	5.4	49.2	5	(NA)	112.1
	Other reference books (including dictionaries, thesauruses, etc.):						
2732A 54	Hardbound mil units	10	(S)	44.5	17	(NA)	62.0
2732A 55	Paperbound mil units	42	(S)	64.3	34	(NA)	54.1
	All other books, n.e.c. (including music books, university press books, etc.):						
2732A 56	Hardbound mil units	37	(S)	313.1	32	(NA)	290.2
2732A 57	Paperbound mil units	98	(S)	255.0	79	(NA)	103.2
2732A 00	Other books, n.e.c., printing and binding, n.s.k.	(NA)	(X)	6.0	(NA)	(X)	21.1
2732B	Books, printing only, not bound	(NA)	(X)	137.2	(NA)	(X)	120.9
2732B 00	Books, printing only, not bound mil units	94	**240.0	137.2	61	(NA)	120.9
2732C	Pamphlets, printing only or printing and binding (excluding advertising pamphlets)	(NA)	(X)	313.7	(NA)	(X)	132.3
2732C 00	Pamphlets, printing only or printing and binding (excluding advertising pamphlets)	340	(X)	313.7	146	(X)	132.3
27320	Book printing, n.s.k.	(NA)	(X)	537.9	(NA)	(X)	388.8
27320 00	Book printing, n.s.k.[9]	(NA)	(X)	469.1	(NA)	(X)	312.2
27320 02	Book printing, n.s.k.[10]	(NA)	(X)	68.8	(NA)	(X)	76.7

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2741– —	**MISCELLANEOUS PUBLISHING**				
	Total	**(NA)**	**11 567.1**	**(NA)**	**8 176.6**
27416	Telephone directories, publishing[6]	(NA)	4 807.5	(NA)	3 042.9
27416 00	Telephone directories	111	4 807.5	72	3 042.9
27417	Catalogs and directories, except telephone directories, publishing[6]	(NA)	613.4	(NA)	606.4
27417 13	Directories (except telephone directories), including business reference services	143	492.6	105	481.5
27417 16	Catalogs	62	110.4	(NA)	122.3
27417 00	Catalogs and directories, except telephone directories, publishing, n.s.k.	(NA)	10.5	(NA)	2.7
27418	Business service publications, publishing[6]	(NA)	897.6	(NA)	932.0
27418 13	Business service newsletters, excluding publications which are cumulated in looseleaf index form	104	406.9	52	96.5
27418 15	Other business service publications, looseleaf and hardbound, including tax, credit, regulations, indexes, etc.	83	445.3	59	715.0
27418 00	Business service publications, publishing, n.s.k.	(NA)	45.4	(NA)	120.4
27419	Patterns, including clothing patterns[6]	(NA)	214.4	(NA)	173.3
27419 00	Patterns, including clothing patterns	21	214.4	11	173.3
2741A	Shopping news, publishing[6]	(NA)	990.6	(NA)	774.4
2741A 00	Shopping news	463	990.6	411	774.4
2741B	Other miscellaneous publishing[6]	(NA)	2 216.9	(NA)	863.5
2741B 13	Cards, other than greeting cards, including picture postcards, souvenir cards, etc.	27	810.4	14	23.5
2741B 14	Sheet music (less than 5 pages), except music in book or pamphlet form	12	23.1	10	14.9
2741B 15	Calendars	58	286.8	42	98.1
2741B 17	Multimedia kits	29	67.8	25	61.7
2741B 18	Maps, hydrographic charts, and globe covers	30	169.2	28	144.8
2741B 20	Atlases and gazetteers	16	79.2		
2741B 23	Micropublishing (publishing in microfilm or microfiche format)	18	232.6	16	109.4
2741B 25	Travel guides, in brochure or pamphlet form	28	59.7	16	39.1
2741B 27	Posters	30	51.3	14	45.6
2741B 29	Yearbooks	8	78.6		
2741B 71	Other miscellaneous publications, including almanacs, racing forms, etc.	128	285.1	(NA)	320.5
2741B 00	Other miscellaneous publishing, n.s.k.	(NA)	73.2	(NA)	6.1
27410	Miscellaneous publishing, n.s.k.	(NA)	1 826.8	(NA)	1 784.1
27410 00	Miscellaneous publishing, n.s.k.[9]	(NA)	1 523.6	(NA)	1 620.2
27410 02	Miscellaneous publishing, n.s.k.[10]	(NA)	303.2	(NA)	163.9

[1]Data reported by all producers, not just those with receipts of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Includes paid, free, bulk, etc. Issue is the sum of all editions published on a given day in the case of establishments publishing newspapers on a combined frequency-of-issue basis (morning and Sunday, evening and Sunday, etc.). Separate average circulation figures were computed for morning editions, evening editions, and Sunday editions.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Data for this product class represent value of receipts rather than value of shipments.
[7]For 1987, data for 2731H 00 were included.
[8]For 1987, data were included in product class 2731F.

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Table 6a. Product and Product Classes—Quantity Sold and Value of Receipts of All Producers: 1992 and 1987—Con.

[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27111, DAILY AND SUNDAY NEWSPAPERS: RECEIPTS FROM SUBSCRIPTIONS AND SALES		
United States	**6 541.6**	**5 212.0**
Alabama	58.7	47.9
Alaska	4.4	5.1
Arizona	119.6	72.9
Arkansas	33.8	22.1
California	730.3	546.2
Colorado	76.3	58.4
Connecticut	108.3	102.9
Florida	325.7	235.1
Georgia	130.8	91.8
Idaho	20.8	15.9
Illinois	373.7	287.5
Indiana	140.2	112.0
Iowa	94.3	77.3
Kansas	41.6	32.7
Kentucky	71.2	38.7
Louisiana	63.9	52.2
Maine	35.8	26.8
Maryland	94.5	70.8
Massachusetts	249.6	210.8
Michigan	216.8	170.8
Minnesota	112.4	92.0
Mississippi	31.8	22.7
Missouri	145.6	99.7
Montana	23.1	17.6
Nebraska	38.4	28.7
New Hampshire	22.0	15.8
New Jersey	182.0	137.6
New Mexico	31.8	23.9
New York	687.7	637.6
North Carolina	117.9	84.0
North Dakota	20.3	14.1
Ohio	294.6	250.6
Oklahoma	59.1	43.6
Oregon	76.7	54.7
Pennsylvania	396.4	315.3
South Carolina	51.3	37.4
South Dakota	17.0	12.1
Tennessee	103.5	93.9
Texas	285.5	238.2
Utah	37.9	10.4
Vermont	15.3	12.8
Virginia	300.8	229.1
Washington	125.6	101.4
West Virginia	30.6	25.8
Wisconsin	140.1	115.0
Wyoming	6.8	5.5
27112, DAILY AND SUNDAY NEWSPAPERS: RECEIPTS FROM ADVERTISING		
United States	**20 123.8**	**20 176.2**
Alabama	178.9	182.3
Alaska	14.4	19.1
Arizona	366.6	366.3
Arkansas	92.1	90.6
California	2 975.1	2 790.6
Colorado	323.4	311.3
Connecticut	289.4	346.5
Florida	1 438.4	1 387.1
Georgia	404.7	438.7
Idaho	53.7	40.6
Illinois	1 010.6	945.3
Indiana	350.3	333.9
Iowa	172.4	157.6
Kansas	106.7	98.9
Kentucky	158.0	145.7
27112, DAILY AND SUNDAY NEWSPAPERS: RECEIPTS FROM ADVERTISING—Con.		
Louisiana	208.1	225.4
Maine	66.3	77.5
Maryland	251.8	298.3
Massachusetts	634.9	803.9
Michigan	576.2	572.2
Minnesota	283.5	289.9
Mississippi	83.0	76.3
Missouri	340.3	333.0
Montana	42.7	42.3
Nebraska	112.2	98.8
New Hampshire	57.6	67.5
New Jersey	636.2	737.9
New Mexico	71.1	87.0
New York	1 892.4	2 261.7
North Carolina	412.8	391.2
North Dakota	38.4	35.5
Ohio	813.2	781.5
Oklahoma	191.1	185.3
Oregon	206.3	174.5
Pennsylvania	985.9	987.0
South Carolina	172.7	173.1
South Dakota	32.5	26.2
Tennessee	267.3	298.3
Texas	1 327.5	1 292.9
Utah	102.8	33.4
Vermont	29.8	31.5
Virginia	544.7	473.2
Washington	448.6	383.0
West Virginia	73.9	78.1
Wisconsin	295.0	273.2
Wyoming	18.3	18.2
27113, WEEKLY AND OTHER NEWSPAPERS: RECEIPTS FROM SUBSCRIPTIONS AND SALES		
United States	**645.5**	**573.0**
Alabama	3.0	2.4
Arizona	3.1	3.3
California	25.9	29.7
Colorado	2.8	2.6
Connecticut	7.8	17.9
District of Columbia	14.5	9.4
Georgia	5.6	2.1
Illinois	21.1	19.3
Indiana	5.7	8.5
Iowa	6.8	3.0
Kansas	8.0	2.1
Kentucky	6.5	17.9
Louisiana	4.0	(NA)
Maine	4.5	3.7
Maryland	3.4	3.5
Massachusetts	24.7	18.9
Michigan	21.3	7.7
Minnesota	9.7	6.2
Mississippi	2.7	(NA)
Missouri	8.0	3.3
New Jersey	16.5	27.2
New York	136.3	132.6
North Carolina	7.6	7.9
Ohio	13.7	12.9
Oklahoma	3.8	(NA)
Oregon	8.2	6.3
Pennsylvania	13.5	21.1
Rhode Island	2.4	(NA)
South Carolina	4.4	3.1
Tennessee	9.5	4.3
Texas	21.2	26.2
Virginia	31.3	15.9
Washington	8.2	9.9
Wisconsin	11.6	13.0

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27114, WEEKLY AND OTHER NEWSPAPERS: RECEIPTS FROM ADVERTISING		
United States	**2 108.3**	**1 687.5**
Alabama	19.4	11.6
Arizona	48.8	17.9
Arkansas	11.7	8.0
California	221.9	201.4
Colorado	20.1	22.8
Connecticut	56.3	40.9
Delaware	5.1	(NA)
District of Columbia	20.1	13.4
Florida	88.1	78.2
Georgia	44.1	42.2
Idaho	5.8	2.7
Illinois	127.0	112.9
Indiana	25.4	20.6
Iowa	28.1	13.1
Kansas	13.3	9.1
Kentucky	24.7	26.5
Louisiana	12.7	15.4
Maine	13.0	9.3
Maryland	54.6	49.3
Massachusetts	84.2	72.8
Michigan	91.5	60.4
Minnesota	53.3	24.5
Mississippi	17.9	13.0
Missouri	44.9	64.8
Nebraska	10.6	9.4
Nevada	6.6	(NA)
New Hampshire	12.3	19.8
New Jersey	102.9	88.7
New Mexico	7.7	2.5
New York	240.2	187.4
North Carolina	36.1	39.9
North Dakota	5.0	(NA)
Ohio	68.9	50.9
Oklahoma	9.9	7.8
Oregon	29.1	21.4
Pennsylvania	94.1	78.4
Rhode Island	8.2	6.2
South Carolina	25.0	13.9
South Dakota	3.5	(NA)
Tennessee	41.5	23.9
Texas	77.8	53.8
Utah	4.5	4.5
Vermont	6.9	5.8
Virginia	71.5	56.7
Washington	45.9	22.6
West Virginia	5.7	2.6
Wisconsin	42.5	38.5
27211, FARM PERIODICALS: RECEIPTS FROM SUBSCRIPTIONS, SALES, AND ADVERTISING		
United States	**199.9**	**183.5**
California	2.9	7.6
Florida	2.5	(NA)
Iowa	18.4	18.5
Kansas	20.3	(NA)
Minnesota	8.1	(NA)
Missouri	5.7	5.2
New York	12.8	(NA)
Texas	3.0	2.4
Wisconsin	33.4	30.3
27213, SPECIALIZED BUSINESS AND PROFESSIONAL PERIODICALS: RECEIPTS FROM SUBSCRIPTIONS AND SINGLE COPY SALES		
United States	**2 527.3**	**1 427.1**
Arizona	8.8	3.4
California	168.2	63.6
Colorado	11.9	4.3
Connecticut	45.8	10.3
District of Columbia	396.2	126.4
Florida	6.9	20.2
Georgia	66.0	25.6
Illinois	227.1	(NA)
Indiana	7.5	(NA)
Kansas	6.3	3.6
Maryland	60.2	40.4
Massachusetts	83.1	84.5
Michigan	30.3	3.4
Minnesota	33.8	17.0
Missouri	35.0	(NA)
27213, SPECIALIZED BUSINESS AND PROFESSIONAL PERIODICALS: RECEIPTS FROM SUBSCRIPTIONS AND SINGLE COPY SALES—Con.		
New Jersey	132.4	62.0
New York	829.2	357.6
North Carolina	12.1	4.9
Ohio	30.7	20.3
Oregon	2.4	(NA)
Pennsylvania	153.3	100.8
Tennessee	7.6	(NA)
Texas	52.8	31.5
Vermont	6.8	(NA)
Virginia	43.4	22.1
Washington	4.9	(NA)
Wisconsin	7.1	7.0
27214, SPECIALIZED BUSINESS AND PROFESSIONAL PERIODICALS: RECEIPTS FROM ADVERTISING		
United States	**3 717.4**	**2 614.5**
Alabama	5.3	(NA)
Arizona	11.6	6.0
California	312.6	247.9
Colorado	33.4	11.4
Connecticut	104.7	59.1
District of Columbia	69.3	24.5
Florida	53.9	26.2
Georgia	42.9	43.9
Illinois	338.2	286.4
Indiana	22.6	5.9
Kansas	52.0	33.6
Maine	9.1	(NA)
Maryland	25.0	9.1
Massachusetts	160.0	129.8
Michigan	77.2	15.4
Minnesota	93.5	(NA)
Missouri	29.6	22.9
New Hampshire	53.6	44.5
New Jersey	357.0	196.8
New York	1 233.4	912.3
North Carolina	13.7	15.9
Ohio	206.0	139.4
Oregon	21.9	(NA)
Pennsylvania	122.6	118.8
Tennessee	22.2	6.5
Texas	48.8	42.1
Virginia	34.3	10.2
Washington	17.6	2.6
Wisconsin	30.5	13.3
2721A, GENERAL AND CONSUMER PERIODICALS: RECEIPTS FROM SUBSCRIPTIONS		
United States	**3 621.0**	**2 749.2**
California	193.5	125.5
Colorado	9.9	4.0
Connecticut	45.5	34.9
Florida	32.7	17.5
Georgia	7.5	(NA)
Illinois	168.5	106.6
Kansas	5.5	(NA)
Maryland	5.1	(NA)
Massachusetts	34.4	24.3
Minnesota	10.3	(NA)
New Hampshire	16.1	(NA)
New Jersey	13.0	9.4
New York	1 874.3	1 502.1
North Carolina	22.7	(NA)
Ohio	16.8	13.2
Texas	37.4	18.3
Virginia	19.8	2.3
Wisconsin	94.4	10.5
2721B, GENERAL AND CONSUMER PERIODICALS: RECEIPTS FROM SINGLE COPY SALES		
United States	**1 860.5**	**1 365.0**
Arizona	3.3	(NA)
California	166.9	125.4
Colorado	4.2	3.6
Connecticut	22.0	(NA)
District of Columbia	8.5	8.4
Florida	61.7	(NA)
Illinois	81.0	65.9
Maryland	4.6	(NA)
Massachusetts	10.1	10.5
Michigan	3.7	2.1

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2721B, GENERAL AND CONSUMER PERIODICALS: RECEIPTS FROM SINGLE COPY SALES—Con.		
Minnesota	4.5	(NA)
Missouri	6.4	(NA)
New Jersey	29.3	(NA)
New York	1 058.6	853.4
North Carolina	3.4	(NA)
Ohio	2.8	(NA)
Tennessee	6.0	(NA)
Virginia	17.7	(NA)
Washington	5.6	(NA)
Wisconsin	15.3	4.5
2721C, GENERAL AND CONSUMER PERIODICALS: RECEIPTS FROM ADVERTISING		
United States	**5 133.5**	**4 298.5**
Arizona	8.8	4.9
Arkansas	2.0	3.1
California	489.0	327.3
Colorado	14.9	5.4
Connecticut	108.5	60.8
Florida	64.8	18.5
Georgia	48.6	31.1
Hawaii	15.8	13.1
Illinois	145.6	156.0
Indiana	3.5	(NA)
Kansas	4.2	2.8
Maryland	13.1	6.3
Massachusetts	42.2	31.7
Michigan	19.9	35.0
Minnesota	16.9	7.7
Missouri	16.9	17.7
New Hampshire	12.5	(NA)
New Jersey	39.7	16.3
New Mexico	3.4	(NA)
New York	3 209.1	2 895.8
North Carolina	32.2	14.4
Ohio	25.3	25.0
Oklahoma	2.8	(NA)
Oregon	9.0	2.9
Tennessee	3.0	(NA)
Texas	29.6	27.4
Vermont	11.9	(NA)
Virginia	13.9	3.5
Washington	6.8	5.7
Wisconsin	38.7	10.9
2721D, OTHER PERIODICALS, EXCEPT SHOPPING NEWS, CATALOGS, OR DIRECTORIES, N.E.C.		
United States	**689.1**	**671.8**
California	80.2	15.5
District of Columbia	2.5	(NA)
Florida	17.8	26.0
Illinois	64.6	69.1
Kentucky	3.4	(NA)
Maryland	38.0	(NA)
Massachusetts	24.7	(NA)
Michigan	7.3	6.4
Minnesota	16.0	(NA)
Missouri	40.5	33.4
New Jersey	13.6	10.3
New York	70.9	193.3
Ohio	71.5	66.4
Oregon	2.2	(NA)
Pennsylvania	7.5	26.8
Tennessee	100.5	84.0
Texas	14.3	4.3
Virginia	4.5	4.1
Wisconsin	5.7	(NA)
27311, TEXTBOOKS, INCLUDING TEACHERS' EDITIONS		
United States	**3 873.7**	**2 953.5**
California	344.4	218.9
Illinois	391.4	435.6
Massachusetts	618.6	504.6
Minnesota	114.6	(NA)
New York	677.9	946.2
North Carolina	13.9	(NA)
Ohio	265.2	234.3
Tennessee	7.9	(NA)
Texas	228.6	144.7
27313, TECHNICAL, SCIENTIFIC, AND PROFESSIONAL BOOKS		
United States	**2 487.9**	**1 827.5**
Arizona	3.0	(NA)
California	154.6	110.5
Connecticut	43.8	54.5
District of Columbia	7.6	5.4
Florida	39.5	20.0
Illinois	38.7	113.4
Maryland	69.8	24.4
Massachusetts	115.3	94.1
Michigan	11.7	(NA)
New Jersey	176.3	184.5
New York	768.9	559.4
Ohio	80.7	76.3
Pennsylvania	236.5	148.0
Texas	12.6	5.6
Washington	5.7	3.2
Wisconsin	6.2	(NA)
27314, RELIGIOUS BOOKS		
United States	**730.2**	**492.1**
Illinois	54.8	36.8
Indiana	9.1	5.5
Missouri	20.3	21.3
New Jersey	43.6	28.8
New York	46.2	69.9
Oregon	30.3	13.2
Pennsylvania	12.1	28.4
2731A, MASS MARKET PAPERBOUND BOOKS, RACK-SIZE		
United States	**916.8**	**836.6**
New York	902.7	829.5
2731B, BOOK CLUB BOOKS		
United States	**745.8**	**650.2**
California	8.5	(NA)
New York	643.9	(NA)
2731C, MAIL ORDER BOOKS		
United States	**711.2**	**698.1**
California	18.9	16.8
Connecticut	6.0	(NA)
Illinois	8.6	(NA)
2731D, ADULT TRADE AND JUVENILE BOOKS		
United States	**2 647.3**	**1 939.4**
California	177.3	119.3
Colorado	5.2	(NA)
Connecticut	31.3	3.6
Illinois	131.4	26.4
Massachusetts	163.2	94.3
New Jersey	119.6	45.9
New York	1 699.6	1 396.2
Pennsylvania	45.4	11.1
Texas	11.4	2.3
Vermont	6.7	(NA)
Wisconsin	29.9	(NA)
2731E, GENERAL REFERENCE BOOKS		
United States	**490.9**	**510.8**
New York	71.0	35.3
Texas	5.6	(NA)
2731F, OTHER BOOKS, EXCLUDING PAMPHLETS		
United States	**390.4**	**(NA)**
California	13.7	(NA)
Connecticut	34.3	(NA)
Illinois	30.3	(NA)
Michigan	7.5	(NA)
New Jersey	29.5	(NA)
New York	100.2	(NA)
North Carolina	3.5	(NA)
Pennsylvania	4.2	(NA)
Texas	5.7	(NA)
Wisconsin	4.8	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2731G, PAMPHLETS (5 THROUGH 48 PAGES)		
United States	**134.8**	**140.7**
California	56.4	(NA)
Illinois	3.0	(NA)
Missouri	2.6	(NA)
Texas	6.5	(NA)
2731H, AUDIO BOOKS (BOOKS RECORDED ON AUDIO CASSETTES), PUBLISHING		
United States	**36.1**	**(NA)**
27323, TEXTBOOKS, PRINTING AND BINDING		
United States	**678.7**	**515.7**
California	20.1	12.4
Colorado	3.0	(NA)
Illinois	22.6	11.9
Maryland	6.3	17.3
Massachusetts	38.2	(NA)
Michigan	36.0	52.8
New York	34.3	27.6
North Carolina	3.3	(NA)
Ohio	76.0	57.5
Oklahoma	3.1	(NA)
Pennsylvania	10.1	10.8
Texas	23.6	(NA)
Wisconsin	110.1	101.1
27324, TECHNICAL, SCIENTIFIC, AND PROFESSIONAL BOOKS, PRINTING AND BINDING		
United States	**1 003.1**	**589.5**
Arizona	4.0	(NA)
Arkansas	3.5	(NA)
California	80.0	47.9
Colorado	18.3	(NA)
Connecticut	2.3	(NA)
District of Columbia	3.9	(NA)
Florida	8.7	(NA)
Illinois	12.2	26.0
Iowa	11.5	(NA)
Kansas	2.1	(NA)
Maryland	29.7	45.8
Massachusetts	105.8	51.6
Michigan	87.8	43.0
Minnesota	8.0	10.0
Missouri	17.3	25.0
New Jersey	9.5	3.4
New York	28.8	36.6
Ohio	36.3	19.8
Oregon	114.3	(NA)
Pennsylvania	91.3	59.9
Texas	40.1	9.9
Utah	22.9	18.9
Virginia	38.6	24.3
Wisconsin	14.2	(NA)
27325, RELIGIOUS BOOKS, PRINTING AND BINDING		
United States	**207.0**	**141.4**
California	5.3	(NA)
Illinois	12.0	7.3
Maryland	3.5	(NA)
Michigan	21.5	13.4
Minnesota	6.9	(NA)
Missouri	2.8	(NA)
New Jersey	2.3	(NA)
Texas	3.3	4.5
Wisconsin	7.7	(NA)
27326, GENERAL BOOKS (TRADE, ETC.), PRINTING AND BINDING		
United States	**1 126.2**	**709.8**
California	62.2	12.8
Colorado	3.6	(NA)
Illinois	6.4	29.0
Maryland	27.6	(NA)
Massachusetts	9.6	28.5
Michigan	66.8	9.1
New York	75.7	68.8
Oregon	5.1	(NA)
Pennsylvania	134.1	121.3
Texas	8.4	4.1
Wisconsin	102.0	(NA)
2732A, OTHER BOOKS, N.E.C., PRINTING AND BINDING		
United States	**732.1**	**642.6**
Alabama	3.2	(NA)
California	6.1	(NA)
Colorado	3.3	(NA)
Florida	6.9	(NA)
Illinois	12.7	6.5
Indiana	58.6	(NA)
Iowa	13.2	(NA)
Massachusetts	60.5	(NA)
Minnesota	2.8	3.2
New York	9.1	14.7
Ohio	23.7	(NA)
Pennsylvania	85.7	79.2
Rhode Island	11.3	(NA)
Virginia	5.6	(NA)
Wisconsin	13.4	(NA)
2732B, BOOKS, PRINTING ONLY, NOT BOUND		
United States	**137.2**	**120.9**
California	8.5	3.2
Illinois	9.1	5.5
Iowa	4.3	(NA)
Maryland	2.7	10.8
Michigan	2.1	(NA)
Minnesota	2.5	(NA)
New York	4.0	7.1
Ohio	2.3	6.6
Pennsylvania	19.9	(NA)
Texas	2.4	(NA)
Virginia	3.7	(NA)
Washington	2.1	(NA)
2732C, PAMPHLETS, PRINTING ONLY OR PRINTING AND BINDING (EXCLUDING ADVERTISING PAMPHLETS)		
United States	**313.7**	**132.3**
Alabama	2.3	(NA)
California	27.9	4.4
Colorado	2.6	(NA)
Connecticut	3.1	(NA)
District of Columbia	3.0	(NA)
Florida	7.2	(NA)
Georgia	2.8	(NA)
Illinois	42.7	5.5
Indiana	13.1	(NA)
Iowa	2.1	(NA)
Kansas	3.0	(NA)
Maryland	20.2	5.5
Massachusetts	11.0	4.9
Michigan	6.3	5.3
Minnesota	12.2	7.3
Missouri	9.8	(NA)
New Jersey	12.3	21.4
New York	29.4	15.0
North Carolina	8.0	5.4
Ohio	9.0	2.8
Pennsylvania	7.1	10.5
South Carolina	3.2	(NA)
Tennessee	5.6	(NA)
Texas	10.7	5.2
Utah	16.2	(NA)
Virginia	8.0	6.4
Wisconsin	9.5	(NA)
27416, TELEPHONE DIRECTORIES, PUBLISHING		
United States	**4 807.5**	**3 042.9**
Florida	18.9	6.3
New Jersey	8.5	(NA)
New York	86.1	43.4
Ohio	54.7	(NA)
South Carolina	4.8	(NA)
Texas	30.4	7.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27417, CATALOGS AND DIRECTORIES, EXCEPT TELEPHONE DIRECTORIES, PUBLISHING		
United States	**613.4**	**606.4**
California	67.6	32.2
Colorado	3.7	(NA)
Connecticut	4.1	5.1
District of Columbia	4.6	4.2
Florida	9.9	12.5
Georgia	4.0	6.8
Illinois	23.0	19.6
Kansas	33.7	36.4
Maryland	2.5	(NA)
Michigan	14.6	25.0
Missouri	4.3	(NA)
New York	254.7	291.4
Ohio	21.0	24.6
Pennsylvania	21.7	13.8
Tennessee	3.0	(NA)
Texas	22.4	(NA)
Virginia	7.0	(NA)
Washington	2.8	(NA)
Wisconsin	2.0	2.6
27418, BUSINESS SERVICE PUBLICATIONS, PUBLISHING		
United States	**897.6**	**932.0**
California	59.2	101.1
Connecticut	15.3	(NA)
District of Columbia	19.6	27.9
Florida	32.9	18.5
Illinois	56.8	26.1
Maryland	29.8	10.9
Massachusetts	16.8	28.9
Michigan	3.7	(NA)
New Jersey	27.7	90.0
New York	552.2	458.9
Ohio	5.5	13.2
Pennsylvania	21.6	(NA)
Texas	10.9	(NA)
Virginia	12.1	(NA)
Washington	2.7	(NA)
Wisconsin	2.1	(NA)
27419, PATTERNS, INCLUDING CLOTHING PATTERNS		
United States	**214.4**	**173.3**
2741A, SHOPPING NEWS, PUBLISHING		
United States	**990.6**	**774.4**
Alabama	3.2	2.7
Arizona	13.2	9.4
Arkansas	2.7	4.7
California	104.2	146.2
Colorado	6.0	2.8
Connecticut	29.7	6.6
Florida	83.4	72.2
Georgia	6.6	10.4
Idaho	3.9	(NA)
Illinois	37.3	39.3
Indiana	7.3	12.5
Iowa	17.9	33.6
Kansas	6.3	6.0
Kentucky	10.1	8.0
Louisiana	5.6	9.1
Maine	3.4	(NA)
Maryland	18.1	8.3
Massachusetts	14.7	12.5
Michigan	34.9	31.4
Minnesota	27.2	22.6
Missouri	13.8	7.9
Montana	4.2	(NA)
Nebraska	5.6	2.7
New Hampshire	2.1	(NA)
New Jersey	30.0	15.8
New York	158.8	106.8
North Carolina	23.6	18.9
North Dakota	3.6	(NA)
Ohio	41.5	13.4
Oregon	11.3	19.9
Pennsylvania	23.3	25.2
South Carolina	2.9	4.3
Tennessee	18.9	9.5
Texas	60.1	25.6
Virginia	8.3	4.1
Washington	28.8	10.6
West Virginia	4.4	5.2
Wisconsin	58.2	28.2
2741B, OTHER MISCELLANEOUS PUBLISHING		
United States	**2 216.9**	**863.5**
California	392.4	97.1
Colorado	201.8	53.6
Connecticut	35.4	21.3
Florida	25.3	30.8
Georgia	3.7	(NA)
Illinois	84.7	145.2
Indiana	8.9	3.3
Massachusetts	44.4	30.7
Michigan	124.3	68.8
Minnesota	25.0	23.9
Missouri	36.3	26.4
New Jersey	37.4	(NA)
New York	121.9	59.2
North Carolina	9.6	6.7
Ohio	45.9	7.9
Tennessee	48.4	(NA)
Texas	110.3	51.7
Virginia	28.0	6.4
Washington	4.6	(NA)
Wisconsin	28.4	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2711-	**Newspapers**	**32 261.5**	**31 860.0**	**32 817.6**	**32 457.0**	**31 461.0**	**30 494.7**	**20 313.7**	**12 468.1**
27111	Daily and Sunday newspapers: receipts from subscriptions and sales	6 541.6	6 316.3	5 928.6	5 704.5	5 458.3	5 212.0	3 922.5	2 561.1
27112	Daily and Sunday newspapers: receipts from advertising	20 123.8	20 221.1	21 591.1	21 583.7	20 806.1	20 176.2	13 233.2	8 140.5
27113	Weekly and other newspapers: receipts from subscriptions and sales	645.5	738.2	656.2	640.1	587.4	573.0	429.6	240.6
27114	Weekly and other newspapers: receipts from advertising	2 108.3	1 783.8	1 887.5	1 832.2	1 745.1	1 687.5	1 106.9	734.5
27110	Newspapers, n.s.k.	2 842.4	2 800.6	2 754.3	2 696.6	2 864.2	2 845.9	1 621.5	791.4

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2721-	**Periodical publishing**	**20 890.3**	**19 424.0**	**19 255.5**	**18 747.9**	**17 663.5**	**16 492.1**	**10 625.8**	**5 528.8**
27211	Farm periodicals: receipts from subscriptions, sales, and advertising	199.9	237.8	228.8	204.1	184.4	183.5	246.9	107.5
27213	Specialized business and professional periodicals: receipts from subscriptions and single copy sales	2 527.3	2 154.2	2 147.6	2 036.0	1 585.2	1 427.1	952.8	464.2
27214	Specialized business and professional periodicals: receipts from advertising	3 717.4	3 215.0	3 035.5	2 882.8	2 853.3	2 614.5	1 647.5	850.2
2721A	General and consumer periodicals: receipts from subscriptions	3 621.0	3 216.1	3 188.1	2 998.8	2 806.3	2 749.2	1 596.6	
2721B	General and consumer periodicals: receipts from single copy sales	1 860.5	1 472.0	1 464.6	1 575.3	1 407.8	1 365.0	963.8	1 685.7
2721C	General and consumer periodicals: receipts from advertising	5 133.5	4 895.4	4 971.7	4 906.0	4 688.6	4 298.5	3 161.8	1 595.5
2721D	Other periodicals, except shopping news, catalogs, or directories, n.e.c.	689.1	644.3	714.7	698.0	713.6	671.8	509.8	250.7
27210	Periodical publishing, n.s.k.	3 141.8	3 589.3	3 504.5	3 446.8	3 424.3	3 182.4	1 546.6	575.0
2731-	**Book publishing**	**14 785.6**	**15 214.5**	**14 266.9**	**12 980.6**	**12 156.3**	**11 629.9**	**7 812.6**	**5 007.7**
27311	Textbooks, including teachers' editions	3 873.7	3 814.9	3 655.1	3 361.4	3 036.6	2 953.5	2 167.9	1 408.7
27313	Technical, scientific, and professional books	2 487.9	2 622.7	2 445.5	2 259.0	2 044.7	1 827.5	1 359.6	684.1
27314	Religious books	730.2	838.6	668.4	617.6	512.9	492.1	322.1	241.6
2731A	Mass market paperbound books, rack-size	916.8	1 112.8	1 007.8	1 061.3	916.3	836.6	553.4	
2731B	Book club books	745.8	692.6	709.8	623.3	644.0	650.2	417.9	1 895.6
2731C	Mail order books	711.2	797.7	752.2	697.6	725.1	698.1	508.6	
2731D	Adult trade and juvenile books	2 647.3	2 697.5	2 344.4	2 015.8	1 970.4	1 939.4	1 111.4	
2731E	General reference books	490.9	699.9	689.3	637.5	519.1	510.8	299.0	300.1
2731F	Other books, excluding pamphlets[2]	390.4	[2]246.4	[2]377.2	[2]196.7	[2]180.3	[2]166.8	[2]218.5	[2]110.4
2731G	Pamphlets (5 through 48 pages)	134.8	118.5	111.4	131.8	151.6	140.7	75.4	49.1
2731H	Audio books (books recorded on audio cassettes), publishing[2]	36.1	([2])	([2])	([2])	([2])	([2])	([2])	([2])
27310	Book publishing, n.s.k.	1 620.5	1 572.8	1 505.9	1 378.5	1 455.4	1 414.3	778.7	318.1
2732-	**Book printing**	**4 736.1**	**4 048.1**	**4 007.7**	**3 804.2**	**3 605.8**	**3 240.9**	**2 501.9**	**1 830.6**
27323	Textbooks, printing and binding	678.7	708.3	695.2	591.3	561.9	515.7	335.1	
27324	Technical, scientific, and professional books, printing and binding	1 003.1	869.3	833.7	825.9	663.1	589.5	289.5	
27325	Religious books, printing and binding	207.0	138.8	129.6	134.0	152.7	141.4	107.3	
27326	General books (trade, etc.), printing and binding	1 126.2	1 057.3	1 107.8	1 032.5	859.0	709.8	615.4	
2732A	Other books, n.e.c., printing and binding	732.1	665.4	662.7	615.5	685.7	642.6	383.6	1 670.1
2732B	Books, printing only, not bound	137.2	127.2	119.5	112.3	135.3	120.9	111.8	
2732C	Pamphlets, printing only or printing and binding (excluding advertising pamphlets)	313.7	133.4	129.1	119.2	140.7	132.3	200.8	
27320	Book printing, n.s.k.	537.9	348.4	330.2	373.4	407.4	388.8	458.4	160.5
2741-	**Miscellaneous publishing**	**11 567.1**	**10 137.5**	**9 483.8**	**8 488.3**	**8 839.1**	**8 176.6**	**3 096.6**	**1 935.1**
27416	Telephone directories, publishing	4 807.5	3 822.7	3 573.3	3 183.5	3 282.2	3 042.9	882.7	456.9
27417	Catalogs and directories, except telephone directories, publishing	613.4	634.2	607.6	570.4	603.9	606.4		
27418	Business service publications, publishing	897.6	927.4	865.2	822.9	976.0	932.0	535.5	416.7
27419	Patterns, including clothing patterns	214.4	186.8	178.9	173.2	176.5	173.3	181.8	([3])
2741A	Shopping news, publishing	990.6	838.9	889.2	850.1	793.4	774.4	1 010.5	[3]727.0
2741B	Other miscellaneous publishing	2 216.9	1 945.6	1 642.7	1 224.9	1 143.8	863.5		
27410	Miscellaneous publishing, n.s.k.	1 826.8	1 782.0	1 726.9	1 663.3	1 863.3	1 784.1	486.0	334.5

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]Prior to 1992, audio books were included in "other books, excluding pamphlets."
[3]For 1977, product classes 27419, 2741A, and 2741B were combined.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2711, NEWSPAPERS				
	Materials, ingredients, containers, and supplies	**(X)**	**5 850.3**	**(X)**	**6 570.6**
	Newsprint:				
262113	Basis wt 30 lb, 1,000 metric tons	6 914.4	3 202.2	(S)	4 175.5
262115	Other basis wt, 1,000 metric tons	1 384.9	629.5	*914.4	435.3
262131	Coated paper	(X)	37.9	(X)	33.5
262101	All other paper, except light sensitive	(X)	43.9	(X)	39.3
	Printing inks:				
289311	Letterpress, including news	(X)	33.7	(X)	59.5
289323	Lithographic (offset)	(X)	114.9	(X)	126.9
289305	Other, including gravure, flexographic, and screen process	(X)	24.3	(X)	9.4
	Printing plates:				
	Exposed, prepared for printing:				
279615	Lithographic (offset)	(X)	23.7	(X)	([2])
279635	Letterpress	(X)	17.1	(X)	([3])
279636	Other	(X)	11.0	(X)	([4])
	Unexposed photosensitive plates:				
386102	Lithographic (offset)	(X)	33.1	(X)	[2]51.2
386103	Letterpress	(X)	18.7	(X)	[3]30.6
386107	Other	(X)	3.5	(X)	([4])
386155	Light sensitive films	(X)	52.5	(X)	58.6
386166	Light sensitive papers (including photographic paper and diffusion transfer paper)	(X)	18.9	(X)	27.1
970099	All other materials and components, parts, containers, and supplies	(X)	472.5	(X)	[4]381.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	1 112.8	(X)	1 141.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2721, PERIODICALS		
	Materials, ingredients, containers, and supplies	**2 417.1**	**2 225.7**
262111	Newsprint	66.3	155.6
262131	Coated paper	986.1	627.4
262140	Uncoated paper	185.2	178.9
289301	Printing inks (complete formulations)	220.8	58.9
970099	All other materials and components, parts, containers, and supplies	165.9	278.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	792.8	926.7
	INDUSTRY 2731, BOOK PUBLISHING		
	Materials, ingredients, containers, and supplies	**1 613.7**	**1 234.2**
262111	Newsprint	76.9	38.9
262131	Coated paper	192.2	147.2
262140	Uncoated paper	305.6	228.7
289301	Printing inks (complete formulations)	45.9	5.2
970099	All other materials and components, parts, containers, and supplies	549.1	295.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	444.1	518.4
	INDUSTRY 2732, BOOK PRINTING		
	Materials, ingredients, containers, and supplies	**1 587.6**	**1 090.1**
262112	Newsprint	35.7	28.9
	Uncoated paper:		
262121	Sheets	116.7	115.1
262122	Rolls	314.5	236.9
	Coated paper:		
262123	Sheets	148.1	79.8
262124	Rolls	194.9	95.0
267231	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	14.5	(D)
220011	Cloth and nonwoven fabrics for hardbound book covers	56.1	39.8
289101	Glues and adhesives	29.3	19.7
289301	Printing inks (complete formulations)	64.7	(D)
386101	Light sensitive films and papers	29.7	24.4
386100	Unexposed photosensitive printing plates	23.6	([4])
279600	Printing plates, prepared for printing	33.9	([4])
265001	Paperboard containers, boxes, and corrugated paperboard	60.4	([4])
970099	All other materials and components, parts, containers, and supplies	274.7	[4]233.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	190.7	165.7
	INDUSTRY 2741, MISCELLANEOUS PUBLISHING		
	Materials, ingredients, containers, and supplies	**708.6**	**609.2**
262111	Newsprint	43.5	70.8
262131	Coated paper	75.2	21.2
262140	Uncoated paper	103.8	120.5
289301	Printing inks (complete formulations)	4.3	5.6
970099	All other materials and components, parts, containers, and supplies	219.6	74.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	262.2	316.6

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, 279615 and 386102 were published as 386153, unexposed diazo lithographic plates, and 279610, other lithographic plates, exposed and unexposed.

[3]For 1987, 279635 and 386103 were published as 279631, photopolymer (plastics) plates used for letterpress printing.

[4]Included in 970099.

[5]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
27111 24	27111 22
27111 26	27111 22
27111 34	27111 32
27111 36	27111 32
27111 44	27111 42
27111 46	27111 42
27111 54	27111 52
27111 56	27111 52
27111 58	27111 91
27211 12	27211 11
27211 12	27211 61
27211 14	27211 15
27211 14	27211 61
2731H	2731F
2731H 00	2731F 00
27417 16	27417 15
27417 16	27417 17
2741B 18	2741B 19
2741B 20	2741B 19
2741B 29	2741B 91
2741B 71	2741B 21
2741B 71	2741B 91
27522 11	27522 15
27522 11	27522 16
27522 13	27522 16
27522 13	27522 19
27522 17	27522 16
27522 17	27522 18
27523 18	27523 13
27525 45	27525 51
27525 45	27525 53
27525 52	27525 51
27525 54	27525 53
27526 77	27526 76
27526 77	27526 78
27526 84	27526 98
27526 97	27526 98
27592 12	27592 11
27592 12	27592 15
27592 14	27592 13
27592 14	27592 15
27592 16	27592 15
27592 16	27592 17
27592 18	27592 15
27592 18	27592 19
27596 16	27596 25
27596 27	27596 25
27599 33	27599 32
27599 35	27599 32
2759B	27597
2759B 00	27597 00
2759B 14	27597 14
2759B 16	27597 16
2759B 18	27597 18
2759B 20	27597 20
2759B 22	27597 22
2759B 26	27597 26
2759B 28	27597 28
2759B 30	27597 24
2759B 30	27597 30
2759C	27597
2759C 29	27597 38
2759C 31	27597 12
2759C 32	27597 32
2759C 34	27597 34
2759C 36	27597 36
2759C 38	27597 38
27612 11	27612 00
27612 13	27612 00
27612 15	27612 00
27612 53	27612 00
27612 55	27612 00
27612 61	27612 00
27613 11	27613 00
27613 13	27613 00
27615 31	27615 00
27615 35	27615 00
27615 41	27615 00
27615 43	27615 00
27615 45	27615 00
27615 55	27615 00
27615 61	27615 00
27615 63	27615 00
27615 65	27615 00
27617 61	27617 00
27617 63	27617 00
27617 65	27617 00
27617 73	27617 00
27617 75	27617 00
27824 41	27824 00
27824 45	27824 00
27824 51	27824 00
27825 01	27825 00
27825 03	27825 00
27825 06	27825 00
27825 08	27825 00
27825 11	27825 00
27825 22	27825 00
27910 32	27910 11
27910 34	27910 15
27961 11	27961 13
27961 31	27961 17
27961 31	27961 23
27961 31	27961 29
27963 30	27963 15
27963 30	27963 35
27963 52	27963 72
27963 69	27963 61
27963 69	27963 63
27963 69	27963 65
27963 70	27963 40
27963 70	27963 67
27963 70	27963 71

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
27111 22	27111 22
27111 22	27111 24
27111 22	27111 26
27111 32	27111 32
27111 32	27111 34
27111 32	27111 36
27111 42	27111 42
27111 42	27111 44
27111 42	27111 46
27111 52	27111 52
27111 52	27111 54
27111 52	27111 56
27111 91	27111 58
27211 11	27211 12
27211 15	27211 14
27211 61	27211 12
27211 61	27211 14
2731F	2731F
2731F	2731H
2731F 00	2731F 00
2731F 00	2731H 00
27417 15	27417 16
27417 17	27417 16
2741B 19	2741B 18
2741B 19	2741B 20
2741B 21	2741B 71
2741B 91	2741B 29
2741B 91	2741B 71
27522 15	27522 11
27522 16	27522 11
27522 16	27522 13
27522 16	27522 17
27522 18	27522 17
27522 19	27522 13
27523 13	27523 18
27525 51	27525 45
27525 51	27525 52
27525 53	27525 45
27525 53	27525 54
27526 76	27526 77
27526 78	27526 77
27526 98	27526 84
27526 98	27526 97
27592 11	27592 12
27592 13	27592 14
27592 15	27592 12
27592 15	27592 14
27592 15	27592 16
27592 15	27592 18
27592 17	27592 16
27592 19	27592 18
27596 25	27596 16
27596 25	27596 27
27597	2759B
27597	2759C
27597 00	2759B 00
27597 12	2759C 31
27597 14	2759B 14
27597 16	2759B 16
27597 18	2759B 18
27597 20	2759B 20
27597 22	2759B 22
27597 24	2759B 30
27597 26	2759B 26
27597 28	2759B 28
27597 30	2759B 30
27597 32	2759C 32
27597 34	2759C 34
27597 36	2759C 36
27597 38	2759C 29
27597 38	2759C 38
27599 32	27599 33
27599 32	27599 35
27612 00	27612 11
27612 00	27612 13
27612 00	27612 15
27612 00	27612 53
27612 00	27612 55
27612 00	27612 61
27613 00	27613 11
27613 00	27613 13
27615 00	27615 31
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27615 00	27615 41
27615 00	27615 43
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27615 00	27615 55
27615 00	27615 61
27615 00	27615 63
27615 00	27615 65
27617 00	27617 61
27617 00	27617 63
27617 00	27617 65
27617 00	27617 73
27617 00	27617 75
27824 00	27824 41
27824 00	27824 45
27824 00	27824 51
27825 00	27825 01
27825 00	27825 03
27825 00	27825 06
27825 00	27825 08
27825 00	27825 11
27825 00	27825 22
27910 11	27910 32
27910 15	27910 34
27961 13	27961 11
27961 17	27961 31
27961 23	27961 31
27961 29	27961 31
27963 15	27963 30
27963 35	27963 30
27963 40	27963 70
27963 61	27963 69
27963 63	27963 69
27963 65	27963 69
27963 67	27963 70
27963 71	27963 70
27963 72	27963 52

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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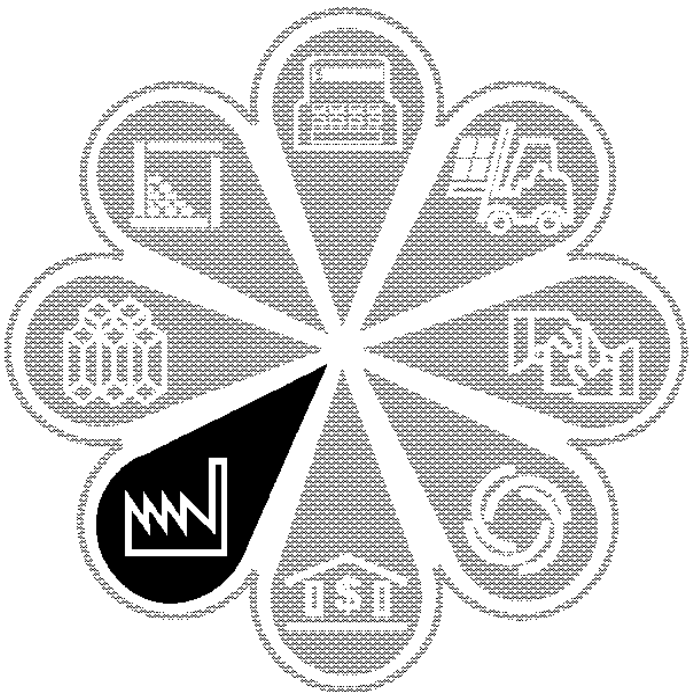
1992 Census of Manufactures

MC92-I-27B

INDUSTRY SERIES

Commercial Printing and Manifold Business Forms

Industries 2752, 2754, 2759, and 2761



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-27B

INDUSTRY SERIES

Commercial Printing and Manifold Business Forms

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Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2752	Commercial Printing, Lithographic
2754	Commercial Printing, Gravure
2759	Commercial Printing, N.E.C.
2761	Manifold Business Forms

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC

This industry is made up of establishments primarily engaged in printing by the lithographic (offset) process. Establishments primarily engaged in book printing without publishing are classified in industry 2732, and greeting card printers in industry 2771. Establishments primarily engaged in preparing lithographic or offset plates and in related services are classified in industry 2796. Establishments primarily engaged in providing photocopying services are classified in service industries, industry 7334.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2752, Commercial Printing, Lithographic, had employment of 439.9 thousand. The employment figure was 9 percent above the 403.9 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania, accounting for approximately 31 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $43.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2752 shipped $39.8 billion of products considered primary to the industry, $2.4 billion of secondary products, and had $1.4 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2752, no matter in what industry they were produced, appear in table 6a and

aggregate to $42.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in this industry amounted to $18.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE

This industry is made up of establishments primarily engaged in gravure printing. Establishments primarily engaged in making and preparing plates for printing are classified in industry 2796.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2754, Commercial Printing, Gravure, had employment of 21.5 thousand. The employment figure was 10 percent below the 23.8 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Tennessee, and Indiana. This represents a shift from 1987 when Illinois, Tennessee, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2754 shipped $3.1 billion of products considered primary to the industry, $445.5 million of secondary products, and had $43.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 85 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2754, no matter in what industry they were produced, appear in table 6a and aggregate to $3.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in this industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.

This industry is made up of establishments primarily engaged in commercial or job printing, not elsewhere classified, including letterpress, flexographic, and screen printing (except on textiles). It also includes establishments engaged in engraving printing and nonimpact printing. Establishments primarily engaged in screen printing on textiles are classified in Industry 2396, Automotive and Apparel Trimmings.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2759, Commercial Printing, N.E.C., had employment of 107.3 thousand. The employment figure was 15 percent below the 125.8 thousand reported in 1987. Compared with 1991, employment decreased 20 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, New York, and Illinois, accounting for approximately 33 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for approximately 30 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2759 shipped $8.2 billion of products considered primary to the industry, $653.5 million of secondary products, and had $459.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 2759, no matter in what industry they were produced, appear in table 6a and aggregate to $9.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in this industry amounted to $3.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of the total value of shipments.

INDUSTRY 2761, MANIFOLD BUSINESS FORMS

This industry is made up of establishments primarily engaged in designing and printing, by any process, special forms for use in the operation of a business, in single and multiple sets, including carbonized or interleaved with carbon or otherwise processed for multiple reproduction. It also includes establishments engaged in the manufacture of manifold books, including pegboard accounting systems.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2761, Manifold Business Forms, had employment of 47.9 thousand. The employment figure was 10 percent below the 53.3 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, California, Texas, and Illinois, accounting for approximately 32 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2761 shipped $6.5 billion of products considered primary to the industry, $498.7 million of secondary products, and had $437.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2761, no matter in what industry they were produced, appear in table 6a and aggregate to $6.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the manifold business forms industry amounted to $3.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC															
1992 Census	28 489	29 344	4 251	439.9	12 047.5	317.4	653.0	7 679.0	24 842.5	18 723.1	43 588.2	1 629.4	2 724.8	94	94
1991 ASM	(NA)	(NA)	(NA)	400.1	10 386.6	290.8	594.8	6 564.5	20 952.4	16 788.0	37 718.9	1 370.0	2 441.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	423.3	10 606.7	307.3	631.0	6 764.3	21 230.3	17 623.2	38 877.4	1 662.4	2 638.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	419.3	10 149.0	306.3	615.5	6 504.9	20 416.1	16 727.9	37 128.0	1 627.6	2 627.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	405.2	9 524.3	293.2	586.7	6 079.9	18 997.0	15 758.3	34 727.0	1 435.4	2 585.4	(NA)	(NA)
1987 Census	24 327	24 984	4 105	403.9	9 154.4	293.7	581.9	5 900.3	18 232.1	14 647.0	32 832.0	1 538.5	2 412.7	94	94
1986 ASM	(NA)	(NA)	(NA)	337.0	7 513.3	247.9	487.5	4 897.0	14 819.2	11 598.9	26 371.1	1 335.9	1 920.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	335.4	7 097.5	248.2	472.7	4 744.7	13 949.0	11 079.8	25 024.8	1 410.7	1 828.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	334.9	6 841.5	249.0	473.8	4 550.3	13 271.2	10 485.0	23 646.2	1 279.7	1 961.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	315.1	6 052.1	236.9	440.1	4 131.5	11 741.8	9 025.3	20 754.0	962.7	1 661.1	(NA)	(NA)
1982 Census	17 332	17 842	3 184	311.9	5 746.4	234.1	434.8	3 931.9	11 045.1	8 406.4	19 441.6	958.1	1 524.1	91	93
1981 ASM	(NA)	(NA)	(NA)	261.2	4 596.1	197.5	377.4	3 095.5	8 616.9	6 595.1	15 173.7	794.4	1 154.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	257.9	4 173.9	195.8	366.0	2 823.6	7 720.3	5 847.7	13 561.4	619.3	1 141.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	250.2	3 781.5	191.2	360.2	2 574.1	6 973.9	5 334.6	12 244.7	559.9	1 107.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	227.3	3 277.6	172.0	320.8	2 246.8	5 888.5	4 630.6	10 505.0	438.7	945.4	(NA)	(NA)
1977 Census	10 959	11 320	2 362	216.3	2 984.1	163.7	307.4	2 045.7	5 338.4	4 061.6	9 359.7	360.2	861.9	87	88
INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE															
1992 Census	401	431	90	21.5	726.2	17.9	38.8	561.9	1 690.9	1 860.9	3 560.5	170.4	274.0	87	89
1991 ASM	(NA)	(NA)	(NA)	22.0	693.7	17.9	39.0	527.2	1 670.0	1 839.9	3 506.0	136.3	277.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.9	700.4	19.5	40.5	522.1	1 742.0	1 883.4	3 635.9	176.1	288.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.2	688.2	18.9	39.7	512.9	1 476.2	1 983.4	3 467.6	178.7	297.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.0	693.2	19.4	39.7	521.2	1 520.1	1 901.8	3 432.1	183.9	327.6	(NA)	(NA)
1987 Census	304	332	91	23.8	668.5	19.1	39.6	494.2	1 534.2	1 545.5	3 059.8	175.5	292.8	85	94
INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.															
1992 Census	8 570	8 690	1 255	107.3	2 596.9	73.9	154.4	1 461.7	5 441.6	3 790.9	9 290.2	344.5	828.7	93	89
1991 ASM	(NA)	(NA)	(NA)	133.8	3 055.1	92.1	191.0	1 778.2	6 269.9	4 459.2	10 723.2	544.3	934.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	133.2	2 963.7	93.8	191.9	1 754.9	6 029.1	4 347.7	10 390.4	381.8	905.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	126.9	2 743.2	89.2	179.8	1 616.8	5 676.7	4 069.5	9 716.1	329.1	886.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	127.7	2 602.6	89.4	189.4	1 565.8	5 338.8	4 011.9	9 300.4	278.8	873.9	(NA)	(NA)
1987 Census	10 608	10 795	1 387	125.8	2 478.5	88.5	172.9	1 495.1	5 252.9	3 674.8	8 894.3	299.0	780.5	92	87
INDUSTRY 2761, MANIFOLD BUSINESS FORMS															
1992 Census	644	922	540	47.9	1 343.2	33.6	69.3	873.0	3 924.7	3 499.9	7 435.9	160.7	753.0	93	96
1991 ASM	(NA)	(NA)	(NA)	46.3	1 269.2	32.2	66.2	819.3	3 839.8	3 381.5	7 233.5	202.1	726.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	50.3	1 326.1	35.1	71.8	842.7	4 038.1	3 786.7	7 807.5	211.7	841.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	49.5	1 263.4	34.6	71.9	823.2	3 808.9	3 754.6	7 553.3	213.4	809.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	53.4	1 349.4	37.8	79.3	874.3	3 970.8	3 901.1	7 781.4	229.0	931.2	(NA)	(NA)
1987 Census	603	856	589	53.3	1 280.5	37.3	77.3	824.9	3 894.1	3 506.1	7 397.1	207.8	789.9	94	97
1986 ASM	(NA)	(NA)	(NA)	54.2	1 272.0	37.9	80.0	826.9	3 676.1	3 337.1	6 985.1	212.9	774.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	54.2	1 199.6	38.6	80.1	794.7	3 469.6	3 195.6	6 669.0	218.3	675.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	53.8	1 116.5	39.1	79.9	750.2	3 203.8	3 132.4	6 297.3	180.9	737.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	47.7	981.7	34.5	68.4	656.5	2 667.5	2 659.2	5 310.7	99.5	618.2	(NA)	(NA)
1982 Census	582	810	530	49.5	934.0	36.2	71.1	634.3	2 490.7	2 563.1	5 058.7	135.4	571.9	96	97
1981 ASM	(NA)	(NA)	(NA)	48.4	859.6	35.8	70.9	570.2	2 394.3	2 363.5	4 734.7	139.6	518.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	49.2	784.5	36.9	72.7	525.5	2 183.7	2 100.7	4 279.0	168.1	499.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	50.2	710.3	38.3	74.2	490.1	2 051.5	1 907.5	3 929.1	119.4	477.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.7	634.5	34.8	68.7	433.1	1 692.2	1 616.4	3 298.5	122.8	386.7	(NA)	(NA)
1977 Census	604	795	477	45.3	575.0	33.3	67.3	390.9	1 491.6	1 418.0	2 893.8	82.1	336.7	93	95

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC								
1992 Census	27 387	72	2 057	11.76	43	71	56 473	48	38.04
1991 ASM	25 960	73	2 045	11.04	45	72	52 368	50	35.23
1990 ASM	25 057	73	2 053	10.72	45	73	50 154	50	33.65
1989 ASM	24 205	73	2 009	10.57	45	72	48 691	50	33.17
1988 ASM	23 505	72	2 001	10.36	45	73	46 883	50	32.38
1987 Census	22 665	73	1 981	10.14	45	72	45 140	50	31.33
1986 ASM	22 295	74	1 967	10.05	44	72	43 974	51	30.40
1985 ASM	21 161	74	1 905	10.04	44	73	41 589	51	29.51
1984 ASM	20 428	74	1 903	9.60	44	73	39 627	52	28.01
1983 ASM	19 207	75	1 858	9.39	43	73	37 264	52	26.68
1982 Census	18 424	75	1 857	9.04	43	73	35 412	52	25.40
1981 ASM	17 596	76	1 911	8.20	43	74	32 990	53	22.83
1980 ASM	16 184	76	1 869	7.71	43	74	29 935	54	21.09
1979 ASM	15 114	76	1 884	7.15	44	74	27 873	54	19.36
1978 ASM	14 420	76	1 865	7.00	44	75	25 906	56	18.36
1977 Census	13 796	76	1 878	6.65	43	75	24 681	56	17.37
	INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE								
1992 Census	33 777	83	2 168	14.48	52	73	78 647	43	43.58
1991 ASM	31 532	81	2 179	13.52	52	72	75 909	42	42.82
1990 ASM	29 305	82	2 077	12.89	52	71	72 887	40	43.01
1989 ASM	29 664	81	2 101	12.92	57	77	63 629	47	37.18
1988 ASM	28 883	81	2 046	13.13	55	76	63 337	46	38.29
1987 Census	28 088	80	2 073	12.48	51	72	64 462	44	38.74
	INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.								
1992 Census	24 202	69	2 089	9.47	41	69	50 714	48	35.24
1991 ASM	22 833	69	2 074	9.31	42	70	46 860	49	32.83
1990 ASM	22 250	70	2 046	9.14	42	70	45 264	49	31.42
1989 ASM	21 617	70	2 016	8.99	42	70	44 734	48	31.57
1988 ASM	20 381	70	2 119	8.27	43	71	41 807	49	28.19
1987 Census	19 702	70	1 954	8.65	41	69	41 756	47	30.38
	INDUSTRY 2761, MANIFOLD BUSINESS FORMS								
1992 Census	28 042	70	2 063	12.60	47	65	81 935	34	56.63
1991 ASM	27 413	70	2 056	12.38	47	64	82 933	33	58.00
1990 ASM	26 364	70	2 046	11.74	49	65	80 280	33	56.24
1989 ASM	25 523	70	2 078	11.45	50	66	76 947	33	52.97
1988 ASM	25 270	71	2 098	11.03	50	67	74 360	34	50.07
1987 Census	24 024	70	2 072	10.67	47	65	73 060	33	50.38
1986 ASM	23 469	70	2 111	10.34	48	66	67 825	35	45.95
1985 ASM	22 133	71	2 075	9.92	48	66	64 015	35	43.32
1984 ASM	20 753	73	2 043	9.39	50	67	59 550	35	40.10
1983 ASM	20 581	72	1 983	9.60	50	69	55 922	37	39.00
1982 Census	18 869	73	1 964	8.92	51	69	50 317	37	35.03
1981 ASM	17 760	74	1 980	8.04	50	68	49 469	36	33.77
1980 ASM	15 945	75	1 970	7.23	49	67	44 384	36	30.04
1979 ASM	14 149	76	1 937	6.61	49	67	40 867	35	27.65
1978 ASM	13 587	75	1 974	6.30	49	68	36 236	37	24.63
1977 Census	12 693	74	2 021	5.81	49	69	32 927	39	22.16

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992													1987	
		All establishments		All employees		Production workers									
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC														
United States	**E1**	**29 344**	**4 251**	**439.9**	**12 047.5**	**317.4**	**653.0**	**7 679.0**	**24 842.5**	**18 723.1**	**43 588.2**	**1 629.4**	**403.9**	**18 232.1**
Alabama	–	332	39	4.1	92.1	3.0	6.0	61.3	209.0	187.2	395.1	15.5	3.8	148.8
Alaska	E2	39	4	.3	8.5	.2	.5	5.9	15.5	8.7	24.3	1.0	.3	14.2
Arizona	E2	515	53	5.0	118.0	3.6	7.2	74.9	229.2	162.9	392.4	13.9	4.0	147.6
Arkansas	–	175	24	2.5	59.2	1.8	3.7	39.0	114.5	105.0	217.3	11.0	2.1	85.4
California	E1	4 035	457	47.2	1 363.8	34.1	71.4	871.6	2 814.2	2 151.1	4 982.8	164.6	44.1	2 065.4

See footnotes at end of table.

TIPS UPF [MCD_SRB,V_HARLEY] 6/ 6/ 95 08:48:01 EPCV22 TLP:27B.BTI;60 6/ 6/ 95 08:44:02 DATA:NONE UPF:DIR:27BDAT.UPF PAGE: 2
TSF:27B_92.DAT;2 6/ 6/ 95 08:44:43 UTF:27B_93.DAT;4 6/ 6/ 95 08:44:43 META:TIPS96-08442898.DAT;1 6/ 6/ 95 08:47:25

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC—Con.														
Colorado	E1	601	70	6.0	156.1	4.3	8.8	99.5	307.8	258.9	564.6	25.3	5.2	216.7
Connecticut	E1	472	82	7.1	220.8	5.0	10.5	137.9	427.9	307.4	737.0	30.3	8.7	410.7
Delaware	E2	66	10	.7	18.2	.5	1.0	10.9	30.0	18.2	48.2	1.1	.8	30.8
District of Columbia	E1	80	11	1.1	31.9	.8	1.6	20.1	55.9	42.4	97.8	2.1	1.2	59.2
Florida	E2	1 730	154	16.3	381.5	11.6	23.8	242.6	747.6	620.0	1 367.7	52.0	14.6	546.1
Georgia	E2	756	101	11.4	311.7	8.2	16.9	197.7	624.3	522.6	1 145.7	36.4	10.3	497.7
Hawaii	E2	78	13	1.0	29.5	.7	1.4	18.2	53.3	31.6	86.2	5.3	1.0	43.2
Idaho	E1	111	16	1.7	29.3	1.3	2.3	18.1	65.1	43.4	108.5	5.5	1.3	36.0
Illinois	E1	1 615	299	34.4	1 065.3	25.1	52.9	680.6	2 189.3	1 751.4	3 948.2	147.0	33.4	1 734.2
Indiana	–	607	106	10.3	269.6	7.3	15.1	169.3	657.1	429.9	1 100.7	39.8	7.8	325.0
Iowa	–	315	69	5.7	132.1	4.2	8.3	83.6	298.0	223.5	521.5	16.3	4.0	156.0
Kansas	E1	321	53	4.8	123.4	3.4	6.8	77.3	353.0	314.9	667.4	13.8	3.7	168.3
Kentucky	–	286	48	7.0	182.9	5.3	10.3	125.5	427.2	296.1	725.3	24.4	6.0	287.9
Louisiana	E1	273	33	2.8	56.6	1.9	3.9	34.3	105.9	90.0	196.3	5.6	2.7	96.8
Maine	–	124	14	1.5	35.1	1.2	2.4	23.1	64.8	65.1	130.3	5.3	G	(D)
Maryland	E1	539	114	10.3	322.8	7.4	15.6	208.8	599.3	463.7	1 062.1	31.6	11.1	506.2
Massachusetts	E1	760	130	12.0	356.5	8.5	17.5	218.3	689.4	500.9	1 190.0	41.8	12.8	575.7
Michigan	E1	1 033	148	14.4	391.4	10.3	21.3	248.1	888.2	705.9	1 599.2	51.6	13.4	591.6
Minnesota	E1	675	139	20.0	563.0	14.9	29.7	355.2	1 200.0	868.7	2 060.3	79.6	(NA)	(D)
Mississippi	E1	162	21	2.0	46.6	1.6	3.2	33.8	88.0	68.7	156.1	4.6	G	(D)
Missouri	E1	666	97	10.6	300.6	7.7	15.9	186.4	581.8	453.7	1 033.7	50.3	8.7	390.3
Montana	E1	79	11	.7	12.8	.5	1.0	8.7	26.7	16.4	43.6	2.5	.5	13.8
Nebraska	E2	194	31	3.4	83.1	2.6	5.1	57.8	155.9	146.0	301.1	19.1	3.2	114.5
Nevada	E4	103	14	1.1	27.1	.9	1.6	18.1	57.4	38.8	96.3	3.0	1.7	116.4
New Hampshire	E1	151	17	1.8	45.2	1.2	2.5	27.8	88.4	66.8	154.9	6.4	1.9	77.4
New Jersey	E2	1 091	162	17.5	565.8	12.0	25.5	338.5	1 099.2	818.0	1 916.8	87.4	17.5	803.9
New Mexico	E3	125	16	1.1	20.9	.8	1.5	13.8	40.7	30.3	70.3	3.0	1.0	30.4
New York	E1	2 053	322	30.7	905.4	21.4	44.8	564.5	1 876.8	1 291.4	3 168.5	107.0	33.5	1 716.0
North Carolina	E1	679	92	9.0	213.5	6.3	12.5	136.9	492.7	378.0	869.3	33.2	6.9	277.7
North Dakota	E1	44	12	.7	13.5	.5	.9	8.0	25.2	17.1	42.5	(D)	.6	19.4
Ohio	–	1 229	222	21.9	579.3	16.0	32.9	366.1	1 156.9	825.6	1 984.9	76.0	19.1	867.2
Oklahoma	–	302	28	3.4	77.1	2.6	5.1	52.8	186.6	168.6	354.1	8.1	2.8	117.9
Oregon	–	420	53	5.3	151.4	3.9	7.9	97.6	334.2	300.9	634.3	19.1	4.0	185.9
Pennsylvania	E1	1 222	233	24.3	670.8	17.2	35.1	425.2	1 390.8	1 013.5	2 400.4	81.4	21.9	1 011.9
Rhode Island	E2	125	19	1.6	49.7	1.2	2.4	29.7	91.5	61.1	152.2	3.4	2.0	81.4
South Carolina	E2	304	33	3.2	66.6	2.3	4.5	40.6	131.1	85.7	217.3	9.2	3.0	90.9
South Dakota	E2	77	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	17.0
Tennessee	E1	547	82	9.6	246.3	7.1	15.0	157.4	488.4	373.0	861.7	25.2	7.5	312.8
Texas	E2	1 935	212	20.8	523.4	14.9	30.9	326.1	1 050.4	848.5	1 903.1	55.1	19.9	828.7
Utah	E1	169	32	2.3	53.0	1.7	3.6	33.9	109.1	60.4	167.9	4.7	1.9	77.0
Vermont	–	74	19	1.7	44.4	1.3	2.7	29.0	87.0	58.7	146.0	4.3	1.7	69.4
Virginia	–	637	95	11.1	302.1	8.0	16.0	200.1	561.0	449.6	1 012.6	30.3	11.3	464.0
Washington	E1	599	71	6.4	168.0	4.5	9.3	104.0	361.6	219.6	579.9	20.1	5.1	212.6
West Virginia	E1	94	10	1.0	23.7	.7	1.5	16.3	40.5	31.3	72.0	2.8	G	(D)
Wisconsin	–	678	142	19.9	516.0	15.2	30.8	370.7	1 112.5	706.1	1 812.5	149.6	13.3	620.3
Wyoming	E1	47	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.8
INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE														
United States	**–**	**431**	**90**	**21.5**	**726.2**	**17.9**	**38.8**	**561.9**	**1 690.9**	**1 860.9**	**3 560.5**	**170.4**	**23.8**	**1 534.2**
Arizona	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E6	54	4	.7	24.4	.6	1.2	20.0	95.7	46.5	142.2	6.2	.8	98.0
Connecticut	–	8	4	.3	8.0	.2	.4	5.4	10.6	10.3	21.0	1.0	(NA)	(NA)
Florida	E3	21	2	.1	2.3	.1	.2	1.6	4.5	3.8	8.4	.4	.3	12.0
Georgia	–	18	4	.9	32.5	.7	1.6	21.0	100.8	72.8	170.7	16.5	F	(D)
Illinois	–	25	9	3.6	122.5	3.1	6.4	96.1	271.0	230.3	504.8	23.2	4.6	274.1
Indiana	–	10	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	6	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	15	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	E	(D)
Michigan	E1	14	1	.2	3.9	.1	.2	2.8	7.8	15.7	23.7	.5	(NA)	(NA)
Mississippi	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nevada	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E4	24	5	.4	12.8	.4	.6	9.2	30.7	13.6	44.6	.6	.2	11.1
New York	E1	36	4	.5	14.7	.3	.7	9.3	36.3	36.2	74.7	2.1	G	(D)
North Carolina	E1	16	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.7	.9	56.9
Ohio	–	15	5	.5	16.7	.4	.8	11.5	33.5	38.5	71.9	1.2	F	(D)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	13	8	1.6	63.0	1.4	3.1	47.7	140.6	143.5	285.8	11.7	2.0	139.4
Rhode Island	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E1	15	6	2.2	76.7	1.9	3.9	61.5	185.6	273.2	458.1	18.2	2.1	140.2
Texas	–	19	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	15	6	1.6	53.5	1.3	2.5	42.5	133.1	174.8	308.9	10.3	1.6	109.8
Wisconsin	E4	9	2	.1	2.9	.1	.2	2.2	6.5	6.2	12.7	.4	(NA)	(D)

See footnotes at end of table.

TIPS UPF [MCD_SRB,V_HARLEY] 6/ 6/ 95 08:48:01 EPCV22 TLP:27B.BTI;60 6/ 6/ 95 08:44:02 DATA:NONE UPF:DIR:27BDAT.UPF PAGE: 3
TSF:27B_92.DAT;2 6/ 6/ 95 08:44:43 UTF:27B_93.DAT;4 6/ 6/ 95 08:44:43 META:TIPS96-08442898.DAT;1 6/ 6/ 95 08:47:25

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.														
United States	**E1**	**8 690**	**1 255**	**107.3**	**2 596.9**	**73.9**	**154.4**	**1 461.7**	**5 441.6**	**3 790.9**	**9 290.2**	**344.5**	**125.8**	**5 252.9**
Alabama	E1	101	9	1.2	25.5	.8	1.7	14.8	44.0	51.4	96.3	2.7	1.2	34.7
Arizona	E2	110	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	48.2
Arkansas	E2	63	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E2	1 130	157	11.1	262.7	7.7	16.2	148.8	535.6	316.2	851.3	23.6	12.8	493.4
Colorado	E2	161	20	1.2	25.9	.9	1.7	14.4	48.4	35.5	84.2	2.2	G	(D)
Connecticut	E1	132	23	2.1	60.9	1.4	3.1	36.5	145.9	78.8	225.3	6.4	(NA)	(D)
Delaware	E1	14	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
District of Columbia	E1	25	3	.3	7.2	.2	.4	3.2	12.9	6.9	19.9	.5	.6	30.6
Florida	E2	439	41	3.6	74.2	2.4	5.0	41.3	150.1	106.6	255.7	6.5	4.9	165.8
Georgia	E1	244	29	2.4	59.5	1.7	3.4	32.9	124.2	106.5	239.6	10.6	(NA)	(D)
Hawaii	E1	27	4	.2	4.4	.2	.3	2.6	9.1	6.1	15.2	.5	(NA)	(NA)
Idaho	E4	22	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	E1	519	98	7.6	202.8	5.4	11.4	118.7	410.8	250.8	660.4	20.8	9.1	421.1
Indiana	E2	172	31	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	E1	84	15	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	76	21	1.9	44.4	1.3	2.7	24.1	100.3	66.1	166.3	4.0	G	(D)
Kentucky	E1	104	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	E2	96	8	.7	14.3	.5	1.1	8.7	27.8	31.1	59.4	(D)	F	(D)
Maine	E3	39	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	E2	138	26	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.8	G	(D)
Massachusetts	E1	231	45	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	11.0	(NA)	(D)
Michigan	E1	312	41	3.5	87.3	2.3	4.7	45.1	179.3	153.9	335.5	13.9	(NA)	(D)
Minnesota	E1	175	44	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	E2	47	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	E2	211	34	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	E2	58	10	1.4	34.9	1.0	2.1	21.1	73.7	77.6	151.6	5.1	G	(D)
Nevada	E1	41	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	E1	44	9	.6	14.3	.4	.8	7.6	34.9	22.5	57.4	2.6	.6	19.5
New Jersey	E1	384	52	4.9	135.8	3.3	7.1	74.5	273.0	179.8	453.0	18.7	7.5	344.8
New Mexico	E5	37	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E2	670	101	8.5	220.2	6.0	12.8	128.1	457.8	305.1	763.5	28.1	(NA)	(D)
North Carolina	E2	218	25	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.6	2.4	87.6
North Dakota	E3	24	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Ohio	E1	450	77	8.6	223.3	5.5	11.5	103.3	512.3	368.2	875.5	29.5	(NA)	(D)
Oklahoma	E2	107	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	E1	106	10	.8	19.2	.6	1.2	11.2	40.4	31.4	71.8	2.7	.9	33.4
Pennsylvania	E2	378	60	6.1	143.0	4.1	8.4	82.5	306.6	220.1	525.7	12.3	6.5	243.1
Rhode Island	E4	56	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	E1	88	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	13	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	13.7
Tennessee	E1	152	25	2.0	51.5	1.5	3.0	29.3	107.0	85.9	190.0	5.3	2.1	78.7
Texas	E2	543	67	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Utah	E2	55	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Vermont	E1	29	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E2	168	7	.9	20.1	.6	1.3	11.1	41.2	34.5	76.1	2.1	1.4	52.2
Washington	E1	140	20	1.6	39.9	1.1	2.2	21.0	85.0	49.9	133.8	3.5	2.1	81.2
West Virginia	E2	27	1	.1	2.0	.1	.2	1.2	5.5	3.6	8.8	.2	(NA)	(D)
Wisconsin	–	190	45	5.3	142.8	3.8	7.9	85.8	347.7	205.4	553.7	41.0	(NA)	(D)
INDUSTRY 2761, MANIFOLD BUSINESS FORMS														
United States	**E1**	**922**	**540**	**47.9**	**1 343.2**	**33.6**	**69.3**	**873.0**	**3 924.7**	**3 499.9**	**7 435.9**	**160.7**	**53.3**	**3 894.1**
Alabama	–	9	3	.2	5.9	.2	.3	3.4	19.3	11.4	30.4	.3	.4	26.0
Arizona	E2	20	11	.7	18.4	.5	1.1	11.9	55.4	35.0	92.6	1.2	.4	31.8
Arkansas	–	7	4	.6	19.6	.5	1.0	15.6	59.4	32.4	91.8	1.9	.7	66.8
California	E2	101	57	4.3	128.2	2.9	6.1	82.1	323.4	316.0	639.7	12.1	5.3	389.2
Colorado	E1	9	4	.4	12.0	.3	.6	7.4	22.4	28.7	51.3	1.2	.5	25.3
Connecticut	E1	13	8	.6	16.6	.3	.7	8.9	36.2	38.4	74.3	.9	.8	52.8
Florida	E4	37	16	1.2	33.9	.7	1.4	16.9	73.4	94.1	170.2	5.5	1.2	62.8
Georgia	E2	36	19	1.4	35.4	1.0	2.1	24.5	109.3	90.5	200.4	3.5	1.4	98.5
Idaho	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E2	57	34	3.1	93.2	2.2	4.9	61.1	240.7	279.5	519.2	15.6	4.0	268.1
Indiana	–	18	12	1.5	45.7	1.1	2.5	30.8	142.4	165.6	310.9	4.3	1.1	97.6
Iowa	–	17	15	1.4	36.2	.9	1.8	23.1	133.0	108.7	240.4	5.9	1.4	121.7
Kansas	–	18	14	1.7	43.5	1.2	2.5	28.2	98.0	77.8	173.5	6.5	G	(D)
Kentucky	–	8	6	.7	15.2	.5	.9	11.1	54.5	51.1	105.1	(D)	.5	37.8
Louisiana	E7	12	5	.3	6.5	.2	.4	3.9	17.3	19.6	37.0	.7	.4	17.6
Maryland	E1	9	8	.7	18.7	.5	1.2	13.6	81.0	61.0	142.2	2.7	1.3	120.2
Massachusetts	E1	15	9	.8	21.3	.5	1.1	14.4	85.4	38.6	122.8	2.7	F	(D)
Michigan	–	33	18	1.5	47.4	.9	1.8	24.6	106.4	98.2	204.3	3.3	1.8	102.7
Minnesota	E1	19	13	1.2	37.8	.8	1.5	21.1	87.9	67.9	154.2	2.1	G	(D)
Mississippi	–	7	4	.2	5.1	.1	.2	2.3	11.3	8.6	19.9	.4	(NA)	(NA)
Missouri	–	27	14	1.4	36.7	1.0	2.2	24.6	175.0	114.7	289.3	2.4	1.3	119.7
Nebraska	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	–	8	4	.2	3.6	.1	.2	2.8	12.4	13.5	25.8	.5	(NA)	(NA)
New Hampshire	–	6	3	.7	21.1	.5	1.1	15.2	58.3	32.4	90.7	(D)	F	(D)
New Jersey	E6	29	13	1.2	38.3	.8	1.6	23.0	98.2	103.7	201.8	2.5	1.6	97.9
New Mexico	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	48	26	2.1	65.0	1.4	3.1	41.0	122.0	86.2	208.9	3.8	(NA)	(D)
North Carolina	E2	31	16	1.2	28.8	.9	1.8	20.0	73.4	67.0	139.9	4.2	G	(D)
Ohio	E1	36	22	2.7	75.4	1.9	4.0	50.5	210.1	128.7	337.9	7.5	3.6	248.3
Oklahoma	–	8	3	.7	18.8	.5	1.0	11.6	53.8	59.6	115.1	1.5	.8	47.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2761, MANIFOLD BUSINESS FORMS—Con.														
Oregon	–	19	14	1.0	30.3	.7	1.5	20.5	70.7	74.0	145.6	1.5	1.0	77.1
Pennsylvania	E2	64	42	4.5	122.1	3.2	6.5	82.8	402.3	444.9	847.1	16.9	4.2	426.6
Rhode Island	E4	5	3	.2	6.3	.1	.3	3.8	14.0	12.8	26.7	(D)	.2	10.8
South Carolina	–	8	5	.6	17.0	.4	.9	9.9	55.8	54.1	111.1	2.8	.7	42.1
Tennessee	–	25	15	1.1	28.9	.8	1.5	18.6	89.3	66.5	157.2	12.5	.9	56.9
Texas	–	76	42	3.4	90.7	2.4	5.0	58.5	259.0	262.4	526.6	14.1	4.0	256.4
Utah	–	9	8	.7	19.2	.5	1.0	14.8	82.4	36.1	119.3	1.4	.7	70.7
Vermont	–	4	3	.5	14.9	.4	.7	11.9	62.5	53.5	115.9	2.8	.6	71.4
Virginia	E1	17	10	.9	18.5	.6	1.2	11.6	76.9	58.1	135.0	3.1	1.2	122.9
Washington	E2	15	8	.4	10.9	.3	.5	7.4	20.5	18.9	39.6	.9	.5	24.4
West Virginia	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	40.0
Wisconsin	E1	24	16	1.0	27.1	.7	1.5	18.4	128.7	96.4	225.2	1.5	1.6	140.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Commercial printing, lithographic (SIC 2752)	Commercial printing, gravure (SIC 2754)	Commercial printing, n.e.c. (SIC 2759)	Manifold business forms (SIC 2761)
Companies	number	28 489	401	8 570	644
All establishments	number	29 344	431	8 690	922
With 1 to 19 employees	number	25 093	341	7 435	382
With 20 to 99 employees	number	3 527	48	1 109	408
With 100 employees or more	number	724	42	146	132
Employment and labor costs:					
Employees	1,000	439.9	21.5	107.3	47.9
Compensation, total	mil dol	14 467.2	877.3	3 214.9	1 696.3
Annual payroll	mil dol	12 047.5	726.2	2 596.9	1 343.2
Fringe benefits	mil dol	2 419.6	151.1	618.0	353.1
Social Security and other legally required payments	mil dol	1 101.7	65.4	244.3	150.6
Employer voluntary payments	mil dol	1 317.9	85.6	373.7	202.5
Production workers:					
Average for year	1,000	317.4	17.9	73.9	33.6
March	1,000	317.3	17.7	74.3	33.9
May	1,000	317.8	18.1	74.2	33.8
August	1,000	318.5	18.0	74.3	33.6
November	1,000	316.7	17.9	73.1	33.3
Hours	millions	653.0	38.8	154.4	69.3
Wages	mil dol	7 679.0	561.9	1 461.7	873.0
Cost of materials[1]	mil dol	18 723.1	1 860.9	3 790.9	3 499.9
Materials, parts, containers, etc., consumed[2]	mil dol	15 389.0	1 727.7	3 279.5	3 110.2
Resales	mil dol	558.8	14.5	233.1	294.8
Fuels	mil dol	140.7	21.9	26.3	9.6
Purchased electricity	mil dol	461.4	50.4	77.1	54.1
Contract work	mil dol	2 173.2	46.4	174.9	31.2
Quantity of electric energy used for heat and power:					
Purchased	mil kWh	7 121.1	918.6	1 154.0	913.1
Generated less sold	mil kWh	–	–	–	–
Total value of shipments	mil dol	43 588.2	3 560.5	9 290.2	7 435.9
Value added	mil dol	24 842.5	1 690.9	5 441.6	3 924.7
Inventories by stage of fabrication:					
Beginning of 1992	mil dol	2 788.1	275.4	823.4	796.2
Finished goods	mil dol	326.7	27.6	246.2	357.8
Work in process	mil dol	930.6	109.1	240.1	74.2
Materials and supplies	mil dol	1 530.8	138.7	337.2	364.2
End of 1992	mil dol	2 724.8	274.0	828.7	753.0
Finished goods	mil dol	332.0	29.6	244.7	348.9
Work in process	mil dol	902.8	98.5	183.9	71.7
Materials and supplies	mil dol	1 490.0	145.9	400.1	332.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Commercial printing, lithographic (SIC 2752)	Commercial printing, gravure (SIC 2754)	Commercial printing, n.e.c. (SIC 2759)	Manifold business forms (SIC 2761)
Gross book value of depreciable assets:				
Total:				
Beginning of year	16 842.2	2 608.1	2 711.8	2 642.5
New capital expenditures[1]	1 629.4	170.4	344.5	160.7
Used capital expenditures	264.8	7.7	47.1	33.3
Retirements	519.1	39.8	67.8	69.2
End of year	18 217.4	2 746.5	3 035.6	2 767.2
Buildings and other structures:				
Beginning of year	2 335.8	413.8	523.1	484.3
New capital expenditures	166.6	18.6	74.3	11.9
Used capital expenditures	32.7	.1	9.7	5.0
Retirements	27.6	2.0	3.6	6.0
End of year	2 507.4	430.5	603.6	495.3
Machinery and equipment:				
Beginning of year	14 506.5	2 194.3	2 188.7	2 158.2
New capital expenditures[1]	1 462.8	151.8	270.1	148.8
Used capital expenditures	232.1	7.6	37.4	28.3
Retirements	491.5	37.7	64.2	63.3
End of year	15 709.9	2 316.0	2 432.0	2 272.0
Depreciation charges during 1992:				
Total	1 279.8	161.9	210.3	180.7
Buildings and other structures	100.3	17.6	23.2	22.3
Machinery and equipment	1 179.5	144.3	187.1	158.4
Rental payments:				
Total	894.6	20.9	187.5	70.9
Buildings and other structures	470.7	10.4	108.3	46.4
Machinery and equipment	423.9	10.6	79.2	24.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Commercial printing, lithographic (SIC 2752)		Commercial printing, gravure (SIC 2754)		Commercial printing, n.e.c. (SIC 2759)		Manifold business forms (SIC 2761)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	59.9	(X)	8.2	(X)	12.2	(X)	8.8	(X)
Response coverage ratio (percent)[2]	66.4	(X)	89.7	(X)	61.7	(X)	80.0	(X)
Machinery	344.4	(X)	64.3	(X)	47.6	(X)	41.6	(X)
Response coverage ratio (percent)[2]	71.1	(X)	91.9	(X)	64.8	(X)	81.7	(X)
Other purchased services:								
Communications	106.5	(X)	3.7	(X)	26.0	(X)	22.9	(X)
Response coverage ratio (percent)[2]	66.7	(X)	91.7	(X)	58.7	(X)	80.4	(X)
Legal	51.7	(X)	1.3	(X)	10.2	(X)	4.5	(X)
Response coverage ratio (percent)[2]	68.3	(X)	85.1	(X)	63.8	(X)	80.1	(X)
Accounting and bookkeeping	54.8	(X)	.8	(X)	14.3	(X)	4.6	(X)
Response coverage ratio (percent)[2]	67.3	(X)	85.3	(X)	62.3	(X)	81.5	(X)
Advertising	94.6	(X)	.5	(X)	39.3	(X)	17.5	(X)
Response coverage ratio (percent)[2]	68.1	(X)	84.1	(X)	64.0	(X)	80.7	(X)
Software and other data processing	28.7	(X)	1.0	(X)	9.1	(X)	5.6	(X)
Response coverage ratio (percent)[2]	66.3	(X)	80.6	(X)	61.6	(X)	80.0	(X)
Refuse removal, including hazardous waste	33.9	(X)	3.3	(X)	8.8	(X)	6.3	(X)
Response coverage ratio (percent)[2]	69.7	(X)	85.3	(X)	64.3	(X)	82.9	(X)
New machinery and equipment expenditures	1 462.8	(X)	151.8	(X)	270.1	(X)	148.8	(X)
Automobiles, trucks, etc., for highway use	36.0	10	.2	85	11.1	23	.7	21
Computers and peripheral data processing equipment	132.9	8	4.5	5	34.1	13	8.6	23
All other	1 293.9	1	147.0	1	225.0	3	139.4	2
Adjustment ratio[3]	1.4	(X)	1.2	(X)	1.8	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	15 389.0	(X)	1 727.7	(X)	3 279.5	(X)	3 110.2	(X)
Materials purchased or transferred from foreign sources[4]	352.1	6	(S)	(X)	78.3	37	16.1	19
Materials purchased or transferred from domestic sources	15 037.0	1	(S)	(X)	3 201.2	1	3 094.1	1
Adjustment ratio[3]	2.0	(X)	(S)	(X)	2.0	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC												
Total	**E1**	**29 344**	**439.9**	**12 047.5**	**317.4**	**653.0**	**7 679.0**	**24 842.5**	**18 723.1**	**43 588.2**	**1 629.4**	**2 724.8**
Establishments with an average of—												
1 to 4 employees	E7	13 672	25.9	496.4	18.6	40.5	338.5	1 097.1	894.0	1 989.8	70.0	125.9
5 to 9 employees	E2	7 404	47.9	932.0	35.3	70.8	649.3	1 897.8	1 300.8	3 197.0	88.5	187.4
10 to 19 employees	E1	4 017	53.7	1 251.4	37.0	75.4	797.6	2 408.0	1 582.1	3 991.6	117.3	215.0
20 to 49 employees	E1	2 605	78.9	2 164.3	54.3	111.0	1 272.4	4 164.0	2 704.0	6 872.4	253.9	411.9
50 to 99 employees	E1	922	63.7	1 986.8	44.6	93.6	1 174.4	3 861.8	2 732.8	6 587.7	276.1	412.6
100 to 249 employees	E1	525	79.2	2 484.7	57.2	117.0	1 553.4	5 353.1	4 467.6	9 819.7	343.6	596.2
250 to 499 employees	E1	149	50.9	1 582.0	39.4	82.0	1 066.5	3 536.4	3 105.8	6 673.6	238.2	466.8
500 to 999 employees	–	42	28.4	839.6	22.1	44.1	599.6	1 783.9	1 448.0	3 233.4	148.2	238.6
1,000 to 2,499 employees	–	8	11.4	310.3	8.9	18.5	227.2	740.4	488.0	1 223.0	93.6	70.3
Covered by administrative records[2]	E9	12 920	30.9	464.4	22.6	46.5	306.9	986.1	862.1	1 848.2	73.6	120.1
INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE												
Total	**–**	**431**	**21.5**	**726.2**	**17.9**	**38.8**	**561.9**	**1 690.9**	**1 860.9**	**3 560.5**	**170.4**	**274.0**
Establishments with an average of—												
1 to 4 employees	E7	219	.4	9.7	.3	.6	7.6	15.0	25.1	40.3	1.6	2.6
5 to 9 employees	E8	79	.5	10.3	.4	.9	7.7	19.1	20.0	39.1	1.9	3.1
10 to 19 employees	E3	43	.6	13.7	.4	1.0	9.3	30.0	28.2	58.0	1.8	4.5
20 to 49 employees	E1	28	.9	25.2	.6	1.4	16.9	45.2	50.5	95.9	3.2	7.6
50 to 99 employees	E2	20	1.4	43.5	1.1	2.2	29.5	99.0	117.6	214.7	8.8	30.1
100 to 249 employees	E1	17	2.9	103.8	2.3	5.2	74.1	281.9	292.6	574.9	18.4	43.3
250 to 499 employees	–	13	14.8	519.9	12.7	27.6	417.0	1 200.6	1 326.9	2 537.5	55.8	182.7
500 to 999 employees	–	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	78.9	(D)
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	276	.9	16.3	.7	1.4	12.0	31.8	33.5	65.2	3.2	5.2
INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.												
Total	**E1**	**8 690**	**107.3**	**2 596.9**	**73.9**	**154.4**	**1 461.7**	**5 441.6**	**3 790.9**	**9 290.2**	**344.5**	**828.7**
Establishments with an average of—												
1 to 4 employees	E8	4 537	8.8	157.7	6.2	12.3	94.2	361.7	258.7	620.1	24.5	56.2
5 to 9 employees	E3	1 895	12.3	223.7	8.8	17.8	137.8	463.9	308.5	772.2	24.0	62.0
10 to 19 employees	E1	1 003	13.5	300.3	9.4	20.0	177.4	598.9	391.7	988.1	37.4	76.7
20 to 49 employees	E1	823	24.3	607.1	16.4	34.8	328.6	1 243.1	861.4	2 106.6	68.7	169.0
50 to 99 employees	E1	286	19.7	520.4	13.7	29.4	292.2	1 041.8	794.5	1 889.2	67.9	173.8
100 to 249 employees	E1	120	18.2	487.4	12.5	25.9	263.3	1 060.0	766.7	1 827.8	64.2	175.8
250 to 499 employees	E1	23	8.0	224.8	5.6	11.4	139.2	434.8	316.1	760.9	46.3	68.4
500 to 999 employees	–	2	2.6	75.6	1.4	2.8	29.0	237.5	93.4	325.3	11.4	46.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	4 747	12.1	174.2	8.6	16.2	101.2	397.0	289.6	686.6	26.4	64.1
INDUSTRY 2761, MANIFOLD BUSINESS FORMS												
Total	**E1**	**922**	**47.9**	**1 343.2**	**33.6**	**69.3**	**873.0**	**3 924.7**	**3 499.9**	**7 435.9**	**160.7**	**753.0**
Establishments with an average of—												
1 to 4 employees	E6	135	.3	6.9	.2	.4	4.2	20.7	17.8	39.5	.8	3.9
5 to 9 employees	E5	101	.7	17.1	.5	1.0	9.6	42.8	36.3	78.7	1.4	8.9
10 to 19 employees	E4	146	2.1	47.7	1.4	2.9	28.9	127.6	121.8	248.2	5.3	28.3
20 to 49 employees	E1	228	7.6	202.8	5.2	10.9	126.9	463.4	470.2	938.2	15.8	102.4
50 to 99 employees	E1	180	13.1	379.1	9.0	18.4	233.1	998.5	1 040.6	2 038.6	52.7	202.2
100 to 249 employees	E1	107	15.9	455.9	11.6	24.1	314.6	1 525.8	1 384.4	2 917.9	59.8	293.3
250 to 499 employees	E1	24	8.2	233.7	5.8	11.5	155.6	745.9	428.8	1 174.8	24.9	114.0
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	168	.8	15.1	.6	1.2	9.9	37.4	33.7	71.1	1.7	7.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2752	**Commercial printing, lithographic:**										
	All establishments in industry	29 344	439.9	12 047.5	317.4	653.0	7 679.0	24 842.5	18 723.1	43 588.2	1 629.4
	Establishments with this product class primary:										
27521	Magazine and periodical printing (lithographic)	495	43.7	1 257.3	34.6	70.2	916.5	2 612.6	1 795.2	4 408.5	222.4
27522	Label and wrapper printing (lithographic)	279	12.7	400.0	9.2	19.2	248.9	874.2	633.4	1 509.1	57.0
27523	Catalog and directory printing (lithographic)	331	23.4	751.7	18.2	37.7	527.8	1 641.9	1 773.6	3 418.8	136.0
27524	Financial and legal printing (lithographic), excluding checkbooks	206	10.3	347.5	7.0	14.3	187.0	773.2	355.3	1 122.9	31.5
27525	Advertising printing (lithographic)	2 842	128.6	4 149.2	90.7	190.1	2 514.8	8 343.3	6 690.2	15 045.9	587.7
27526	Other general job printing (lithographic)	7 623	115.4	2 761.1	81.3	164.2	1 768.0	5 794.1	3 770.8	9 584.2	298.3
2754	**Commercial printing, gravure:**										
	All establishments in industry	431	21.5	726.2	17.9	38.8	561.9	1 690.9	1 860.9	3 560.5	170.4
	Establishments with this product class primary:										
27541	Magazine and periodical printing (gravure)	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	22.6
27542	Label and wrapper printing (gravure)	26	2.8	92.1	2.2	4.7	67.0	203.4	264.1	465.7	17.1
27543	Catalog and directory printing (gravure)	9	6.6	224.1	5.6	12.7	178.0	502.1	471.6	981.6	78.8
27545	Advertising printing (gravure)	21	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
27546	Other commercial printing (gravure)	26	2.2	71.4	1.7	3.5	48.0	207.5	152.9	359.2	14.9
2759	**Commercial printing, n.e.c.:**										
	All establishments in industry	8 690	107.3	2 596.9	73.9	154.4	1 461.7	5 441.6	3 790.9	9 290.2	344.5
	Establishments with this product class primary:										
27591	Magazine and periodical printing (letterpress)	36	.7	18.6	.5	1.2	12.0	37.2	18.6	55.8	.7
27592	Label and wrapper printing (letterpress)	63	1.7	46.4	1.2	2.5	26.2	100.6	79.1	180.4	9.3
27593	Catalog and directory printing (letterpress)	18	.6	23.1	.4	.9	16.5	31.4	37.8	69.2	(D)
27594	Financial and legal printing (letterpress)	27	.4	10.9	.2	.5	5.5	18.1	12.6	30.6	1.4
27595	Advertising printing (letterpress)	129	2.8	88.2	1.9	4.1	52.6	157.9	123.1	281.1	4.7
27596	Other general job printing (letterpress)	519	9.6	222.1	6.7	14.1	134.0	423.6	261.0	740.9	19.8
27598	Screen printing, except on textiles	886	26.9	641.7	19.1	40.7	362.9	1 250.8	707.7	1 953.0	56.0
27599	Engraving	144	3.6	93.2	2.7	5.5	62.1	173.4	82.4	255.9	4.4
2759A	Nonimpact printing, using laser and ink-jet equipment	77	1.8	45.8	1.1	2.2	22.8	82.7	54.5	138.0	5.5
2759B	Label and wrapper printing (flexographic)	452	17.1	494.6	10.7	23.2	247.1	1 183.1	1 031.9	2 211.2	98.2
2759C	Flexographic printing, not elsewhere classified (excluding labels and wrappers)	64	1.9	60.4	1.4	2.8	39.1	155.7	103.6	260.0	26.0
2761	**Manifold business forms:**										
	All establishments in industry	922	47.9	1 343.2	33.6	69.3	873.0	3 924.7	3 499.9	7 435.9	160.7
	Establishments with this product class primary:										
27612	Unit set forms, loose or bound	127	9.2	259.9	6.4	13.0	162.3	748.5	493.4	1 247.3	29.0
27613	Manifold books and pegboard accounting systems	24	2.6	68.5	1.9	3.9	44.2	325.4	104.4	421.2	6.4
27615	Custom continuous forms	307	23.4	673.9	16.8	34.6	457.4	1 774.8	1 405.6	3 186.8	88.3
27617	Stock continuous forms	87	5.9	173.9	3.9	8.3	103.6	611.7	1 088.6	1 709.3	17.4

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC			
Total value of shipments	43 588.2	32 832.0	19 441.6
Primary products value of shipments	39 779.0	30 130.3	17 379.6
Secondary products value of shipments	2 370.5	1 849.7	1 619.9
Total miscellaneous receipts	1 438.7	852.0	442.1
Value of resales	783.8	527.6	244.5
Contract receipts	[1]_	5.7	6.5
Other miscellaneous receipts	654.9	318.7	191.1
Receipts for photocopying and duplicating	322.4	(NA)	(NA)
Sales of scrap and refuse	41.2	(NA)	13.3
Receipts for services as print broker	101.2	(NA)	(NA)
Other miscellaneous receipts	[1]163.8	(NA)	148.7
Other miscellaneous receipts, n.s.k.	26.4	(NA)	29.2
Primary products specialization ratio	94	94	91
Value of primary products shipments made in all industries	42 424.2	32 143.1	18 777.9
Value of primary products shipments made in this industry	39 779.0	30 130.3	17 379.6
Value of primary products shipments made in other industries	2 645.2	2 012.8	1 398.4
Coverage ratio	94	94	93

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE			
Total value of shipments	3 560.5	3 059.8	(NA)
Primary products value of shipments	3 072.1	2 582.0	(NA)
Secondary products value of shipments	445.5	458.8	(NA)
Total miscellaneous receipts	43.0	18.9	(NA)
Value of resales	16.3	7.6	(NA)
Contract receipts	[1]—	(Z)	(NA)
Other miscellaneous receipts	26.7	11.3	(NA)
Receipts for photocopying and duplicating	(D)	(NA)	(NA)
Sales of scrap and refuse	(D)	(NA)	(NA)
Receipts for services as print broker	(D)	(NA)	(NA)
Other miscellaneous receipts	[1](D)	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	87	85	(NA)
Value of primary products shipments made in all industries	3 433.2	2 740.2	(NA)
Value of primary products shipments made in this industry	3 072.1	2 582.0	(NA)
Value of primary products shipments made in other industries	361.2	158.2	(NA)
Coverage ratio	89	94	(NA)
INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.			
Total value of shipments	9 290.2	8 894.3	(NA)
Primary products value of shipments	8 177.3	7 916.2	(NA)
Secondary products value of shipments	653.5	639.5	(NA)
Total miscellaneous receipts	459.3	338.6	(NA)
Value of resales	363.2	268.5	(NA)
Contract receipts	[1]—	2.9	(NA)
Other miscellaneous receipts	96.1	67.2	(NA)
Receipts for photocopying and duplicating	16.7	(NA)	(NA)
Sales of scrap and refuse	.9	(NA)	(NA)
Receipts for services as print broker	8.9	(NA)	(NA)
Other miscellaneous receipts	[1]65.1	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	4.6	(NA)	(NA)
Primary products specialization ratio	93	92	(NA)
Value of primary products shipments made in all industries	9 231.5	9 112.0	(NA)
Value of primary products shipments made in this industry	8 177.3	7 916.2	(NA)
Value of primary products shipments made in other industries	1 054.2	1 195.8	(NA)
Coverage ratio	89	87	(NA)
INDUSTRY 2761, MANIFOLD BUSINESS FORMS			
Total value of shipments	7 435.9	7 397.1	5 058.7
Primary products value of shipments	6 499.4	6 593.0	4 645.6
Secondary products value of shipments	498.7	386.5	214.8
Total miscellaneous receipts	437.9	417.6	198.4
Value of resales	417.1	371.6	165.0
Contract receipts	[1]—	16.7	3.1
Other miscellaneous receipts	20.8	29.3	30.3
Sales of scrap and refuse	12.0	(NA)	13.9
Other miscellaneous receipts	[1]7.8	(NA)	16.3
Other miscellaneous receipts, n.s.k.	1.0	(NA)	.1
Primary products specialization ratio	93	94	96
Value of primary products shipments made in all industries	6 795.3	6 787.7	4 812.2
Value of primary products shipments made in this industry	6 499.4	6 593.0	4 645.6
Value of primary products shipments made in other industries	296.0	194.7	166.6
Coverage ratio	96	97	97

Note: For qualifications of data, see footnotes on table 1a.

[1]For 1992, contract receipts are included in "other miscellaneous receipts."

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2752– —	**COMMERCIAL PRINTING, LITHOGRAPHIC (OFFSET)**				
	Total	**(NA)**	**42 424.2**	**(NA)**	**32 143.1**
27521	Magazine and periodical printing (lithographic)[2]	(NA)	4 664.3	(NA)	3 779.6
	Magazines and periodicals (excluding Sunday magazine and comic supplements):				
27521 12	Sheet-fed	662	694.1	539	613.3
27521 14	Web-fed	261	3 256.0	244	2 613.3
27521 17	Magazine and comic supplements for Sunday newspapers	20	198.5	45	173.7
27521 00	Magazine and periodical printing (lithographic), n.s.k.	(NA)	515.6	(NA)	379.4
27522	Label and wrapper printing (lithographic)[2]	(NA)	1 607.1	(NA)	794.0
	Printed labels, custom and stock, including bordered:				
	Made of paper:				
27522 11	Flat (except pressure-sensitive)[3]	267	605.3	200	392.4
27522 13	Rolls (except pressure-sensitive)[3]	25	52.8	15	19.1
27522 17	Pressure-sensitive (self-adhesive)[3]	161	205.7	81	90.7
27522 20	Made of other materials, except cloth	35	39.8	10	10.0
	Printed rolls and sheets for packaging purposes (printing only):				
27522 34	Paper (single-web)	56	178.2	30	71.3
27522 43	Other, including multiweb structures	23	195.3	10	38.3
27522 00	Label and wrapper printing (lithographic), n.s.k.	(NA)	330.0	(NA)	172.2
27523	Catalog and directory printing (lithographic)[2]	(NA)	3 943.3	(NA)	2 868.7
	Catalogs (including direct mail):				
27523 12	Sheet-fed	892	692.5	627	445.1
27523 14	Web-fed	308	1 853.3	239	1 328.1
	Directories:				
27523 18	Telephone	36	846.3	41	650.4
	Other, including business reference services:				
27523 24	Sheet-fed	87	51.9	65	65.6
27523 26	Web-fed	51	135.5	52	121.9
27523 00	Catalog and directory printing (lithographic), n.s.k.	(NA)	363.8	(NA)	257.6
27524	Financial and legal printing (lithographic), excluding checkbooks[2]	(NA)	1 787.4	(NA)	1 582.5
	SEC filing and prospectuses:				
27524 12	Sheet-fed	47	96.3	53	119.5
27524 14	Web-fed	22	254.7	36	274.6
	Annual reports and other corporate financial printing:				
27524 16	Sheet-fed	407	326.1	380	280.1
27524 18	Web-fed	67	164.2	70	179.0
	Other financial and legal printing, including insurance forms, briefs, etc.:				
27524 21	Sheet-fed	186	140.6	165	94.9
27524 22	Web-fed	40	69.2	31	81.8
	Bank printing, excluding bank forms and checkbooks:				
27524 24	Sheet-fed	110	119.1	97	89.3
27524 26	Web-fed	62	232.5	41	81.2
27524 27	Bank form printing, including passbooks, debit/ credit slips, ledger and statement sheets, installment-loan coupons, etc.	66	92.7	44	61.8
27524 00	Financial and legal printing (lithographic), excluding checkbooks, n.s.k.	(NA)	292.1	(NA)	320.2
27525	Advertising printing (lithographic)[2]	(NA)	13 219.2	(NA)	9 688.9
	Direct mail, including circulars, letters, pamphlets, cards, etc.:				
27525 12	Sheet-fed	1 571	1 659.2	1235	1 245.4
27525 14	Web-fed	409	1 875.8	342	1 256.1
	Display advertising:				
27525 23	Posters, including outdoor advertising, car cards, window	297	224.5	145	132.7
	Counter, floor display, point-of-purchase, and other printed display material:				
27525 26	Sheet-fed	442	577.3	396	390.1
27525 28	Web-fed	48	117.5	40	44.6
	Preprinted newspaper inserts (advertising supplements not regularly issued):				
27525 32	Rolls, including hi-fi and spectacolor	87	289.0	85	194.7
27525 33	Sections (2 pages or more)	169	1 528.8	126	1 041.0
27525 41	Shopping news	109	97.1	132	165.6
27525 45	Book jackets	58	133.7	(NA)	(4)
	Other advertising printing, including brochures, magazine inserts, etc.:				
27525 52	Sheet-fed	1 757	2 696.4	1517	4 2 288.6
27525 54	Web-fed	379	1 913.2	330	4 1 285.9
27525 00	Advertising printing (lithographic), n.s.k.	(NA)	2 106.7	(NA)	1 644.1
27526	Other general job printing (lithographic)[2]	(NA)	9 123.0	(NA)	5 597.8
27526 11	Newspapers	478	889.7	369	668.2
	Scientific and technical recording charts and chart paper:				
27526 16	Sheet-fed	40	137.4	48	40.0
27526 18	Web-fed	5		10	24.9
27526 21	Map, atlas, and globe cover printing, including road maps and strip maps	63	63.0	52	49.2
	Calendars and calendar pads:				
27526 36	Sheet-fed	171	168.2	130	105.3
27526 38	Web-fed	43	208.6	24	34.6
27526 44	Ticket, coupon, and food and beverage check printing, including transportation and amusement	91	150.3	45	59.4
27526 47	Playing cards, printed	15	91.6	6	57.4
27526 51	Decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., excluding labels	21	27.3	17	14.3
27526 71	Trading stamps and all types of seals, including private and decorative stamps	4	7.3	4	21.6
27526 77	Printing on metal	26	413.7	(NA)	234.9
27526 83	Credit and identification cards printed (plastics, paper laminations, etc.)	27	64.4	12	31.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2752– —	**COMMERCIAL PRINTING, LITHOGRAPHIC (OFFSET)—Con.**				
27526	Other general job printing (lithographic)[2]—Con.				
27526 84	Business cards	279	204.7	(NA)	(5)
	Business forms, n.e.c., excluding blankbooks and looseleaf forms:				
27526 92	Sheet-fed	566	364.6	387	211.4
27526 94	Web-fed	128	219.4	79	143.5
27526 95	Art reproductions and picture prints	161	102.2	72	59.6
27526 96	Quick printing	1 885	759.6	982	430.5
	All other general commercial lithographic printing, n.e.c.:				
27526 97	Sheet-fed	887	1 708.4	979	51 562.7
27526 99	Web-fed	260	948.0	154	441.1
27526 00	Other general job printing (lithographic), n.s.k.	(NA)	2 594.5	(NA)	1 407.5
27520	Commercial printing, lithographic (offset), n.s.k.	(NA)	8 080.1	(NA)	7 831.6
27520 00	Commercial printing, lithographic (offset), n.s.k.[6]	(NA)	6 232.9	(NA)	6 226.4
27520 02	Commercial printing, lithographic (offset), n.s.k.[7]	(NA)	1 847.2	(NA)	1 605.2
2754– —	**COMMERCIAL PRINTING, GRAVURE**				
	Total	**(NA)**	**3 433.2**	**(NA)**	**2 740.2**
27541	Magazine and periodical printing (gravure)[2]	(NA)	551.1	(NA)	562.1
27541 33	Magazines and periodicals (excluding magazine and comic supplements for Sunday newspapers)	14	398.2	7	428.7
27541 35	Magazine and comic supplements for Sunday newspapers	4	152.7	5	108.3
27541 00	Magazine and periodical printing (gravure), n.s.k.	(NA)	.2	(NA)	25.1
27542	Label and wrapper printing (gravure)[2]	(NA)	528.3	(NA)	434.4
	Printed labels, custom and stock, including bordered:				
	Made of paper:				
27542 11	Flat (except pressure-sensitive)	9	85.3	9	89.5
27542 13	Rolls (except pressure-sensitive)	14	198.1	17	169.9
27542 15	Pressure-sensitive (self-adhesive)	6	5.5	6	4.9
27542 17	Made of other materials, except cloth	9	59.3	7	71.6
	Printed rolls and sheets for packaging purposes (printing only):				
27542 32	Paper (single-web)	11	155.9	12	37.9
27542 37	Other, including multiweb structures	5		5	44.8
27542 00	Label and wrapper printing (gravure), n.s.k.	(NA)	24.2	(NA)	15.8
27543	Catalog and directory printing (gravure)[2]	(NA)	883.1	(NA)	945.1
27543 00	Catalogs and directories (including direct mail catalogs and telephone and business reference services directories)	10	883.1	(NA)	945.1
27545	Advertising printing (gravure)[2]	(NA)	930.7	(NA)	479.0
27545 11	Direct mail, including circulars, letters, pamphlets, cards, and printed envelopes	26			
27545 45	Preprinted newspaper inserts (advertising supplements not regularly issued)	6	923.9	(NA)	474.5
27545 48	Other advertising printing, including shopping news, brochures, book jackets, etc.	26			
27545 00	Advertising printing (gravure), n.s.k.	(NA)	6.8	(NA)	4.5
27546	Other commercial printing (gravure)[2]	(NA)	333.3	(NA)	176.1
27546 51	Decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., except labels	6	43.1	11	23.2
27546 95	All other general commercial gravure printing, n.e.c. (including customized stationery and business cards)	45	280.4	24	144.1
27546 00	Other commercial printing (gravure), n.s.k.	(NA)	9.8	(NA)	8.8
27540	Commercial printing, gravure, n.s.k.	(NA)	206.6	(NA)	143.4
27540 00	Commercial printing, gravure, n.s.k.[8]	(NA)	141.4	(NA)	113.9
27540 02	Commercial printing, gravure, n.s.k.[9]	(NA)	65.2	(NA)	29.5
2759– —	**COMMERCIAL PRINTING, N.E.C.**				
	Total	**(NA)**	**9 231.5**	**(NA)**	**9 112.0**
27591	Magazine and periodical printing (letterpress)[2]	(NA)	62.1	(NA)	157.8
27591 12	Magazines and periodicals (except magazine and comic supplements for Sunday newspapers)	19	34.9	40	86.8
27591 14	Magazine and comic supplements for Sunday newspapers	–		11	31.5
27591 00	Magazine and periodical printing (letterpress), n.s.k.	(NA)	27.2	(NA)	39.5
27592	Label and wrapper printing (letterpress)[2]	(NA)	282.4	(NA)	422.5
	Printed labels, custom and stock, including bordered:				
	Made of paper:				
27592 12	Flat (except pressure-sensitive)[10]	21	27.7	45	42.7
27592 14	Rolls (except pressure-sensitive)[10]	8	20.3	14	66.3
	Pressure-sensitive (self-adhesive):				
27592 16	Flat[10]	23	23.6	21	35.3
27592 18	Rolls[10]	47	120.1	61	129.9
27592 21	Made of other materials, except cloth	10	23.6	10	17.5
	Printed rolls and sheets for packaging purposes:				
27592 23	Paper (single-web)	12	28.4	15	38.7
27592 27	Other (including multiweb structures)	3		2	29.3
27592 00	Label and wrapper printing (letterpress), n.s.k.	(NA)	38.6	(NA)	62.8
27593	Catalog and directory printing (letterpress)[2]	(NA)	90.0	(NA)	224.3
27593 12	Catalogs, including direct mail	12	72.3	41	117.8
27593 18	Directories, including telephone and business reference services	4		9	79.2
27593 00	Catalog and directory printing (letterpress), n.s.k.	(NA)	17.6	(NA)	27.3

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2759– ––	**COMMERCIAL PRINTING, N.E.C.**—Con.				
27594	Financial and legal printing (letterpress)[2]	(NA)	73.9	(NA)	267.8
27594 11	SEC filing and prospectuses	2	(D)	9	36.2
27594 13	Annual reports and other corporate financial printing	9	12.2	31	46.6
27594 15	Other financial and legal printing (including insurance forms, security certificates, briefs, etc.)	15	(D)	40	36.0
27594 17	Bank printing (including deposit slips, counter checks, business checks, etc., excluding checkbooks and bank forms)	15	12.5	29	97.0
27594 19	Bank form printing, including passbooks, debit/ credit slips, ledger and statement sheets, installment-loan coupons, etc.	7	8.6	20	24.4
27594 00	Financial and legal printing (letterpress), n.s.k.	(NA)	27.2	(NA)	27.7
27595	Advertising printing (letterpress)[2]	(NA)	331.5	(NA)	592.4
27595 12	Direct mail (including circulars, letters, pamphlets, cards, and printed envelopes)	71	118.8	104	203.0
	Display advertising:				
27595 14	Posters (including outdoor advertising, car cards, window)	18	17.0	41	23.9
27595 16	Counter, floor display, point-of-purchase, and other printed display material	15	25.0	33	36.1
	Preprinted newspaper inserts (advertising supplements not regularly issued):				
27595 18	Rolls, including hi-fi and spectacolor	5	7.4	26	60.0
27595 20	Sections (2 pages or more)	6	6.4	17	47.6
27595 22	Shopping news	2	1.1	12	7.2
27595 24	Other advertising printing, including brochures, pamphlets, book jackets, magazine inserts, circular folders, etc.	74	82.4	133	134.6
27595 00	Advertising printing (letterpress), n.s.k.	(NA)	73.5	(NA)	80.1
27596	Other general job printing (letterpress)[2]	(NA)	885.3	(NA)	1 239.2
27596 11	Scientific and technical recording charts and chart paper (containing preprinted grids and scale markings)	8	22.4	4	49.0
27596 13	Newspapers	30	67.0	76	230.9
27596 15	Decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., excluding labels	35	38.6	17	15.6
27596 16	Business cards	28	21.4	(NA)	([11])
27596 17	Business forms, not elsewhere classified, excluding blankbooks and looseleaf forms	55	69.5	107	111.5
27596 19	Tags printed, including embossed	35	66.6	34	61.6
27596 21	Ticket, coupon, and food and beverage check printing, including transportation and amusement	20	38.4	22	38.2
27596 23	Calendars and calendar pads	11	29.2	28	119.1
27596 27	All other general commercial letterpress printing, n.e.c. (including customized stationery)	194	239.8	(NA)	[11]372.6
27596 00	Other general job printing (letterpress), n.s.k.	(NA)	292.3	(NA)	240.8
27598	Screen printing, except on textiles[2]	(NA)	1 909.0	(NA)	1 189.9
	Printed labels, custom and stock (including bordered):				
	Made of paper:				
	Pressure-sensitive:				
27598 11	Flat	51	121.5	48	72.9
27598 13	Rolls	19	56.8	13	44.2
27598 15	Other paper labels	9	15.8	9	8.6
27598 17	Made of other materials, except cloth	89	210.4	41	103.4
	Advertising printing:				
	Display advertising:				
27598 19	Posters (including outdoor advertising, car cards, window)	132	176.3	126	107.7
27598 21	Counter, floor display, point-of-purchase, and other printed display material	101	125.3	84	89.0
27598 23	Other advertising printing	59	83.4	35	22.7
	Other general job printing:				
27598 25	Decalcomanias and pressure-sensitives (self-adhesive), including bumper stickers, etc., excluding labels	183	405.0	156	261.4
27598 27	Printing on metal	96	86.7	68	67.1
27598 29	Printing on glass or plastics containers for others	56	98.8	39	57.9
27598 31	All other general commercial screen printing, n.e.c. (excluding printing on apparel or fabrics)	104	199.5	93	153.8
27598 00	Screen printing, except on textiles, n.s.k.	(NA)	329.3	(NA)	201.2
27599	Engraving[2]	(NA)	299.7	(NA)	323.5
27599 12	Security	2	119.4	4	91.4
27599 22	Social	21		31	32.3
	Commercial:				
27599 33	Business cards	33	21.3	165	174.8
27599 35	Other commercial engraving	63	97.4		
27599 00	Engraving, n.s.k.	(NA)	61.7	(NA)	25.1
2759A	Nonimpact printing, using laser and ink-jet equipment[2]	(NA)	175.1	(NA)	109.7
2759A 00	Nonimpact printing, using laser and ink-jet equipment	108	175.1	54	109.7
2759B	Label and wrapper printing (flexographic)[2]	(NA)	1 988.4	(NA)	[12]1 075.2
	Printed labels, custom and stock (including bordered):				
	Made of paper:				
2759B 14	Flat (except pressure-sensitive)	22	27.8	24	33.9
2759B 16	Rolls (except pressure-sensitive)	49	129.3	35	61.6
	Pressure-sensitive:				
2759B 18	Flat	72	242.4	48	54.0
2759B 20	Rolls	248	930.8	160	522.3
2759B 22	Made of other materials, except cloth	48	121.8	36	59.9
	Printed rolls and sheets for packaging purposes (printing only):				
2759B 26	Paper (single-web)	32	111.0	23	41.3
2759B 28	Polyethylene (single-web)	32	146.6	25	82.5
2759B 30	Other, including multiweb structures	25	98.6	(NA)	109.3
2759B 00	Label and wrapper printing (flexographic), n.s.k.	(NA)	180.1	(NA)	[13]110.4

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2759– —	**COMMERCIAL PRINTING, N.E.C.**—Con.				
2759C	Flexographic printing, not elsewhere classified (excluding labels and wrappers)[2]	(NA)	311.9	(NA)	[14]156.2
2759C 29	Magazine and periodical printing	2		(NA)	([15])
2759C 31	Magazine and comic supplements for Sunday newspapers	3		5	55.5
2759C 32	Financial and legal printing (including annual corporate reports, bank printing (except checkbooks), etc.)	1	134.1	4	10.8
2759C 34	Advertising printing, including direct mail, display, preprinted newspaper inserts, book jackets, shopping news	10		11	18.6
2759C 36	Newspapers, except shopping news	8	4.7	10	7.6
2759C 38	All other flexographic printing, n.e.c.	55	133.4	(NA)	[15]63.6
2759C 00	Flexographic printing, not elsewhere classified (excluding labels and wrappers), n.s.k.	(NA)	39.8	(NA)	([13])
27590	Commercial printing, n.e.c., n.s.k.	(NA)	2 822.5	(NA)	3 353.5
27590 00	Commercial printing, n.e.c., n.s.k.[6]	(NA)	2 143.3	(NA)	2 585.5
27590 02	Commercial printing, n.e.c., n.s.k.[7]	(NA)	679.1	(NA)	768.0
2761– —	**MANIFOLD BUSINESS FORMS**				
	Total	**(NA)**	**6 795.3**	**(NA)**	**6 787.7**
27612	Unit set forms, loose or bound[16]	(NA)	1 483.6	(NA)	1 418.9
27612 11	Label/form combinations	16	21.1	(NA)	(NA)
	Stock, including imprinted:				
27612 13	One-time carbon	31	139.2	(NA)	(NA)
27612 15	Carbonless	42	98.0	(NA)	(NA)
	Custom printed:				
27612 53	One-time carbon	183	383.1	(NA)	(NA)
27612 55	Carbonless	254	628.8	(NA)	(NA)
27612 61	Tabulating card sets	10	9.4	(NA)	(NA)
27612 00	Unit set forms, loose or bound, n.s.k.	(NA)	203.9	(NA)	(NA)
27613	Manifold books and pegboard accounting systems[16]	(NA)	334.1	(NA)	261.0
27613 11	Pegboard accounting systems	18	103.8	(NA)	(NA)
27613 13	Sales and other manifold books	33	170.8	(NA)	(NA)
27613 00	Manifold books and pegboard accounting systems, n.s.k.	(NA)	59.5	(NA)	(NA)
27615	Custom continuous forms[16]	(NA)	2 594.1	(NA)	2 726.4
27615 31	Label/form combinations	45	105.6	(NA)	(NA)
27615 35	Jumbo roll-feed forms	18	88.3	(NA)	(NA)
	Self-mailer forms:				
27615 41	Peel-back mailers	20	61.2	(NA)	(NA)
27615 43	Insert mailers	19	100.1	(NA)	(NA)
27615 45	Other	11	31.0	(NA)	(NA)
	All other custom continuous:				
	One part:				
27615 55	With product affixed	34	82.8	(NA)	(NA)
27615 61	Other	147	522.7	(NA)	(NA)
	Multiple parts:				
27615 63	One-time carbon	170	393.4	(NA)	(NA)
27615 65	Carbonless	225	911.4	(NA)	(NA)
27615 00	Custom continuous forms, n.s.k.	(NA)	297.6	(NA)	(NA)
27617	Stock continuous forms[16]	(NA)	1 534.7	(NA)	1 684.2
27617 61	Label/form combinations	6	46.5	(NA)	(NA)
27617 63	Jumbo roll-feed forms	6	19.6	(NA)	(NA)
	All other stock continuous:				
27617 65	One part	38	811.4	(NA)	(NA)
	Multiple parts:				
27617 73	One-time carbon	26	89.1	(NA)	(NA)
27617 75	Carbonless	30	260.2	(NA)	(NA)
27617 00	Stock continuous forms, n.s.k.	(NA)	307.9	(NA)	(NA)
27610	Manifold business forms, n.s.k.	(NA)	848.8	(NA)	697.2
27610 00	Manifold business forms, n.s.k.[17]	(NA)	777.8	(NA)	473.9
27610 02	Manifold business forms, n.s.k.[18]	(NA)	71.1	(NA)	223.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Data for this product class represent value of receipts rather than value of shipments.
[3]For 1987, data for product codes 27522 11, 27522 13, and 27522 17 do not include marginally punched labels, which had 5 companies with shipments greater than $100,000 and product shipments of $17.7 million.
[4]For 1987, data for product code 27525 45 were included in data for product codes 27525 52 and 27525 54.
[5]For 1987, data for product code 27526 84 were included in data for product code 27526 97.
[6]Typically for establishments with 5 employees or more.
[7]Typically for establishments with less than 5 employees.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.
[10]For 1987, data for product codes 27592 12, 27592 14, 27592 16, and 27592 18 do not include marginally punched labels, which had 5 companies with shipments greater than $100,000 and product shipments of $4.2 million.
[11]For 1987, data for product code 27596 16 were included in data for product code 27596 27.
[12]For 1987, total value of product shipments for product class 2759B includes data for product code 2759C 00.
[13]For 1987, data for product code 2759C 00 were included in data for product code 2759B 00.
[14]For 1987, total value of shipments for product class 2759C did not include data for product code 2759C 00.
[15]For 1987, data for product code 2759C 29 were included in data for product code 2759C 38.
[16]For 1987, no product class detail was collected.
[17]Typically for establishments with 20 employees or more.
[18]Typically for establishments with less than 20 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27521, MAGAZINE AND PERIODICAL PRINTING (LITHOGRAPHIC)		
United States	**4 664.3**	**3 779.6**
Alabama	41.5	11.7
Arizona	14.0	14.4
California	328.1	301.5
Colorado	33.8	32.0
Connecticut	24.1	86.1
District of Columbia	16.2	7.9
Florida	172.0	60.7
Georgia	135.1	73.5
Illinois	430.2	588.9
Indiana	54.4	16.0
Iowa	66.6	62.5
Kansas	23.9	29.6
Kentucky	366.7	(NA)
Louisiana	12.0	3.0
Maryland	151.3	197.1
Massachusetts	25.2	23.8
Michigan	108.7	49.4
Minnesota	245.1	217.1
Missouri	65.4	50.5
Nevada	36.1	(NA)
New Jersey	42.9	55.6
New Mexico	2.2	(NA)
New York	230.8	167.3
North Carolina	31.0	18.0
Ohio	158.1	169.8
Oklahoma	56.2	39.8
Oregon	14.5	13.6
Pennsylvania	293.6	209.9
Rhode Island	2.6	(NA)
South Carolina	14.5	9.6
Tennessee	237.6	112.3
Texas	170.3	176.1
Utah	7.3	8.2
Virginia	210.8	149.5
Washington	22.9	27.6
West Virginia	2.2	(NA)
Wisconsin	526.1	317.6
27522, LABEL AND WRAPPER PRINTING (LITHOGRAPHIC)		
United States	**1 607.1**	**794.0**
Alabama	17.9	4.9
Arizona	2.5	(NA)
Arkansas	3.2	2.6
California	170.1	101.1
Colorado	16.2	(NA)
Connecticut	5.2	3.1
Florida	16.9	6.6
Georgia	19.6	4.9
Illinois	233.5	121.1
Indiana	60.0	42.2
Iowa	11.3	6.4
Kansas	40.2	3.4
Kentucky	31.8	3.1
Louisiana	10.4	(NA)
Maryland	20.8	15.3
Massachusetts	20.6	15.1
Michigan	58.9	41.8
Minnesota	74.9	27.4
Missouri	45.5	36.5
New Jersey	60.3	16.5
New York	86.4	61.9
North Carolina	103.6	46.6
Ohio	88.3	32.3
Oklahoma	7.8	(NA)
Oregon	5.9	(NA)
Pennsylvania	128.5	28.1
South Carolina	16.5	8.7
Tennessee	17.4	7.4
Texas	42.6	18.6
Utah	3.0	(NA)
Virginia	31.8	(NA)
Washington	41.5	3.6
Wisconsin	46.6	25.7
27523, CATALOG AND DIRECTORY PRINTING (LITHOGRAPHIC)		
United States	**3 943.3**	**2 868.7**
Alabama	56.9	(NA)
Arizona	41.6	46.2
Arkansas	52.3	(NA)
California	446.7	272.0
Colorado	94.3	66.5
Connecticut	97.1	66.7
Delaware	2.2	(NA)
Florida	156.8	79.5
Georgia	168.8	180.3
Illinois	474.3	397.1
Indiana	72.0	51.4
Iowa	46.4	27.7
Kansas	20.0	14.2
Kentucky	59.6	29.5
Louisiana	4.0	(NA)
Maryland	49.8	50.7
Massachusetts	57.2	95.4
Michigan	76.1	57.8
Minnesota	182.1	147.4
Missouri	83.5	82.0
Montana	2.1	(NA)
New Hampshire	9.0	3.6
New Jersey	47.3	92.3
New York	127.9	75.5
North Carolina	26.3	25.6
Ohio	194.9	110.0
Oklahoma	56.1	7.6
Oregon	108.3	83.4
Pennsylvania	363.8	218.2
Rhode Island	17.9	12.6
South Carolina	5.2	6.6
South Dakota	4.9	(NA)
Tennessee	49.8	41.2
Texas	186.8	86.9
Utah	3.3	2.5
Vermont	5.4	(NA)
Virginia	45.2	23.7
Washington	23.7	21.9
Wisconsin	238.8	187.5
27524, FINANCIAL AND LEGAL PRINTING (LITHOGRAPHIC), EXCLUDING CHECKBOOKS		
United States	**1 787.4**	**1 582.5**
Alabama	6.0	10.5
Arizona	18.7	7.0
California	266.1	178.7
Colorado	18.5	18.0
Connecticut	23.4	22.6
District of Columbia	2.3	(NA)
Florida	15.1	21.9
Georgia	37.1	18.9
Illinois	154.4	111.0
Indiana	36.7	25.7
Iowa	15.0	4.6
Kansas	36.3	16.3
Kentucky	16.7	12.2
Louisiana	4.5	2.4
Maryland	46.8	39.1
Massachusetts	128.6	107.8
Michigan	42.0	27.5
Minnesota	59.3	13.4
Mississippi	3.9	(NA)
Missouri	44.7	31.7
Montana	2.3	(NA)
Nebraska	7.5	4.9
New Hampshire	7.3	(NA)
New Jersey	58.5	55.0
New York	192.9	389.1
North Carolina	23.6	8.9
Ohio	63.3	56.7
Oklahoma	9.0	2.4
Oregon	25.7	10.5
Pennsylvania	174.9	162.8
Rhode Island	3.3	5.4
South Carolina	2.6	3.5
Tennessee	28.9	20.3
Texas	114.0	95.6
Utah	13.9	10.7
Virginia	31.0	17.9
Washington	17.0	10.6
West Virginia	3.0	(NA)
Wisconsin	21.3	16.3

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27525, ADVERTISING PRINTING (LITHOGRAPHIC)		
United States	**13 219.2**	**9 688.9**
Alabama	71.1	70.2
Alaska	3.7	(NA)
Arizona	90.2	57.8
Arkansas	37.4	33.9
California	1 588.1	1 163.8
Colorado	131.1	99.3
Connecticut	298.3	281.3
Delaware	11.9	15.8
District of Columbia	14.6	14.9
Florida	238.1	227.2
Georgia	298.0	230.0
Hawaii	22.5	21.9
Idaho	11.9	7.5
Illinois	1 446.6	1 023.6
Indiana	222.6	151.2
Iowa	112.3	115.7
Kansas	370.4	206.9
Kentucky	118.8	79.2
Louisiana	55.8	57.9
Maine	34.3	21.5
Maryland	253.7	217.1
Massachusetts	373.8	266.6
Michigan	698.3	460.1
Minnesota	624.3	409.9
Mississippi	22.8	5.9
Missouri	392.0	251.7
Montana	15.9	5.0
Nebraska	42.2	42.9
Nevada	15.5	36.1
New Hampshire	35.1	36.4
New Jersey	927.7	522.5
New Mexico	13.0	9.0
New York	752.4	723.7
North Carolina	380.3	261.3
North Dakota	11.1	10.8
Ohio	685.7	581.2
Oklahoma	136.4	102.8
Oregon	206.5	109.0
Pennsylvania	852.6	469.6
Rhode Island	33.4	31.3
South Carolina	57.3	35.5
South Dakota	10.1	7.3
Tennessee	191.9	131.3
Texas	512.1	424.6
Utah	43.4	53.3
Vermont	23.2	10.3
Virginia	227.5	159.9
Washington	120.3	109.9
West Virginia	5.1	7.1
Wisconsin	373.9	274.0
Wyoming	3.9	(NA)
27526, OTHER GENERAL JOB PRINTING (LITHOGRAPHIC)		
United States	**9 123.0**	**5 597.8**
Alabama	88.5	60.0
Alaska	5.4	6.1
Arizona	104.1	53.9
Arkansas	42.1	27.4
California	938.0	574.7
Colorado	137.9	64.8
Connecticut	96.7	117.7
Delaware	18.1	14.6
District of Columbia	32.2	25.4
Florida	310.3	195.0
Georgia	183.5	158.2
Hawaii	21.3	23.1
Idaho	53.4	21.0
Illinois	725.9	380.9
Indiana	377.9	245.6
Iowa	213.3	53.3
Kansas	88.8	52.0
Kentucky	92.2	81.1
Louisiana	51.1	28.2
Maine	24.8	29.3
Maryland	281.4	151.0
Massachusetts	279.5	215.2
Michigan	257.1	170.5
Minnesota	563.6	303.0
Mississippi	24.0	17.0
Missouri	256.8	133.6
Montana	12.1	8.5
Nebraska	54.8	37.3
Nevada	19.7	24.5
New Hampshire	32.9	16.2
27526, OTHER GENERAL JOB PRINTING (LITHOGRAPHIC)—Con.		
New Jersey	358.4	246.0
New Mexico	21.2	12.7
New York	752.8	361.8
North Carolina	155.9	82.7
North Dakota	8.5	7.2
Ohio	418.7	237.4
Oklahoma	44.8	29.4
Oregon	90.1	56.7
Pennsylvania	357.8	235.8
Rhode Island	33.4	25.7
South Carolina	49.8	37.3
South Dakota	11.4	6.7
Tennessee	140.7	94.0
Texas	401.6	255.0
Utah	41.2	13.6
Vermont	17.9	16.5
Virginia	314.7	259.4
Washington	177.9	89.1
West Virginia	35.5	30.1
Wisconsin	298.0	177.6
Wyoming	5.1	(NA)
27541, MAGAZINE AND PERIODICAL PRINTING (GRAVURE)		
United States	**551.1**	**562.1**
Illinois	127.9	(NA)
Tennessee	98.4	86.0
27542, LABEL AND WRAPPER PRINTING (GRAVURE)		
United States	**528.3**	**434.4**
Illinois	24.6	17.2
Michigan	32.4	(NA)
New Jersey	11.2	6.5
Ohio	69.5	77.6
Tennessee	127.3	(NA)
Wisconsin	17.8	(NA)
27543, CATALOG AND DIRECTORY PRINTING (GRAVURE)		
United States	**883.1**	**945.1**
27545, ADVERTISING PRINTING (GRAVURE)		
United States	**930.7**	**479.0**
California	8.0	(NA)
Michigan	2.1	(NA)
New York	3.4	(NA)
27546, OTHER COMMERCIAL PRINTING (GRAVURE)		
United States	**333.3**	**176.1**
New Jersey	20.7	14.0
Pennsylvania	41.8	(NA)
27591, MAGAZINE AND PERIODICAL PRINTING (LETTERPRESS)		
United States	**62.1**	**157.8**
California	6.2	11.1
Connecticut	3.9	3.1
New York	9.8	15.0
27592, LABEL AND WRAPPER PRINTING (LETTERPRESS)		
United States	**282.4**	**422.5**
Arizona	6.5	(NA)
California	18.5	31.1
Connecticut	13.1	(NA)
Georgia	8.3	3.0
Illinois	14.4	68.3
Indiana	2.9	(NA)
Michigan	4.2	6.4
Minnesota	26.5	13.8
New Jersey	36.2	19.4
New York	18.9	29.6
North Carolina	4.9	2.2
Ohio	38.4	93.3
Pennsylvania	5.9	5.9
Texas	3.2	3.0
Wisconsin	27.1	13.2

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27593, CATALOG AND DIRECTORY PRINTING (LETTERPRESS)		
United States	**90.0**	**224.3**
Ohio	2.5	(NA)
Tennessee	2.2	(NA)
Texas	2.4	3.4
27594, FINANCIAL AND LEGAL PRINTING (LETTERPRESS)		
United States	**73.9**	**267.8**
California	3.4	15.4
Connecticut	9.1	7.3
Michigan	2.5	4.9
New Jersey	9.1	11.4
New York	16.4	37.4
Ohio	4.4	5.3
Texas	3.2	28.5
27595, ADVERTISING PRINTING (LETTERPRESS)		
United States	**331.5**	**592.4**
Arkansas	2.1	(NA)
California	14.8	32.1
Florida	21.3	13.6
Illinois	45.1	61.7
Indiana	3.2	8.8
Kentucky	3.4	(NA)
Maryland	6.8	13.3
Massachusetts	7.8	21.6
Michigan	11.3	10.3
Minnesota	12.6	13.9
Missouri	9.4	16.4
New Jersey	3.2	30.0
New York	61.7	113.7
North Carolina	3.2	6.8
Ohio	12.0	37.0
Pennsylvania	10.4	31.3
Tennessee	2.3	17.9
Texas	8.9	22.0
Virginia	7.7	(NA)
Wisconsin	7.9	7.8
27596, OTHER GENERAL JOB PRINTING (LETTERPRESS)		
United States	**885.3**	**1 239.2**
Alabama	3.2	10.7
Arizona	5.4	12.8
Arkansas	10.9	9.6
California	88.3	88.2
Colorado	5.4	7.6
Connecticut	32.0	24.6
Florida	18.9	23.0
Georgia	16.5	12.1
Hawaii	4.2	(NA)
Illinois	54.7	51.9
Indiana	30.8	11.9
Iowa	13.0	42.0
Kansas	2.4	8.8
Kentucky	4.5	4.7
Louisiana	3.5	8.3
Maryland	33.9	16.0
Massachusetts	27.0	41.5
Michigan	24.4	40.0
Minnesota	19.7	66.1
Mississippi	2.6	(NA)
Missouri	10.7	35.2
Nebraska	14.8	(NA)
New Jersey	31.0	56.5
New York	112.5	236.2
North Carolina	8.0	17.5
Ohio	39.4	63.7
Oklahoma	2.6	7.2
Oregon	3.8	7.4
Pennsylvania	77.2	61.2
South Carolina	2.5	7.1
Tennessee	15.2	6.8
Texas	52.2	40.0
Vermont	3.0	(NA)
Virginia	8.5	10.9
Washington	16.1	6.8
Wisconsin	31.7	21.6
27598, SCREEN PRINTING, EXCEPT ON TEXTILES		
United States	**1 909.0**	**1 189.9**
Alabama	4.4	(NA)
Arizona	13.7	13.9
Arkansas	2.8	3.4
California	191.5	114.3
Colorado	24.1	13.0
Connecticut	35.6	24.8
Florida	42.6	27.0
Georgia	16.0	14.9
Illinois	121.4	88.7
Indiana	47.9	30.9
Iowa	23.0	5.5
Kansas	97.8	59.7
Kentucky	23.3	10.1
Louisiana	7.1	6.7
Maine	2.6	(NA)
Maryland	20.1	6.1
Massachusetts	58.9	44.0
Michigan	70.6	50.7
Minnesota	126.1	40.7
Mississippi	5.9	3.5
Missouri	38.2	27.7
Nebraska	5.6	5.8
Nevada	14.6	12.5
New Hampshire	8.0	2.5
New Jersey	73.1	75.4
New York	62.8	43.2
North Carolina	39.1	14.5
Ohio	237.8	118.1
Oklahoma	22.1	10.0
Oregon	8.2	4.9
Pennsylvania	60.7	44.3
Rhode Island	5.5	(NA)
South Carolina	17.0	12.1
South Dakota	6.1	(NA)
Tennessee	45.7	40.6
Texas	86.7	22.1
Utah	9.9	5.5
Virginia	9.6	6.8
Washington	34.0	22.3
Wisconsin	177.8	134.3
27599, ENGRAVING		
United States	**299.7**	**323.5**
California	58.8	50.0
Florida	4.5	3.0
Illinois	60.6	45.8
Indiana	7.5	(NA)
Maryland	2.8	3.8
Massachusetts	20.9	24.5
Michigan	4.4	3.8
Minnesota	4.9	2.5
Missouri	2.1	(NA)
New Jersey	15.0	12.3
New York	33.1	60.5
North Carolina	4.1	5.1
Ohio	7.0	10.8
Tennessee	6.6	5.2
Texas	6.2	3.2
2759A, NONIMPACT PRINTING, USING LASER AND INK-JET EQUIPMENT		
United States	**175.1**	**109.7**
California	11.1	2.7
Florida	3.6	(NA)
Illinois	13.2	12.6
Michigan	5.6	(NA)
Minnesota	23.1	(NA)
New Jersey	11.5	(NA)
New York	17.5	9.1
North Carolina	2.6	(NA)
Ohio	17.8	(NA)
Pennsylvania	2.7	(NA)
Texas	2.6	3.6
Virginia	2.5	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
2759B, LABEL AND WRAPPER PRINTING (FLEXOGRAPHIC)		
United States	**1 988.4**	**(NA)**
Alabama	6.7	(NA)
Arizona	9.0	(NA)
Arkansas	14.1	(NA)
California	160.9	(NA)
Colorado	18.9	(NA)
Connecticut	34.2	(NA)
Florida	41.8	(NA)
Georgia	51.7	(NA)
Illinois	124.7	(NA)
Indiana	87.6	(NA)
Iowa	6.3	(NA)
Kansas	48.1	(NA)
Kentucky	23.7	(NA)
Maryland	10.5	(NA)
Massachusetts	62.3	(NA)
Michigan	75.7	(NA)
Minnesota	50.8	(NA)
Missouri	56.6	(NA)
Nebraska	67.3	(NA)
New Hampshire	16.1	(NA)
New Jersey	62.3	(NA)
New York	104.9	(NA)
North Carolina	103.3	(NA)
Ohio	275.3	(NA)
Oregon	6.9	(NA)
Pennsylvania	106.5	(NA)
Rhode Island	3.1	(NA)
South Carolina	18.9	(NA)
Tennessee	71.9	(NA)
Texas	49.2	(NA)
Virginia	11.9	(NA)
Washington	7.8	(NA)
Wisconsin	133.2	(NA)
2759C, FLEXOGRAPHIC PRINTING, NOT ELSEWHERE CLASSIFIED (EXCLUDING LABELS AND WRAPPERS)		
United States	**311.9**	**(NA)**
California	13.0	(NA)
Georgia	9.8	(NA)
Illinois	23.1	(NA)
Maryland	2.5	(NA)
Minnesota	7.3	(NA)
New Jersey	18.7	(NA)
New York	12.6	(NA)
Ohio	12.1	(NA)
Texas	9.5	(NA)
27612, UNIT SET FORMS, LOOSE OR BOUND		
United States	**1 483.6**	**1 418.9**
Arizona	10.1	11.7
California	111.6	121.5
Colorado	21.3	7.1
Connecticut	21.2	32.3
Florida	25.2	25.9
Georgia	38.5	36.8
Illinois	124.9	135.4
Indiana	49.4	(NA)
Iowa	37.4	20.2
Kansas	46.0	39.5
Kentucky	40.7	43.8
Louisiana	3.8	12.9
Maryland	11.8	(NA)
Massachusetts	17.2	30.0
Michigan	23.2	37.7
Minnesota	28.4	38.4
Missouri	59.9	73.3
New Jersey	23.2	36.7
New York	51.8	56.6
North Carolina	41.8	46.6
Ohio	64.9	56.6
Oregon	34.0	40.8
Pennsylvania	166.0	93.5
South Carolina	6.3	10.2
Tennessee	118.7	18.6
Texas	116.8	91.3
Virginia	22.8	30.8
Washington	12.8	6.6
Wisconsin	16.2	29.2
27613, MANIFOLD BOOKS AND PEGBOARD ACCOUNTING SYSTEMS		
United States	**334.1**	**261.0**
California	44.7	65.1
Florida	4.6	(NA)
Georgia	24.8	25.1
Michigan	6.4	2.3
New Jersey	4.2	2.5
Ohio	31.5	35.6
Pennsylvania	3.6	(NA)
Texas	12.6	41.8
27615, CUSTOM CONTINUOUS FORMS		
United States	**2 594.1**	**2 726.4**
Alabama	11.9	13.1
Arizona	18.0	17.7
Arkansas	84.4	74.8
California	212.2	263.3
Colorado	15.5	23.8
Connecticut	35.4	55.9
Florida	47.6	35.6
Georgia	80.2	71.6
Illinois	194.6	218.1
Indiana	74.3	81.5
Iowa	119.4	97.8
Kansas	88.7	51.9
Kentucky	36.2	13.6
Maryland	45.4	105.1
Massachusetts	14.6	26.5
Michigan	57.8	55.7
Minnesota	42.4	38.0
Missouri	51.2	43.0
New Jersey	44.5	56.6
New York	89.9	99.4
North Carolina	39.8	31.0
Ohio	166.8	158.6
Oklahoma	37.8	(NA)
Oregon	58.5	46.3
Pennsylvania	193.6	241.4
South Carolina	45.2	(NA)
Tennessee	50.1	54.2
Texas	162.3	176.0
Vermont	111.3	104.3
Virginia	54.2	65.5
Washington	11.7	31.4
Wisconsin	95.8	77.4
27617, STOCK CONTINUOUS FORMS		
United States	**1 534.7**	**1 684.2**
Alabama	10.7	(NA)
California	130.6	196.0
Illinois	125.8	114.0
Indiana	110.2	(NA)
Iowa	50.2	66.3
Maryland	69.2	(NA)
Missouri	69.8	80.2
New York	7.6	15.5
North Carolina	15.8	(NA)
Ohio	21.7	51.6
Pennsylvania	307.3	300.1
Tennessee	8.4	(NA)
Texas	124.6	155.2
Virginia	10.6	58.8

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2752-	**Commercial printing, lithographic (offset)**	**42 424.2**	**37 762.0**	**38 855.7**	**36 764.4**	**34 305.8**	**32 143.1**	**18 777.9**	**8 980.2**
27521	Magazine and periodical printing (lithographic)	4 664.3	5 044.0	5 289.4	5 032.7	4 200.5	3 779.6	2 536.2	1 287.5
27522	Label and wrapper printing (lithographic)	1 607.1	1 247.7	1 257.7	1 166.1	864.5	794.0	677.0	391.3
27523	Catalog and directory printing (lithographic)	3 943.3	3 734.9	3 736.2	3 594.8	3 169.8	2 868.7	1 804.2	838.3
27524	Financial and legal printing (lithographic), excluding checkbooks	1 787.4	1 276.8	1 601.6	1 528.6	1 435.8	1 582.5	957.5	471.6
27525	Advertising printing (lithographic)	13 219.2	12 446.4	12 490.9	11 668.7	10 614.3	9 688.9	4 985.1	2 407.7
27526	Other general job printing (lithographic)	9 123.0	6 656.0	6 735.1	5 934.7	5 639.1	5 597.8	3 343.3	2 178.1
27520	Commercial printing, lithographic (offset), n.s.k.	8 080.1	7 356.1	7 744.9	7 838.8	8 381.8	7 831.6	4 474.6	1 405.7
2754-	**Commercial printing, gravure**	**3 433.2**	**3 239.0**	**3 299.7**	**3 059.5**	**2 934.4**	**2 740.2**	**2 159.0**	**1 108.3**
27541	Magazine and periodical printing (gravure)	551.1	525.2	531.8	583.5	544.7	562.1	521.0	275.5
27542	Label and wrapper printing (gravure)	528.3	394.8	407.8	421.6	448.4	434.4	437.4	276.2
27543	Catalog and directory printing (gravure)	883.1	994.6	1 001.0	855.7	1 019.8	945.1	651.2	233.5
27545	Advertising printing (gravure)	930.7	895.6	940.1	801.7	585.4	479.0	286.4	143.2
27546	Other commercial printing (gravure)	333.3	223.0	209.4	197.4	190.5	176.1	102.7	91.5
27540	Commercial printing, gravure, n.s.k.	206.6	205.8	209.7	199.7	145.6	143.4	160.4	88.4
2759-	**Commercial printing, n.e.c.**	**9 231.5**	**10 760.4**	**10 416.6**	**9 797.1**	**9 356.5**	**9 112.0**	**6 420.0**	**(NA)**
27591	Magazine and periodical printing (letterpress)	62.1	178.4	158.6	154.6	151.2	157.8	[2]267.2	(NA)
27592	Label and wrapper printing (letterpress)	282.4	495.1	474.7	437.3	402.5	422.5	483.8	(NA)
27593	Catalog and directory printing (letterpress)	90.0	166.1	175.5	189.2	203.1	224.3	[2]224.0	(NA)
27594	Financial and legal printing (letterpress)	73.9	275.9	328.6	318.2	267.5	267.8	[2]239.4	(NA)
27595	Advertising printing (letterpress)	331.5	749.1	670.1	624.8	623.7	592.4	[2]337.5	(NA)
27596	Other general job printing (letterpress)	885.3	1 275.1	1 214.2	1 203.3	1 219.1	1 239.2	[2]798.2	(NA)
27598	Screen printing, except on textiles	1 909.0	1 429.2	1 406.8	1 409.8	1 312.8	1 189.9	696.9	314.7
27599	Engraving	299.7	452.8	480.9	506.5	346.3	323.5	228.2	(NA)
2759A	Nonimpact printing, using laser and ink-jet equipment	175.1	241.1	204.9	194.7	127.3	109.7	(NA)	(NA)
2759B	Label and wrapper printing (flexographic)	1 988.4							
2759C	Flexographic printing, not elsewhere classified (excluding labels and wrappers)	311.9	1 703.2	1 661.2	1 538.8	1 319.7	1 231.4	[2]595.6	(NA)
27590	Commercial printing, n.e.c., n.s.k.	2 822.5	3 794.4	3 641.0	3 220.0	3 383.3	3 353.5	2 549.2	(NA)
2761-	**Manifold business forms**	**6 795.3**	**6 783.8**	**7 278.6**	**7 120.7**	**7 262.2**	**6 787.7**	**4 812.2**	**2 702.6**
27612	Unit set forms, loose or bound	1 483.6	1 549.9	1 611.0	1 584.2	1 523.1	1 418.9	1 187.7	885.3
27613	Manifold books and pegboard accounting systems	334.1	254.3	259.9	248.3	271.4	261.0	238.5	129.5
27615	Custom continuous forms	2 594.1	3 005.2	3 164.4	3 123.8	2 975.9	2 726.4	1 731.6	896.0
27617	Stock continuous forms	1 534.7	1 614.6	1 863.3	1 825.5	1 771.7	1 684.2	1 270.4	622.2
27610	Manifold business forms, n.s.k.	848.8	359.7	380.0	338.9	720.1	697.2	384.0	169.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

[2]For 1982, product classes 27591, 27593, 27594, 27595, and 27596 included some printing by the flexographic process. Thus, 1982 data for letterpress and flexographic product classes may not be completely comparable with data for the years after 1982.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2752, COMMERCIAL PRINTING, LITHOGRAPHIC		
	Materials, ingredients, containers, and supplies	**15 389.0**	**12 174.8**
262112	Newsprint	931.8	881.2
	Uncoated paper:		
262121	Sheets	1 064.7	718.8
262122	Rolls	1 611.6	1 061.1
	Coated paper:		
262123	Sheets	1 347.4	1 019.3
262124	Rolls	2 016.4	1 604.0
267231	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	110.4	24.2
220011	Cloth and nonwoven fabrics for hardbound book covers	3.0	7.9
289101	Glues and adhesives	42.9	44.5
289301	Printing inks (complete formulations)	805.2	539.6
386101	Light sensitive films and papers	206.8	135.8
386100	Unexposed photosensitive printing plates	131.1	(1)
279600	Printing plates, prepared for printing	145.0	(1)
279637	Engraved printing cylinders for gravure printing	3.3	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	126.6	(1)
970099	All other materials and components, parts, containers, and supplies	1 310.6	[1]1 449.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	5 532.4	4 689.4
	INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE		
	Materials, ingredients, containers, and supplies	**1 727.7**	**1 413.6**
262112	Newsprint	(3)	114.4
	Uncoated paper:		
262121	Sheets	2.3	1.2
262122	Rolls	459.5	225.0
	Coated paper:		
262123	Sheets	17.7	2.0
262124	Rolls	354.7	380.6
267231	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	9.0	(1)
289101	Glues and adhesives	9.1	8.2
289301	Printing inks (complete formulations)	458.5	300.0
386101	Light sensitive films and papers	4.3	5.6
386100	Unexposed photosensitive printing plates	.4	(1)
279600	Printing plates, prepared for printing	1.9	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2754, COMMERCIAL PRINTING, GRAVURE—Con.		
279637	Engraved printing cylinders for gravure printing	12.4	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	8.7	(1)
970099	All other materials and components, parts, containers, and supplies	[3]260.4	[1]171.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	128.9	205.5
	INDUSTRY 2759, COMMERCIAL PRINTING, N.E.C.		
	Materials, ingredients, containers, and supplies	**3 279.5**	**3 212.7**
262112	Newsprint	14.3	120.4
	Uncoated paper:		
262121	Sheets	85.9	113.5
262122	Rolls	144.7	197.2
	Coated paper:		
262123	Sheets	55.8	109.9
262124	Rolls	98.7	152.9
267231	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	592.6	238.4
220011	Cloth and nonwoven fabrics for hardbound book covers	2.4	2.8
289101	Glues and adhesives	28.7	14.0
289301	Printing inks (complete formulations)	103.5	90.2
386101	Light sensitive films and papers	14.7	13.8
386100	Unexposed photosensitive printing plates	7.7	(1)
279600	Printing plates, prepared for printing	23.1	(1)
279637	Engraved printing cylinders for gravure printing	4.7	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	27.4	(1)
970099	All other materials and components, parts, containers, and supplies	508.6	[1]514.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	1 566.9	1 644.7
	INDUSTRY 2761, MANIFOLD BUSINESS FORMS		
	Materials, ingredients, containers, and supplies	**3 110.2**	**3 159.2**
262131	Coated paper	138.8	162.6
262140	Uncoated paper	1 380.8	1 496.3
262163	Carbonless paper	603.3	476.5
	Carbon paper:		
262164	Carbonizing tissue stock for conversion into one-time carbon paper	16.5	37.5
395523	One-time carbon paper	55.1	116.1
267231	Pressure-sensitive base stock, self-adhesive, including paper, film, foil, etc.	73.2	(1)
289301	Printing inks (complete formulations)	32.9	29.1
265001	Paperboard containers, boxes, and corrugated paperboard	77.3	(1)
970099	All other materials and components, parts, containers, and supplies	201.7	[1]343.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	530.5	497.5

[1]Included in material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]Data for material code 262112 are included in data for material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
27111 24	27111 22
27111 26	27111 22
27111 34	27111 32
27111 36	27111 32
27111 44	27111 42
27111 46	27111 42
27111 54	27111 52
27111 56	27111 52
27111 58	27111 91
27211 12	27211 11
27211 12	27211 61
27211 14	27211 15
27211 14	27211 61
2731H	2731F
2731H 00	2731F 00
27417 16	27417 15
27417 16	27417 17
2741B 18	2741B 19
2741B 20	2741B 19
2741B 29	2741B 91
2741B 71	2741B 21
2741B 71	2741B 91
27522 11	27522 15
27522 11	27522 16
27522 13	27522 16
27522 13	27522 19
27522 17	27522 16
27522 17	27522 18
27523 18	27523 13
27525 45	27525 51
27525 45	27525 53
27525 52	27525 51
27525 54	27525 53
27526 77	27526 76
27526 77	27526 78
27526 84	27526 98
27526 97	27526 98
27592 12	27592 11
27592 12	27592 15
27592 14	27592 13
27592 14	27592 15
27592 16	27592 15
27592 16	27592 17
27592 18	27592 15
27592 18	27592 19
27596 16	27596 25
27596 27	27596 25
27599 33	27599 32
27599 35	27599 32
2759B	27597
2759B 00	27597 00
2759B 14	27597 14
2759B 16	27597 16
2759B 18	27597 18
2759B 20	27597 20
2759B 22	27597 22
2759B 26	27597 26
2759B 28	27597 28
2759B 30	27597 24
2759B 30	27597 30
2759C	27597
2759C 29	27597 38
2759C 31	27597 12
2759C 32	27597 32
2759C 34	27597 34
2759C 36	27597 36
2759C 38	27597 38
27612 11	27612 00
27612 13	27612 00
27612 15	27612 00
27612 53	27612 00
27612 55	27612 00
27612 61	27612 00
27613 11	27613 00
27613 13	27613 00
27615 31	27615 00
27615 35	27615 00
27615 41	27615 00
27615 43	27615 00
27615 45	27615 00
27615 55	27615 00
27615 61	27615 00
27615 63	27615 00
27615 65	27615 00
27617 61	27617 00
27617 63	27617 00
27617 65	27617 00
27617 73	27617 00
27617 75	27617 00
27824 41	27824 00
27824 45	27824 00
27824 51	27824 00
27825 01	27825 00
27825 03	27825 00
27825 06	27825 00
27825 08	27825 00
27825 11	27825 00
27825 22	27825 00
27910 32	27910 11
27910 34	27910 15
27961 11	27961 13
27961 31	27961 17
27961 31	27961 23
27961 31	27961 29
27963 30	27963 15
27963 30	27963 35
27963 52	27963 72
27963 69	27963 61
27963 69	27963 63
27963 69	27963 65
27963 70	27963 40
27963 70	27963 67
27963 70	27963 71

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
27111 22	27111 22
27111 22	27111 24
27111 22	27111 26
27111 32	27111 32
27111 32	27111 34
27111 32	27111 36
27111 42	27111 42
27111 42	27111 44
27111 42	27111 46
27111 52	27111 52
27111 52	27111 54
27111 52	27111 56
27111 91	27111 58
27211 11	27211 12
27211 15	27211 14
27211 61	27211 12
27211 61	27211 14
2731F	2731F
2731F	2731H
2731F 00	2731F 00
2731F 00	2731H 00
27417 15	27417 16
27417 17	27417 16
2741B 19	2741B 18
2741B 19	2741B 20
2741B 21	2741B 71
2741B 91	2741B 29
2741B 91	2741B 71
27522 15	27522 11
27522 16	27522 11
27522 16	27522 13
27522 16	27522 17
27522 18	27522 17
27522 19	27522 13
27523 13	27523 18
27525 51	27525 45
27525 51	27525 52
27525 53	27525 45
27525 53	27525 54
27526 76	27526 77
27526 78	27526 77
27526 98	27526 84
27526 98	27526 97
27592 11	27592 12
27592 13	27592 14
27592 15	27592 12
27592 15	27592 14
27592 15	27592 16
27592 15	27592 18
27592 17	27592 16
27592 19	27592 18
27596 25	27596 16
27596 25	27596 27
27597	2759B
27597	2759C
27597 00	2759B 00
27597 12	2759C 31
27597 14	2759B 14
27597 16	2759B 16
27597 18	2759B 18
27597 20	2759B 20
27597 22	2759B 22
27597 24	2759B 30
27597 26	2759B 26
27597 28	2759B 28
27597 30	2759B 30
27597 32	2759C 32
27597 34	2759C 34
27597 36	2759C 36
27597 38	2759C 29
27597 38	2759C 38
27599 32	27599 33
27599 32	27599 35
27612 00	27612 11
27612 00	27612 13
27612 00	27612 15
27612 00	27612 53
27612 00	27612 55
27612 00	27612 61
27613 00	27613 11
27613 00	27613 13
27615 00	27615 31
27615 00	27615 35
27615 00	27615 41
27615 00	27615 43
27615 00	27615 45
27615 00	27615 55
27615 00	27615 61
27615 00	27615 63
27615 00	27615 65
27617 00	27617 61
27617 00	27617 63
27617 00	27617 65
27617 00	27617 73
27617 00	27617 75
27824 00	27824 41
27824 00	27824 45
27824 00	27824 51
27825 00	27825 01
27825 00	27825 03
27825 00	27825 06
27825 00	27825 08
27825 00	27825 11
27825 00	27825 22
27910 11	27910 32
27910 15	27910 34
27961 13	27961 11
27961 17	27961 31
27961 23	27961 31
27961 29	27961 31
27963 15	27963 30
27963 35	27963 30
27963 40	27963 70
27963 61	27963 69
27963 63	27963 69
27963 65	27963 69
27963 67	27963 70
27963 71	27963 70
27963 72	27963 52

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

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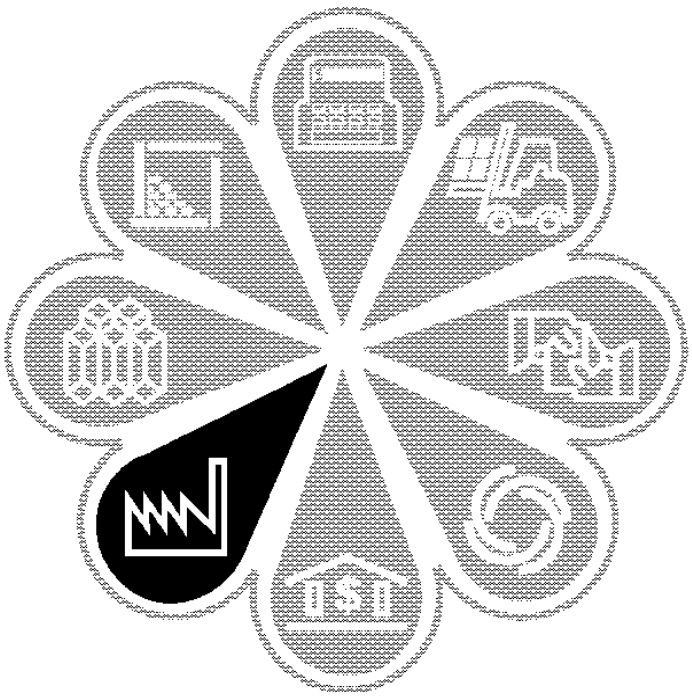
Industries 2771, 2782, 2789, 2791, and 2796



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Everett M. Ehrlich, Under Secretary for Economic Affairs

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Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2771	Greeting Cards
2782	Blankbooks and Looseleaf Binders
2789	Bookbinding and Related Work
2791	Typesetting
2796	Platemaking Services

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2771, GREETING CARDS

This industry is made up of establishments primarily engaged in the designing, publishing, and/ or printing, by any process, of greeting cards for all occasions.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2771, Greeting Cards, had employment of 22.8 thousand. The employment figure was 6 percent above the 21.5 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, Kentucky, Arkansas, and Kansas, accounting for approximately 60 percent of the industry's employment. This represents a shift from 1987 when Missouri, Kentucky, Kansas, and Ohio accounted for approximately 55 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2771 shipped $3.0 billion of products considered primary to the industry, $522.3 million of secondary products, and had $695.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 82 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 2771, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the greeting cards industry amounted to $743.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments

(and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS

This industry is made up of establishments primarily engaged in the manufacture of blankbooks, looseleaf binders and devices, albums, and scrapbooks.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2782, Blankbooks and Looseleaf Binders, had employment of 39.1 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania, accounting for approximately 36 percent of the industry's employment. This represents a shift from 1987 when Illinois, California, Massachusetts, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $3.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2782 shipped $3.3 billion of products considered primary to the industry, $377.1 million of secondary products, and had $157.8 million of miscellaneous receipts and resale. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 2782, no matter in what industry they were produced, appear in table 6a and aggregate to $3.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the blankbooks and looseleaf binders industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2789, BOOKBINDING AND RELATED WORK

This industry is made up of establishments primarily engaged in edition, trade, job, and library bookbinding. It also includes establishments engaged in map and sample mounting or binding; book or paper bronzing, gilding and edging; and other services related to bookbinding. Establishments primarily engaged in binding books printed in the same establishment are classified in industry group 273.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2789, Bookbinding and Related Work, had employment of 27.7 thousand. The employment figure was 7 percent below the 29.7 thousand reported in 1987. Compared with 1991, employment decreased 11 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, New York, and Georgia, accounting for approximately 41 percent of the industry's employment. This represents a shift from 1987 when New York, Illinois, California, and New Jersey accounted for approximately 47 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2789 shipped $1.2 billion of products considered primary to the industry, $69.5 million of secondary products, and had $31.8 million of miscellaneous receipts and resales. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2789, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the bookbinding and related work industry amounted to $309.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2791, TYPESETTING

This industry is made up of establishments primarily engaged in typesetting for the trade.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2791, Typesetting, had employment of 26.1 thousand. The employment figure was 31 percent below the 37.6 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, New York, California, and Illinois, accounting for approximately 46 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2791 shipped $1.5 billion of products considered primary to the industry, $80.4 million of secondary products, and had $55.5 million of miscellaneous receipts and resales. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 2791, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the typesetting industry amounted to $286.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

INDUSTRY 2796, PLATEMAKING SERVICES

This industry is made up of establishments primarily engaged in preparing printing plates for use by others and in related services for printers. It also includes establishments engaged in making positives or negatives from which offset lithographic plates are made. Establishments primarily engaged in engraving for purposes other than printing are classified in industry 3479.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2796, Platemaking Services, had employment of 38.7 thousand. The employment figure was 22 percent above the 31.8 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New York, and New Jersey, accounting for approximately 35 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2796 shipped $3.3 billion of products considered primary to the industry, $115.7 million of secondary products, and had $52.6 million of miscellaneous receipts and resales. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 2796, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the platemaking services industry amounted to $789.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2771, GREETING CARDS															
1992 Census	157	173	62	22.8	585.1	11.8	21.1	227.1	3 393.5	743.0	4 195.6	85.7	456.0	85	97
1991 ASM	(NA)	(NA)	(NA)	23.9	609.1	12.5	22.8	238.6	2 925.4	870.2	3 809.9	94.1	518.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.6	625.2	12.3	23.7	239.3	2 827.5	938.3	3 720.7	132.0	540.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.8	537.3	11.2	20.8	211.2	2 553.7	906.6	3 449.2	107.1	468.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.2	474.1	10.9	19.0	181.9	2 279.2	810.7	3 081.7	57.7	409.1	(NA)	(NA)
1987 Census	147	162	64	21.5	471.1	11.9	21.7	207.1	2 203.9	773.9	2 911.1	65.6	385.6	82	95
1986 ASM	(NA)	(NA)	(NA)	20.0	407.4	10.8	19.3	174.0	2 036.2	620.2	2 681.4	48.4	319.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	19.9	397.5	10.8	17.7	166.9	1 894.8	672.9	2 598.0	46.5	240.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	19.8	386.2	10.8	18.4	169.2	1 667.0	748.8	2 394.2	91.0	277.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.5	381.6	13.5	21.0	170.0	1 611.2	666.4	2 250.6	51.1	261.5	(NA)	(NA)
1982 Census	139	154	54	20.8	344.2	11.7	20.2	155.2	1 348.8	554.6	1 893.6	37.2	220.5	75	94
1981 ASM	(NA)	(NA)	(NA)	20.8	349.2	11.8	25.4	159.4	1 264.7	659.0	1 903.6	71.3	213.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	21.1	306.2	11.8	25.6	140.7	1 014.7	582.5	1 596.2	51.0	184.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.7	275.0	12.3	26.6	129.3	885.0	495.4	1 366.2	49.6	179.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.8	238.2	11.2	24.5	112.2	773.4	402.7	1 181.5	25.8	153.2	(NA)	(NA)
1977 Census	155	166	52	18.1	226.8	10.6	21.7	105.8	655.9	364.9	1 072.1	18.8	160.6	78	95
INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS															
1992 Census	376	553	354	39.1	932.1	29.3	57.1	582.7	2 658.7	1 123.9	3 788.1	102.0	300.2	90	95
1991 ASM	(NA)	(NA)	(NA)	39.6	847.6	28.2	54.2	534.9	2 207.2	1 005.0	3 243.1	84.1	286.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	38.5	833.1	27.5	53.9	528.4	2 182.9	1 006.2	3 186.1	108.0	321.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	38.5	781.6	28.3	54.4	517.6	2 084.2	997.6	3 057.8	152.7	327.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.7	791.8	28.8	58.3	531.7	2 120.7	943.9	3 057.9	118.1	295.4	(NA)	(NA)
1987 Census	348	510	326	39.1	767.6	29.5	57.6	496.5	2 020.4	897.5	2 903.6	87.4	305.2	89	93
1986 ASM	(NA)	(NA)	(NA)	33.0	708.4	25.4	52.6	459.5	1 792.2	864.1	2 640.1	79.6	279.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	33.3	672.1	25.4	51.8	437.7	1 642.3	819.7	2 463.2	82.4	254.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.2	629.6	24.9	50.0	418.1	1 518.7	791.3	2 305.3	84.9	262.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	36.9	635.0	28.8	55.7	424.8	1 606.0	735.4	2 335.5	60.9	255.8	(NA)	(NA)
1982 Census	333	474	296	35.9	564.8	28.0	52.9	380.5	1 379.5	671.0	2 039.4	50.5	244.6	86	92
1981 ASM	(NA)	(NA)	(NA)	36.6	523.4	28.6	58.6	372.1	1 243.7	606.5	1 843.9	46.6	198.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	36.5	476.5	29.4	57.7	341.8	1 150.1	578.3	1 718.1	77.3	192.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.1	414.8	27.9	55.1	303.6	945.8	531.4	1 464.5	75.4	172.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.3	383.1	27.7	53.3	266.1	856.3	450.1	1 292.2	44.3	152.8	(NA)	(NA)
1977 Census	373	505	288	31.8	338.5	25.2	49.8	235.0	739.9	396.9	1 122.6	36.0	130.2	86	91
INDUSTRY 2789, BOOKBINDING AND RELATED WORK															
1992 Census	1 071	1 098	350	27.7	548.9	22.7	44.9	391.2	1 017.3	309.3	1 321.3	41.8	128.2	95	92
1991 ASM	(NA)	(NA)	(NA)	30.8	547.0	25.7	50.2	398.3	1 009.7	314.5	1 328.3	28.5	117.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	31.7	563.3	26.4	52.2	405.0	1 035.8	333.2	1 363.4	44.6	122.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.0	519.4	24.0	48.1	376.5	941.8	294.2	1 240.2	33.6	111.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	30.0	507.5	24.8	48.6	364.0	939.3	282.7	1 218.2	20.6	105.5	(NA)	(NA)
1987 Census	1 011	1 036	369	29.7	497.2	24.7	48.2	359.4	906.5	275.6	1 176.3	48.3	101.4	95	94
1986 ASM	(NA)	(NA)	(NA)	28.5	458.5	23.2	44.6	337.7	803.7	249.1	1 048.2	39.5	91.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.9	402.0	23.2	39.3	297.2	670.5	216.2	890.4	36.2	80.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.5	404.4	22.5	42.7	295.0	659.8	215.3	876.8	28.3	78.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.8	365.5	22.2	41.6	275.1	647.6	207.1	845.6	30.8	73.6	(NA)	(NA)
1982 Census	994	1 013	335	25.4	338.3	21.7	39.7	255.1	584.0	183.3	763.5	27.3	60.9	96	91
1981 ASM	(NA)	(NA)	(NA)	29.3	352.3	25.4	45.2	264.2	631.1	202.1	828.2	25.2	66.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.6	337.5	26.8	47.0	258.5	610.5	180.6	780.0	20.9	72.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.7	306.9	26.2	47.4	233.1	548.2	152.6	691.7	22.6	61.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	26.0	263.2	22.5	41.3	198.8	443.2	139.8	590.4	25.7	43.7	(NA)	(NA)
1977 Census	974	987	288	24.1	240.6	20.9	38.8	183.6	408.8	126.0	533.6	19.3	45.7	96	94
INDUSTRY 2791, TYPESETTING															
1992 Census	2 481	2 517	275	26.1	687.6	19.7	39.4	463.4	1 323.6	286.3	1 611.9	60.9	89.1	95	81
1991 ASM	(NA)	(NA)	(NA)	29.6	743.6	22.1	46.3	498.6	1 487.8	320.3	1 812.5	49.8	113.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	33.6	826.9	25.1	53.0	549.1	1 605.7	351.2	1 957.4	72.7	124.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.7	796.8	25.0	54.3	532.4	1 483.0	294.0	1 775.7	83.3	127.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.2	866.2	29.2	58.8	587.0	1 587.1	333.2	1 919.8	58.5	130.1	(NA)	(NA)
1987 Census	3 317	3 364	437	37.6	809.2	29.5	58.4	565.0	1 471.1	309.7	1 783.7	73.9	125.8	96	83
1986 ASM	(NA)	(NA)	(NA)	33.6	686.6	26.0	49.5	477.8	1 282.5	311.8	1 593.1	72.1	112.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	34.5	665.9	27.1	48.9	479.6	1 223.5	277.9	1 503.9	67.2	114.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	34.7	636.3	27.6	50.7	467.2	1 205.3	266.3	1 462.3	57.2	123.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	34.7	588.4	27.9	51.7	431.8	1 138.5	248.2	1 384.2	65.6	115.6	(NA)	(NA)
1982 Census	3 045	3 075	415	33.7	570.6	26.5	49.0	418.3	1 040.2	210.0	1 242.9	64.3	110.6	97	88
1981 ASM	(NA)	(NA)	(NA)	34.7	511.4	27.6	49.0	360.8	907.8	172.3	1 080.8	50.9	70.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	34.9	489.9	28.0	49.5	345.1	858.4	190.8	1 056.4	63.1	73.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.5	447.3	27.2	50.8	317.5	762.3	150.8	919.0	53.4	60.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	27.7	395.0	22.3	42.6	292.1	696.7	113.9	810.5	42.3	46.5	(NA)	(NA)
1977 Census	2 370	2 406	389	27.2	364.7	21.7	38.8	271.6	623.4	110.5	730.6	36.7	42.5	97	89
INDUSTRY 2796, PLATEMAKING SERVICES															
1992 Census	1 558	1 673	590	38.7	1 445.4	26.4	56.5	883.9	2 657.5	789.6	3 451.5	166.3	154.5	97	92
1991 ASM	(NA)	(NA)	(NA)	32.0	1 140.6	22.4	42.9	691.0	2 096.6	668.3	2 764.0	111.9	137.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.9	1 125.4	22.8	44.0	678.8	2 103.7	653.7	2 757.8	143.0	134.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	33.5	1 095.9	23.5	46.3	680.9	2 008.8	652.2	2 656.6	135.9	143.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	32.9	1 051.7	22.8	47.7	675.4	1 897.6	668.3	2 558.7	114.3	152.4	(NA)	(NA)
1987 Census	1 326	1 413	462	31.8	974.4	22.1	45.4	631.8	1 753.5	612.2	2 373.1	116.1	134.6	96	90

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

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[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.
[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.
[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.
[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2771, GREETING CARDS								
1992 Census	25 662	52	1 788	10.76	18	32	148 838	17	160.83
1991 ASM	25 485	52	1 824	10.46	23	39	122 402	21	128.31
1990 ASM	25 415	50	1 927	10.10	25	42	114 939	22	119.30
1989 ASM	25 832	54	1 857	10.15	26	42	122 774	21	122.77
1988 ASM	23 470	54	1 743	9.57	26	42	112 832	21	119.96
1987 Census	21 912	55	1 824	9.54	27	43	102 507	21	101.56
1986 ASM	20 370	54	1 787	9.02	23	38	101 810	20	105.50
1985 ASM	19 975	54	1 639	9.43	26	41	95 216	21	107.05
1984 ASM	19 505	55	1 704	9.20	31	47	84 192	23	90.60
1983 ASM	16 960	60	1 556	8.10	30	47	71 609	24	76.72
1982 Census	16 548	56	1 726	7.68	29	47	64 846	26	66.77
1981 ASM	16 788	57	2 153	6.28	35	53	60 803	28	49.79
1980 ASM	14 512	56	2 169	5.50	36	56	48 090	30	39.64
1979 ASM	13 285	59	2 163	4.86	36	56	42 754	31	33.27
1978 ASM	12 030	57	2 188	4.58	34	54	39 061	31	31.57
1977 Census	12 530	59	2 047	4.88	34	55	36 238	35	30.23
	INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS								
1992 Census	23 839	75	1 949	10.20	30	54	67 997	35	46.56
1991 ASM	21 404	71	1 922	9.87	31	57	55 737	38	40.72
1990 ASM	21 639	71	1 960	9.80	32	58	56 699	38	40.50
1989 ASM	20 301	74	1 922	9.51	33	58	54 135	38	38.31
1988 ASM	20 460	74	2 024	9.12	31	57	54 798	37	36.38
1987 Census	19 632	75	1 953	8.62	31	57	51 673	38	35.08
1986 ASM	21 467	77	2 071	8.74	33	60	54 309	40	34.07
1985 ASM	20 183	76	2 039	8.45	33	61	49 318	41	31.70
1984 ASM	18 964	75	2 008	8.36	34	62	45 744	41	30.37
1983 ASM	17 209	78	1 934	7.63	31	59	43 523	40	28.83
1982 Census	15 733	78	1 889	7.19	33	61	38 426	41	26.08
1981 ASM	14 301	78	2 049	6.35	33	61	33 981	42	21.22
1980 ASM	13 055	81	1 963	5.92	34	61	31 510	41	19.93
1979 ASM	12 164	82	1 975	5.51	36	65	27 736	44	17.17
1978 ASM	11 169	81	1 924	4.99	35	64	24 965	45	16.07
1977 Census	10 645	79	1 976	4.72	35	66	23 267	46	14.86
	INDUSTRY 2789, BOOKBINDING AND RELATED WORK								
1992 Census	19 816	82	1 978	8.71	23	65	36 726	54	22.66
1991 ASM	17 760	83	1 953	7.93	24	65	32 782	54	20.11
1990 ASM	17 770	83	1 977	7.76	24	66	32 675	54	19.84
1989 ASM	17 910	83	2 004	7.83	24	66	32 476	55	19.58
1988 ASM	16 917	83	1 960	7.49	23	65	31 310	54	19.33
1987 Census	16 741	83	1 951	7.46	23	66	30 522	55	18.81
1986 ASM	16 088	81	1 922	7.57	24	68	28 200	57	18.02
1985 ASM	14 409	83	1 694	7.56	24	69	24 032	60	17.06
1984 ASM	14 705	82	1 898	6.91	25	71	23 993	61	15.45
1983 ASM	14 167	86	1 874	6.61	24	68	25 101	56	15.57
1982 Census	13 319	85	1 829	6.43	24	68	22 992	58	14.71
1981 ASM	12 024	87	1 780	5.85	24	67	21 539	56	13.96
1980 ASM	11 029	88	1 754	5.50	23	66	19 951	55	12.99
1979 ASM	10 333	88	1 809	4.92	22	66	18 458	56	11.57
1978 ASM	10 123	87	1 836	4.81	24	68	17 046	59	10.73
1977 Census	9 983	87	1 856	4.73	24	69	16 963	59	10.54
	INDUSTRY 2791, TYPESETTING								
1992 Census	26 345	75	2 000	11.76	18	60	50 713	52	33.59
1991 ASM	25 122	75	2 095	10.77	18	59	50 264	50	32.13
1990 ASM	24 610	75	2 112	10.36	18	60	47 789	51	30.30
1989 ASM	24 367	76	2 172	9.80	17	61	45 352	54	27.31
1988 ASM	22 675	76	2 014	9.98	17	62	41 547	55	26.99
1987 Census	21 521	78	1 980	9.67	17	63	39 125	55	25.19
1986 ASM	20 435	77	1 904	9.65	20	63	38 170	54	25.91
1985 ASM	19 301	79	1 804	9.81	18	63	35 464	54	25.02
1984 ASM	18 337	80	1 837	9.21	18	62	34 735	53	23.77
1983 ASM	16 957	80	1 853	8.35	18	60	32 810	52	22.02
1982 Census	16 932	79	1 849	8.54	17	63	30 866	55	21.23
1981 ASM	14 738	80	1 775	7.36	16	63	26 161	56	18.53
1980 ASM	14 037	80	1 768	6.97	18	64	24 596	57	17.34
1979 ASM	13 352	81	1 868	6.25	16	65	22 755	59	15.01
1978 ASM	14 260	81	1 910	6.86	14	63	25 152	57	16.35
1977 Census	13 408	80	1 788	7.00	15	65	22 919	59	16.07

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/17/95 2:55 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 2
TSF:27C_92.DAT;1 5/17/95 12:45:04 UTF:27C_93.DAT;2 5/17/95 14:53:05 META:TIPS96-14541866.DAT;1 5/17/95 14:54:56

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2796, PLATEMAKING SERVICES								
1992 Census	37 446	68	2 140	15.64	23	65	68 847	54	47.04
1991 ASM	35 644	70	1 915	16.11	24	65	65 519	54	48.87
1990 ASM	34 207	69	1 930	15.43	24	65	63 942	53	47.81
1989 ASM	32 713	70	1 970	14.71	25	66	59 964	55	43.39
1988 ASM	31 967	69	2 092	14.16	26	67	57 678	55	39.78
1987 Census	30 642	69	2 054	13.92	26	67	55 142	56	38.62

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2771, GREETING CARDS														
United States	–	**173**	**62**	**22.8**	**585.1**	**11.8**	**21.1**	**227.1**	**3 393.5**	**743.0**	**4 195.6**	**85.7**	**21.5**	**2 203.9**
Arkansas	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	29	5	.3	8.5	.2	.4	2.6	23.2	12.6	35.7	.8	E	(D)
Colorado	–	8	3	1.6	37.4	.6	1.1	9.7	116.1	37.1	159.9	(D)	G	(D)
Georgia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	E4	9	5	1.5	35.2	.9	2.0	16.9	113.1	43.5	157.7	3.6	1.0	65.5
Indiana	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	7	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E7	9	3	.3	6.8	.2	.4	3.1	31.5	8.8	39.7	(D)	.7	26.8
Missouri	–	6	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
New Jersey	E2	5	4	.4	10.5	.2	.4	4.5	33.1	9.5	42.4	.5	.2	15.3
New York	E8	14	5	.3	7.3	.2	.4	3.2	36.8	10.9	47.7	1.2	.4	25.0
Ohio	–	6	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	25.3
Rhode Island	E9	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS														
United States	–	**553**	**354**	**39.1**	**932.1**	**29.3**	**57.1**	**582.7**	**2 658.7**	**1 123.9**	**3 788.1**	**102.0**	**39.1**	**2 020.4**
Alabama	E1	7	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	12	9	.5	11.9	.4	1.0	7.6	27.2	13.0	40.1	(D)	E	(D)
California	–	65	34	5.3	127.8	4.1	7.7	83.4	384.2	212.2	595.8	23.3	3.8	219.1
Colorado	–	9	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	7	5	.6	14.5	.4	.7	7.4	86.6	17.2	103.8	(D)	.8	40.7
Florida	E1	28	16	1.3	29.3	1.0	1.9	19.4	93.8	25.2	120.0	1.4	G	(D)
Georgia	E1	20	9	.8	15.7	.6	1.3	11.2	52.1	11.9	64.1	.9	.6	38.3
Illinois	–	39	22	3.2	82.3	2.3	4.1	44.1	149.0	144.3	311.3	10.8	4.0	255.3
Indiana	–	12	8	.8	23.4	.6	1.3	15.7	55.4	24.2	79.0	1.7	.7	36.9
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Kansas	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Louisiana	–	7	5	.3	7.5	.2	.5	5.1	21.3	4.1	25.6	(D)	.3	19.3
Maryland	–	12	9	.9	19.9	.7	1.2	11.5	51.6	21.5	73.2	(D)	.6	30.4
Massachusetts	E2	13	11	1.6	37.3	1.2	2.4	23.9	114.5	56.6	170.5	3.1	(NA)	(D)
Michigan	–	18	12	1.0	27.7	.8	1.4	17.9	89.4	31.7	121.2	2.3	.6	45.1
Minnesota	E1	14	10	1.0	25.5	.8	1.4	15.5	77.2	22.2	99.7	1.9	G	(D)
Mississippi	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	20	12	1.3	28.7	1.0	1.9	17.7	71.1	29.7	101.1	1.5	G	(D)
New Hampshire	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	15	12	1.4	37.5	1.0	1.8	22.5	77.4	23.6	101.3	(D)	2.3	85.7
New York	–	54	31	3.2	68.7	2.5	5.5	44.8	206.6	118.9	316.7	6.3	3.6	133.5
North Carolina	–	11	6	.5	13.8	.4	.8	8.9	44.9	10.7	56.0	1.0	F	(D)
Ohio	–	27	14	1.1	29.6	.8	1.6	17.2	75.0	24.8	101.1	(D)	G	(D)
Oklahoma	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	19.7
Oregon	–	9	6	.7	14.9	.6	1.1	11.4	34.4	18.1	52.9	2.4	.5	22.4
Pennsylvania	–	18	15	2.6	61.6	1.7	3.1	34.7	188.4	60.3	248.4	6.0	2.3	131.6
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	4	3	.3	5.2	.2	.5	3.9	13.6	6.1	22.8	(D)	(NA)	(D)
Tennessee	E4	16	14	1.5	39.3	1.2	2.5	24.5	93.3	43.2	136.4	2.3	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/17/95 2:55 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992											1987	
		All establishments		All employees		Production workers								
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS—Con.														
Texas	–	40	28	2.5	56.6	2.0	3.7	36.0	173.3	64.9	239.2	7.4	2.4	124.7
Utah	–	5	4	.3	5.4	.2	.5	3.6	15.1	3.7	19.2	.2	.2	8.1
Virginia	–	10	7	.6	13.2	.4	.8	8.5	40.2	11.7	51.9	1.0	E	(D)
Washington	–	8	5	.6	17.1	.5	.9	11.6	41.0	12.2	52.9	2.4	(NA)	(NA)
Wisconsin	–	9	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
INDUSTRY 2789, BOOKBINDING AND RELATED WORK														
United States	**E1**	**1 098**	**350**	**27.7**	**548.9**	**22.7**	**44.9**	**391.2**	**1 017.3**	**309.3**	**1 321.3**	**41.8**	**29.7**	**906.5**
Arizona	E1	14	4	.3	6.0	.3	.5	4.2	9.6	2.0	11.7	.3	E	(D)
California	E2	150	35	3.0	57.2	2.6	5.0	42.9	102.2	18.1	120.7	4.7	(NA)	(D)
Colorado	E1	23	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	E3	16	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	.4	12.5
Florida	E1	34	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	E1	51	29	2.4	37.5	2.0	3.8	29.4	59.8	32.4	94.5	2.9	2.1	48.5
Illinois	–	71	31	3.3	62.6	2.5	5.1	41.6	134.5	50.4	181.6	3.7	3.8	128.6
Indiana	–	29	12	1.3	24.2	1.1	2.1	16.7	45.8	20.4	65.1	1.7	1.6	42.1
Kansas	–	10	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
Maryland	–	26	11	.9	21.7	.7	1.4	15.2	40.4	12.7	52.9	2.3	1.2	38.9
Massachusetts	–	33	13	1.0	21.2	.8	1.5	14.3	40.4	9.5	48.8	1.1	G	(D)
Michigan	–	25	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	15.9
Minnesota	–	30	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	34	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	16.0
Nebraska	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
New Hampshire	–	9	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	65	31	2.3	55.5	1.9	3.9	40.6	97.2	27.6	124.8	(D)	2.4	79.6
New York	E2	122	39	2.7	59.8	2.3	4.8	44.3	104.8	29.8	134.8	4.1	(NA)	(D)
North Carolina	–	27	8	.6	10.9	.5	.9	7.5	20.2	6.0	26.2	.9	E	(D)
Ohio	E3	38	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	E1	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	21	4	.3	8.5	.3	.5	6.3	15.7	2.6	18.4	2.0	.2	7.1
Pennsylvania	–	44	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	35.1
Tennessee	E3	23	4	.3	4.5	.3	.5	3.2	8.1	2.7	10.7	.3	F	(D)
Texas	–	51	19	1.5	28.2	1.3	2.5	19.7	52.1	15.1	66.7	1.5	G	(D)
Utah	–	7	2	.2	3.8	.2	.3	3.1	8.8	1.6	10.3	(D)	.2	4.5
Virginia	E1	14	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	24	9	.4	7.7	.3	.6	5.7	14.5	2.0	16.6	.4	(NA)	(D)
Wisconsin	–	19	8	.6	11.8	.4	.8	7.9	33.6	14.5	47.1	1.2	E	(D)
INDUSTRY 2791, TYPESETTING														
United States	**E1**	**2 517**	**275**	**26.1**	**687.6**	**19.7**	**39.4**	**463.4**	**1 323.6**	**286.3**	**1 611.9**	**60.9**	**37.6**	**1 471.1**
Arizona	E3	42	3	.2	3.6	.1	.3	2.8	6.0	1.5	7.6	.2	E	(D)
California	E1	333	25	2.7	71.2	2.0	4.0	46.1	150.0	28.2	178.7	5.5	4.0	165.0
Colorado	E3	56	1	.2	4.2	.2	.3	3.0	9.2	3.0	12.1	(D)	.4	11.3
Connecticut	E2	52	7	.5	12.6	.3	.7	8.6	22.9	4.2	27.0	.8	.9	36.5
District of Columbia	–	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Florida	E3	129	9	.7	15.3	.5	1.0	9.6	29.3	7.3	36.8	1.5	.9	27.8
Georgia	E2	63	10	.8	20.3	.6	1.1	13.0	40.9	5.6	46.7	1.5	F	(D)
Illinois	–	187	24	2.6	82.5	2.0	4.3	55.2	159.8	37.7	196.5	5.8	3.3	157.5
Indiana	E1	52	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	.7	25.0
Iowa	E4	22	6	.4	8.2	.3	.6	5.5	14.1	2.3	16.4	1.2	F	(D)
Kansas	–	23	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	E	(D)
Kentucky	E1	19	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(D)
Louisiana	E4	18	1	.1	2.2	.1	.2	1.6	4.9	1.2	6.0	.1	(NA)	(NA)
Maryland	E1	71	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	1.0	36.1
Massachusetts	E2	82	11	.7	18.7	.5	1.0	11.8	37.1	9.7	46.8	1.9	1.4	57.3
Michigan	E4	103	10	.8	21.0	.6	1.2	12.9	46.3	11.2	57.4	1.6	1.5	56.0
Minnesota	–	43	7	.9	28.0	.7	1.3	18.0	52.9	12.1	65.2	4.7	F	(D)
Missouri	E1	67	12	.9	23.1	.6	1.3	14.3	35.5	12.2	47.7	1.7	1.1	39.4
New Hampshire	–	16	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)
New Jersey	–	120	13	1.4	40.0	1.0	1.9	27.4	70.9	14.5	85.3	2.4	2.5	96.5
New York	E2	278	38	3.3	103.3	2.4	5.0	68.0	196.4	47.6	243.3	5.4	5.7	258.4
North Carolina	E2	51	3	.3	6.1	.2	.4	4.2	10.7	3.1	13.8	1.0	E	(D)
Ohio	E3	98	11	.8	16.9	.5	1.1	11.7	33.9	5.7	39.7	1.5	G	(D)
Oregon	E4	34	–	.1	2.8	.1	.2	2.0	5.7	1.0	6.7	.3	.3	9.1
Pennsylvania	E1	105	26	3.5	86.5	2.9	5.6	63.0	170.6	26.5	200.0	9.4	3.9	149.0
Tennessee	E3	33	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.3	11.6
Texas	E2	144	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	1.6	51.1
Vermont	–	10	2	.1	2.7	.1	.2	1.9	4.5	.7	5.2	.1	(NA)	(NA)
Virginia	E1	37	5	.4	10.3	.3	.6	7.0	17.4	2.5	20.2	1.1	.7	26.0
Washington	E2	31	–	.1	2.5	.1	.2	1.9	7.3	1.4	8.7	.5	.3	13.7
Wisconsin	–	44	7	.5	10.4	.3	.6	6.5	19.6	5.7	25.2	1.5	.6	17.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2796, PLATEMAKING SERVICES														
United States	**E1**	**1 673**	**590**	**38.7**	**1 445.4**	**26.4**	**56.5**	**883.9**	**2 657.5**	**789.6**	**3 451.5**	**166.3**	**31.8**	**1 753.5**
Alabama	E1	11	1	.1	3.2	.1	.2	2.1	8.2	2.9	11.0	.4	(NA)	(NA)
Arizona	–	17	8	.5	16.7	.3	.6	11.5	32.8	11.5	44.1	2.1	(NA)	(D)
Arkansas	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	236	73	4.8	188.8	3.1	6.8	107.6	345.8	105.1	452.8	17.2	4.0	239.9
Colorado	–	24	8	.4	13.0	.3	.5	7.1	23.4	5.1	28.6	1.1	.3	16.7
Connecticut	E1	36	17	1.2	47.6	.7	1.6	27.1	82.8	27.1	109.6	3.5	.9	45.0
District of Columbia	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	71	20	1.4	46.2	1.0	2.2	29.8	85.8	29.6	115.3	5.2	1.1	56.0
Georgia	–	40	14	.8	31.6	.6	1.3	18.0	60.0	18.4	79.0	4.9	F	(D)
Illinois	E1	122	53	3.6	151.0	2.5	5.4	95.3	280.7	82.8	364.1	18.2	3.4	191.6
Indiana	–	28	12	.6	21.7	.4	.9	12.3	40.4	15.6	56.1	2.0	.6	26.5
Iowa	E2	16	2	.2	4.1	.1	.3	2.8	8.8	2.5	11.3	.5	(NA)	(NA)
Kansas	–	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(NA)	(NA)
Kentucky	–	19	8	.8	32.9	.6	1.3	20.7	55.7	15.3	70.6	5.0	F	(D)
Maryland	E4	27	7	.5	17.3	.3	.7	11.5	30.2	8.3	38.5	1.8	E	(D)
Massachusetts	E1	49	13	.8	26.7	.6	1.2	16.6	47.9	18.9	66.7	3.4	F	(D)
Michigan	E2	55	25	1.3	53.4	.8	1.8	27.2	101.0	22.9	124.6	6.7	1.3	75.2
Minnesota	E1	40	20	1.2	46.7	.8	1.8	28.3	85.7	20.7	106.7	6.9	F	(D)
Missouri	–	53	28	1.8	59.0	1.2	2.5	37.3	106.4	35.1	141.6	5.1	1.4	70.9
Nebraska	–	6	3	.2	7.9	.2	.4	5.2	13.2	4.0	17.1	1.7	(NA)	(D)
New Hampshire	E4	6	3	.2	7.9	.1	.3	4.6	12.0	3.0	14.9	.9	(NA)	(NA)
New Jersey	–	80	28	2.2	84.6	1.5	3.1	50.2	154.0	44.6	199.0	6.5	2.2	130.7
New York	E1	187	40	3.1	120.6	2.1	4.5	75.9	239.7	70.5	309.8	14.5	3.7	199.1
North Carolina	E2	41	18	1.1	35.0	.8	1.8	23.8	67.8	21.7	89.5	4.6	E	(D)
Ohio	E1	86	38	2.1	80.3	1.4	3.0	49.9	143.0	41.3	185.3	9.5	1.7	96.9
Oklahoma	–	13	2	.1	4.8	.1	.2	2.8	9.1	2.0	11.1	.8	(NA)	(NA)
Oregon	–	22	10	.6	22.0	.4	.8	12.7	37.4	10.3	47.6	2.3	.2	12.2
Pennsylvania	–	77	22	1.6	51.8	1.1	2.2	31.7	93.4	37.4	130.7	4.2	1.1	54.7
Rhode Island	E6	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	E1	12	5	.3	6.6	.2	.4	4.5	13.1	5.0	18.1	.6	(NA)	(NA)
Tennessee	–	38	23	1.3	44.1	.8	1.7	25.9	77.3	20.3	98.2	3.6	1.0	45.2
Texas	–	77	26	1.9	72.6	1.4	3.0	44.7	130.1	33.5	163.7	12.0	1.6	93.2
Utah	–	12	3	.2	5.7	.1	.3	3.7	10.9	3.2	14.3	1.5	.2	(D)
Virginia	E1	23	5	.4	14.5	.3	.7	10.3	27.3	7.5	34.8	1.9	.3	14.2
Washington	–	21	7	.5	23.0	.4	.9	14.6	40.0	9.1	49.2	3.4	.4	21.8
Wisconsin	–	62	32	1.9	65.0	1.4	2.8	41.8	117.8	36.1	153.9	9.9	1.2	69.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Greeting cards (SIC 2771)	Blankbooks and looseleaf binders (SIC 2782)	Bookbinding and related work (SIC 2789)	Typesetting (SIC 2791)	Platemaking services (SIC 2796)
Companies	number	157	376	1 071	2 481	1 558
All establishments	number	173	553	1 098	2 517	1 673
With 1 to 19 employees	number	111	199	748	2 242	1 083
With 20 to 99 employees	number	32	251	300	245	535
With 100 employees or more	number	30	103	50	30	55
Employment and labor costs:						
Employees	1,000	22.8	39.1	27.7	26.1	38.7
Compensation, total	mil dol	739.6	1 183.7	667.6	819.4	1 706.3
Annual payroll	mil dol	585.1	932.1	548.9	687.6	1 445.4
Fringe benefits	mil dol	154.5	251.6	118.7	131.8	260.9
Social Security and other legally required payments	mil dol	57.8	87.2	55.3	57.6	120.3
Employer voluntary payments	mil dol	96.8	164.4	63.4	74.2	140.6
Production workers:						
Average for year	1,000	11.8	29.3	22.7	19.7	26.4
March	1,000	10.8	29.6	22.6	19.9	26.7
May	1,000	11.7	29.5	22.5	19.7	26.6
August	1,000	12.5	29.2	23.6	19.7	26.5
November	1,000	12.2	28.9	22.4	19.3	26.1
Hours	millions	21.1	57.1	44.9	39.4	56.5
Wages	mil dol	227.1	582.7	391.2	463.4	883.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Greeting cards (SIC 2771)	Blankbooks and looseleaf binders (SIC 2782)	Bookbinding and related work (SIC 2789)	Typesetting (SIC 2791)	Platemaking services (SIC 2796)
Cost of materials[1] ---- mil dol	743.0	1 123.9	309.3	286.3	789.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	473.2	983.7	245.2	167.9	638.5
Resales ---- mil dol	194.1	95.1	14.8	13.3	29.4
Fuels ---- mil dol	2.3	8.4	6.0	2.7	8.5
Purchased electricity ---- mil dol	14.1	25.1	15.3	12.3	33.8
Contract work ---- mil dol	59.3	11.6	28.0	90.1	79.4
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	263.3	361.0	209.1	162.9	477.9
Generated less sold ---- mil kWh	–	–	–	–	–
Total value of shipments ---- mil dol	4 195.6	3 788.1	1 321.3	1 611.9	3 451.5
Value added ---- mil dol	3 393.5	2 658.7	1 017.3	1 323.6	2 657.5
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	526.9	315.4	124.9	90.5	153.8
Finished goods ---- mil dol	347.4	111.0	43.7	5.3	18.9
Work in process ---- mil dol	78.5	59.0	32.3	69.1	67.3
Materials and supplies ---- mil dol	101.0	145.3	48.9	16.2	67.5
End of 1992 ---- mil dol	456.0	300.2	128.2	89.1	154.5
Finished goods ---- mil dol	299.0	110.6	50.9	5.1	16.0
Work in process ---- mil dol	67.6	53.9	30.4	67.2	65.9
Materials and supplies ---- mil dol	89.3	135.7	46.9	16.8	72.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Greeting cards (SIC 2771)	Blankbooks and looseleaf binders (SIC 2782)	Bookbinding and related work (SIC 2789)	Typesetting (SIC 2791)	Platemaking services (SIC 2796)
Gross book value of depreciable assets:					
Total:					
Beginning of year	921.8	1 104.3	521.6	604.9	1 449.3
New capital expenditures[1]	85.7	102.0	41.8	60.9	166.3
Used capital expenditures	1.7	7.7	9.8	6.1	14.6
Retirements	39.4	34.1	15.6	13.1	40.4
End of year	969.8	1 179.9	557.7	658.8	1 589.8
Buildings and other structures:					
Beginning of year	248.9	261.2	106.0	81.2	202.7
New capital expenditures	9.9	13.7	5.8	4.7	12.8
Used capital expenditures	1.0	1.8	1.2	1.8	2.6
Retirements	1.2	1.4	.4	.5	4.4
End of year	258.6	275.2	112.7	87.2	213.7
Machinery and equipment:					
Beginning of year	672.9	843.1	415.6	523.7	1 246.6
New capital expenditures[1]	75.9	88.4	36.0	56.1	153.5
Used capital expenditures	.7	5.9	8.6	4.4	12.0
Retirements	38.3	32.7	15.2	12.6	36.0
End of year	711.2	904.7	445.0	571.6	1 376.1
Depreciation charges during 1992:					
Total	72.7	90.6	50.3	65.2	135.5
Buildings and other structures	10.6	10.7	6.1	5.8	10.5
Machinery and equipment	62.1	79.9	44.2	59.4	125.0
Rental payments:					
Total	31.2	40.1	42.5	51.1	81.3
Buildings and other structures	21.9	25.2	22.0	28.0	45.6
Machinery and equipment	9.2	14.9	20.4	23.1	35.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Greeting cards (SIC 2771)		Blankbooks and looseleaf binders (SIC 2782)		Bookbinding and related work (SIC 2789)		Typesetting (SIC 2791)		Platemaking services (SIC 2796)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	2.5	(X)	8.3	(X)	2.2	(X)	3.4	(X)	5.6	(X)
Response coverage ratio (percent)[2]	82.9	(X)	91.0	(X)	77.6	(X)	65.9	(X)	81.3	(X)
Machinery	12.7	(X)	27.3	(X)	12.1	(X)	13.6	(X)	36.1	(X)
Response coverage ratio (percent)[2]	82.9	(X)	91.9	(X)	79.4	(X)	67.1	(X)	82.7	(X)
Other purchased services:										
Communications	4.6	(X)	17.6	(X)	3.3	(X)	5.7	(X)	14.8	(X)
Response coverage ratio (percent)[2]	81.6	(X)	80.5	(X)	77.4	(X)	63.2	(X)	77.7	(X)
Legal	1.4	(X)	2.2	(X)	1.6	(X)	2.2	(X)	5.5	(X)
Response coverage ratio (percent)[2]	80.9	(X)	79.8	(X)	76.9	(X)	66.6	(X)	81.3	(X)
Accounting and bookkeeping	.8	(X)	1.5	(X)	3.0	(X)	4.8	(X)	8.5	(X)
Response coverage ratio (percent)[2]	80.9	(X)	78.7	(X)	80.8	(X)	67.1	(X)	82.0	(X)
Advertising	57.0	(X)	65.7	(X)	2.5	(X)	3.2	(X)	5.3	(X)
Response coverage ratio (percent)[2]	81.6	(X)	76.9	(X)	80.6	(X)	65.8	(X)	81.2	(X)
Software and other data processing	1.3	(X)	2.6	(X)	2.8	(X)	5.2	(X)	4.4	(X)
Response coverage ratio (percent)[2]	80.9	(X)	79.8	(X)	78.7	(X)	64.2	(X)	78.8	(X)
Refuse removal, including hazardous waste	1.0	(X)	2.3	(X)	2.5	(X)	1.1	(X)	2.8	(X)
Response coverage ratio (percent)[2]	80.5	(X)	80.6	(X)	76.4	(X)	63.7	(X)	79.8	(X)
New machinery and equipment expenditures	75.9	(X)	88.4	(X)	36.0	(X)	56.1	(X)	153.5	(X)
Automobiles, trucks, etc., for highway use	1.2	18	1.0	36	1.1	41	1.9	50	5.0	24
Computers and peripheral data processing equipment	8.5	6	13.1	9	5.3	24	36.0	10	50.8	15
All other	66.2	1	74.3	3	29.6	6	18.2	18	97.7	8
Adjustment ratio[3]	1.0	(X)	1.3	(X)	1.8	(X)	1.4	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	473.2	(X)	983.7	(X)	245.2	(X)	167.9	(X)	638.5	(X)
Materials purchased or transferred from foreign sources[4]	6.9	49	73.2	9	1.8	27	(S)	(X)	37.9	25
Materials purchased or transferred from domestic sources	466.4	1	910.5	1	243.4	1	(S)	(X)	600.7	3
Adjustment ratio[3]	1.0	(X)	1.5	(X)	1.4	(X)	(S)	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2771, GREETING CARDS												
Total	**–**	**173**	**22.8**	**585.1**	**11.8**	**21.1**	**227.1**	**3 393.5**	**743.0**	**4 195.6**	**85.7**	**456.0**
Establishments with an average of–												
1 to 4 employees	E8	67	.1	1.7	.1	.1	.8	8.3	2.8	11.1	.3	1.6
5 to 9 employees	E7	28	.2	3.7	.1	.2	1.5	16.2	4.9	21.0	.6	3.2
10 to 19 employees	E4	16	.2	3.9	.1	.2	1.5	12.9	4.5	17.5	.4	2.5
20 to 49 employees	E4	19	.6	15.8	.3	.7	5.7	60.1	18.3	78.1	1.7	11.2
50 to 99 employees	E5	13	1.0	21.5	.6	1.1	9.0	95.7	32.8	127.5	1.9	18.2
100 to 249 employees	–	10	1.7	47.3	1.0	2.0	23.2	126.7	69.3	195.2	4.7	25.0
250 to 499 employees	E2	11	8.2	175.6	6.0	10.8	114.4	1 970.3	307.8	2 295.6	20.5	206.5
500 to 999 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	3	10.9	315.6	3.6	6.0	70.9	1 103.3	302.6	1 449.6	55.4	188.0
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	87	.3	3.9	.2	.3	1.5	16.7	4.8	21.5	.7	3.2
INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS												
Total	**–**	**553**	**39.1**	**932.1**	**29.3**	**57.1**	**582.7**	**2 658.7**	**1 123.9**	**3 788.1**	**102.0**	**300.2**
Establishments with an average of–												
1 to 4 employees	E9	59	.1	2.9	.1	.2	1.8	8.1	2.9	11.0	.4	1.1
5 to 9 employees	E6	72	.5	9.5	.4	.6	5.9	22.2	8.4	30.7	2.1	3.1
10 to 19 employees	E2	68	.9	19.5	.7	1.4	11.6	44.4	19.6	64.2	2.2	5.3
20 to 49 employees	E1	139	4.5	96.5	3.4	6.6	56.5	252.4	104.1	357.0	7.0	21.7
50 to 99 employees	–	112	8.2	188.5	6.4	12.9	123.1	532.8	199.6	739.0	18.4	44.9
100 to 249 employees	–	72	10.7	269.7	8.2	15.9	176.6	872.4	322.6	1 185.5	23.9	74.6
250 to 499 employees	–	22	7.5	172.4	5.7	10.3	110.3	505.6	235.5	733.0	21.0	82.4
500 to 999 employees	E1	7	6.7	173.1	4.3	9.2	96.9	420.6	231.1	667.8	26.9	67.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	134	.9	14.0	.8	1.3	9.2	35.2	12.4	47.6	1.8	4.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2789, BOOKBINDING AND RELATED WORK												
Total	**E1**	**1 098**	**27.7**	**548.9**	**22.7**	**44.9**	**391.2**	**1 017.3**	**309.3**	**1 321.3**	**41.8**	**128.2**
Establishments with an average of—												
1 to 4 employees	E7	324	.6	10.7	.5	1.0	7.7	20.6	9.3	29.9	1.0	2.6
5 to 9 employees	E3	215	1.4	27.7	1.2	2.4	20.0	54.0	15.6	69.5	1.6	6.4
10 to 19 employees	E1	209	2.9	59.9	2.3	4.4	40.7	108.1	28.6	135.5	3.5	13.4
20 to 49 employees	–	193	6.0	122.1	4.9	9.6	83.6	214.8	47.8	263.0	11.3	22.3
50 to 99 employees	E1	107	7.6	159.2	6.4	12.8	115.8	284.8	74.7	357.7	9.6	28.2
100 to 249 employees	E1	39	5.1	103.0	4.2	8.4	74.8	195.0	68.5	262.7	11.1	22.7
250 to 499 employees	–	9	4.0	66.2	3.3	6.4	48.7	140.0	64.9	202.9	3.7	32.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	396	1.3	17.1	1.1	1.9	12.3	32.3	13.0	45.3	1.5	4.6
INDUSTRY 2791, TYPESETTING												
Total	**E1**	**2 517**	**26.1**	**687.6**	**19.7**	**39.4**	**463.4**	**1 323.6**	**286.3**	**1 611.9**	**60.9**	**89.1**
Establishments with an average of—												
1 to 4 employees	E7	1 478	2.7	54.4	2.0	4.1	38.3	124.8	26.9	151.5	5.0	7.2
5 to 9 employees	E2	501	3.2	68.9	2.5	5.2	49.9	145.5	35.8	180.8	6.1	9.2
10 to 19 employees	–	263	3.6	91.5	2.6	5.5	61.1	172.2	39.8	211.2	7.9	11.8
20 to 49 employees	E1	194	6.1	172.8	4.2	8.5	109.6	305.1	59.3	365.5	14.9	19.8
50 to 99 employees	E1	51	3.6	106.7	2.7	4.9	68.9	187.4	53.9	242.4	7.5	13.8
100 to 249 employees	E1	22	3.4	88.7	2.7	5.2	59.9	165.1	42.9	209.5	8.6	12.9
250 to 499 employees	–	7	3.6	104.6	3.0	6.0	75.8	223.5	27.6	251.0	10.9	14.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 370	2.8	46.1	2.1	4.0	31.2	101.0	23.3	124.2	4.2	5.7
INDUSTRY 2796, PLATEMAKING SERVICES												
Total	**E1**	**1 673**	**38.7**	**1 445.4**	**26.4**	**56.5**	**883.9**	**2 657.5**	**789.6**	**3 451.5**	**166.3**	**154.5**
Establishments with an average of—												
1 to 4 employees	E6	404	.9	23.0	.6	1.4	15.8	56.6	17.4	73.9	3.3	3.5
5 to 9 employees	E2	335	2.2	62.3	1.6	3.5	42.6	127.9	41.2	169.1	8.3	7.6
10 to 19 employees	E1	344	4.8	157.5	3.4	7.8	100.6	303.0	88.0	390.8	21.1	16.1
20 to 49 employees	–	376	11.9	430.5	8.1	17.4	259.8	791.3	233.6	1 025.1	55.4	47.7
50 to 99 employees	E1	159	10.9	447.9	7.2	15.6	258.7	786.9	232.7	1 022.0	48.4	44.5
100 to 249 employees	–	52	7.2	289.6	4.9	9.9	191.0	523.5	142.8	667.1	27.6	25.7
250 to 499 employees	–	3	.8	34.6	.5	1.0	15.3	68.5	33.8	103.6	2.3	9.3
Covered by administrative records[2]	E9	374	1.1	23.0	.7	1.5	14.8	52.5	16.1	68.6	3.3	3.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2771	**Greeting cards:**										
	All establishments in industry	173	22.8	585.1	11.8	21.1	227.1	3 393.5	743.0	4 195.6	85.7
	Establishments with this product class primary:										
27711	Greeting cards, publishers' sales	36	17.9	475.3	8.2	14.7	158.8	3 039.4	574.9	3 673.2	67.3
27712	Greeting cards, printed for publication by others	8	.6	18.8	.5	.8	13.5	45.8	15.1	61.6	(D)
2782	**Blankbooks and looseleaf binders:**										
	All establishments in industry	553	39.1	932.1	29.3	57.1	582.7	2 658.7	1 123.9	3 788.1	102.0
	Establishments with this product class primary:										
27823	Checkbooks	170	18.0	484.7	13.7	26.3	322.7	1 521.2	322.1	1 850.5	50.4
27824	Blankbook making, except checkbooks	34	3.8	78.2	2.7	5.7	48.5	253.1	147.5	397.6	10.8
27825	Looseleaf binders, devices, and forms	146	13.7	306.9	10.0	19.8	170.4	716.4	589.9	1 308.0	30.9

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2789	**Bookbinding and related work:**										
	All establishments in industry	1 098	27.7	548.9	22.7	44.9	391.2	1 017.3	309.3	1 321.3	41.8
	Establishments with this product class primary:										
27891	Edition, library, and other hardcover bookbinding	88	4.3	84.4	3.4	6.7	56.9	182.2	72.3	249.9	5.5
27892	Other book and pamphlet binding, and related binding work	408	16.1	335.0	13.5	26.8	242.0	587.6	151.9	741.0	26.4
2791	**Typesetting:**										
	All establishments in industry	2 517	26.1	687.6	19.7	39.4	463.4	1 323.6	286.3	1 611.9	60.9
2796	**Platemaking services:**										
	All establishments in industry	1 673	38.7	1 445.4	26.4	56.5	883.9	2 657.5	789.6	3 451.5	166.3
	Establishments with this product class primary:										
27961	Lithographic plates, prepared for printing	65	1.0	30.5	.7	1.6	19.2	59.0	38.7	97.9	3.0
27962	Lithographic platemaking services	696	22.9	934.3	15.5	33.3	560.0	1 675.9	441.1	2 120.1	108.0
27963	Platemaking services, except lithographic	253	8.3	280.9	5.8	12.1	176.3	533.2	192.5	726.7	28.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2771, GREETING CARDS			
Total value of shipments	4 195.6	2 911.1	1 893.6
Primary products value of shipments	2 977.8	1 937.3	1 318.0
Secondary products value of shipments	522.3	425.5	436.8
Total miscellaneous receipts	695.5	548.3	138.9
Value of resales	516.6	340.0	51.0
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	85	82	75
Value of primary products shipments made in all industries	3 078.3	2 034.6	1 395.2
Value of primary products shipments made in this industry	2 977.8	1 937.3	1 318.0
Value of primary products shipments made in other industries	100.4	97.3	77.2
Coverage ratio	97	95	94
INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS			
Total value of shipments	3 788.1	2 903.6	2 039.4
Primary products value of shipments	3 253.2	2 488.1	1 720.3
Secondary products value of shipments	377.1	296.9	269.0
Total miscellaneous receipts	157.8	118.6	50.1
Value of resales	146.5	115.8	42.9
Contract receipts	–	(D)	2.4
Other miscellaneous receipts	11.3	(D)	4.8
Primary products specialization ratio	90	89	86
Value of primary products shipments made in all industries	3 424.6	2 670.2	1 874.6
Value of primary products shipments made in this industry	3 253.2	2 488.1	1 720.3
Value of primary products shipments made in other industries	171.4	182.1	154.3
Coverage ratio	95	93	92
INDUSTRY 2789, BOOKBINDING AND RELATED WORK			
Total value of shipments	1 321.3	1 176.3	763.5
Primary products value of shipments	1 220.0	1 084.5	695.5
Secondary products value of shipments	69.5	60.9	27.0
Total miscellaneous receipts	31.8	30.9	41.1
Value of resales	24.3	17.8	1.8
Contract receipts	–	(D)	36.7
Other miscellaneous receipts	7.5	(D)	2.6
Primary products specialization ratio	95	95	96
Value of primary products shipments made in all industries	1 321.5	1 149.5	765.9
Value of primary products shipments made in this industry	1 220.0	1 084.5	695.5
Value of primary products shipments made in other industries	101.5	65.0	70.4
Coverage ratio	92	94	91

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2791, TYPESETTING			
Total value of shipments	1 611.9	1 783.7	1 242.9
Primary products value of shipments	1 476.0	1 682.6	1 175.5
Secondary products value of shipments	80.4	63.4	41.6
Total miscellaneous receipts	55.5	37.7	25.7
Value of resales	21.5	12.3	9.4
Contract receipts	–	–	(D)
Other miscellaneous receipts	34.0	25.3	(D)
Primary products specialization ratio	95	96	97
Value of primary products shipments made in all industries	1 829.6	2 034.7	1 330.9
Value of primary products shipments made in this industry	1 476.0	1 682.6	1 175.5
Value of primary products shipments made in other industries	353.7	352.1	155.4
Coverage ratio	81	83	88
INDUSTRY 2796, PLATEMAKING SERVICES			
Total value of shipments	3 451.5	2 373.1	(NA)
Primary products value of shipments	3 283.2	2 237.3	(NA)
Secondary products value of shipments	115.7	85.5	(NA)
Total miscellaneous receipts	52.6	50.3	(NA)
Value of resales	32.2	31.2	(NA)
Contract receipts	–	(D)	(NA)
Other miscellaneous receipts	20.5	(D)	(NA)
Primary products specialization ratio	97	96	(NA)
Value of primary products shipments made in all industries	3 568.9	2 490.9	(NA)
Value of primary products shipments made in this industry	3 283.2	2 237.3	(NA)
Value of primary products shipments made in other industries	285.7	253.6	(NA)
Coverage ratio	92	90	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2771– —	**GREETING CARDS**				
	Total	**(NA)**	**3 078.3**	**(NA)**	**2 034.6**
27711	Greeting cards, publishers' sales	(NA)	2 726.3	(NA)	1 822.2
	Christmas cards:				
27711 13	Counter cards	15	217.5	9	139.2
27711 15	Packaged cards, including boxed cards	20	254.6	18	r186.7
	Valentine cards:				
27711 22	Counter cards	10	186.2	6	109.9
27711 24	Packaged cards, including boxed cards	5	23.4	4	18.1
27711 26	Mother's Day cards	10	147.9	8	80.2
27711 27	Easter cards	9	104.7	8	62.2
27711 29	Seasonal cards other than Christmas, Valentine, Easter, and Mother's Day	11	180.5	9	187.9
	Everyday cards:				
27711 33	Counter cards	17	1 451.8	11	938.9
27711 35	Packaged cards, including boxed cards	11	60.9	9	52.3
27711 00	Greeting cards, publishers' sales, n.s.k.	(NA)	98.7	(NA)	r46.8
27712	Greeting cards, printed for publication by others	(NA)	88.8	(NA)	78.9
27712 00	Greeting cards, printed for publication by others	38	88.8	32	78.9
27710	Greeting cards, n.s.k.	(NA)	263.1	(NA)	133.5
27710 00	Greeting cards, n.s.k.[2]	(NA)	241.7	(NA)	80.0
27710 02	Greeting cards, n.s.k.[3]	(NA)	21.5	(NA)	53.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2782– —	**BLANKBOOKS AND LOOSELEAF BINDERS**				
	Total	**(NA)**	**3 424.6**	**(NA)**	**2 670.2**
27823	Checkbooks	(NA)	1 672.2	(NA)	1 165.6
27823 00	Checkbooks (including inserts and refills, but excluding those in continuous form and die-cut)	27	1 672.2	21	1 165.6
27824	Blankbook making, except checkbooks	(NA)	413.8	(NA)	327.0
27824 41	Albums and scrapbooks, including photograph, stamp, and all other bound books used for storage	28	236.6		
27824 45	Diaries and appointment books, excluding looseleaf	16	103.7	49	327.0
27824 51	All other blankbooks, including ledger and account books, columnar books, memo books, and address books	21	47.7		
27824 00	Blankbook making, except checkbooks, n.s.k.	(NA)	25.8		
27825	Looseleaf binders, devices, and forms	(NA)	1 110.9	(NA)	905.6
	Binders:				
	3-ring:				
27825 01	Stock (cataloged)	40	348.6		
27825 03	Custom, including decorated	106	325.0		
27825 06	Flexible prong, plastics channel, presentation, report, and brief covers	30	98.5		
27825 08	Post	21	12.2	140	905.6
27825 11	All other, including rigid prong, "post-and-sleeve," and ring other than 3-ring	26	55.6		
27825 22	Looseleaf devices and forms, including indexes, sheet protectors, metals, and looseleaf binder components and devices	74	177.7		
27825 00	Looseleaf binders, devices, and forms, n.s.k.	(NA)	93.2		
27820	Blankbooks and looseleaf binders, n.s.k.	(NA)	227.6	(NA)	272.0
27820 00	Blankbooks and looseleaf binders, n.s.k.[2]	(NA)	180.0	(NA)	197.4
27820 02	Blankbooks and looseleaf binders, n.s.k.[3]	(NA)	47.6	(NA)	74.6
2789– —	**BOOKBINDING AND RELATED WORK**				
	Total	**(NA)**	**1 321.5**	**(NA)**	**1 149.5**
27891	Edition, library, and other hardcover bookbinding[4]	(NA)	249.6	(NA)	221.2
	Edition binding, hardbound:				
27891 10	Elementary, high school, and college textbooks, and technical, scientific, business, and professional books (all grades)	25	26.0	22	45.7
27891 13	General consumer and trade books (including adult and juvenile trade books, book club, and direct mail books)	33	49.9	36	43.7
27891 25	All other books, not elsewhere classified, including religious and reference books	29	35.9	28	22.8
27891 41	Library binding, hard cover binding of periodicals and records, and other hard cover binding (except edition)	52	136.1	40	79.6
27891 00	Edition, library, and other hardcover bookbinding, n.s.k.	(NA)	1.7	(NA)	29.4
27892	Other book and pamphlet binding, and related binding work[4]	(NA)	759.9	(NA)	648.2
	Soft cover binding of books (49 pages or more, exclusive of the covers):				
27892 23	Adhesive binding	97	86.6	72	60.0
27892 24	Mechanical binding	114	76.0	88	69.0
	Pamphlet and other soft cover binding:				
27892 25	Adhesive binding	58	34.3	57	43.2
27892 26	Mechanical binding	174	112.6	165	138.9
27892 81	Sample books, swatches, and cards (color, carpet, upholstery, drapery, etc.)	82	232.8	73	205.7
27892 92	Receipts for miscellaneous bookbinding work and service operations related to bookbinding	175	145.5	129	104.4
27892 00	Other book and pamphlet binding, and related binding work, n.s.k.	(NA)	72.1	(NA)	27.0
27890	Bookbinding and related work, n.s.k.	(NA)	312.0	(NA)	280.1
27890 00	Bookbinding and related work, n.s.k.[5]	(NA)	266.3	(NA)	253.9
27890 02	Bookbinding and related work, n.s.k.[6]	(NA)	45.7	(NA)	26.2
2791– —	**TYPESETTING**				
	Total	**(NA)**	**1 829.6**	**(NA)**	**2 034.7**
27910	Typesetting[4]	(NA)	1 829.6	(NA)	2 034.7
	Photographic typesetting:				
27910 16	With capability to integrate text and graphics	953	1 103.5	754	838.2
27910 18	All other photographic typesetting	233	125.9	316	335.0
27910 32	Hot metal and related typesetting	12	8.8	101	129.9
27910 34	Direct-impression typesetting	22	10.9	57	33.9
27910 00	Typesetting, n.s.k.[5]	(NA)	455.3	(NA)	535.5
27910 02	Typesetting, n.s.k.[6]	(NA)	125.2	(NA)	162.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2796– –	**PLATEMAKING SERVICES**				
	Total	**(NA)**	**3 568.9**	**(NA)**	**2 490.9**
27961	Lithographic plates, prepared for printing[4]	(NA)	196.4	(NA)	r182.1
27961 11	Presensitized plates, exposed	175	109.3	80	r45.9
27961 15	Wipe-on plates	9	14.9	34	r28.5
27961 31	All other lithographic plates, including deep-etch and multimetal (excluding unexposed plates)	44	32.5	(NA)	69.5
27961 00	Lithographic plates, prepared for printing, n.s.k.	(NA)	39.6	(NA)	38.2
27962	Lithographic platemaking services[4]	(NA)	2 114.5	(NA)	1 430.9
27962 31	Color corrected process positives or negatives on film, including color separations	619	1 528.7	377	1 005.5
27962 39	All other lithographic film	228	185.2	194	163.2
27962 41	Assembled flats for platemaking	208	200.8	203	161.5
27962 00	Lithographic platemaking services, n.s.k.	(NA)	199.8	(NA)	100.7
27963	Platemaking services, except lithographic[4]	(NA)	739.8	(NA)	542.4
	Duplicate plates for letterpress:				
27963 25	Photopolymer (plastics) plates	26	55.5	25	58.3
27963 30	Other	8	6.2	(NA)	47.2
	Flexographic plates, prepared for printing:				
27963 45	Natural and synthetic rubber	80	76.4	40	44.0
27963 47	Photopolymer	120	133.1	48	30.8
27963 52	Preparation of film for gravure cylindermaking	20	81.6	18	25.2
27963 53	Gravure plates and cylinders made for others	25	189.4	31	118.8
27963 69	Photoengraving plates made for others	72	45.3	(NA)	54.1
27963 70	Other plates made for others, except lithographic, n.e.c.	21	15.3	(NA)	26.6
27963 73	Other platemaking services, except lithographic, n.e.c.	23	67.1	22	27.9
27963 00	Platemaking services, except lithographic, n.s.k.	(NA)	69.8	(NA)	109.4
27960	Platemaking services, n.s.k.	(NA)	518.2	(NA)	r335.5
27960 00	Platemaking services, n.s.k.[5]	(NA)	449.6	(NA)	r266.8
27960 02	Platemaking services, n.s.k.[6]	(NA)	68.6	(NA)	68.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Typically for establishments with 15 employees or more.
[3]Typically for establishments with less than 15 employees.
[4]Data for this product class represents value of receipts rather than value of shipments.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27711, GREETING CARDS, PUBLISHERS' SALES		
United States	**2 726.3**	**1 822.2**
California	10.4	10.5
Colorado	80.7	(NA)
Illinois	41.7	42.9
27712, GREETING CARDS, PRINTED FOR PUBLICATION BY OTHERS		
United States	**88.8**	**78.9**
California	4.6	3.4
27823, CHECKBOOKS		
United States	**1 672.2**	**1 165.6**
Arizona	14.4	13.3
California	194.8	128.0
Connecticut	28.3	(NA)
Florida	91.4	(NA)
Georgia	49.0	(NA)
Louisiana	24.0	22.1
Maryland	39.2	25.1
Minnesota	58.3	(NA)
27823, CHECKBOOKS—Con.		
New York	45.5	27.1
North Carolina	45.8	37.7
Oregon	25.4	16.7
Pennsylvania	79.9	(NA)
Tennessee	44.7	27.6
Texas	137.9	99.2
Virginia	39.2	(NA)
Washington	48.9	(NA)
Wisconsin	33.0	(NA)
27824, BLANKBOOK MAKING, EXCEPT CHECKBOOKS		
United States	**413.8**	**327.0**
California	95.4	8.2
Massachusetts	42.8	71.0
Michigan	4.4	(NA)
New York	55.3	51.8
27825, LOOSELEAF BINDERS, DEVICES, AND FORMS		
United States	**1 110.9**	**905.6**
California	231.8	117.6

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
27825, LOOSELEAF BINDERS, DEVICES, AND FORMS—Con.		
Colorado	2.8	(NA)
Florida	14.2	(NA)
Georgia	15.9	(NA)
Illinois	112.4	200.0
Indiana	33.5	21.2
Maryland	26.7	(NA)
Massachusetts	37.9	76.1
Michigan	51.8	10.9
Minnesota	14.2	16.3
Missouri	63.7	60.5
New Jersey	16.8	42.6
New York	154.0	88.5
North Carolina	2.1	2.3
Ohio	16.2	9.9
Pennsylvania	74.9	67.5
Tennessee	58.0	(NA)
Texas	65.7	44.1
Utah	7.9	(NA)
27891, EDITION, LIBRARY, AND OTHER HARDCOVER BOOKBINDING		
United States	**249.6**	**221.2**
California	5.6	4.1
Massachusetts	12.5	9.0
Minnesota	5.2	3.2
New Jersey	41.6	44.0
New York	9.0	15.8
Ohio	3.7	4.9
Pennsylvania	5.3	6.4
Texas	5.6	3.4
Utah	4.6	3.5
27892, OTHER BOOK AND PAMPHLET BINDING, AND RELATED BINDING WORK		
United States	**759.9**	**648.2**
Arizona	4.6	5.6
California	87.1	68.4
Colorado	4.0	2.0
Connecticut	7.4	8.7
Florida	8.4	4.1
Georgia	53.8	68.9
Illinois	67.2	83.6
Indiana	49.8	44.1
Kansas	2.1	(NA)
Maryland	49.5	32.5
Massachusetts	22.8	26.3
Michigan	9.9	11.9
Minnesota	12.2	10.0
Missouri	13.3	8.3
New Hampshire	10.9	7.5
New Jersey	66.8	36.7
New York	80.5	100.6
North Carolina	14.5	6.2
Ohio	14.6	10.5
Oregon	13.2	6.1
Pennsylvania	29.5	21.5
Rhode Island	3.8	2.4
Tennessee	30.5	28.8
Texas	42.1	18.9
Utah	5.2	(NA)
Washington	10.3	5.1
Wisconsin	23.9	7.7
27961, LITHOGRAPHIC PLATES, PREPARED FOR PRINTING		
United States	**196.4**	**182.1**
Alabama	2.5	(NA)
California	21.0	11.9
Florida	10.2	2.4
Georgia	2.8	3.4
Illinois	24.0	20.5
Indiana	3.9	2.4
Iowa	2.4	2.0
Massachusetts	9.7	12.9
Michigan	11.9	9.8
Minnesota	3.1	2.5
27961, LITHOGRAPHIC PLATES, PREPARED FOR PRINTING—Con.		
New Jersey	12.5	7.5
New York	18.9	27.4
North Carolina	2.0	(NA)
Ohio	13.0	11.5
Pennsylvania	20.4	14.4
Tennessee	8.4	5.5
Texas	5.9	(NA)
Washington	2.0	(NA)
Wisconsin	5.4	14.1
27962, LITHOGRAPHIC PLATEMAKING SERVICES		
United States	**2 114.5**	**1 430.9**
Alabama	4.8	3.4
Arizona	31.6	16.3
California	254.2	202.0
Colorado	20.0	17.2
Connecticut	78.2	40.6
Florida	55.0	44.4
Georgia	40.4	21.2
Hawaii	6.6	6.2
Illinois	286.8	188.0
Indiana	25.3	18.2
Iowa	7.0	6.6
Kansas	22.6	6.3
Kentucky	20.1	15.9
Louisiana	4.3	(NA)
Maryland	20.8	14.5
Massachusetts	29.1	22.8
Michigan	76.4	59.9
Minnesota	88.3	55.4
Missouri	99.7	53.8
Nebraska	16.9	(NA)
New Hampshire	12.7	(NA)
New Jersey	117.3	124.0
New York	188.8	170.8
North Carolina	32.1	12.6
Ohio	109.7	59.0
Oklahoma	8.0	6.2
Oregon	36.9	7.5
Pennsylvania	57.9	43.8
Rhode Island	3.7	(NA)
Tennessee	63.8	29.3
Texas	99.7	55.4
Utah	9.8	4.5
Vermont	3.9	(NA)
Virginia	10.9	5.6
Washington	37.6	22.2
Wisconsin	90.2	43.7
27963, PLATEMAKING SERVICES, EXCEPT LITHOGRAPHIC		
United States	**739.8**	**542.4**
California	94.7	81.8
Colorado	5.1	2.4
Connecticut	22.2	15.4
Florida	20.5	10.3
Georgia	24.0	15.9
Illinois	24.3	33.2
Indiana	22.8	15.8
Iowa	2.9	2.1
Kentucky	38.9	(NA)
Massachusetts	16.9	12.7
Michigan	27.8	16.6
Minnesota	12.3	12.1
Missouri	25.4	16.7
New Jersey	52.4	42.6
New York	52.9	44.6
North Carolina	49.1	16.0
Ohio	52.1	45.2
Oregon	4.4	2.1
Pennsylvania	34.7	21.6
South Carolina	12.2	2.6
Tennessee	16.3	14.5
Texas	32.6	24.2
Virginia	23.6	15.0
Washington	3.4	(NA)
Wisconsin	47.5	28.0

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2771-	**Greeting cards**	**3 078.3**	**2 978.1**	**2 900.5**	**2 534.9**	**2 205.8**	**2 034.6**	**1 395.2**	**765.2**
27711	Greeting cards, publishers' sales	2 726.3	2 664.4	2 603.6	2 297.6	2 021.1	1 822.2	1 254.8	694.3
27712	Greeting cards, printed for publication by others	88.8	88.7	88.3	84.6	68.1	78.9	88.0	39.6
27710	Greeting cards, n.s.k.	263.1	225.1	208.6	152.7	116.6	133.5	52.4	31.3
2782-	**Blankbooks and looseleaf binders**	**3 424.6**	**3 006.3**	**2 983.5**	**2 854.0**	**2 777.2**	**2 670.2**	**1 874.6**	**1 039.5**
27823	Checkbooks	1 672.2	1 440.1	1 367.7	1 270.6	1 257.2	1 165.6	776.6	605.7
27824	Blankbook making, except checkbooks	413.8	301.3	308.6	326.9	353.9	327.0	279.5	(NA)
27825	Looseleaf binders, devices, and forms	1 110.9	994.6	1 029.1	1 000.2	926.2	905.6	652.8	346.3
27820	Blankbooks and looseleaf binders, n.s.k.	227.6	270.2	278.2	256.3	239.8	272.0	165.7	87.5
2789-	**Bookbinding and related work**	**1 321.5**	**1 265.4**	**1 257.5**	**1 173.0**	**1 180.5**	**1 149.5**	**765.9**	**508.0**
27891	Edition, library, and other hardcover bookbinding	249.6	285.4	274.2	255.5	230.1	221.2	183.0	172.3
27892	Other book and pamphlet binding, and related binding work	759.9	732.5	720.8	673.3	662.4	648.2	435.8	253.3
27890	Bookbinding and related work, n.s.k.	312.0	247.5	262.5	244.3	288.0	280.1	147.1	82.4
2791-	**Typesetting**	**1 829.6**	**1 793.2**	**1 925.3**	**1 965.7**	**2 126.8**	**2 034.7**	**1 330.9**	**781.5**
27910	Typesetting	1 829.6	1 793.2	1 925.3	1 965.7	2 126.8	2 034.7	1 330.9	781.5
2796-	**Platemaking services**	**3 568.9**	**2 903.7**	**2 949.6**	**2 889.6**	**2 659.1**	**2 490.9**	**1 548.5**	**(NA)**
27961	Lithographic plates, prepared for printing	196.4	[2]149.7	[2]153.2	[2]156.8	[2]186.9	[2]182.1	189.5	183.6
27962	Lithographic platemaking services	2 114.5	1 776.2	1 857.1	1 795.8	1 546.5	1 430.9	748.3	403.3
27963	Platemaking services, except lithographic	739.8	669.6	625.2	627.3	579.2	542.4	444.1	(NA)
27960	Platemaking services, n.s.k.	518.2	[2]308.1	[2]314.2	[2]309.7	[2]346.5	[2]335.5	166.6	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]These figures are revised from previously published figures.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2771, GREETING CARDS		
	Materials, ingredients, containers, and supplies	**473.2**	**518.2**
262131	Coated paper	74.4	56.7
262140	Uncoated paper	92.6	92.1
289301	Printing inks (complete formulations)	4.7	10.6
265001	Paperboard containers, boxes, and corrugated paperboard	17.1	13.1
267700	Purchased envelopes	15.9	8.8
970099	All other materials and components, parts, containers, and supplies	200.9	280.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	67.7	56.2
	INDUSTRY 2782, BLANKBOOKS AND LOOSELEAF BINDERS		
	Materials, ingredients, containers, and supplies	**983.7**	**772.3**
262131	Coated paper	86.1	169.9
262140	Uncoated paper	185.4	
263105	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	55.1	53.0
265001	Paperboard containers, boxes, and corrugated paperboard	48.1	21.4
229507	Coated or impregnated woven and nonwoven fabrics, except rubberized	13.7	13.7
278200	Metal and plastics looseleaf components, including ring type	119.1	70.1
308001	Plastics film and sheet	104.3	43.8
308003	All other plastics consumed, except looseleaf devices and components	14.2	16.4
331094	Steel, strip and wire	16.6	13.6
970099	All other materials and components, parts, containers, and supplies	179.3	146.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	161.8	224.4
	INDUSTRY 2789, BOOKBINDING AND RELATED WORK		
	Materials, ingredients, containers, and supplies	**245.2**	**220.9**
262131	Coated paper	21.2	23.5
262140	Uncoated paper	17.6	
263105	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	13.9	14.1
265001	Paperboard containers, boxes, and corrugated paperboard	11.8	8.6
229507	Coated or impregnated woven and nonwoven fabrics, except rubberized	10.5	16.2
278200	Metal and plastics looseleaf components, including ring type	5.3	7.0
308001	Plastics film and sheet	6.4	4.1
308003	All other plastics consumed, except looseleaf devices and components	2.7	.6
331094	Steel, strip and wire	3.7	3.1
970099	All other materials and components, parts, containers, and supplies	65.8	63.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	86.4	80.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2791, TYPESETTING		
	Materials, ingredients, containers, and supplies	**167.9**	**208.1**
386100	Unexposed photosensitive printing plates	.7	(2)
386155	Light sensitive films	21.2	20.5
386166	Light sensitive papers (including photographic paper and diffusion transfer paper)	9.2	16.9
386171	Color proofing materials	3.6	(2)
262100	Paper, all types except light sensitive (including newsprint, book, bond, cover, and coated)	18.4	20.5
970099	All other materials and components, parts, containers, and supplies	17.2	225.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	97.6	125.1
	INDUSTRY 2796, PLATEMAKING SERVICES		
	Materials, ingredients, containers, and supplies	**638.5**	**492.2**
330005	Metal for printing plates	36.1	r19.3
386100	Unexposed photosensitive printing plates	19.5	(2)
386155	Light sensitive films	99.9	64.5
386166	Light sensitive papers (including photographic paper and diffusion transfer paper)	8.3	8.3
386171	Color proofing materials	67.0	29.7
262100	Paper, all types except light sensitive (including newsprint, book, bond, cover, and coated)	22.2	22.0
970099	All other materials and components, parts, containers, and supplies	152.8	2161.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	232.7	r186.7

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[2]Included in material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
27111 24	27111 22
27111 26	27111 22
27111 34	27111 32
27111 36	27111 32
27111 44	27111 42
27111 46	27111 42
27111 54	27111 52
27111 56	27111 52
27111 58	27111 91
27211 12	27211 11
27211 12	27211 61
27211 14	27211 15
27211 14	27211 61
2731H	2731F
2731H 00	2731F 00
27417 16	27417 15
27417 16	27417 17
2741B 18	2741B 19
2741B 20	2741B 19
2741B 29	2741B 91
2741B 71	2741B 21
2741B 71	2741B 91
27522 11	27522 15
27522 11	27522 16
27522 13	27522 16
27522 13	27522 19
27522 17	27522 16
27522 17	27522 18
27523 18	27523 13
27525 45	27525 51
27525 45	27525 53
27525 52	27525 51
27525 54	27525 53
27526 77	27526 76
27526 77	27526 78
27526 84	27526 98
27526 97	27526 98
27592 12	27592 11
27592 12	27592 15
27592 14	27592 13
27592 14	27592 15
27592 16	27592 15
27592 16	27592 17
27592 18	27592 15
27592 18	27592 19
27596 16	27596 25
27596 27	27596 25
27599 33	27599 32
27599 35	27599 32
2759B	27597
2759B 00	27597 00
2759B 14	27597 14
2759B 16	27597 16
2759B 18	27597 18
2759B 20	27597 20
2759B 22	27597 22
2759B 26	27597 26
2759B 28	27597 28
2759B 30	27597 24
2759B 30	27597 30
2759C	27597
2759C 29	27597 38
2759C 31	27597 12
2759C 32	27597 32
2759C 34	27597 34
2759C 36	27597 36
2759C 38	27597 38
27612 11	27612 00
27612 13	27612 00
27612 15	27612 00
27612 53	27612 00
27612 55	27612 00
27612 61	27612 00
27613 11	27613 00
27613 13	27613 00
27615 31	27615 00
27615 35	27615 00
27615 41	27615 00
27615 43	27615 00
27615 45	27615 00
27615 55	27615 00
27615 61	27615 00
27615 63	27615 00
27615 65	27615 00
27617 61	27617 00
27617 63	27617 00
27617 65	27617 00
27617 73	27617 00
27617 75	27617 00
27824 41	27824 00
27824 45	27824 00
27824 51	27824 00
27825 01	27825 00
27825 03	27825 00
27825 06	27825 00
27825 08	27825 00
27825 11	27825 00
27825 22	27825 00
27910 32	27910 11
27910 34	27910 15
27961 11	27961 13
27961 31	27961 17
27961 31	27961 23
27961 31	27961 29
27963 30	27963 15
27963 30	27963 35
27963 52	27963 72
27963 69	27963 61
27963 69	27963 63
27963 69	27963 65
27963 70	27963 40
27963 70	27963 67
27963 70	27963 71

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
27111 22	27111 22
27111 22	27111 24
27111 22	27111 26
27111 32	27111 32
27111 32	27111 34
27111 32	27111 36
27111 42	27111 42
27111 42	27111 44
27111 42	27111 46
27111 52	27111 52
27111 52	27111 54
27111 52	27111 56
27111 91	27111 58
27211 11	27211 12
27211 15	27211 14
27211 61	27211 12
27211 61	27211 14
2731F	2731F
2731F	2731H
2731F 00	2731F 00
2731F 00	2731H 00
27417 15	27417 16
27417 17	27417 16
2741B 19	2741B 18
2741B 19	2741B 20
2741B 21	2741B 71
2741B 91	2741B 29
2741B 91	2741B 71
27522 15	27522 11
27522 16	27522 11
27522 16	27522 13
27522 16	27522 17
27522 18	27522 17
27522 19	27522 13
27523 13	27523 18
27525 51	27525 45
27525 51	27525 52
27525 53	27525 45
27525 53	27525 54
27526 76	27526 77
27526 78	27526 77
27526 98	27526 84
27526 98	27526 97
27592 11	27592 12
27592 13	27592 14
27592 15	27592 12
27592 15	27592 14
27592 15	27592 16
27592 15	27592 18
27592 17	27592 16
27592 19	27592 18
27596 25	27596 16
27596 25	27596 27
27597	2759B
27597	2759C
27597 00	2759B 00
27597 12	2759C 31
27597 14	2759B 14
27597 16	2759B 16
27597 18	2759B 18
27597 20	2759B 20
27597 22	2759B 22
27597 24	2759B 30
27597 26	2759B 26
27597 28	2759B 28
27597 30	2759B 30
27597 32	2759C 32
27597 34	2759C 34
27597 36	2759C 36
27597 38	2759C 29
27597 38	2759C 38
27599 32	27599 33
27599 32	27599 35
27612 00	27612 11
27612 00	27612 13
27612 00	27612 15
27612 00	27612 53
27612 00	27612 55
27612 00	27612 61
27613 00	27613 11
27613 00	27613 13
27615 00	27615 31
27615 00	27615 35
27615 00	27615 41
27615 00	27615 43
27615 00	27615 45
27615 00	27615 55
27615 00	27615 61
27615 00	27615 63
27615 00	27615 65
27617 00	27617 61
27617 00	27617 63
27617 00	27617 65
27617 00	27617 73
27617 00	27617 75
27824 00	27824 41
27824 00	27824 45
27824 00	27824 51
27825 00	27825 01
27825 00	27825 03
27825 00	27825 06
27825 00	27825 08
27825 00	27825 11
27825 00	27825 22
27910 11	27910 32
27910 15	27910 34
27961 13	27961 11
27961 17	27961 31
27961 23	27961 31
27961 29	27961 31
27963 15	27963 30
27963 35	27963 30
27963 40	27963 70
27963 61	27963 69
27963 63	27963 69
27963 65	27963 69
27963 67	27963 70
27963 71	27963 70
27963 72	27963 52

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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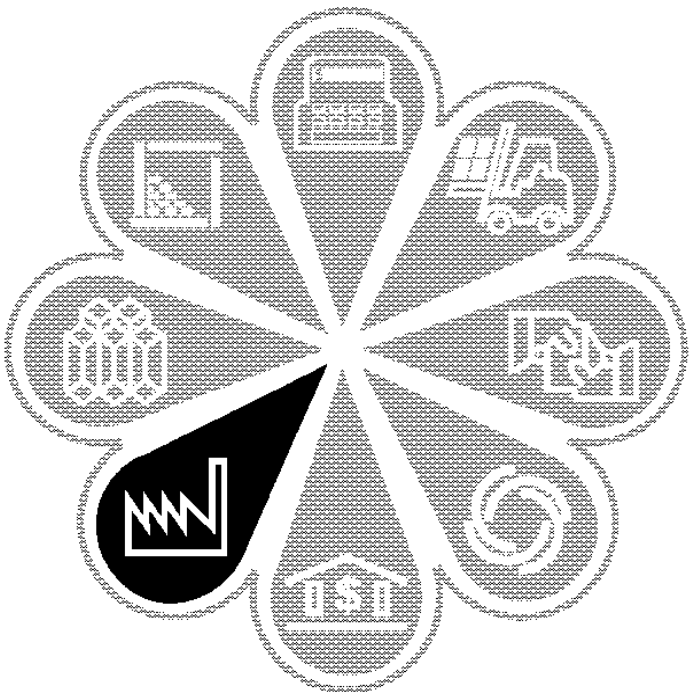
1992 Census of Manufactures

MC92-I-28A

INDUSTRY SERIES

Industrial Inorganic Chemicals

Industries 2812, 2813, 2816, and 2819



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28A

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Lissene Hafenrichter.**

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2812	Alkalies and Chlorine
2813	Industrial Gases
2816	Inorganic Pigments
2819	Industrial Inorganic Chemicals, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2812, ALKALIES AND CHLORINE

This industry is made up of establishments primarily engaged in manufacturing alkalies and chlorine. Establishments primarily engaged in mining natural alkalies are classified in mining, industry 1474. Products of this industry also are collected in the Current Industrial Report (CIR) MA-28A, Inorganic Chemicals (annual and quarterly reports). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2812, Alkalies and Chlorine, had employment of 8.0 thousand. The employment figure was 60 percent above the 5.0 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Louisiana, New York, Texas, and West Virginia, accounting for approximately 63 percent of the industry's employment. This represents a shift from 1987 when West Virginia, Louisiana, Texas, and Alabama accounted for approximately 55 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2812 shipped $2.1 billion of alkalies and chlorine considered primary to the industry, $653.2 million of secondary products, and had $28.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 76 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 75 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 65 percent.

The products primary to industry 2812, no matter in what industry they were produced, appear in table 6a and

aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the alkalies and chlorine industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2813, INDUSTRIAL GASES

This industry is made up of establishments primarily engaged in manufacturing industrial gases (including organic) for sale in compressed, liquid, and solid forms. Establishments primarily engaged in manufacturing fluorine and sulfur dioxide are classified in industry 2819; those manufacturing household ammonia are classified in industry 2842; those manufacturing other ammonia are classified in industry 2873; those manufacturing chlorine are classified in industry 2812; and those manufacturing fluorocarbon gases are classified in industry 2869. Distributors of industrial gases and establishments primarily engaged in shipping liquid oxygen are classified in wholesale trade, industry 5169. Products of this industry also are collected in the Current Industrial Reports (CIR) MA-28C and MQ-28C, Industrial Gases (annual and quarterly reports). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2813, Industrial Gases, had employment of 7.7 thousand. The employment figure was 5 percent below the 8.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Texas, and Ohio. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2813 shipped $2.9 billion of industrial gases considered primary to the industry, $119.3 million of secondary products, and had $50.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2813, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial gases industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2816, INORGANIC PIGMENTS

This industry is made up of establishments primarily engaged in manufacturing inorganic pigments. Important products of this industry include black pigments, except carbon black, white pigments, and color pigments. Organic color pigments, except animal black and bone black, are classified in industry 2865, and those manufacturing carbon black are classified in industry 2895. Products of this industry also are collected in the Current Industrial Reports (CIR) MA-28A, MQ-28A, and M-28AT, Inorganic Chemicals (annual, quarterly, and monthly reports). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2816, Inorganic Pigments, had employment of 8.6 thousand. The employment figure was 4 percent above the 8.3 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Mississippi, Maryland, Tennessee, and Georgia, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when Maryland, Pennsylvania, Tennessee, and Mississippi accounted for approximately 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2816 shipped $3.1 billion of inorganic pigments considered primary to the industry, $153.9 million of secondary products, and had $64.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 89 percent.

The products primary to industry 2816, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the inorganic pigments industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing industrial inorganic chemicals, not elsewhere classified. Establishments primarily engaged in mining, milling, or otherwise preparing natural potassium, sodium, or boron compounds (other than common salt) are classified in industry 1474. Establishments primarily engaged in manufacturing household bleaches are classified in industry 2842; those manufacturing phosphoric acid are classified in industry 2874; and those manufacturing nitric acid, anhydrous ammonia, and other nitrogenous fertilizer materials are classified in industry 2873. Products of this industry also are collected in the Current Industrial Reports (CIR) MA-28A and MQ-28A, Inorganic Chemicals (annual and quarterly), and MA-28B and MQ-28B, Inorganic Fertilizer Materials and Related Products (annual and quarterly). Beginning with 1954, statistics include information for government-owed, contractor-operated (GOCO) establishments, but exclude the activities of government-owned and/ or operated plants. General statistics are shown for all plants (private and government) in table 1a and for privately owned and operated plants only in table 8. Data for all materials consumed, except fuels and electric energy, as well as data for fixed assets, capital expenditures, and inventories are excluded for the GOCO plants because these are paid for by current billings to the U.S. Government. Value of shipments and value added by manufacture have been estimated for the GOCO plants from averages reported for commercial establishments in prior years. These establishments represent 49 percent of the industry's employment in 1992, compared with 47 percent in 1987. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2819, Industrial Inorganic Chemicals, N.E.C., had employment of 79.1 thousand. The employment figure was 10 percent above the 72.2 thousand reported in 1987.

The leading States in employment in 1992 were South Carolina, Tennessee, Washington, and Texas. This represents a shift from 1987 when South Carolina, Tennessee, Washington, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $18.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2819 shipped $10.5 billion of industrial inorganic chemicals, not elsewhere classified, considered primary to the industry, $979.2 million of secondary products, and had $6.7 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio also was 91 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 2819, no matter in what industry they were produced, appear in table 6a and aggregate to $12.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial inorganic chemicals, not elsewhere classified , industry amounted to $7.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2812, ALKALIES AND CHLORINE															
1992 Census	34	51	33	8.0	353.3	5.4	11.3	232.0	1 408.1	1 393.4	2 786.9	176.2	213.7	76	75
1991 ASM	(NA)	(NA)	(NA)	7.5	303.5	5.2	11.0	199.7	1 394.1	1 347.6	2 728.9	144.6	187.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.8	263.3	4.7	10.1	175.7	1 449.9	1 322.3	2 709.8	127.0	154.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.5	248.7	4.6	10.0	166.7	1 490.8	1 202.7	2 699.0	155.6	142.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.5	237.5	4.4	9.4	158.9	1 324.1	1 159.9	2 469.3	104.2	148.2	(NA)	(NA)
1987 Census	27	45	31	5.0	165.3	3.5	7.3	110.0	732.1	809.0	1 547.9	68.4	110.9	86	65
1986 ASM	(NA)	(NA)	(NA)	6.7	218.3	4.5	9.0	137.2	1 028.0	957.9	2 010.9	122.1	131.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.2	263.2	5.6	11.2	168.0	1 073.7	978.4	2 042.4	175.2	163.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.4	239.7	5.1	10.6	161.8	869.6	984.0	1 872.4	149.5	171.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.3	217.9	4.8	9.8	136.8	765.0	898.6	1 666.8	200.3	181.0	(NA)	(NA)
1982 Census	35	51	33	7.6	215.7	5.0	9.8	134.9	728.8	856.3	1 570.5	134.4	199.9	81	53
1981 ASM	(NA)	(NA)	(NA)	7.5	201.7	4.9	10.0	124.9	703.7	852.5	1 542.9	199.1	125.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.4	177.1	5.0	9.0	110.5	584.1	777.9	1 354.1	131.7	113.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.5	164.1	5.0	10.0	101.9	548.8	661.4	1 210.7	134.9	85.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.8	216.9	7.3	15.0	139.6	712.8	869.1	1 586.3	284.6	118.1	(NA)	(NA)
1977 Census	30	49	33	11.8	215.9	8.0	16.0	136.2	822.5	826.7	1 654.8	220.0	141.8	63	58
INDUSTRY 2813, INDUSTRIAL GASES															
1992 Census	112	592	122	7.7	261.8	4.2	9.1	133.3	2 076.2	1 012.2	3 095.7	146.3	65.5	96	94
1991 ASM	(NA)	(NA)	(NA)	9.2	300.2	4.9	10.4	149.0	2 047.0	1 148.9	3 193.9	289.7	117.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.0	282.8	4.8	9.7	141.2	1 919.2	1 154.2	3 058.1	177.8	151.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.5	261.4	4.7	10.0	140.0	1 713.5	1 087.2	2 731.5	121.0	119.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.1	245.3	4.4	9.4	127.0	1 589.1	1 134.4	2 721.2	73.0	125.8	(NA)	(NA)
1987 Census	103	594	135	8.1	241.4	4.0	8.5	115.3	1 572.5	1 052.9	2 617.8	104.3	124.1	98	94
1986 ASM	(NA)	(NA)	(NA)	8.6	248.4	4.0	8.8	112.0	1 386.7	1 002.6	2 401.9	122.1	90.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.5	223.3	4.5	10.5	115.0	1 466.7	949.1	2 416.0	212.5	87.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.9	197.2	4.4	9.7	104.1	1 290.3	1 073.0	2 363.5	263.9	80.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.2	168.1	3.9	8.8	90.2	1 169.6	959.9	2 111.9	107.5	82.9	(NA)	(NA)
1982 Census	105	563	105	7.3	174.0	4.3	9.9	100.8	1 055.3	967.2	2 019.3	223.7	61.0	98	91
1981 ASM	(NA)	(NA)	(NA)	8.8	175.1	5.4	10.9	107.3	1 025.8	838.7	1 857.5	168.1	54.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.1	153.4	5.2	10.3	92.4	889.0	658.5	1 539.6	209.2	43.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.3	123.9	4.7	9.4	74.7	827.8	621.2	1 464.7	150.1	38.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.9	124.1	4.8	9.9	73.8	781.8	599.5	1 385.6	164.4	37.5	(NA)	(NA)
1977 Census	109	562	102	7.5	117.2	4.6	9.6	67.0	732.8	515.9	1 234.6	243.0	45.6	97	93
INDUSTRY 2816, INORGANIC PIGMENTS															
1992 Census	73	89	53	8.6	347.7	5.6	12.4	211.2	2 017.6	1 326.0	3 305.6	508.9	524.9	95	89
1991 ASM	(NA)	(NA)	(NA)	8.4	324.1	5.1	11.0	176.7	1 671.1	1 285.1	2 939.0	223.2	522.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.5	298.9	5.3	11.3	165.5	1 930.8	1 282.6	3 203.9	353.5	521.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.7	287.2	5.1	10.0	150.3	1 848.0	1 247.5	3 072.8	357.0	468.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.9	295.2	5.4	11.3	161.0	1 642.4	1 189.6	2 764.2	145.4	445.9	(NA)	(NA)
1987 Census	70	92	55	8.3	266.8	5.1	10.5	148.9	1 398.1	1 001.6	2 388.3	115.3	356.0	94	89
1986 ASM	(NA)	(NA)	(NA)	9.1	277.5	5.6	11.5	155.6	1 152.9	1 036.5	2 192.5	80.3	336.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.7	275.2	6.0	12.0	155.6	1 044.0	1 017.8	2 077.1	100.8	340.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.5	257.7	6.0	11.9	143.9	864.6	1 030.3	1 890.4	94.4	332.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.8	291.6	6.6	13.4	161.8	758.1	1 014.1	1 779.8	93.6	368.5	(NA)	(NA)
1982 Census	86	106	63	11.2	271.3	6.8	13.3	148.6	723.0	892.8	1 630.0	128.9	383.2	88	88
1981 ASM	(NA)	(NA)	(NA)	11.8	261.6	7.4	14.8	144.9	789.3	986.9	1 754.1	86.7	356.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.9	239.6	7.5	15.3	136.7	709.0	873.7	1 556.9	80.6	319.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.3	208.4	7.6	15.8	126.3	667.5	809.0	1 486.8	80.3	242.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.1	198.1	8.2	16.8	124.0	564.9	798.6	1 366.4	69.8	272.8	(NA)	(NA)
1977 Census	71	106	66	11.9	179.8	8.0	16.4	110.2	567.9	695.9	1 259.9	124.3	251.5	88	84
INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.															
1992 Census	446	697	327	79.1	3 270.5	39.8	87.5	1 424.5	11 208.2	6 962.9	18 169.1	722.5	1 633.2	91	82
1991 ASM	(NA)	(NA)	(NA)	78.9	3 156.7	41.0	88.5	1 424.7	10 611.5	7 078.9	17 648.9	718.9	1 602.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	76.6	2 998.1	40.0	83.4	1 308.8	10 799.8	7 374.5	17 719.0	670.6	1 567.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	73.4	2 694.4	39.1	78.7	1 194.9	9 481.8	6 201.1	15 654.2	703.9	1 401.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	72.2	2 485.8	38.0	83.3	1 116.3	8 285.6	5 920.7	14 154.7	515.8	1 291.2	(NA)	(NA)
1987 Census	428	662	308	72.2	2 425.2	37.5	75.2	1 138.9	7 537.7	5 639.5	13 219.8	506.1	1 306.1	91	80
1986 ASM	(NA)	(NA)	(NA)	75.0	2 398.8	39.8	82.2	1 159.1	7 405.3	5 504.0	12 885.4	487.3	1 410.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	78.6	2 451.9	42.3	86.4	1 183.1	7 500.5	6 074.5	13 724.6	550.8	1 566.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	78.8	2 344.5	43.0	87.0	1 160.7	7 391.8	6 374.4	13 771.6	477.6	1 605.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	80.3	2 184.2	44.8	87.5	1 090.3	6 511.9	5 717.8	12 199.6	418.7	1 628.9	(NA)	(NA)
1982 Census	425	645	319	81.7	2 134.2	45.7	91.0	1 077.3	6 321.4	5 837.1	12 060.4	512.5	1 705.1	91	77
1981 ASM	(NA)	(NA)	(NA)	85.9	2 068.4	48.1	99.2	1 054.6	6 754.8	6 165.1	12 790.2	657.6	1 591.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	87.2	1 894.0	49.9	101.8	1 003.6	6 590.6	5 579.7	12 095.5	598.5	1 223.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	80.4	1 614.3	47.7	99.7	885.6	5 583.5	5 060.8	10 623.3	596.5	1 083.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	82.1	1 519.8	48.9	100.1	818.7	4 878.0	4 966.5	9 801.4	578.4	1 020.3	(NA)	(NA)
1977 Census	346	564	288	78.2	1 326.7	47.0	96.2	717.9	4 333.1	4 344.0	8 615.7	466.4	858.4	87	77

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2812, ALKALIES AND CHLORINE								
1992 Census	44 163	68	2 093	20.53	50	63	176 013	25	124.61
1991 ASM	40 467	69	2 115	18.15	49	61	185 880	22	126.74
1990 ASM	38 721	69	2 149	17.40	49	59	213 221	18	143.55
1989 ASM	38 262	71	2 174	16.67	45	54	229 354	17	149.08
1988 ASM	36 538	68	2 136	16.90	47	57	203 708	18	140.86
1987 Census	33 060	70	2 086	15.07	52	63	146 420	23	100.29
1986 ASM	32 582	67	2 000	15.24	48	58	153 433	21	114.22
1985 ASM	32 098	68	2 000	15.00	48	61	130 939	25	95.87
1984 ASM	32 392	69	2 078	15.26	53	65	117 514	28	82.04
1983 ASM	29 849	66	2 042	13.96	54	67	104 795	28	78.06
1982 Census	28 382	66	1 960	13.77	55	68	95 895	30	74.37
1981 ASM	26 893	65	2 041	12.49	55	68	93 827	29	70.37
1980 ASM	23 932	68	1 800	12.28	57	71	78 932	30	64.90
1979 ASM	21 880	67	2 000	10.19	55	68	73 173	30	54.88
1978 ASM	20 083	68	2 055	9.31	55	68	66 000	30	47.52
1977 Census	18 297	68	2 000	8.51	50	63	69 703	26	51.41
	INDUSTRY 2813, INDUSTRIAL GASES								
1992 Census	34 000	55	2 167	14.65	33	41	269 636	13	228.15
1991 ASM	32 630	53	2 122	14.33	36	45	222 500	15	196.83
1990 ASM	31 422	53	2 021	14.56	38	47	213 244	15	197.86
1989 ASM	30 753	55	2 128	14.00	40	49	201 588	15	171.35
1988 ASM	30 284	54	2 136	13.51	42	51	196 185	15	169.05
1987 Census	29 802	49	2 125	13.56	40	49	194 136	15	185.00
1986 ASM	28 884	47	2 200	12.73	42	52	161 244	18	157.58
1985 ASM	26 271	53	2 333	10.95	39	49	172 553	15	139.69
1984 ASM	24 962	56	2 205	10.73	45	54	163 329	15	133.02
1983 ASM	23 347	54	2 256	10.25	45	53	162 444	14	132.91
1982 Census	23 836	59	2 302	10.18	48	57	144 562	16	106.60
1981 ASM	19 898	61	2 019	9.84	45	55	116 568	17	94.11
1980 ASM	18 938	64	1 981	8.97	43	53	109 753	17	86.31
1979 ASM	16 973	64	2 000	7.95	42	51	113 397	15	88.06
1978 ASM	15 709	61	2 062	7.45	43	52	98 962	16	78.97
1977 Census	15 627	61	2 087	6.98	42	51	97 707	16	76.33
	INDUSTRY 2816, INORGANIC PIGMENTS								
1992 Census	40 430	65	2 214	17.03	40	51	234 605	17	162.71
1991 ASM	38 583	61	2 157	16.06	44	55	198 940	19	151.92
1990 ASM	35 165	62	2 132	14.65	40	49	227 153	15	170.87
1989 ASM	33 011	59	1 961	15.03	41	50	212 414	16	184.80
1988 ASM	33 169	61	2 093	14.25	43	54	184 539	18	145.35
1987 Census	32 145	61	2 059	14.18	42	53	168 446	19	133.15
1986 ASM	30 495	62	2 054	13.53	47	60	126 692	24	100.25
1985 ASM	28 371	62	2 000	12.97	49	62	107 629	26	87.00
1984 ASM	27 126	63	1 983	12.09	55	68	91 011	30	72.66
1983 ASM	27 000	61	2 030	12.07	57	73	70 194	38	56.57
1982 Census	24 223	61	1 956	11.17	55	71	64 554	38	54.36
1981 ASM	22 169	63	2 000	9.79	56	71	66 890	33	53.33
1980 ASM	20 134	63	2 040	8.93	56	72	59 580	34	46.34
1979 ASM	18 442	67	2 079	7.99	54	68	59 071	31	42.25
1978 ASM	16 372	68	2 049	7.38	58	73	46 686	35	33.63
1977 Census	15 109	67	2 050	6.72	55	70	47 723	32	34.63
	INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.								
1992 Census	41 346	50	2 198	16.28	38	56	141 697	29	128.09
1991 ASM	40 009	52	2 159	16.10	40	58	134 493	30	119.90
1990 ASM	39 140	52	2 085	15.69	42	59	140 990	28	129.49
1989 ASM	36 708	53	2 013	15.18	40	57	129 180	28	120.48
1988 ASM	34 429	53	2 192	13.40	42	59	114 759	30	99.47
1987 Census	33 590	52	2 005	15.14	43	61	104 400	32	100.24
1986 ASM	31 984	53	2 065	14.10	43	61	98 737	32	90.09
1985 ASM	31 195	54	2 043	13.69	44	62	95 426	33	86.81
1984 ASM	29 753	55	2 023	13.34	46	63	93 805	32	84.96
1983 ASM	27 200	56	1 953	12.46	47	65	81 095	34	74.42
1982 Census	26 122	56	1 991	11.84	48	66	77 373	34	69.47
1981 ASM	24 079	56	2 062	10.63	48	64	78 636	31	68.09
1980 ASM	21 720	57	2 040	9.86	46	62	75 580	29	64.74
1979 ASM	20 078	59	2 090	8.88	48	63	69 447	29	56.00
1978 ASM	18 512	60	2 047	8.18	51	66	59 415	31	48.73
1977 Census	16 965	60	2 047	7.46	50	66	55 410	31	45.04

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2812, ALKALIES AND CHLORINE														
United States	–	**51**	**33**	**8.0**	**353.3**	**5.4**	**11.3**	**232.0**	**1 408.1**	**1 393.4**	**2 786.9**	**176.2**	**5.0**	**732.1**
Alabama	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	–	6	4	.3	13.0	.2	.5	10.1	50.0	60.2	110.1	6.2	.3	30.7
Kansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	6	5	2.4	107.2	1.7	3.5	71.8	465.9	457.8	924.0	(D)	.7	94.8
Nevada	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	3	3	.4	15.7	.3	.6	10.5	61.9	66.6	128.6	(D)	E	(D)
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wyoming	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2813, INDUSTRIAL GASES														
United States	–	**592**	**122**	**7.7**	**261.8**	**4.2**	**9.1**	**133.3**	**2 076.2**	**1 012.2**	**3 095.7**	**146.3**	**8.1**	**1 572.5**
Alabama	–	19	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	52	14	.9	28.5	.5	.9	13.5	125.2	88.2	214.3	(D)	F	(D)
Florida	E1	19	3	.2	5.3	.1	.2	2.8	28.1	18.0	46.3	1.1	(NA)	(NA)
Georgia	E1	16	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	(NA)	(D)
Illinois	–	25	4	.2	7.7	.1	.3	4.2	69.8	37.2	106.8	3.0	E	(D)
Indiana	–	19	6	.4	14.6	.2	.5	8.6	178.7	83.1	262.1	(D)	E	(D)
Iowa	–	10	1	.1	2.5	.1	.1	1.2	9.9	5.9	15.8	(D)	(NA)	(NA)
Kansas	–	9	2	.2	5.2	.1	.2	2.4	81.4	9.0	90.3	(D)	(NA)	(NA)
Kentucky	E1	13	1	.2	5.7	.1	.3	4.4	16.1	36.1	51.7	.5	(NA)	(NA)
Louisiana	–	30	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	157.2
Michigan	E1	12	2	.1	4.5	.1	.2	2.2	34.7	15.7	50.4	1.1	(NA)	(D)
New York	–	12	3	.2	7.6	.1	.2	2.8	48.0	15.8	63.7	.6	E	(D)
North Carolina	E1	15	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	31	12	.6	20.1	.3	.7	9.8	141.5	85.8	230.2	9.7	.6	115.4
Oklahoma	–	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	37	5	.4	15.1	.3	.5	8.3	88.8	47.7	139.0	10.2	.5	80.5
South Carolina	–	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	14.6
Tennessee	E1	14	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	63	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	E3	15	2	.1	4.0	.1	.1	1.9	20.9	13.0	34.2	(D)	(NA)	(NA)
Washington	–	15	3	.2	6.3	.1	.2	2.6	32.8	13.8	46.5	3.1	(NA)	(NA)
West Virginia	–	15	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	(NA)	(D)
Wyoming	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2816, INORGANIC PIGMENTS														
United States	–	**89**	**53**	**8.6**	**347.7**	**5.6**	**12.4**	**211.2**	**2 017.6**	**1 326.0**	**3 305.6**	**508.9**	**8.3**	**1 398.1**
California	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	23.5	F	(D)
Illinois	E1	6	5	.4	14.6	.3	.7	12.2	42.1	41.9	82.5	3.4	F	(D)
Indiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	6	6	1.0	40.7	.6	1.6	23.6	162.5	155.2	310.7	(D)	G	(D)
Mississippi	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	10	3	.4	15.7	.3	.5	9.3	47.3	37.2	87.0	4.1	.6	57.1
New York	E1	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	9	7	.8	27.2	.5	1.1	17.2	79.9	83.0	160.6	7.5	1.0	96.1
Tennessee	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.														
United States	–	**697**	**327**	**79.1**	**3 270.5**	**39.8**	**87.5**	**1 424.5**	**11 208.2**	**6 962.9**	**18 169.1**	**722.5**	**72.2**	**7 537.7**
Alabama	–	20	9	1.7	56.0	.8	1.7	27.8	223.9	271.7	502.2	27.3	1.0	121.7
Arizona	E1	5	4	.2	5.7	.1	.2	3.1	6.1	24.2	30.4	(D)	(NA)	(NA)
Arkansas	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	64	27	2.7	101.2	1.6	3.5	52.8	580.3	391.1	958.7	34.0	1.8	243.1
Colorado	E4	13	3	.2	6.1	.1	.2	2.2	15.1	15.9	32.9	(D)	(NA)	(NA)
Connecticut	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Delaware	–	3	3	.5	21.6	.2	.7	9.3	82.7	41.4	125.8	4.8	F	(D)
Florida	E2	19	3	.2	5.6	.1	.3	3.3	12.1	27.2	39.5	1.4	(NA)	(D)
Georgia	–	29	15	1.1	39.7	.7	1.5	20.7	171.9	192.3	367.4	6.1	1.4	209.2
Idaho	–	5	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	254.3
Illinois	–	32	23	2.1	79.5	1.3	3.0	45.1	321.1	300.0	631.6	37.9	2.0	238.0
Indiana	E1	24	13	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	14.3	F	(D)
Iowa	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	E	(D)
Kansas	E1	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	10	5	2.9	117.7	1.6	3.7	62.5	406.3	351.3	756.1	4.1	G	(D)
Louisiana	–	27	14	2.2	88.5	1.6	3.6	59.2	414.3	520.2	924.9	129.8	1.9	234.5
Maryland	–	12	7	1.1	42.4	.7	1.3	23.2	78.3	120.9	201.3	(D)	.9	54.1
Massachusetts	–	14	6	.5	20.3	.3	.6	10.9	51.4	42.7	94.1	6.0	F	(D)
Michigan	–	17	5	.7	25.7	.4	.7	11.9	90.0	49.9	139.9	9.3	F	(D)
Mississippi	–	9	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E1	18	3	.4	15.8	.3	.6	10.3	63.9	83.7	148.0	3.1	E	(D)
Montana	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	22.2
Nebraska	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	–	5	2	.1	2.7	.1	.2	1.8	15.0	10.8	25.7	.6	(NA)	(NA)
New Jersey	–	34	23	2.4	99.9	1.2	2.8	42.3	421.4	612.4	1 033.8	21.2	2.3	343.7
New Mexico	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	23	13	.8	28.7	.5	1.0	13.9	89.2	126.0	216.8	6.5	.6	51.3
North Carolina	–	18	7	2.4	99.1	1.6	3.4	62.7	387.6	184.4	542.8	44.8	2.1	264.2
Ohio	–	38	19	3.4	164.8	1.8	4.3	72.7	459.7	498.5	957.8	14.2	6.1	560.0
Oklahoma	–	18	8	.7	26.9	.5	1.2	16.7	48.9	57.2	115.6	5.8	F	(D)
Pennsylvania	E1	45	17	1.3	45.7	.7	1.5	21.9	163.0	138.5	299.9	14.8	1.6	183.7
South Carolina	–	10	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.5	(NA)	(D)
Tennessee	–	20	13	10.6	384.8	4.5	10.3	160.0	1 448.9	448.1	1 909.2	(D)	10.9	1 120.1
Texas	–	53	25	4.1	168.4	2.7	5.8	103.8	496.0	843.6	1 348.5	85.0	3.8	449.2
Utah	E1	7	3	.4	13.8	.2	.5	6.1	33.9	21.2	56.4	(D)	.2	15.5
Virginia	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	24	8	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	14.0	(NA)	(D)
West Virginia	–	5	3	.2	7.5	.1	.2	3.4	57.1	29.1	86.1	(D)	E	(D)
Wisconsin	E2	10	2	.2	6.3	.1	.3	3.5	21.8	19.7	41.2	.9	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Alkalies and chlorine (SIC 2812)	Industrial gases (SIC 2813)	Inorganic pigments (SIC 2816)	Industrial inorganic chemicals, n.e.c. (SIC 2819)
Companies	number	34	112	73	446
All establishments	number	51	592	89	697
With 1 to 19 employees	number	18	470	36	370
With 20 to 99 employees	number	13	118	31	225
With 100 employees or more	number	20	4	22	102
Employment and labor costs:					
Employees	1,000	8.0	7.7	8.6	79.1
Compensation, total	mil dol	466.4	345.0	435.7	4 134.3
Annual payroll	mil dol	353.3	261.8	347.7	3 270.5
Fringe benefits	mil dol	113.2	83.2	88.0	863.9
Social Security and other legally required payments	mil dol	37.2	27.7	33.4	314.7
Employer voluntary payments	mil dol	76.0	55.5	54.6	549.2

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Alkalies and chlorine (SIC 2812)	Industrial gases (SIC 2813)	Inorganic pigments (SIC 2816)	Industrial inorganic chemicals, n.e.c. (SIC 2819)
Production workers:				
Average for year ---- 1,000	5.4	4.2	5.6	39.8
March ---- 1,000	5.4	4.2	5.7	40.0
May ---- 1,000	5.4	4.2	5.6	40.1
August ---- 1,000	5.5	4.2	5.6	39.8
November ---- 1,000	5.4	4.1	5.5	39.2
Hours ---- millions	11.3	9.1	12.4	87.5
Wages ---- mil dol	232.0	133.3	211.2	1 424.5
Cost of materials[1] ---- mil dol	1 393.4	1 012.2	1 326.0	6 962.9
Materials, parts, containers, etc., consumed[2] ---- mil dol	696.7	229.4	1 107.0	5 018.1
Resales ---- mil dol	12.4	32.8	48.5	311.2
Fuels ---- mil dol	190.2	66.0	76.6	368.3
Purchased electricity ---- mil dol	428.8	671.6	89.9	916.1
Contract work ---- mil dol	65.3	12.4	3.9	349.1
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	14 898.8	18 151.7	2 300.5	37 008.8
Generated less sold ---- mil kWh	(D)	(D)	(D)	1 272.0
Total value of shipments ---- mil dol	2 786.9	3 095.7	3 305.6	18 169.1
Value added ---- mil dol	1 408.1	2 076.2	2 017.6	11 208.2
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	204.6	79.4	508.8	1 700.6
Finished goods ---- mil dol	102.3	52.7	199.7	709.3
Work in process ---- mil dol	5.1	.4	31.1	363.0
Materials and supplies ---- mil dol	97.2	26.2	278.0	628.3
End of 1992 ---- mil dol	213.7	65.5	524.9	1 633.2
Finished goods ---- mil dol	118.1	45.4	224.8	679.9
Work in process ---- mil dol	4.0	.6	44.0	394.3
Materials and supplies ---- mil dol	91.6	19.6	256.0	558.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Alkalies and chlorine (SIC 2812)	Industrial gases (SIC 2813)	Inorganic pigments (SIC 2816)	Industrial inorganic chemicals, n.e.c. (SIC 2819)
Gross book value of depreciable assets:				
Total:				
Beginning of year	3 278.5	5 868.2	2 343.1	9 914.4
New capital expenditures[1]	176.2	146.3	508.9	722.5
Used capital expenditures	1.0	(D)	(D)	16.6
Retirements	44.7	(D)	(D)	265.1
End of year	3 411.0	5 957.9	2 801.8	10 388.5
Buildings and other structures:				
Beginning of year	297.3	173.4	286.1	1 564.5
New capital expenditures	9.1	6.8	101.6	83.4
Used capital expenditures	.1	(D)	(D)	3.7
Retirements	3.2	(D)	(D)	21.8
End of year	303.2	175.2	375.6	1 629.8
Machinery and equipment:				
Beginning of year	2 981.3	5 694.8	2 057.0	8 349.9
New capital expenditures[1]	167.1	139.5	407.3	639.2
Used capital expenditures	.9	(D)	(D)	12.9
Retirements	41.5	(D)	(D)	243.3
End of year	3 107.8	5 782.7	2 426.2	8 758.7
Depreciation charges during 1992:				
Total	218.7	395.5	167.1	659.4
Buildings and other structures	15.3	12.4	16.9	74.0
Machinery and equipment	203.4	383.1	150.3	585.5
Rental payments:				
Total	10.6	11.7	10.2	55.7
Buildings and other structures	4.0	5.7	3.2	23.3
Machinery and equipment	6.5	6.0	7.0	32.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Alkalies and chlorine (SIC 2812)		Industrial gases (SIC 2813)		Inorganic pigments (SIC 2816)		Industrial inorganic chemicals, n.e.c. (SIC 2819)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	6.8	(X)	2.7	(X)	7.3	(X)	43.4	(X)
Response coverage ratio (percent)[2]	69.2	(X)	94.2	(X)	88.6	(X)	67.6	(X)
Machinery	71.3	(X)	53.6	(X)	39.8	(X)	193.5	(X)
Response coverage ratio (percent)[2]	75.6	(X)	95.7	(X)	93.1	(X)	66.6	(X)
Other purchased services:								
Communications	2.7	(X)	2.9	(X)	4.1	(X)	13.0	(X)
Response coverage ratio (percent)[2]	76.8	(X)	90.9	(X)	95.4	(X)	67.9	(X)
Legal	.8	(X)	.9	(X)	1.2	(X)	11.9	(X)
Response coverage ratio (percent)[2]	68.0	(X)	94.2	(X)	93.1	(X)	67.3	(X)
Accounting and bookkeeping	.5	(X)	4.4	(X)	1.0	(X)	3.4	(X)
Response coverage ratio (percent)[2]	62.7	(X)	94.0	(X)	87.1	(X)	67.5	(X)
Advertising	(Z)	(X)	.5	(X)	2.6	(X)	3.9	(X)
Response coverage ratio (percent)[2]	63.6	(X)	93.3	(X)	87.1	(X)	66.9	(X)
Software and other data processing	1.8	(X)	.4	(X)	2.2	(X)	6.4	(X)
Response coverage ratio (percent)[2]	72.2	(X)	94.9	(X)	91.4	(X)	68.0	(X)
Refuse removal, including hazardous waste	16.7	(X)	.9	(X)	23.2	(X)	54.3	(X)
Response coverage ratio (percent)[2]	76.5	(X)	90.7	(X)	95.5	(X)	68.2	(X)
New machinery and equipment expenditures	167.1	(X)	139.5	(X)	407.3	(X)	639.2	(X)
Automobiles, trucks, etc., for highway use	2.5	8	8.3	1	.3	1	4.8	25
Computers and peripheral data processing equipment	2.3	1	2.8	1	10.3	1	19.6	3
All other	139.5	1	128.4	1	396.6	1	614.8	1
Adjustment ratio[3]	1.2	(X)	1.3	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	696.7	(X)	229.4	(X)	1 107.0	(X)	5 018.1	(X)
Materials purchased or transferred from foreign sources[4]	33.5	3	–	(X)	340.9	3	806.6	4
Materials purchased or transferred from domestic sources	663.2	1	229.4	1	766.1	1	4 211.6	1
Adjustment ratio[3]	1.9	(X)	1.2	(X)	1.5	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2812, ALKALIES AND CHLORINE												
Total	**–**	**51**	**8.0**	**353.3**	**5.4**	**11.3**	**232.0**	**1 408.1**	**1 393.4**	**2 786.9**	**176.2**	**213.7**
Establishments with an average of–												
1 to 4 employees	E6	11	(Z)	.9	(Z)	(Z)	.6	6.6	4.2	10.7	.4	.6
5 to 9 employees	–	1	.2	6.3	.1	.2	4.1	19.0	27.8	46.4	(D)	4.0
10 to 19 employees	E2	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	(D)
20 to 49 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	10	.7	32.2	.5	1.1	21.2	207.1	185.7	390.9	15.9	18.9
100 to 249 employees	–	13	2.8	118.1	1.9	4.0	79.9	613.8	644.7	1 248.7	81.0	100.7
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	4	4.3	195.7	2.9	6.0	126.1	561.6	531.1	1 090.0	76.8	89.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2813, INDUSTRIAL GASES												
Total	**–**	**592**	**7.7**	**261.8**	**4.2**	**9.1**	**133.3**	**2 076.2**	**1 012.2**	**3 095.7**	**146.3**	**65.5**
Establishments with an average of–												
1 to 4 employees	E1	260	.4	13.8	.3	.6	9.2	164.7	69.2	236.1	8.7	7.5
5 to 9 employees	–	102	.7	23.0	.5	1.2	16.2	270.7	143.4	414.2	23.4	9.9
10 to 19 employees	E1	108	1.4	48.6	.9	2.0	30.2	403.2	199.6	602.6	24.3	13.8
20 to 49 employees	–	90	2.7	92.2	1.3	2.7	38.2	572.1	296.3	872.6	34.7	17.0
50 to 99 employees	–	28	1.9	62.4	.7	1.6	23.5	425.5	166.4	592.5	39.8	11.7
100 to 249 employees	–	4	.5	21.8	.4	.9	16.1	239.9	137.2	377.6	15.4	5.7
Covered by administrative records[2]	E9	27	.1	1.0	(Z)	.1	.5	6.1	3.5	9.6	.6	.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2816, INORGANIC PIGMENTS												
Total	–	**89**	**8.6**	**347.7**	**5.6**	**12.4**	**211.2**	**2 017.6**	**1 326.0**	**3 305.6**	**508.9**	**524.9**
Establishments with an average of—												
1 to 4 employees	E7	10	(Z)	.5	(Z)	(Z)	.3	3.4	2.4	5.7	.5	.9
5 to 9 employees	E7	18	.1	3.9	.1	.2	1.9	17.9	13.1	31.2	5.0	4.5
10 to 19 employees	E4	8	.1	3.1	.1	.1	1.6	20.2	14.9	35.0	1.9	7.4
20 to 49 employees	–	20	.7	20.3	.5	1.0	12.1	63.0	110.8	174.0	7.1	20.6
50 to 99 employees	–	11	.8	29.4	.6	1.2	17.9	133.5	100.4	227.7	10.7	55.9
100 to 249 employees	–	8	1.2	43.5	.8	1.7	25.4	170.4	151.1	317.5	14.2	61.3
250 to 499 employees	–	11	5.7	247.0	3.6	8.1	152.0	1 609.3	933.3	2 514.4	469.5	374.4
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	9	(Z)	.4	(Z)	(Z)	.2	2.1	1.4	3.5	.4	.5
INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.												
Total	–	**697**	**79.1**	**3 270.5**	**39.8**	**87.5**	**1 424.5**	**11 208.2**	**6 962.9**	**18 169.1**	**722.5**	**1 633.2**
Establishments with an average of—												
1 to 4 employees	E3	145	.3	9.1	.2	.4	4.4	43.5	41.6	84.6	3.9	6.6
5 to 9 employees	E2	135	.9	28.5	.6	1.2	14.5	134.2	143.3	276.7	7.2	23.0
10 to 19 employees	E2	90	1.3	42.3	.7	1.6	21.5	174.8	152.3	323.4	13.0	34.8
20 to 49 employees	E1	140	4.4	152.4	2.7	5.7	79.6	629.1	689.8	1 332.2	76.9	162.3
50 to 99 employees	E1	85	5.9	224.8	3.3	7.2	110.0	887.0	1 097.0	1 965.0	84.3	243.8
100 to 249 employees	–	62	9.9	399.6	5.8	12.8	214.8	1 704.4	1 920.1	3 634.8	199.9	456.8
250 to 499 employees	–	16	5.3	208.7	3.3	7.4	118.9	712.7	604.1	1 326.8	144.1	131.2
500 to 999 employees	–	15	10.3	409.0	6.0	13.1	218.5	1 462.1	1 259.5	2 733.8	193.3	445.0
1,000 to 2,499 employees	–	6	40.9	1 796.0	17.1	38.2	642.5	5 460.3	1 055.4	6 491.9	(D)	129.6
2,500 employees or more	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(D)
Covered by administrative records[2]	E9	139	.5	12.0	.3	.6	5.2	33.7	19.9	53.6	1.8	4.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2812	**Alkalies and chlorine:**										
	All establishments in industry	51	8.0	353.3	5.4	11.3	232.0	1 408.1	1 393.4	2 786.9	176.2
	Establishments with this product class primary:										
28123	Sodium hydroxide (caustic soda)	27	7.1	316.4	4.8	10.0	206.7	1 112.9	1 189.9	2 293.1	152.0
28125	Other alkalies	11	.8	34.4	.6	1.2	23.6	284.8	196.4	476.2	23.2
2813	**Industrial gases:**										
	All establishments in industry	592	7.7	261.8	4.2	9.1	133.3	2 076.2	1 012.2	3 095.7	146.3
	Establishments with this product class primary:										
28132	Acetylene	70	.8	23.9	.6	1.2	17.5	34.1	54.7	88.6	6.1
28133	Carbon dioxide	74	1.0	29.1	.4	.8	11.8	180.7	68.3	248.8	11.0
28135	Nitrogen	230	2.8	102.1	1.3	2.8	44.3	814.4	376.4	1 193.6	45.9
28136	Oxygen	58	1.0	37.9	.6	1.3	19.7	471.2	247.9	722.2	15.4
28137	Other industrial gases, n.e.c.	71	1.5	51.8	1.0	2.2	31.6	484.3	211.2	697.3	60.6
2816	**Inorganic pigments:**										
	All establishments in industry	89	8.6	347.7	5.6	12.4	211.2	2 017.6	1 326.0	3 305.6	508.9
	Establishments with this product class primary:										
28161	Titanium dioxide	10	4.4	200.3	3.0	6.7	126.0	1 487.0	877.6	2 339.6	459.6
28162	Other white opaque pigments	12	.7	21.6	.4	.9	12.3	71.9	111.7	180.2	8.9
28163	Chrome colors and other inorganic pigments	36	3.4	119.1	2.1	4.4	69.3	420.7	309.2	720.5	32.7
2819	**Industrial inorganic chemicals, n.e.c.:**										
	All establishments in industry	697	79.1	3 270.5	39.8	87.5	1 424.5	11 208.2	6 962.9	18 169.1	722.5
	Establishments with this product class primary:										
28193	Sulfuric acid	29	1.3	54.2	.8	1.9	33.1	294.1	196.0	490.6	40.7
28194	Inorganic acids, except nitric, sulfuric, and phosphoric	14	.7	31.2	.4	.8	17.5	79.6	221.6	298.0	27.8
28195	Aluminum oxide	10	3.6	145.0	2.6	5.6	99.8	241.2	827.6	1 084.6	58.4
28196	Other inorganic aluminum compounds	74	1.6	55.4	.9	1.8	27.8	150.6	226.8	377.1	14.0
28197	Inorganic potassium and sodium compounds, n.e.c.	61	5.9	237.0	3.6	8.2	133.6	1 102.4	1 103.8	2 216.4	118.4
28198	Chemical catalytic preparations	26	4.1	181.9	2.5	5.7	100.9	737.7	635.9	1 366.8	140.5
28199	Other inorganic chemicals, n.e.c.	205	18.9	721.2	11.1	23.5	373.8	2 911.2	2 767.0	5 650.7	297.0

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2812, ALKALIES AND CHLORINE			
Total value of shipments	2 786.9	1 547.9	1 570.5
Primary products value of shipments	2 105.4	1 318.6	1 220.0
Secondary products value of shipments	653.2	217.9	282.7
Total miscellaneous receipts	28.3	11.5	67.8
Value of resales	15.2	(D)	47.2
Contract receipts	11.7	(D)	(D)
Other miscellaneous receipts	1.4	(D)	(D)
Primary products specialization ratio	76	86	81
Value of primary products shipments made in all industries	2 789.8	2 033.5	2 346.1
Value of primary products shipments made in this industry	2 105.4	1 318.6	1 220.0
Value of primary products shipments made in other industries	684.4	715.0	1 126.1
Coverage ratio	75	65	53
INDUSTRY 2813, INDUSTRIAL GASES			
Total value of shipments	3 095.7	2 617.8	2 019.3
Primary products value of shipments	2 926.0	2 483.7	1 830.0
Secondary products value of shipments	119.3	54.0	34.4
Total miscellaneous receipts	50.4	80.1	154.9
Value of resales	35.9	(D)	103.7
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	96	98	98
Value of primary products shipments made in all industries	3 115.1	2 631.0	2 002.2
Value of primary products shipments made in this industry	2 926.0	2 483.7	1 830.0
Value of primary products shipments made in other industries	189.2	147.3	172.2
Coverage ratio	94	94	91
INDUSTRY 2816, INORGANIC PIGMENTS			
Total value of shipments	3 305.6	2 388.3	1 630.0
Primary products value of shipments	3 087.1	2 159.2	1 398.0
Secondary products value of shipments	153.9	132.8	198.4
Total miscellaneous receipts	64.5	96.3	33.5
Value of resales	62.4	87.0	29.6
Contract receipts	(D)	(D)	2.3
Other miscellaneous receipts	(D)	(D)	1.6
Primary products specialization ratio	95	94	88
Value of primary products shipments made in all industries	3 468.2	2 425.5	1 590.7
Value of primary products shipments made in this industry	3 087.1	2 159.2	1 398.0
Value of primary products shipments made in other industries	381.1	266.2	192.7
Coverage ratio	89	89	88
INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.			
Total value of shipments	18 169.1	13 219.8	12 060.4
Primary products value of shipments	10 456.3	8 179.7	7 438.0
Secondary products value of shipments	979.2	825.5	698.0
Total miscellaneous receipts	6 733.7	4 214.6	3 924.4
Value of resales	402.9	252.0	244.2
Contract receipts	6 285.6	3 915.6	3 480.6
Other miscellaneous receipts	45.2	47.0	199.6
Primary products specialization ratio	91	91	91
Value of primary products shipments made in all industries	12 713.7	10 266.1	9 698.2
Value of primary products shipments made in this industry	10 456.3	8 179.7	7 438.0
Value of primary products shipments made in other industries	2 257.4	2 086.4	2 260.2
Coverage ratio	82	80	77

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2812– —	**ALKALIES AND CHLORINE**				
	Total	**(NA)**	**2 789.8**	**(NA)**	**2 033.5**
28121	Chlorine, compressed or liquefied	(NA)	198.4	(NA)	786.9
28121 00	Chlorine, compressed or liquefied[3]	16	198.4	23	786.9
28123	Sodium hydroxide (caustic soda)	(NA)	2 206.6	(NA)	970.2
28123 00	Sodium hydroxide (caustic soda)[3]	25	2 206.6	24	970.2
28125	Other alkalies	(NA)	365.4	(NA)	258.6
28125 00	Other alkalies[3]	17	365.4	14	258.6
28120	Alkalies and chlorine, n.s.k.	(NA)	19.4	(NA)	17.8
28120 00	Alkalies and chlorine, n.s.k.[4]	(NA)	17.2	(NA)	(Z)
28120 02	Alkalies and chlorine, n.s.k.[5]	(NA)	2.1	(NA)	17.8
2813– —	**INDUSTRIAL GASES**				
	Total	**(NA)**	**3 115.1**	**(NA)**	**2 631.0**
28132	Acetylene	(NA)	127.0	(NA)	118.4
28132 00	Acetylene[3]	37	127.0	32	118.4
28133	Carbon dioxide	(NA)	317.2	(NA)	292.3
28133 00	Carbon dioxide[3]	41	317.2	44	292.3
28135	Nitrogen	(NA)	947.0	(NA)	746.6
28135 00	Nitrogen[3]	21	947.0	19	746.6
28136	Oxygen	(NA)	770.6	(NA)	617.3
28136 00	Oxygen[3]	23	770.6	23	617.3
28137	Other industrial gases, n.e.c.	(NA)	812.9	(NA)	704.3
28137 00	Other industrial gases, including argon, hydrogen, helium, and carbon monoxide[3]	46	812.9	41	704.3
28130	Industrial gases, n.s.k.	(NA)	140.5	(NA)	152.1
28130 00	Industrial gases, n.s.k.[6]	(NA)	130.9	(NA)	84.3
28130 02	Industrial gases, n.s.k.[7]	(NA)	9.6	(NA)	67.8

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2816– —	**INORGANIC PIGMENTS**						
	Total	**(NA)**	**(X)**	**3 468.2**	**(NA)**	**(X)**	**2 425.5**
28161	Titanium dioxide	(NA)	(X)	2 316.2	(NA)	(X)	1 482.2
28161 00	Titanium dioxide, composite and pure[3]	5	(X)	2 316.2	(NA)	(X)	1 482.2
28162	Other white opaque pigments	(NA)	(X)	303.6	(NA)	(X)	277.1
28162 24	Zinc oxide pigments, 1,000 s tons	9	114.7	146.3	7	131.5	117.1
28162 55	Titanium pigment preparations, 1,000 s tons	8	5.3	43.2	(NA)	(NA)	[8]
28162 65	All other inorganic white opaque pigments, 1,000 s tons	9	292.2	114.0	(NA)	(S)	84.5
28162 00	Other white opaque pigments, n.s.k.	(NA)	(X)	.1	(NA)	(X)	[8]75.6
28163	Chrome colors and other inorganic pigments	(NA)	(X)	785.0	(NA)	(X)	614.2
28163 10	Chrome colors[3]	12	(X)	110.6	13	(X)	131.7
28163 27	White extender pigments, including barytes, blanc fixe, and whiting, 1,000 s tons	8	(S)	122.5	5	384.0	103.7
28163 31	Iron oxide pigments	18	(X)	278.9	14	(X)	185.8
28163 88	Carbon black (bone and lamp), excluding furnace and channel carbon black and charcoal, mil lb	2	(D)	[9]	3	(S)	2.0
28163 91	Ceramic colors, mil lb	5	(S)	99.1	6	11.1	46.2
28163 98	All other inorganic pigments n.e.c.	18	(X)	[9]173.9	(NA)	(X)	106.1
28163 00	Chrome colors and other inorganic pigments, n.s.k.	(NA)	(X)	–	(NA)	(X)	38.7
28160	Inorganic pigments, n.s.k.	(NA)	(X)	63.4	(NA)	(X)	52.0
28160 00	Inorganic pigments, n.s.k.[4]	(NA)	(X)	59.7	(NA)	(X)	6.5
28160 02	Inorganic pigments, n.s.k.[5]	(NA)	(X)	3.7	(NA)	(X)	45.6

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2819– —	**INDUSTRIAL INORGANIC CHEMICALS, N.E.C.**				
	Total	**(NA)**	**12 713.7**	**(NA)**	**10 266.1**
28193	Sulfuric acid	(NA)	545.8	(NA)	557.4
28193 00	Sulfuric acid[3]	45	545.8	50	557.4
28194	Inorganic acids, except nitric, sulfuric, and phosphoric	(NA)	536.8	(NA)	466.5
28194 00	Inorganic acids, except nitric, sulfuric, and phosphoric[3]	50	536.8	52	466.5
28195	Aluminum oxide	(NA)	955.0	(NA)	616.6
28195 00	Aluminum oxide, except natural alumina[3]	14	955.0	(NA)	616.6
28196	Other inorganic aluminum compounds	(NA)	600.8	(NA)	411.4
28196 00	Other inorganic aluminum compounds[3]	46	600.8	34	411.4
28197	Inorganic potassium and sodium compounds, n.e.c.	(NA)	1 920.5	(NA)	1 407.5
28197 00	Inorganic potassium and sodium compounds, except alkalies, alums, and bleaches[3]	74	1 920.5	76	1 407.5
28198	Chemical catalytic preparations	(NA)	1 352.1	(NA)	1 061.2
28198 00	Chemical catalytic preparations[3]	33	1 352.1	33	1 061.2
28199	Other inorganic chemicals, n.e.c.	(NA)	6 323.1	(NA)	5 235.0
28199 00	Other inorganic chemicals, n.e.c.[3]	243	6 323.1	230	5 235.0
28190	Industrial inorganic chemicals, n.e.c., n.s.k.	(NA)	479.6	(NA)	510.5
28190 00	Industrial inorganic chemicals, n.e.c., n.s.k.[6]	(NA)	426.3	(NA)	352.0
28190 02	Industrial inorganic chemicals, n.e.c., n.s.k.[7]	(NA)	53.3	(NA)	158.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 10 employees or more.
[5]Typically for establishments with less than 10 employees.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.
[8]For 1987, data for product code 28162 55 were included with product code 28162 00.
[9]For 1992, data for product code 28163 88 are combined with 28163 98 to avoid disclosing data for individual companies.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28121, CHLORINE, COMPRESSED OR LIQUEFIED		
United States	**198.4**	**786.9**
Georgia	8.3	30.4
Louisiana	64.3	270.8
Washington	14.7	60.8
28123, SODIUM HYDROXIDE (CAUSTIC SODA)		
United States	**2 206.6**	**970.2**
Georgia	71.4	30.9
Louisiana	915.5	352.0
Washington	112.6	78.3
28125, OTHER ALKALIES		
United States	**365.4**	**258.6**
New York	8.8	(NA)
28132, ACETYLENE		
United States	**127.0**	**118.4**
California	6.4	5.0
Georgia	2.7	(NA)
Louisiana	19.9	(NA)
New Jersey	2.9	2.2
Ohio	5.9	6.2
Pennsylvania	2.5	2.3
Texas	35.8	(NA)
28133, CARBON DIOXIDE		
United States	**317.2**	**292.3**
Alabama	10.9	(NA)
California	34.4	28.2
Georgia	13.4	11.6
Illinois	28.2	19.5
Iowa	15.5	10.6
Louisiana	15.3	13.1
Mississippi	16.8	(NA)
Oklahoma	19.4	10.8
Texas	19.1	29.5
Virginia	18.0	13.5
28135, NITROGEN		
United States	**947.0**	**746.6**
Alabama	40.8	(NA)
California	101.5	80.5
Colorado	4.8	7.7
Florida	13.2	12.1
Indiana	81.5	49.6
Louisiana	37.7	35.4
Michigan	8.7	9.4
New York	24.0	30.6
North Carolina	9.7	10.5
Ohio	72.8	42.4
Oklahoma	20.0	10.6
Pennsylvania	60.2	60.0
South Carolina	18.5	13.7
Texas	187.6	153.3
Washington	19.8	12.0
West Virginia	27.0	21.0
28136, OXYGEN		
United States	**770.6**	**617.3**
Alabama	20.1	15.1
California	24.7	21.5
Florida	9.5	3.9
Nevada	14.9	(NA)
New York	10.6	9.5
North Carolina	3.5	3.8
Ohio	85.4	83.0
Pennsylvania	35.0	36.3
South Carolina	10.5	7.2
Texas	174.1	148.6
Utah	18.7	(NA)
Washington	10.9	10.6
28137, OTHER INDUSTRIAL GASES, N.E.C.		
United States	**812.9**	**704.3**
Alabama	4.8	5.0
California	36.7	60.5
Florida	12.1	(NA)
Georgia	4.5	4.0
Illinois	19.7	10.8
Kansas	100.3	44.8
Louisiana	175.4	110.4
Massachusetts	4.2	(NA)
New York	27.8	50.7
North Carolina	8.9	5.2
Ohio	51.7	43.6
Oklahoma	14.2	(NA)
Pennsylvania	31.5	32.8
South Carolina	2.4	(NA)
Texas	146.7	181.6
Utah	4.4	(NA)
Washington	2.9	4.1
West Virginia	14.4	9.7
28161, TITANIUM DIOXIDE		
United States	**2 316.2**	**1 482.2**
28162, OTHER WHITE OPAQUE PIGMENTS		
United States	**303.6**	**277.1**
New Jersey	4.4	(NA)
28163, CHROME COLORS AND OTHER INORGANIC PIGMENTS		
United States	**785.0**	**614.2**
California	76.2	21.8
Maryland	70.6	53.1
Missouri	58.0	(NA)
New Jersey	40.4	57.4
Ohio	47.5	36.3
Pennsylvania	97.8	111.5
28193, SULFURIC ACID		
United States	**545.8**	**557.4**
Arizona	30.5	21.5
Florida	11.9	16.8
Georgia	20.8	(NA)
Louisiana	97.2	107.1
New Jersey	14.4	26.6
Ohio	23.4	27.8
Texas	115.4	97.8
28194, INORGANIC ACIDS, EXCEPT NITRIC, SULFURIC, AND PHOSPHORIC		
United States	**536.8**	**466.5**
California	108.7	19.4
Indiana	20.2	(NA)
Louisiana	119.5	117.0
Michigan	8.0	(NA)
Ohio	21.2	10.4
Texas	101.5	107.3
28195, ALUMINUM OXIDE		
United States	**955.0**	**616.6**
Louisiana	338.1	(NA)
28196, OTHER INORGANIC ALUMINUM COMPOUNDS		
United States	**600.8**	**411.4**
California	6.0	5.4
Georgia	35.0	35.9
Illinois	18.5	12.3
Louisiana	94.3	76.9
Maryland	16.9	(NA)
New Jersey	40.7	21.4
New York	23.8	(NA)
Ohio	10.4	9.0
South Carolina	15.0	5.5
Texas	175.9	82.2
Washington	3.4	7.5

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28197, INORGANIC POTASSIUM AND SODIUM COMPOUNDS, N.E.C.		
United States	**1 920.5**	**1 407.5**
Alabama	42.0	34.7
Florida	8.0	7.9
Georgia	80.5	95.6
Illinois	143.4	163.5
Indiana	17.6	45.9
Louisiana	53.7	31.7
Mississippi	127.7	55.4
New Jersey	64.3	72.6
New York	94.3	91.4
Ohio	47.2	36.6
Pennsylvania	24.9	20.1
Texas	46.1	76.7
Washington	67.6	44.8
28198, CHEMICAL CATALYTIC PREPARATIONS		
United States	**1 352.1**	**1 061.2**
California	193.7	(NA)
Texas	131.1	70.4
28199, OTHER INORGANIC CHEMICALS, N.E.C.		
United States	**6 323.1**	**5 235.0**
Alabama	381.6	189.4
Arkansas	47.9	41.1
California	125.8	159.2
Colorado	7.7	14.3
Delaware	50.3	(NA)
Georgia	63.9	66.8
Illinois	352.0	259.7
Indiana	102.3	89.9
Kansas	44.6	43.8
Kentucky	153.8	114.9
Louisiana	143.5	141.2
Maryland	76.9	59.6
Massachusetts	135.0	98.0
Michigan	192.3	85.6
Mississippi	90.1	62.3
Missouri	83.1	69.7
New Jersey	598.8	431.4
New York	201.8	222.2
North Carolina	450.6	251.9
Ohio	286.1	214.7
Oklahoma	97.6	51.5
Pennsylvania	220.0	225.3
Tennessee	424.9	406.9
Texas	454.4	385.1
Utah	5.3	(NA)
Washington	71.1	10.0
West Virginia	98.6	125.6
Wisconsin	23.2	11.9

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2812-	**Alkalies and chlorine**	**2 789.8**	**3 086.7**	**3 206.7**	**3 053.8**	**2 666.3**	**2 033.5**	**2 346.1**	**1 786.7**
28121	Chlorine, compressed or liquefied	198.4	306.0	483.5	677.2	771.3	786.9	440.8	520.0
28123	Sodium hydroxide (caustic soda)	2 206.6	2 369.7	2 326.3	2 006.3	1 552.0	970.2	1 584.2	997.0
28125	Other alkalies	365.4	379.5	364.2	343.4	326.3	258.6	294.0	263.0
28120	Alkalies and chlorine, n.s.k.	19.4	31.5	32.7	26.9	16.8	17.8	27.1	6.7
2813-	**Industrial gases**	**3 115.1**	**3 155.8**	**3 013.0**	**2 676.7**	**2 730.1**	**2 631.0**	**2 002.2**	**1 199.1**
28132	Acetylene	127.0	138.5	145.9	145.2	123.8	118.4	136.0	127.9
28133	Carbon dioxide	317.2	388.4	387.9	344.7	325.4	292.3	207.5	103.0
28135	Nitrogen	947.0	855.3	814.3	761.4	777.9	746.6	632.0	278.7
28136	Oxygen	770.6	718.7	681.1	648.6	671.5	617.3	578.3	375.1
28137	Other industrial gases, n.e.c.	812.9	850.0	887.4	688.6	667.1	704.3	376.5	268.0
28130	Industrial gases, n.s.k.	140.5	205.0	96.5	88.2	164.4	152.1	71.9	46.4
2816-	**Inorganic pigments**	**3 468.2**	**3 056.0**	**3 298.8**	**3 185.0**	**2 813.7**	**2 425.5**	**1 590.7**	**1 339.2**
28161	Titanium dioxide	2 316.2	1 948.0	2 131.3	2 059.6	1 674.7	1 482.2	845.8	627.1
28162	Other white opaque pigments	303.6	283.2	327.6	317.7	370.6	277.1	189.3	204.8
28163	Chrome colors and other inorganic pigments	785.0	728.3	745.0	725.1	709.5	614.2	529.3	485.0
28160	Inorganic pigments, n.s.k.	63.4	96.4	94.9	82.6	58.9	52.0	26.3	22.3
2819-	**Industrial inorganic chemicals, n.e.c.**	**12 713.7**	**12 840.2**	**13 228.4**	**11 969.5**	**11 079.1**	**10 266.1**	**9 698.2**	**6 920.3**
28193	Sulfuric acid	545.8	592.7	629.3	617.9	626.7	557.4	586.0	427.1
28194	Inorganic acids, except nitric, sulfuric, and phosphoric	536.8	558.0	537.4	515.3	505.4	466.5	478.6	364.4
28195	Aluminum oxide	955.0	1 067.9	1 433.4	1 202.4	797.8	616.6	844.2	827.3
28196	Other inorganic aluminum compounds	600.8	672.5	652.1	580.8	454.6	411.4	376.8	312.3
28197	Inorganic potassium and sodium compounds, n.e.c.	1 920.5	1 863.9	1 814.6	1 455.8	1 485.4	1 407.5	1 462.8	1 102.8
28198	Chemical catalytic preparations	1 352.1	1 234.2	1 224.5	1 234.7	1 090.7	1 061.2	676.5	398.4
28199	Other inorganic chemicals, n.e.c.	6 323.1	6 440.9	6 529.5	5 982.7	5 615.4	5 235.0	4 790.7	3 375.3
28190	Industrial inorganic chemicals, n.e.c., n.s.k.	479.6	410.1	407.5	380.0	503.2	510.5	482.6	112.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2812, ALKALIES AND CHLORINE				
	Materials, ingredients, containers, and supplies	**(X)**	**696.7**	**(X)**	**348.4**
	Acids, except spent acids:				
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	–	–	–	–
281931	Sulfuric acid (100 percent H_2SO_4), except spent 1,000 s tons	*85.3	5.2	49.9	3.4
281211	Chlorine (100 percent Cl) 1,000 s tons	(2)	(2)	15.2	2.4
281996	Phosphorus, elemental (technical) 1,000 s tons	–	–	–	–
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	2347.7	229.4	(D)	(D)
281238	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons	**17.2	1.7	34.0	3.9
289911	Salt in brine 1,000 s tons	*7 039.9	121.0	4 225.1	51.7
281002	Other industrial inorganic chemicals	(X)	9.6	(X)	(3)
286003	Synthetic organic chemicals	(X)	(D)	(X)	(D)
	Crude materials:				
109901	Bauxite 1,000 s tons	–	–	(NA)	(3)
147501	Phosphate rock 1,000 s tons	–	–	(NA)	(3)
147901	Sulfur 1,000 l tons	(D)	(4)	(NA)	(3)
100107	Iron and ferroalloy ores, including tungsten, chromite, manganese, molybdenum, and cobalt	(X)	–	(X)	(3)
100207	Nonferrous metal ores, including copper, mercury, vanadium, titanium, platinum, etc.	(X)	(4)	(X)	(3)
147007	All other crude chemical nonmetallic minerals, including barite, borate, potash, fluorspar, rock salt, etc.	(X)	44.2	(X)	(D)
331210	Coke including breeze, used as a raw material 1,000 s tons	–	–	–	–
	Other parts, materials, and accessories:				
355911	Parts and attachments for machinery and equipment	(X)	(D)	(X)	40.5
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	(D)	(X)	(D)
340001	Metal containers	(X)	5.3	(X)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	369.7	(X)	3179.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	49.8	(X)	18.0
	INDUSTRY 2813, INDUSTRIAL GASES				
	(Material data were not collected for this industry.)				
	INDUSTRY 2816, INORGANIC PIGMENTS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 107.0**	**(X)**	**772.3**
	Acids, except spent acids:				
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	(S)	1.8	(S)	.8
281931	Sulfuric acid (100 percent H_2SO_4), except spent 1,000 s tons	*266.1	15.2	*257.9	13.6
281211	Chlorine (100 percent Cl) 1,000 s tons	250.3	15.6	(D)	(D)
281996	Phosphorus, elemental (technical) 1,000 s tons	(D)	(D)	–	–
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	16.8	2.0	5.4	1.0
281238	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons	(S)	27.3	**125.1	12.4
289911	Salt in brine 1,000 s tons	(D)	(D)	(D)	(D)
281002	Other industrial inorganic chemicals	(X)	102.3	(X)	(6)
286003	Synthetic organic chemicals	(X)	25.4	(X)	21.1
	Crude materials:				
109901	Bauxite 1,000 s tons	–	–	–	–
147501	Phosphate rock 1,000 s tons	–	–	–	–
147901	Sulfur 1,000 l tons	(D)	(D)	(D)	(D)
100107	Iron and ferroalloy ores, including tungsten, chromite, manganese, molybdenum, and cobalt	(X)	40.4	(X)	(D)
100207	Nonferrous metal ores, including copper, mercury, vanadium, titanium, platinum, etc.	(X)	408.2	(X)	238.9
147007	All other crude chemical nonmetallic minerals, including barite, borate, potash, fluorspar, rock salt, etc.	(X)	9.3	(X)	28.3
331210	Coke including breeze, used as a raw material 1,000 s tons	323.0	40.1	272.9	30.2
	Other parts, materials, and accessories:				
355911	Parts and attachments for machinery and equipment	(X)	63.2	(X)	61.4
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	10.6	(X)	10.8
340001	Metal containers	(X)	2.7	(X)	.7
970099	All other materials and components, parts, containers, and supplies	(X)	272.4	(X)	6174.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	(X)	60.6	(X)	56.5
	INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**5 018.1**	**(X)**	**3 827.1**
	Acids, except spent acids:				
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	412.8	148.7	260.1	77.2
281931	Sulfuric acid (100 percent H_2SO_4), except spent 1,000 s tons	2 357.5	86.6	1 343.8	74.0
281211	Chlorine (100 percent Cl) 1,000 s tons	*178.4	9.1	142.4	20.1
281996	Phosphorus, elemental (technical) 1,000 s tons	117.1	216.9	257.1	282.4
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	977.8	91.4	582.6	70.9
281238	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons	884.9	188.9	768.9	76.7
289911	Salt in brine 1,000 s tons	*227.1	4.7	*568.2	11.0
281002	Other industrial inorganic chemicals	(X)	553.6	(X)	(6)
286003	Synthetic organic chemicals	(X)	192.4	(X)	107.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C.—Con.				
	Crude materials:				
109901	Bauxite ---- 1,000 s tons	11 265.7	348.3	8 443.5	282.5
147501	Phosphate rock ---- 1,000 s tons	(D)	(D)	**3 157.8	57.7
147901	Sulfur ---- 1,000 l tons	1 164.7	65.9	1 006.5	114.0
100107	Iron and ferroalloy ores, including tungsten, chromite, manganese, molybdenum, and cobalt ----	(X)	68.8	(X)	55.1
100207	Nonferrous metal ores, including copper, mercury, vanadium, titanium, platinum, etc. ----	(X)	227.5	(X)	187.2
147007	All other crude chemical nonmetallic minerals, including barite, borate, potash, fluorspar, rock salt, etc. ----	(X)	112.1	(X)	43.8
331210	Coke including breeze, used as a raw material ---- 1,000 s tons	(D)	(D)	*473.3	50.0
	Other parts, materials, and accessories:				
355911	Parts and attachments for machinery and equipment ----	(X)	145.7	(X)	106.3
265001	Paperboard containers, boxes, and corrugated paperboard ----	(X)	37.6	(X)	39.3
340001	Metal containers ----	(X)	23.1	(X)	26.1
970099	All other materials and components, parts, containers, and supplies ----	(X)	1 690.9	(X)	[6]1 578.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[5] ----	(X)	748.7	(X)	567.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1992, data for material code 281211 are included with material code 281228 to avoid disclosing data for individual companies.
[3]For 1987, data for material codes 281002, 109901, 147501, 147901, 100107, and 100207 were included with material code 970099.
[4]For 1992, data for material codes 147901 and 100207 are combined with material code 147007 to avoid disclosing data for individual companies.
[5]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[6]For 1987, data for material code 281002 were included with material code 970099.

Table 8. **Statistics for Privately Owned and Operated Establishments: 1992 and 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Companies (number)	All establishments		All employees		Production workers			Value added by manufacture[1] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	Expenditures and assets		End-of-year inventories	Ratios	
		Total (number)	With 20 employees or more (number)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				New capital expenditures (million dollars)	Gross value of fixed assets (million dollars)		Specialization (percent)	Coverage (percent)
	INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C. (TOTAL)[1]															
1992	446	697	327	79.1	3 270.5	39.8	87.5	1 424.5	[2]11 208.2	[3]6 962.9	[4]18 164.1	[5]722.5	[5]10 388.5	[5]1 633.2	[5]91	[6]82
1987	428	662	308	72.2	2 425.2	37.5	76.2	1 138.9	[2]7 529.5	[3]5 639.5	[4]13 211.6	[5]506.1	[5]6 956.3	[5]1 306.1	[5]91	[6]80
	INDUSTRY 2819, INDUSTRIAL INORGANIC CHEMICALS, N.E.C. (PRIVATELY OWNED AND OPERATED ESTABLISHMENTS)															
1992	443	689	319	40.0	1 559.3	24.1	52.3	842.0	5 950.2	6 269.0	12 217.2	722.5	10 388.5	1 633.2	91	82
1987	424	654	300	38.3	1 206.3	23.3	48.6	672.9	4 559.5	4 824.1	9 426.2	506.1	6 956.3	1 306.1	91	80

[1]Includes both privately owned and operated plants and government-owned, contractor-operated plants.
[2]Data include value added for government-owned, contractor-operated plants which were estimated based on averages reported for commercial establishments in prior years.
[3]Data exclude government-owned materials furnished to government-owned, contractor-operated plants and include fuels and electric energy purchased by or for these plants.
[4]Data include a calculated value of shipments for government-owned, contractor-operated plants comprised of adjusted value added (estimated as described in footnote 2) plus cost of fuels and electric energy.
[5]Total excludes expenditures, inventories, and fixed assets of government-owned, contractor-operated plants.
[6]Government-owned, contractor-operated establishments did not enter into calculation of primary product specialization ratio or coverage ratio; all dollar receipts for these establishments were included in miscellaneous receipts.

Table 9. **Employees Engaged in Construction and Value of Work Done: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting construction employees[1]					Response coverage ratio (col C ÷ col A)
				Total		Engaged in construction[2]			
		Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Value of work done (millions)	
		A	B	C	D	E	F	G	H
2819	Industrial inorganic chemicals, n.e.c. ----	79.1	3 270.5	7.4	293.4	1.2	49.7	122.6	.09

[1]Data exclude government-owned, contractor-operated plants.
[2]Establishments in selected industries were instructed to report number of employees, included in total employment, that were engaged in construction, maintenance, or repair of the plant and utilized as a separate work force. Coverage ratio (col. H) indicates proportion of industry employment represented by establishments that reported construction employees. Coverage ratio excludes (a) construction workers not employed by establishment (working under contract or provided by another establishment of the company), (b) establishments that reported having no construction employees, (c) establishments that did not respond to inquiry, and (d) establishments that were not mailed a form or from which a form had not been received at the time data were tabulated.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
28241 24	28241 25
28241 29	28241 13
28241 29	28241 19
28241 29	28241 21
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28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
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28242 66	28247 31
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28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
28249 15	28247 13
28249 15	28247 15
28249 15	28247 16
28249 15	28247 19
28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
28447	28445
28447 11	28445 21
28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
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28610	28612
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28610 15	28611 31
28610 15	28611 98
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28610 25	28612 94
28610 30	28612 96
28610 35	28612 98
28610 40	28612 31
28610 40	28612 61
28610 40	28612 89
28692	28695
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28692 15	28695 25
28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
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28744 11	28744 40
28744 11	28744 60
28744 21	28744 20
28744 21	28744 40
28744 21	28744 60
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28744 31	28744 70
28750 11	28750 20
28750 11	28750 40
28750 11	28750 60
28750 21	28750 20
28750 21	28750 40
28750 21	28750 60
28750 31	28750 30
28750 31	28750 50
28750 31	28750 70
28795 81	28795 20
28795 81	28795 21
28795 81	28795 79
28796 85	28796 25
28796 85	28796 51
28796 85	28796 71
28796 85	28796 81
28798 85	28798 30
28798 85	28798 83
28799 17	28799 15
28799 30	28799 35
28799 40	28799 35
28799 45	28799 15
28799 45	28799 35
28914 24	28914 23
28914 24	28914 25
28914 61	28914 98
28914 99	28914 98
28916 25	28916 20
28916 25	28916 30
28916 25	28916 40
28917 46	28917 41
28917 46	28917 51
28917 46	28917 61
28920 20	28920 19
28920 20	28920 21
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28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
28931 17	28931 19
28932 32	28932 33
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28932 44	28932 45
28932 46	28932 34
28932 46	28932 45
28933 41	28933 43
28933 42	28933 43
28933 44	28933 45
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28934 89	28934 86
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28992 59	28992 55
28992 59	28992 57
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28995 16	28995 19
28995 34	28995 35
28995 34	28995 36
28995 43	28995 40
28995 43	28995 42
28995 43	28995 45
28995 68	28995 69
28995 68	28995 70
28995 68	28995 71
28995 81	28995 82
28995 81	28995 83
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28995 95	28995 96
28995 97	28995 55
28995 97	28995 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
28161 11	28161 00
28161 21	28162 55
28162 13	28162 65
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28163 41	28163 98
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28163 89	28163 98
28163 95	28163 98
28163 97	28163 98
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28220 00	28220 50
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28220 00	28220 60
28220 00	28220 72
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28230 38	28230 33
28230 38	28230 37
28230 39	28230 33
28230 39	28230 37
28230 41	28230 45
28230 71	28230 45
28241 13	28241 15
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28247 13	28242 65
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28247 15	28242 63
28247 15	28242 65
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28247 19	28242 61
28247 19	28242 63
28247 19	28242 65
28247 19	28249 15
28247 19	28249 17
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28247 31	28249 19
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28247 33	28249 19
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28247 41	28249 19
28248 81	28248 75
28248 81	28248 79
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28333 45	28333 44
28333 82	28333 99
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28333 94	28333 92
28333 98	28333 99
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28352 15	28352 12
28362 10	28362 00
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28364 25	28364 22
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28411 79	28411 78
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28412 08	28412 04
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28423 95	28423 90
28423 95	28423 97
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28430 35	28430 55
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28445 41	28447 55
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28445 61	28447 71
28445 91	28447 85
28445 99	28447 95
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28611 98	28610 15
28612	28610
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28612 57	28610 10
28612 61	28610 40
28612 89	28610 40
28612 91	28610 20
28612 94	28610 25
28612 96	28610 30
28612 98	28610 35
28695	28692
28695	28698
28695 11	28692 10
28695 11	28692 20
28695 25	28692 15
28695 25	28692 25
28695 27	28692 19
28695 27	28692 29
28695 31	28698 31
28695 37	28698 37
28695 53	28698 53
28695 55	28698 55
28695 98	28698 98
28744 20	28744 11
28744 20	28744 21
28744 30	28744 31
28744 40	28744 11
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28744 50	28744 31
28744 60	28744 11
28744 60	28744 21
28744 70	28744 31
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28750 40	28750 21
28750 50	28750 31
28750 60	28750 11
28750 60	28750 21
28750 70	28750 31
28795 20	28795 81
28795 21	28795 81
28795 79	28795 81
28796 25	28796 85
28796 51	28796 85
28796 71	28796 85
28796 81	28796 85
28798 30	28798 85
28798 83	28798 85
28799 15	28799 17
28799 15	28799 45
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28914 23	28914 24
28914 25	28914 24
28914 98	28914 61
28914 98	28914 99
28916 20	28916 25
28916 30	28916 25
28916 40	28916 25
28917 41	28917 46
28917 51	28917 46
28917 61	28917 46
28920 13	28920 24
28920 15	28920 24
28920 19	28920 20
28920 21	28920 20
28920 27	28920 24
28920 51	28920 54
28920 57	28920 54
28931 06	28931 17
28931 19	28931 17
28932 33	28932 32
28932 34	28932 44
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28932 38	28932 32
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28933 45	28933 44
28933 45	28933 46
28934 85	28934 87
28934 85	28934 89
28934 86	28934 87
28934 86	28934 89
28992 23	28992 24
28992 25	28992 24
28992 53	28992 59
28992 55	28992 59
28992 57	28992 59
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TSF:TIPS92-08240613.DAT;1 1/ 6/ 95 08:24:14 UTF:TIPS93-08240613.DAT;1 1/ 6/ 95 08:24:14 META:TIPS96-08240613.DAT;1 1/ 6/ 95 08:25:16

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2812100	MA28A, Inorganic Chemicals	2834200	MA28G, Pharmaceutical Preparations, Except Biologicals
2812300	MA28A, Inorganic Chemicals	2834300	MA28G, Pharmaceutical Preparations, Except Biologicals
2812500	MA28A, Inorganic Chemicals	2834400	MA28G, Pharmaceutical Preparations, Except Biologicals
2813200	MA28C, Industrial Gases	2834500	MA28G, Pharmaceutical Preparations, Except Biologicals
2813300	MA28C, Industrial Gases	2834600	MA28G, Pharmaceutical Preparations, Except Biologicals
2813500	MA28C, Industrial Gases	2834700	MA28G, Pharmaceutical Preparations, Except Biologicals
2813600	MA28C, Industrial Gases	2834800	MA28G, Pharmaceutical Preparations, Except Biologicals
2813700	MA28C, Industrial Gases	2834900	MA28G, Pharmaceutical Preparations, Except Biologicals
2816100	MA28A, Inorganic Chemicals	2842243	MA28A, Inorganic Chemicals
2816310	MA28A, Inorganic Chemicals	2842253	MA28A, Inorganic Chemicals
2819300	MA28B, Fertilizer Materials	2851100	MA28F, Paint, Varnish, and Lacquer
2819300	MA28A, Inorganic Chemicals	2851200	MA28F, Paint, Varnish, and Lacquer
2819400	MA28A, Inorganic Chemicals	2851300	MA28F, Paint, Varnish, and Lacquer
2819500	MA28A, Inorganic Chemicals	2851500	MA28F, Paint, Varnish, and Lacquer
2819600	MA28A, Inorganic Chemicals	2873100	MA28B, Fertilizer Materials
2819700	MA28A, Inorganic Chemicals	2873200	MA28B, Fertilizer Materials
2819800	MA28A, Inorganic Chemicals	2874100	MA28B, Fertilizer Materials
2819900	MA28A, Inorganic Chemicals	2874200	MA28B, Fertilizer Materials
2834100	MA28G, Pharmaceutical Preparations, Except Biologicals		

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:25 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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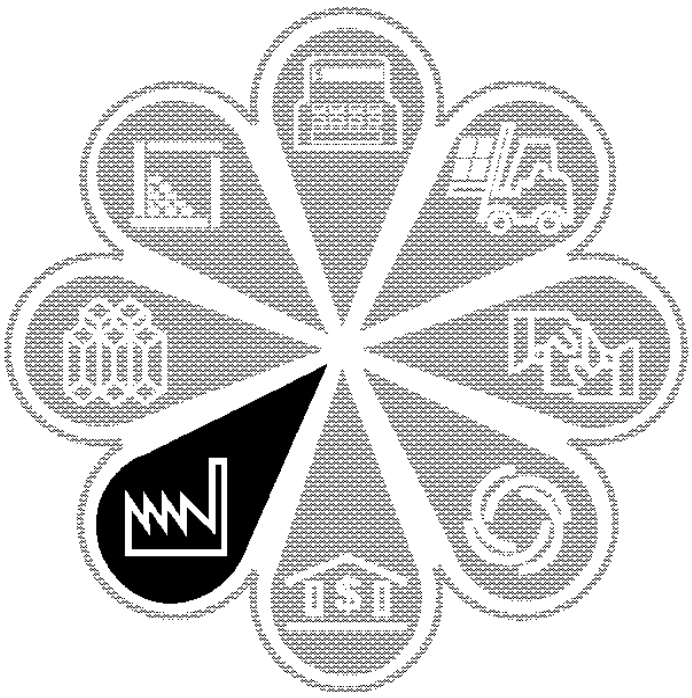
1992 Census of Manufactures

MC92-I-28B

INDUSTRY SERIES

Plastics Materials, Synthetic Rubber, and Manmade Fibers

Industries 2821, 2822, 2823, and 2824



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Thu Feb 16 11:06:59 1995 / pssw02/ disk2/ economic/ mc92i/ 28b/ 01cvr

1992 Census of Manufactures

MC92-I-28B

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Lissene Hafenrichter.**

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The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2821	Plastics Materials and Resins
2822	Synthetic Rubber
2823	Cellulosic Manmade Fibers
2824	Organic Fibers, Noncellulosic

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2821, PLASTICS MATERIALS AND RESINS

This industry is made up of establishments primarily engaged in synthetic resins, plastics materials, and nonvulcanizable elastomers. Important products of this industry include: cellulose plastics materials; phenolic and other tar acid resins; urea and melamine resins; vinyl resins; styrene resins; alkyd resins; acrylic resins; polyethylene resins; polypropylene resins; rosin modified resins; coumarone-indene and petroleum polymer resins; miscellaneous resins, including polyamide resins, silicones, polyisobutylenes, polyesters, polycarbonate resins, acetal resins, and fluorohydrocarbon resins; and casein plastics. Establishments primarily engaged in manufacturing fabricated plastics products or plastics film, sheet, rod, nontextile monofilaments and regenerated cellulose products, and vulcanized fiber are classified in industry group 308, whether from purchased resins or from resins produced in the same plant. Establishments primarily engaged in compounding purchased resins are classified in industry 3087. Establishments primarily manufacturing adhesives are classified in industry 2891.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2821, Plastics Materials and Resins, had employment of 60.4 thousand. The employment figure was 7 percent above the 56.3 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Michigan, Pennsylvania, and Texas. This represents a shift from 1987 when Texas, Pennsylvania, Illinois, and West Virginia were the leading States in employment.

The total value of shipments for establishments classified in this industry was $31.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2821 shipped $26.4 billion of plastics materials and resins products considered primary to the industry, $4.3 billion of secondary products, and had $523.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 80 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 81 percent.

The products primary to industry 2821, no matter in what industry they were produced, appear in table 6a and aggregate to $33.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics materials and resins industry amounted to $18.8 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments, data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 2822, SYNTHETIC RUBBER

This industry is made up of establishments primarily engaged in manufacturing synthetic rubber by polymerization or copolymerization. An elastomer, for the purpose of this classification, is a rubber-like material capable of vulcanization, such as copolymers of butadiene and styrene, or butadiene and acrylonitrile, polybutadiene, chloroprene rubbers, and isobutylene-isoprene copolymers. Butadiene copolymers containing less than 50 percent butadiene are classified in industry 2821. Natural chlorinated rubbers and cyclized rubbers are considered as semifinished products and are classified in industry 3069.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2822, Synthetic Rubber, had employment of 11.7 thousand. The employment figure was 13 percent above the 10.4 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Louisiana, New York, Ohio, and Texas. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2822 shipped $3.2 billion of synthetic rubber products considered primary to the industry, $848.0 million of secondary products, and had $135.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 79 percent (specialization ratio). In 1987, the specialization ratio also was 79 percent.

Establishments in this industry also accounted for 75 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 72 percent.

The products primary to industry 2822, no matter in what industry they were produced, appear in table 6a and aggregate to $4.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the synthetic rubber industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2823, CELLULOSIC MANMADE FIBERS

This industry is made up of establishments primarily engaged in manufacturing cellulosic fibers (including cellulose acetate and regenerated cellulose such as rayon by the viscose or cuprammonium process) in the form of monofilament, yarn, staple, or tow suitable for further manufacturing on spindles, looms, knitting machines, or other textile processing equipment. Certain products primary to industry 2823 also are primary to industry 2282.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2823, Cellulosic Manmade Fibers, had employment of 11.0 thousand. The employment figure was 5 percent above the 10.5 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was $1.7 billion.

The products primary to industry 2823, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cellulosic manmade fibers industry amounted to $950.3 million. Data on specific materials consumed appear in table 7.

INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC

This industry is made up of establishments primarily engaged in manufacturing manmade organic fibers, except cellulosic (including those of regenerated proteins and of polymers or copolymers of such components as vinyl chloride, vinylidene chloride, linear esters, vinyl alcohols, acrylonitrile, ethylenes, amides, and related polymeric materials), in the form of monofilament, yarn, staple, or tow suitable for further manufacturing on spindles, looms, knitting machines, or other textile processing equipment. Certain products primary to industry 2824 also are primary to industry 2282. Establishments primarily engaged in manufacturing textile glass fibers are classified in industry 3229.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2824, Organic Fibers, Noncellulosic, had employment of 44.4 thousand. The employment figure was 2 percent below the 45.4 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, South Carolina, Virginia, and Tennessee accounting for approximately 77 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 80 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $11.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2824 shipped $9.0 billion of noncellulosic organic fibers considered primary to the industry, $2.1 billion of secondary products, and had $27.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 81 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 97 percent.

The products primary to industry 2824, no matter in what industry they were produced, appear in table 6a and aggregate to $9.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the noncellulosic organic fibers industry amounted to $5.3 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2821, PLASTICS MATERIALS AND RESINS															
1992 Census	240	449	340	60.4	2 671.6	35.9	78.5	1 468.6	12 494.7	18 839.8	31 303.9	1 707.3	3 576.1	86	80
1991 ASM	(NA)	(NA)	(NA)	60.5	2 479.9	36.7	80.8	1 393.6	11 012.2	18 593.4	29 565.8	2 251.7	3 520.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	62.4	2 485.7	37.9	82.5	1 392.2	12 195.3	19 390.9	31 325.8	2 436.6	3 495.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	62.0	2 383.2	37.8	83.7	1 332.6	12 991.2	20 292.9	33 256.7	1 966.2	3 201.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	58.3	2 169.9	36.0	79.8	1 226.7	13 196.7	19 333.8	32 109.8	1 605.8	2 982.3	(NA)	(NA)
1987 Census	288	480	320	56.3	2 005.8	34.9	75.6	1 152.2	10 872.9	15 410.4	26 245.5	1 247.2	2 494.3	88	81
1986 ASM	(NA)	(NA)	(NA)	54.7	1 893.6	34.1	72.2	1 087.5	8 149.4	13 233.7	21 483.7	1 264.2	2 393.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	55.4	1 818.6	34.4	71.1	1 019.1	7 036.3	13 201.3	20 261.8	1 115.1	2 374.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	54.2	1 650.9	33.2	69.8	930.6	7 653.9	13 298.9	20 776.3	925.3	2 258.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	53.2	1 505.6	32.7	67.3	863.9	6 716.7	12 298.4	18 935.8	756.4	2 173.9	(NA)	(NA)
1982 Census	263	440	308	54.7	1 433.9	32.8	67.4	790.0	4 746.0	10 807.3	15 769.2	898.8	1 891.8	87	77
1981 ASM	(NA)	(NA)	(NA)	57.7	1 404.5	35.8	73.8	794.5	5 000.4	11 853.6	16 675.5	904.2	1 839.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	58.8	1 317.3	36.6	75.9	738.2	5 162.8	9 847.4	14 908.2	1 233.8	1 651.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	60.3	1 231.0	38.4	80.6	714.1	5 367.4	8 996.7	14 282.4	1 221.2	1 408.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	57.6	1 080.2	36.9	77.1	638.2	4 442.6	7 595.3	11 997.5	972.4	1 158.7	(NA)	(NA)
1977 Census	221	397	310	57.2	985.6	36.7	76.6	575.7	4 142.7	6 772.6	10 818.2	895.2	1 093.6	85	74
INDUSTRY 2822, SYNTHETIC RUBBER															
1992 Census	76	92	45	11.7	513.1	7.5	15.9	298.0	1 865.4	2 342.6	4 184.1	318.2	586.9	79	75
1991 ASM	(NA)	(NA)	(NA)	11.5	491.2	7.4	15.6	277.5	1 844.8	2 234.6	4 088.3	360.0	496.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.4	474.9	7.2	15.0	268.7	1 706.7	2 533.7	4 210.3	378.6	524.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.2	443.6	7.1	15.1	253.4	1 593.8	2 403.1	4 007.8	265.5	490.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.3	428.8	7.1	14.8	242.2	1 540.6	2 508.9	3 995.5	216.4	513.8	(NA)	(NA)
1987 Census	58	68	31	10.4	394.6	6.7	14.4	228.7	1 248.7	2 082.5	3 283.0	170.5	415.0	79	72
1986 ASM	(NA)	(NA)	(NA)	9.6	336.5	6.3	12.9	199.7	1 099.2	1 594.1	2 739.8	116.6	309.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.8	323.1	6.3	12.6	191.3	920.0	1 906.3	2 840.6	117.5	379.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.7	357.1	7.0	13.9	213.5	1 167.6	2 279.6	3 408.6	(D)	408.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.1	343.3	7.1	14.1	202.3	959.0	2 160.1	3 148.6	101.5	367.0	(NA)	(NA)
1982 Census	63	78	35	11.9	343.7	7.6	15.0	197.5	908.9	2 226.8	3 156.4	246.4	382.1	80	78
1981 ASM	(NA)	(NA)	(NA)	11.2	298.4	7.3	14.5	178.4	811.0	2 205.4	2 995.6	145.5	242.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.4	276.4	7.4	14.7	163.6	810.4	1 853.9	2 660.3	100.4	197.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.1	266.6	8.2	16.6	165.6	884.5	1 753.2	2 634.0	66.4	186.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.1	202.5	7.3	14.5	135.1	574.2	1 409.8	1 972.2	48.1	166.2	(NA)	(NA)
1977 Census	56	63	30	10.0	185.2	7.1	14.2	125.7	568.6	1 294.8	1 863.3	53.2	154.3	91	71
INDUSTRY 2823, CELLULOSIC MANMADE FIBERS															
1992 Census	5	7	7	11.0	372.8	7.8	16.7	219.0	820.9	950.3	1 748.1	92.8	208.2	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	10.5	349.1	7.7	15.6	210.6	696.6	818.3	1 496.7	105.3	162.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.7	302.4	7.2	15.0	184.2	679.0	786.3	1 456.7	71.5	149.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.1	297.2	7.6	15.8	183.8	690.0	786.0	1 469.4	104.9	153.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.2	287.1	7.7	16.9	181.5	614.9	737.4	1 352.4	113.2	135.6	(NA)	(NA)
1987 Census	6	7	7	10.5	280.7	7.9	16.5	180.7	636.7	669.7	1 319.7	23.8	128.6	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	12.0	314.4	9.0	18.3	200.4	615.7	713.2	1 321.8	54.9	148.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.1	311.3	9.0	18.4	199.4	390.2	744.7	1 148.1	43.3	138.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.3	320.9	10.0	19.7	212.1	489.3	813.1	1 307.2	(D)	159.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.4	311.0	10.7	21.1	198.0	522.7	934.1	1 445.0	44.4	185.2	(NA)	(NA)
1982 Census	5	9	9	14.2	291.0	10.8	21.0	194.5	428.7	806.8	1 239.9	88.4	147.3	(D)	(D)
1981 ASM	(NA)	(NA)	(NA)	15.6	299.8	12.2	24.5	209.0	504.8	929.4	1 424.0	111.8	107.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.1	279.0	12.7	25.1	196.7	474.6	877.8	1 357.3	83.2	97.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.0	269.8	13.6	26.9	195.8	462.9	788.5	1 244.9	83.7	103.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.1	246.2	13.7	27.3	179.6	365.4	731.5	1 105.0	32.7	96.7	(NA)	(NA)
1977 Census	5	10	10	15.9	212.8	12.5	25.1	151.2	325.7	680.8	998.9	29.3	110.8	(D)	(D)
INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC															
1992 Census	42	71	68	44.4	1 545.2	33.9	71.1	1 029.3	5 662.0	5 337.1	11 113.7	721.3	1 266.2	81	97
1991 ASM	(NA)	(NA)	(NA)	46.9	1 568.7	35.0	70.4	1 032.9	6 119.2	4 915.9	11 083.8	810.1	1 351.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	48.1	1 539.3	36.1	72.7	1 010.6	5 930.2	5 166.1	11 427.1	814.7	1 439.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	48.0	1 500.7	36.3	72.5	1 003.7	6 014.4	5 881.2	11 796.3	690.6	1 348.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	45.8	1 399.2	34.6	69.5	926.8	5 402.9	5 514.4	10 930.3	632.6	1 293.3	(NA)	(NA)
1987 Census	47	72	63	45.4	1 331.8	34.2	70.0	888.3	4 979.1	5 106.5	10 003.2	459.1	1 288.1	86	97
1986 ASM	(NA)	(NA)	(NA)	48.0	1 397.8	35.7	70.3	923.7	4 287.4	5 371.1	9 676.7	461.9	1 241.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	50.9	1 408.7	37.0	72.2	909.8	3 851.0	5 349.1	9 283.7	354.3	1 226.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	54.1	1 438.0	39.8	78.0	923.7	4 367.0	5 633.6	9 919.9	334.9	1 334.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	55.3	1 381.9	40.6	76.9	881.8	4 196.8	5 261.8	9 463.1	257.4	1 266.5	(NA)	(NA)
1982 Census	44	70	57	60.2	1 382.0	43.1	79.6	869.9	3 317.9	4 959.4	8 262.7	442.9	1 223.0	85	98
1981 ASM	(NA)	(NA)	(NA)	62.6	1 351.0	45.7	86.7	868.7	3 894.4	5 804.2	9 602.2	444.5	876.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.3	1 285.3	47.7	90.9	826.3	3 312.5	5 181.8	8 529.9	503.2	811.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	70.8	1 252.3	52.7	103.0	819.6	3 428.7	4 823.2	8 227.2	448.7	792.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.4	1 170.0	53.6	104.1	758.8	3 220.5	3 732.6	6 921.0	487.5	740.3	(NA)	(NA)
1977 Census	37	66	58	74.0	1 086.1	54.8	105.8	704.8	2 804.4	3 618.1	6 379.7	338.5	661.8	84	97

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2821, PLASTICS MATERIALS AND RESINS								
1992 Census	44 232	59	2 187	18.71	60	69	206 866	21	159.17
1991 ASM	40 990	61	2 202	17.25	63	71	182 020	23	136.29
1990 ASM	39 835	61	2 177	16.88	62	70	195 437	20	147.82
1989 ASM	38 439	61	2 214	15.92	61	68	209 535	18	155.21
1988 ASM	37 220	62	2 217	15.37	60	67	226 358	16	165.37
1987 Census	35 627	62	2 166	15.24	59	66	193 124	18	143.82
1986 ASM	34 618	62	2 117	15.06	62	70	148 984	23	112.87
1985 ASM	32 827	62	2 067	14.33	65	74	127 009	26	98.96
1984 ASM	30 459	61	2 102	13.33	64	72	141 216	22	109.65
1983 ASM	28 301	61	2 058	12.84	65	73	126 254	22	99.80
1982 Census	26 214	60	2 055	11.72	69	78	86 764	30	70.42
1981 ASM	24 341	62	2 061	10.77	71	80	86 662	28	67.76
1980 ASM	22 403	62	2 074	9.73	66	75	87 803	26	68.02
1979 ASM	20 415	64	2 099	8.86	63	72	89 012	23	66.59
1978 ASM	18 753	64	2 089	8.28	63	72	77 128	24	57.62
1977 Census	17 231	64	2 087	7.52	63	72	72 425	24	54.08
	INDUSTRY 2822, SYNTHETIC RUBBER								
1992 Census	43 855	64	2 120	18.74	56	68	159 436	28	117.32
1991 ASM	42 713	64	2 108	17.79	55	67	160 417	27	118.26
1990 ASM	41 658	63	2 083	17.91	60	71	149 711	28	113.78
1989 ASM	39 607	63	2 127	16.78	60	71	142 304	28	105.55
1988 ASM	37 947	63	2 085	16.36	63	74	136 336	28	104.09
1987 Census	37 942	64	2 149	15.88	63	75	120 067	32	86.72
1986 ASM	35 052	66	2 048	15.48	58	70	114 500	31	85.21
1985 ASM	32 969	64	2 000	15.18	67	78	93 878	35	73.02
1984 ASM	33 374	65	1 986	15.36	67	77	109 122	31	84.00
1983 ASM	30 928	64	1 986	14.35	69	80	86 396	36	68.01
1982 Census	28 882	64	1 974	13.17	71	81	76 378	38	60.59
1981 ASM	26 643	65	1 986	12.30	74	84	72 411	37	55.93
1980 ASM	24 246	65	1 986	11.13	70	80	71 088	34	55.13
1979 ASM	22 033	68	2 024	9.98	67	77	73 099	30	53.28
1978 ASM	20 050	72	1 986	9.32	71	82	56 851	35	39.60
1977 Census	18 520	71	2 000	8.85	69	79	56 860	33	40.04
	INDUSTRY 2823, CELLULOSIC MANMADE FIBERS								
1992 Census	33 891	71	2 141	13.11	54	76	74 627	45	49.16
1991 ASM	33 248	73	2 026	13.50	55	78	66 343	50	44.65
1990 ASM	31 175	74	2 083	12.28	54	75	70 000	45	45.27
1989 ASM	29 426	75	2 079	11.63	53	74	68 317	43	43.67
1988 ASM	28 147	75	2 195	10.74	55	76	60 284	47	36.38
1987 Census	26 733	75	2 089	10.95	51	72	60 638	44	38.59
1986 ASM	26 200	75	2 033	10.95	54	78	51 308	51	33.64
1985 ASM	25 727	74	2 044	10.84	65	92	32 248	80	21.21
1984 ASM	24 128	75	1 970	10.77	62	87	36 789	66	24.84
1983 ASM	21 597	74	1 972	9.38	65	86	36 299	59	24.77
1982 Census	20 493	76	1 944	9.26	65	89	30 190	68	20.41
1981 ASM	19 218	78	2 008	8.53	65	86	32 359	59	20.60
1980 ASM	17 329	79	1 976	7.84	65	85	29 478	59	18.91
1979 ASM	15 871	80	1 978	7.28	63	85	27 229	58	17.21
1978 ASM	14 398	80	1 993	6.58	66	88	21 368	67	13.38
1977 Census	13 384	79	2 008	6.02	68	89	20 484	65	12.98
	INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC								
1992 Census	34 802	76	2 097	14.48	48	62	127 523	27	79.63
1991 ASM	33 448	75	2 011	14.67	44	59	130 473	26	86.92
1990 ASM	32 002	75	2 014	13.90	45	59	123 289	26	81.57
1989 ASM	31 265	76	1 997	13.84	50	63	125 300	25	82.96
1988 ASM	30 550	76	2 009	13.34	50	63	117 967	26	77.74
1987 Census	29 335	75	2 047	12.69	51	64	109 672	27	71.13
1986 ASM	29 121	74	1 969	13.14	56	70	89 321	33	60.99
1985 ASM	27 676	73	1 951	12.60	58	73	75 658	37	53.34
1984 ASM	26 580	74	1 960	11.84	57	71	80 721	33	55.99
1983 ASM	24 989	73	1 894	11.47	56	70	75 891	33	54.57
1982 Census	22 957	72	1 847	10.93	60	77	55 115	42	41.68
1981 ASM	21 581	73	1 897	10.02	60	75	62 211	35	44.92
1980 ASM	19 683	73	1 906	9.09	61	76	50 727	39	36.44
1979 ASM	17 688	74	1 954	7.96	59	74	48 428	37	33.29
1978 ASM	16 160	74	1 942	7.29	54	71	44 482	36	30.94
1977 Census	14 677	74	1 931	6.66	57	74	37 897	39	26.51

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2821, PLASTICS MATERIALS AND RESINS														
United States	–	**449**	**340**	**60.4**	**2 671.6**	**35.9**	**78.5**	**1 468.6**	**12 494.7**	**18 839.8**	**31 303.9**	**1 707.3**	**56.3**	**10 872.9**
Alabama	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.1	(NA)	(NA)
Arkansas	–	5	4	.3	9.2	.2	.3	4.4	38.9	90.5	129.4	(D)	.2	25.0
California	–	42	29	1.9	69.9	1.0	2.1	30.7	281.2	580.2	861.7	24.9	G	(D)
Connecticut	–	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.5	G	(D)
Delaware	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	11	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	16	14	1.7	59.0	1.0	2.2	32.7	178.2	325.6	514.3	(D)	1.6	120.0
Illinois	–	36	29	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	11	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	12	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	–	20	16	3.4	154.2	2.1	5.0	96.9	909.6	1 939.9	2 832.6	104.3	2.8	928.6
Maryland	–	7	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	14	14	1.2	50.0	.5	1.1	16.8	153.2	216.9	384.1	(D)	F	(D)
Michigan	–	15	11	4.1	183.1	1.8	3.6	63.8	1 019.8	615.3	1 628.1	(D)	(NA)	(D)
Mississippi	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	32	24	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	9	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	11.5	G	(D)
North Carolina	–	19	17	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	26	21	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	(NA)	(NA)
Oregon	E1	10	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	22	19	4.1	171.7	2.6	5.3	100.1	518.9	924.2	1 436.5	(D)	(NA)	(D)
South Carolina	–	9	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	9	8	3.3	137.0	2.0	4.2	71.1	239.6	610.4	842.1	(D)	(NA)	(D)
Texas	–	57	48	12.9	645.6	6.8	15.7	341.3	3 722.6	6 180.7	9 861.9	770.0	10.4	3 354.0
Virginia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
West Virginia	–	4	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 2822, SYNTHETIC RUBBER														
United States	–	**92**	**45**	**11.7**	**513.1**	**7.5**	**15.9**	**298.0**	**1 865.4**	**2 342.6**	**4 184.1**	**318.2**	**10.4**	**1 248.7**
Delaware	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Kentucky	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	E	(D)
Louisiana	–	5	5	1.9	89.9	1.3	2.7	57.6	381.1	411.6	781.6	41.2	1.8	310.5
Michigan	–	6	3	.5	17.7	.3	.6	9.0	75.1	56.6	134.2	(D)	E	(D)
Mississippi	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	E4	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	14	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2823, CELLULOSIC MANMADE FIBERS														
United States	–	**7**	**7**	**11.0**	**372.8**	**7.8**	**16.7**	**219.0**	**820.9**	**950.3**	**1 748.1**	**92.8**	**10.5**	**636.7**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	3	3	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC														
United States	–	**71**	**68**	**44.4**	**1 545.2**	**33.9**	**71.1**	**1 029.3**	**5 662.0**	**5 337.1**	**11 113.7**	**721.3**	**45.4**	**4 979.1**
Alabama	–	5	5	3.0	87.2	2.1	5.3	54.9	324.5	411.7	730.0	(D)	G	(D)
Delaware	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	20.2	G	(D)
Maryland	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	14	13	9.2	308.4	7.1	15.7	218.3	1 306.8	1 187.4	2 550.7	175.6	(NA)	(D)
Pennsylvania	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Rhode Island	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	18	18	11.9	376.2	9.3	18.5	252.9	1 546.3	1 597.7	3 161.7	187.8	11.7	1 340.1
Tennessee	–	6	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	9	9	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Plastics materials and resins (SIC 2821)	Synthetic rubber (SIC 2822)	Cellulosic manmade fibers (SIC 2823)	Organic fibers, noncellulosic (SIC 2824)
Companies ---- number	240	76	5	42
All establishments ---- number	449	92	7	71
With 1 to 19 employees ---- number	109	47	–	3
With 20 to 99 employees ---- number	211	19	1	15
With 100 employees or more ---- number	129	26	6	53
Employment and labor costs:				
Employees ---- 1,000	60.4	11.7	11.0	44.4
Compensation, total ---- mil dol	3 381.4	679.2	476.2	1 984.9
Annual payroll ---- mil dol	2 671.6	513.1	372.8	1 545.2
Fringe benefits ---- mil dol	709.8	166.1	103.4	439.6
Social Security and other legally required payments ---- mil dol	245.6	47.5	31.9	139.4
Employer voluntary payments ---- mil dol	464.2	118.5	71.5	300.3
Production workers:				
Average for year ---- 1,000	35.9	7.5	7.8	33.9
March ---- 1,000	36.0	7.5	7.5	34.2
May ---- 1,000	36.1	7.5	7.7	33.9
August ---- 1,000	36.2	7.5	8.0	34.0
November ---- 1,000	35.2	7.4	8.0	33.5
Hours ---- millions	78.5	15.9	16.7	71.1
Wages ---- mil dol	1 468.6	298.0	219.0	1 029.3
Cost of materials[1] ---- mil dol	18 839.8	2 342.6	950.3	5 337.1
Materials, parts, containers, etc., consumed[2] ---- mil dol	16 946.8	2 003.0	842.9	4 754.2
Resales ---- mil dol	404.9	84.4	.3	19.2
Fuels ---- mil dol	491.8	118.2	89.3	141.2
Purchased electricity ---- mil dol	634.9	88.2	15.9	287.1
Contract work ---- mil dol	361.4	48.7	1.8	135.3
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	15 870.0	2 011.9	401.5	7 049.5
Generated less sold ---- mil kWh	2 338.4	(D)	(D)	528.8
Total value of shipments ---- mil dol	31 303.9	4 184.1	1 748.1	11 113.7
Value added ---- mil dol	12 494.7	1 865.4	820.9	5 662.0
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	3 594.0	544.2	159.8	1 366.6
Finished goods ---- mil dol	2 202.9	342.6	93.3	750.8
Work in process ---- mil dol	382.0	63.3	14.6	237.8
Materials and supplies ---- mil dol	1 009.1	138.3	51.9	378.0
End of 1992 ---- mil dol	3 576.1	586.9	208.2	1 266.2
Finished goods ---- mil dol	2 242.0	360.4	111.1	661.1
Work in process ---- mil dol	373.5	69.3	19.9	212.9
Materials and supplies ---- mil dol	960.6	157.2	77.2	392.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Plastics materials and resins (SIC 2821)	Synthetic rubber (SIC 2822)	Cellulosic manmade fibers (SIC 2823)	Organic fibers, noncellulosic (SIC 2824)
Gross book value of depreciable assets:				
Total:				
Beginning of year	22 705.1	3 458.3	(D)	(D)
New capital expenditures[1]	1 707.3	318.2	92.8	721.3
Used capital expenditures	(D)	.5	(D)	(D)
Retirements	(D)	169.3	(D)	(D)
End of year	24 060.7	3 607.8	(D)	(D)
Buildings and other structures:				
Beginning of year	2 750.3	391.7	(D)	(D)
New capital expenditures	144.4	28.0	(D)	(D)
Used capital expenditures	(D)	.1	–	(D)
Retirements	(D)	19.4	(D)	(D)
End of year	2 866.5	400.4	(D)	(D)
Machinery and equipment:				
Beginning of year	19 954.8	3 066.7	(D)	(D)
New capital expenditures[1]	1 562.9	290.2	(D)	(D)
Used capital expenditures	(D)	.5	(D)	(D)
Retirements	(D)	149.9	(D)	(D)
End of year	21 194.2	3 207.4	(D)	(D)
Depreciation charges during 1992:				
Total	1 445.4	215.6	78.5	478.3
Buildings and other structures	115.2	18.5	4.9	34.1
Machinery and equipment	1 330.1	197.0	73.6	444.2
Rental payments:				
Total	123.3	26.3	7.3	34.9
Buildings and other structures	41.9	7.9	4.3	11.4
Machinery and equipment	81.4	18.3	3.0	23.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Plastics materials and resins (SIC 2821)		Synthetic rubber (SIC 2822)		Cellulosic manmade fibers (SIC 2823)		Organic fibers, noncellulosic (SIC 2824)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	51.2	(X)	(S)	(X)	2.3	(X)	76.8	(X)
Response coverage ratio (percent)[2]	87.6	(X)	(S)	(X)	90.8	(X)	96.9	(X)
Machinery	484.2	(X)	60.0	(X)	32.7	(X)	189.6	(X)
Response coverage ratio (percent)[2]	90.7	(X)	86.2	(X)	96.5	(X)	100.3	(X)
Other purchased services:								
Communications	30.2	(X)	(S)	(X)	3.5	(X)	15.3	(X)
Response coverage ratio (percent)[2]	87.0	(X)	(S)	(X)	96.5	(X)	96.4	(X)
Legal	11.6	(X)	4.0	(X)	2.1	(X)	3.5	(X)
Response coverage ratio (percent)[2]	86.4	(X)	83.5	(X)	96.5	(X)	100.3	(X)
Accounting and bookkeeping	6.9	(X)	3.1	(X)	.5	(X)	1.4	(X)
Response coverage ratio (percent)[2]	88.2	(X)	75.5	(X)	96.5	(X)	95.0	(X)
Advertising	11.1	(X)	8.4	(X)	(D)	(X)	1.5	(X)
Response coverage ratio (percent)[2]	86.5	(X)	75.2	(X)	(D)	(X)	100.3	(X)
Software and other data processing	19.7	(X)	(S)	(X)	2.8	(X)	11.8	(X)
Response coverage ratio (percent)[2]	89.4	(X)	(S)	(X)	96.5	(X)	100.3	(X)
Refuse removal, including hazardous waste	104.6	(X)	(S)	(X)	1.9	(X)	17.4	(X)
Response coverage ratio (percent)[2]	91.1	(X)	(S)	(X)	96.5	(X)	100.3	(X)
New machinery and equipment expenditures	1 562.9	(X)	290.2	(X)	(D)	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	10.4	4	1.2	24	(D)	(X)	(D)	(X)
Computers and peripheral data processing equipment	55.9	2	4.7	13	(D)	(X)	(D)	(X)
All other	1 496.7	1	284.3	1	(D)	(X)	(D)	(X)
Adjustment ratio[3]	1.1	(X)	.9	(X)	(D)	(X)	(D)	(X)
Cost of materials, components, parts, etc., used	16 946.8	(X)	2 003.0	(X)	842.9	(X)	4 754.2	(X)
Materials purchased or transferred from foreign sources[4]	590.8	6	54.4	1	(D)	(X)	51.8	1
Materials purchased or transferred from domestic sources	16 356.0	1	1 948.6	1	(D)	(X)	4 702.4	1
Adjustment ratio[3]	1.4	(X)	1.3	(X)	(D)	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2821, PLASTICS MATERIALS AND RESINS												
Total	**–**	**449**	**60.4**	**2 671.6**	**35.9**	**78.5**	**1 468.6**	**12 494.7**	**18 839.8**	**31 303.9**	**1 707.3**	**3 576.1**
Establishments with an average of—												
1 to 4 employees	E4	26	.1	2.2	(Z)	.1	1.0	13.8	14.7	28.8	.7	2.6
5 to 9 employees	E7	36	.3	7.1	.2	.3	3.8	37.3	53.7	91.3	4.7	9.3
10 to 19 employees	E1	47	.7	18.5	.4	.8	9.4	126.9	168.0	281.0	8.3	61.7
20 to 49 employees	–	110	3.7	126.7	2.2	4.7	68.3	448.7	991.4	1 453.6	80.5	120.9
50 to 99 employees	–	101	7.0	262.7	4.1	9.1	138.6	1 485.5	2 633.1	4 106.6	109.7	439.6
100 to 249 employees	–	72	11.3	474.3	6.7	14.5	251.4	2 438.8	4 550.9	6 999.8	222.6	734.1
250 to 499 employees	–	30	10.8	477.9	6.6	13.9	276.6	2 102.9	3 338.4	5 439.9	217.8	711.1
500 to 999 employees	–	19	12.9	633.5	7.7	17.5	353.6	2 420.8	4 619.7	7 030.9	559.3	897.4
1,000 to 2,499 employees	–	6	13.8	668.7	8.1	17.5	365.8	3 420.1	2 469.9	5 872.0	503.7	599.5
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2822, SYNTHETIC RUBBER												
Total	**–**	**92**	**11.7**	**513.1**	**7.5**	**15.9**	**298.0**	**1 865.4**	**2 342.6**	**4 184.1**	**318.2**	**586.9**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	2.1	(Z)	.1	1.2	6.8	10.5	17.3	1.6	1.6
5 to 9 employees	E4	6	.1	2.1	.1	.1	1.1	5.1	7.5	12.6	.5	1.9
10 to 19 employees	E1	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E1	9	.3	10.8	.2	.3	5.6	26.2	36.7	63.0	45.3	8.4
50 to 99 employees	–	10	.8	29.6	.4	.9	12.5	129.3	204.0	331.0	(D)	47.2
100 to 249 employees	–	12	2.0	71.8	1.2	2.5	41.0	291.0	431.1	717.1	45.9	125.4
250 to 499 employees	–	6	1.9	90.0	1.2	2.7	53.3	323.3	439.5	755.7	97.0	112.8
500 to 999 employees	–	6	6.6	306.7	4.4	9.3	183.3	1 083.6	1 213.2	2 287.5	127.9	289.7
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	37	.1	2.1	(Z)	.1	1.2	6.0	9.2	15.2	1.4	1.4
INDUSTRY 2823, CELLULOSIC MANMADE FIBERS												
Total	**–**	**7**	**11.0**	**372.8**	**7.8**	**16.7**	**219.0**	**820.9**	**950.3**	**1 748.1**	**92.8**	**208.2**
Establishments with an average of—												
20 to 49 employees	–	1	11.0	372.8	7.8	16.7	219.0	820.9	950.3	1 748.1	92.8	208.2
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC												
Total	**–**	**71**	**44.4**	**1 545.2**	**33.9**	**71.1**	**1 029.3**	**5 662.0**	**5 337.1**	**11 113.7**	**721.3**	**1 266.2**
Establishments with an average of—												
1 to 4 employees	–	1	.3	7.5	.2	.5	4.7	15.0	32.5	47.8	–	5.9
10 to 19 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	(D)
20 to 49 employees	–	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	8	.6	17.1	.4	.9	9.5	46.9	55.6	105.5	1.9	12.4
100 to 249 employees	–	14	2.1	50.3	1.7	3.5	36.5	176.8	178.9	355.7	22.9	38.0
250 to 499 employees	–	13	4.8	140.4	3.8	7.8	96.4	530.2	684.8	1 224.2	37.3	135.5
500 to 999 employees	–	6	4.1	136.4	3.2	6.6	95.9	471.0	439.7	909.9	89.9	96.8
1,000 to 2,499 employees	–	19	32.5	1 193.5	24.4	51.7	786.2	4 422.1	3 945.6	8 470.7	567.3	977.6
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2821	**Plastics materials and resins:**										
	All establishments in industry	449	60.4	2 671.6	35.9	78.5	1 468.6	12 494.7	18 839.8	31 303.9	1 707.3
	Establishments with this product class primary:										
28213	Thermoplastic resins and plastics materials	240	47.7	2 184.8	28.7	63.0	1 217.6	10 552.0	15 839.9	26 353.6	1 504.5
28214	Thermosetting resins and plastics materials	139	11.8	462.5	6.6	14.2	237.2	1 840.1	2 835.5	4 683.5	185.8
2822	**Synthetic rubber:**										
	All establishments in industry	92	11.7	513.1	7.5	15.9	298.0	1 865.4	2 342.6	4 184.1	318.2
2823	**Cellulosic manmade fibers:**										
	All establishments in industry	7	11.0	372.8	7.8	16.7	219.0	820.9	950.3	1 748.1	92.8
2824	**Organic fibers, noncellulosic:**										
	All establishments in industry	71	44.4	1 545.2	33.9	71.1	1 029.3	5 662.0	5 337.1	11 113.7	721.3
	Establishments with this product class primary:										
28241	Nylon and other polyamide fibers	14	12.2	486.0	9.1	18.6	318.8	1 461.5	1 365.6	2 860.8	171.4
28242	Polyolefin	8	1.1	30.5	.9	1.9	21.2	83.6	87.3	172.1	6.4
28244	Polyester	22	12.5	398.6	10.0	22.1	287.6	1 819.8	1 894.0	3 771.0	204.0
28248	Producer textured noncellulosic manmade fibers	12	12.8	416.6	9.6	19.6	265.4	1 491.3	1 309.8	2 821.2	218.2
28249	Other noncellulosic manmade fibers (except glass, carbon, and graphite)	10	5.5	208.9	4.1	8.6	133.5	803.7	678.0	1 484.1	120.9

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2821, PLASTICS MATERIALS AND RESINS			
Total value of shipments	31 303.9	26 245.5	15 769.2
Primary products value of shipments	26 438.5	22 599.3	13 558.0
Secondary products value of shipments	4 341.8	3 187.8	2 019.3
Total miscellaneous receipts	523.7	458.4	191.9
Value of resales	469.4	351.6	142.8
Contract receipts	20.0	38.0	40.2
Other miscellaneous receipts	34.3	68.8	8.9
Sales of scrap and refuse	(D)	(NA)	6.3
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	2.3
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	86	88	87
Value of primary products shipments made in all industries	33 007.6	27 812.3	17 614.8
Value of primary products shipments made in this industry	26 438.5	22 599.3	13 558.0
Value of primary products shipments made in other industries	6 569.1	5 213.0	4 056.8
Coverage ratio	80	81	77
INDUSTRY 2822, SYNTHETIC RUBBER			
Total value of shipments	4 184.1	3 283.0	3 156.4
Primary products value of shipments	3 200.6	2 498.0	2 492.9
Secondary products value of shipments	848.0	647.4	630.4
Total miscellaneous receipts	135.6	137.6	33.1
Value of resales	93.3	88.8	(D)
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	(D)
Sales of scrap and refuse	(D)	(NA)	3.1
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	–
Primary products specialization ratio	79	79	80
Value of primary products shipments made in all industries	4 294.8	3 467.0	3 212.2
Value of primary products shipments made in this industry	3 200.6	2 498.0	2 492.9
Value of primary products shipments made in other industries	1 094.2	969.0	719.3
Coverage ratio	75	72	78

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2823, CELLULOSIC MANMADE FIBERS			
Total value of shipments	1 748.1	1 319.7	1 239.9
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	–	(D)	(D)
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	(D)	(D)
Value of primary products shipments made in all industries	1 692.4	1 220.0	1 114.8
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)
INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC			
Total value of shipments	11 113.7	10 003.2	8 287.5
Primary products value of shipments	8 983.6	8 574.0	6 980.2
Secondary products value of shipments	2 102.3	1 379.5	1 272.0
Total miscellaneous receipts	27.7	49.7	35.3
Value of resales	16.4	35.1	(D)
Contract receipts	4.3	(D)	(D)
Other miscellaneous receipts	7.0	(D)	(D)
Sales of scrap and refuse	3.2	(NA)	8.2
Other miscellaneous receipts	3.8	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	81	86	85
Value of primary products shipments made in all industries	9 231.7	8 875.7	7 149.8
Value of primary products shipments made in this industry	8 983.6	8 574.0	6 980.2
Value of primary products shipments made in other industries	248.1	301.7	169.6
Coverage ratio	97	97	98

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2821– —	**PLASTICS MATERIALS AND RESINS**				
	Total	**(NA)**	**33 007.6**	**(NA)**	**27 812.3**
28213	Thermoplastic resins and plastics materials	(NA)	27 220.1	(NA)	22 299.1
28213 00	Thermoplastic resins and plastics materials	196	27 220.1	186	22 299.1
28214	Thermosetting resins and plastics materials	(NA)	5 520.0	(NA)	4 910.9
28214 00	Thermosetting resins and plastics materials	124	5 520.0	127	4 910.9
28210	Plastics materials and resins, n.s.k.	(NA)	267.6	(NA)	602.2
28210 00	Plastics materials and resins, n.s.k.	(NA)	267.6	(NA)	602.2
28210 02	Plastics materials and resins, n.s.k.[3]	(NA)	–	(NA)	–

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2822– —	**SYNTHETIC RUBBER (VULCANIZABLE ELASTOMERS)**						
	Total	**(NA)**	**(X)**	**4 294.8**	**(NA)**	**(X)**	**3 467.0**
28220	Synthetic rubber	(NA)	(X)	4 294.8	(NA)	(X)	3 467.0
28220 11	SBR (Styrene-Butadiene Rubber), except latex, mil lb	9	2 011.0	725.5			
28220 12	SBR latex, mil lb	8	764.7	374.5			
28220 40	Nitrile rubber, including latex, mil lb	8	241.9	181.1			
28220 45	Butyl, polychloroprene, and stereo polyisoprene elastomers, including latex, mil lb	7	663.8	635.9			
28220 50	Stereo polybutadiene elastomers, including latex, mil lb	7	1 112.1	392.9			
28220 57	Ethylene-propylene elastomers, including latex, mil lb	13	*701.1	606.0	42	(X)	3 438.2
28220 60	Silicone, mil lb	13	104.6	448.2			
28220 72	Other elastomers, except thermoplastic elastomers, including latex, mil lb	12	**147.9	303.5			
28220 82	Thermoplastic elastomers, mil lb	10	397.1	576.9			
28220 00	Synthetic rubber (vulcanizable elastomers), n.s.k.[4]	(NA)	(X)	35.2			
28220 02	Synthetic rubber (vulcanizable elastomers), n.s.k.[5]	(NA)	(X)	15.2	(NA)	(X)	28.8

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2823– —	**CELLULOSIC MANMADE FIBERS**								
	Total	**(NA)**	**(X)**	**(X)**	**1 692.4**	**(NA)**	**(X)**	**(X)**	**1 220.0**
28230	Rayon and acetate fibers	(NA)	(X)	(X)	1 692.4	(NA)	(X)	(X)	1 220.0
	Yarn, including strip:								
28230 33	Monofilament, mil lb	2							
28230 37	Group (multi) filament, mil lb	3							
28230 36	Producer textured[6], mil lb	(NA)	(X)	1 107.1	1 692.4	(NA)	(X)	1 050.8	1 211.7
28230 45	Staple, tow, and salable waste, mil lb	5							
28230 00	Cellulosic manmade fibers, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	8.3
28230 02	Cellulosic manmade fibers, n.s.k.[3]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
2824– —	**MANMADE ORGANIC FIBERS, NONCELLULOSIC**								
	Total	**(NA)**	**(X)**	**(X)**	**9 231.7**	**(NA)**	**(X)**	**(X)**	**8 875.7**
28241	Nylon and other polyamide fibers	(NA)	(X)	(X)	2 255.9	(NA)	(X)	(X)	[7]2 128.7
	Yarn, including strip:								
28241 15	Industrial, mil lb	7							
28241 24	Carpet, mil lb	4	(X)	1 057.7	1 860.2	10	(X)	[7]1 297.2	[7]1 220.6
28241 29	Monofilament and fewofilament textile, mil lb	9							
28241 33	Staple, mil lb	5	(X)	(D)	(D)	7	(X)	[7]820.4	[7]845.4
28241 45	Tow and waste, mil lb	5	(X)	(D)	(D)	(NA)	(X)	(NA)	[7]53.5
28241 00	Nylon and other polyamide fibers, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	9.2
28242	Polyolefin	(NA)	(X)	(X)	226.6	(NA)	(X)	(X)	([8])
	Yarn, including strip:								
28242 61	Monofilament, mil lb	6	(X)	(S)	35.1				
28242 63	Group (multi) filament, mil lb	4	(X)	40.5	48.3				
28242 65	Film, mil lb	1	(X)	(D)	(D)				
28242 66	Staple, mil lb	2	(X)	(D)	(D)	(NA)	([8])	([8])	([8])
28242 69	Tow and waste, mil lb	1	(X)	(D)	(D)				
28242 00	Polyolefin, n.s.k.	(NA)	(X)	(X)	–				
28244	Polyester	(NA)	(X)	(X)	3 066.8	(NA)	(X)	(X)	2 855.9
	Yarn, including strip:								
28244 15	Industrial, mil lb	9	(X)	456.5	678.0				
28244 29	Textile, mil lb	7	(X)	911.2	902.9	12	(X)	1 223.0	1 164.1
	Staple and tow:								
28244 42	Fiberfill, mil lb	6	(X)	1 056.2	764.3				
28244 44	Other, mil lb	9	(X)	884.4	698.2	(NA)	(X)	2 723.4	1 677.1
28244 47	Salable waste, mil lb	11	(X)	89.9	23.4	6	(X)	59.9	14.6
28244 00	Polyester, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
28249	Other noncellulosic manmade fibers (except glass, carbon, and graphite)	(NA)	(X)	(X)	1 173.5	(NA)	(X)	(X)	[8]1 461.5
	Yarn, including strip:								
28249 15	Monofilament, mil lb	8	(X)	(D)	(D)				
28249 17	Group (multi) filament, mil lb	4	(X)	(D)	(D)	13	(X)	[9]305.5	[9]740.3
28249 19	Staple, tow, and salable waste, mil lb	6	(X)	648.0	546.1	(NA)	(X)	(NA)	[10]674.6
28249 00	Other noncellulosic manmade fibers (except glass, carbon, and graphite), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	[11]46.5
28248	Producer textured noncellulosic manmade fibers	(NA)	(X)	(X)	2 503.6	(NA)	(X)	(X)	[7]2 401.7
28248 15	Nylon and other polyamides[6], mil lb	6	1 193.1	1 210.5	1 955.2	6	1 307.2	[7]1 315.8	[7]2 092.6
28248 51	Polyester[6], mil lb	2	(D)	(D)	(D)	2	(D)	(D)	(D)
28248 75	Polyolefin[6], mil lb	5	382.4	375.7	454.3				
28248 79	Other noncellulosic manmade fibers[6], mil lb	4	(D)	(D)	(D)	6	(D)	(D)	(D)
28248 00	Producer textured noncellulosic manmade fibers, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2824– –	**MANMADE ORGANIC FIBERS, NONCELLULOSIC**—Con.								
28240	Manmade organic fibers, noncellulosic, n.s.k.	(NA)	(X)	(X)	5.2	(NA)	(X)	(X)	27.9
28240 00	Manmade organic fibers, noncellulosic, n.s.k.	(NA)	(X)	(X)	5.2	(NA)	(X)	(X)	23.0
28240 02	Manmade organic fibers, noncellulosic, n.s.k.[3]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	4.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]There were no administrative-record cases for this industry.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]This product code is primary to more than one industry.
[7]For 1987, data are revised.
[8]For 1987, data for Product Class 28242, Polyolefin Fibers, were included with data for Product Class 28249, Other Noncellulosic Manmade Fibers.
[9]For 1987, product code 28249 15 included data for product codes 28242 61, 28242 63, and 28242 65.
[10]For 1987, product code 28249 19 included data for product codes 28242 66 and 28242 69.
[11]For 1987, product code 28249 00 included data for product code 28242 00.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
	Textured, crimped, or bulked filament yarns, including stretch yarns	(NA)	(X)	(X)	4 880.5	(NA)	(X)	(X)	4 046.6
22825 00	Made from purchased filament yarn—mil lb	46	1 753.3	1 264.2	2 376.8	49	1 124.0	1 060.3	1 644.9
	Made by filament yarn producers	(NA)	(X)	(X)	2 503.6	(NA)	(X)	(X)	2 401.7
28230 36	Rayon and acetate—mil lb	–	–	–	–	(NA)	–	–	–
28248 15	Nylon and other polyamides—mil lb	6	1 193.1	1 210.5	1 955.2	6	1 307.2	1 315.8	2 092.6
28248 51	Polyester—mil lb	2	(D)	(D)	(D)	2	(D)	(D)	(D)
28248 75	Polyolefin—mil lb	5	382.4	375.7	454.3	6	(D)	(D)	(D)
28248 79	Other noncellulosic manmade fibers—mil lb	4	(D)	(D)	(D)				
28248 00	Producer textured noncellulosic manmade fibers, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28213, THERMOPLASTIC RESINS AND PLASTICS MATERIALS		
United States	**27 220.1**	**22 299.1**
California	476.9	439.0
Illinois	1 522.6	1 635.3
Indiana	811.3	(NA)
Louisiana	2 924.9	2 422.7
Michigan	762.4	604.3
New Jersey	1 013.4	887.4
Ohio	1 151.7	833.6
Oregon	18.6	(NA)
Pennsylvania	944.1	800.5
Texas	9 610.7	7 692.4
28214, THERMOSETTING RESINS AND PLASTICS MATERIALS		
United States	**5 520.0**	**4 910.9**
Arkansas	68.3	74.2
California	289.6	288.5
Connecticut	39.5	(NA)
Florida	112.4	122.5
Georgia	202.4	153.1
Illinois	423.3	282.1
Kentucky	388.3	161.9
Louisiana	120.6	44.1
Massachusetts	128.9	102.4
Michigan	470.9	148.6
Missouri	56.6	(NA)
New Jersey	127.2	275.0
New York	202.0	143.7
North Carolina	237.7	112.7
Ohio	233.8	486.8
Pennsylvania	248.2	230.6
South Carolina	84.5	87.1
28214, THERMOSETTING RESINS AND PLASTICS MATERIALS—Con.		
Texas	1 442.0	1 281.3
Washington	4.0	(NA)
Wisconsin	114.1	101.5
28241, NYLON AND OTHER POLYAMIDE FIBERS		
United States	**2 255.9**	**2 128.7**
South Carolina	643.2	638.9
28242, POLYOLEFIN[1]		
United States	**226.6**	**(NA)**
28244, POLYESTER		
United States	**3 066.8**	**2 855.9**
North Carolina	1 788.0	(NA)
South Carolina	935.2	1 222.8
28248, PRODUCER TEXTURED NONCELLULOSIC MANMADE FIBERS		
United States	**2 503.6**	**2 401.7**
South Carolina	875.9	(NA)
Virginia	439.8	533.9
28249, OTHER NONCELLULOSIC MANMADE FIBERS (EXCEPT GLASS, CARBON, AND GRAPHITE)[1]		
United States	**1 173.5**	**(NA)**

Note: For qualifications of data, see footnotes on table 6a.

[1]Data for 1987 for Product Class 28242 was inlcuded with Product Class 28249.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2821-	**Plastics materials and resins**	**33 007.6**	**31 723.2**	**33 037.6**	**34 692.1**	**34 235.3**	**27 812.3**	**17 614.8**	**12 181.1**
28213	Thermoplastic resins and plastics materials	27 220.1	25 951.5	27 069.0	28 895.1	28 268.6	22 299.1	14 251.6	9 897.7
28214	Thermosetting resins and plastics materials	5 520.0	5 428.3	5 610.3	5 455.6	5 411.2	4 910.9	2 877.9	2 226.7
28210	Plastics materials and resins, n.s.k.	267.6	343.4	358.3	341.4	555.5	602.2	485.3	56.7
2822-	**Synthetic rubber (vulcanizable elastomers)**	**4 294.8**	**3 939.0**	**4 219.1**	**4 069.7**	**3 915.8**	**3 467.0**	**3 212.2**	**2 354.1**
28220	Synthetic rubber	4 294.8	3 939.0	4 219.1	4 069.7	3 915.8	3 467.0	3 212.2	2 354.1
2823-	**Cellulosic manmade fibers**	**1 692.4**	**1 469.3**	**1 445.1**	**1 460.4**	**1 346.0**	**1 220.0**	**1 114.8**	**851.1**
28230	Rayon and acetate fibers	1 692.4	1 469.3	1 445.1	1 460.4	1 346.0	1 220.0	1 114.8	851.1
2824-	**Manmade organic fibers, noncellulosic**	**9 231.7**	**9 460.9**	**9 745.8**	**10 226.7**	**9 512.0**	**8 875.7**	**7 149.8**	**5 471.5**
28241	Nylon and other polyamide fibers	2 255.9	[2]2 500.9	[2]2 506.8	[2]2 239.2	[2]2 175.9	[2]2 129.7	1 891.1	1 962.9
28242	Polyolefin	226.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
28244	Polyester	3 066.8	3 252.1	3 177.7	3 622.4	3 184.7	2 855.9	2 679.1	1 938.6
28248	Producer textured noncellulosic manmade fibers	2 503.6	[2]2 362.6	[2]2 655.4	[2]2 714.9	[2]2 559.8	[2]2 401.7	1 519.7	890.6
28249	Other noncellulosic manmade fibers (except glass, carbon, and graphite)	1 173.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
28240	Manmade organic fibers, noncellulosic, n.s.k.	5.2	20.8	29.9	27.8	12.3	27.9	18.6	5.4

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]Revised.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2821, PLASTICS MATERIALS AND RESINS				
	Materials, ingredients, containers, and supplies	**(X)**	**16 946.8**	**(X)**	**13 948.4**
	Synthetic organic chemicals:				
	Cyclic crudes and intermediates:				
286516	Styrene (100 percent basis) mil lb	*6 219.8	1 345.6	4 733.4	1 564.6
286513	Phenol (100 percent basis) mil lb	1 350.4	365.7	(S)	379.3
286581	Other cyclic crudes and intermediates (including melamine, phthalic anhydride, and benzene)	(X)	554.3	(X)	427.1
286535	Synthetic organic dyes, pigments, lakes, and toners (100 percent basis) mil lb	**11.3	22.8	(S)	91.9
	Other synthetic organic chemicals:				
286925	Acrylates and methacrylates, monomers (100 percent basis) mil lb	1 388.0	774.8	(S)	575.5
286920	Alcohols, except ethyl (100 percent basis) mil lb	1 032.9	188.3	948.6	122.0
286923	Formaldehyde (100 percent HCHO) mil lb	2 507.9	115.1	2 411.6	121.5
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, peptizers, etc.)	(X)	194.5	(X)	113.4
286927	Vinyl acetate, monomer (100 percent basis) mil lb	1 170.5	278.8	669.1	181.4
286928	Vinyl chloride, monomer (100 percent basis) mil lb	7 612.3	1 017.6	6 242.5	906.0
286081	Other synthetic organic chemicals (includes acrylonitrile and cellulose acetate)	(X)	1 871.2	(X)	1 069.8
	Hydrocarbons used as raw materials or feedstocks:				
	Refined petroleum products:				
2911A1	Ethane mil lb	(2)	(2)	(NA)	236.3
2911A2	Ethylene mil lb	16 426.7	2 899.1	(NA)	1 799.4
2911A3	Propane mil lb	(2)	(2)	(NA)	173.6
2911A4	Propylene mil lb	*5 263.9	746.1	(NA)	798.0
2911A7	Butadiene mil lb	1 406.8	235.6	(NA)	91.1
2911A8	Other refined petroleum products (butane, isobutane, butylene, isobutylene, naptha, gas oils, etc.) mil lb	2**4 992.7	2747.2	(NA)	208.3
190002	Other (including crude oil, natural gas, and still gas)	(X)	239.5	(X)	143.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	1 212.1	620.1	(S)	857.4
281981	Inorganic chemicals	(X)	412.6	(X)	220.2
289501	Carbon black mil lb	*31.1	14.5	179.0	53.2
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	167.4	(X)	146.4
970099	All other materials and components, parts, containers, and supplies	(X)	3 352.4	(X)	2 737.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	783.6	(X)	931.0
	INDUSTRY 2822, SYNTHETIC RUBBER				
	Materials, ingredients, containers, and supplies	**(X)**	**2 003.0**	**(X)**	**1 825.1**
	Synthetic organic chemicals:				
	Cyclic crudes and intermediates:				
286516	Styrene (100 percent basis) mil lb	700.8	174.7	616.8	223.7
286513	Phenol (100 percent basis) mil lb	(D)	(D)	(D)	(D)
286581	Other cyclic crudes and intermediates (including melamine, phthalic anhydride, and benzene)	(X)	(D)	(X)	49.9
286535	Synthetic organic dyes, pigments, lakes, and toners (100 percent basis) mil lb	(D)	(D)	–	–
	Other synthetic organic chemicals:				
286925	Acrylates and methacrylates, monomers (100 percent basis) mil lb	22.5	13.7	(D)	(D)
286920	Alcohols, except ethyl (100 percent basis) mil lb	(S)	.6	(D)	(D)
286923	Formaldehyde (100 percent HCHO) mil lb	(D)	(D)	(D)	(D)
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, peptizers, etc.)	(X)	82.4	(X)	83.9
286927	Vinyl acetate, monomer (100 percent basis) mil lb	(D)	(D)	(D)	(D)
286928	Vinyl chloride, monomer (100 percent basis) mil lb	–	–	–	–
286081	Other synthetic organic chemicals (includes acrylonitrile and cellulose acetate)	(X)	134.4	(X)	46.4
	Hydrocarbons used as raw materials or feedstocks:				
	Refined petroleum products:				
2911A1	Ethane mil lb	–	–	(NA)	–
2911A2	Ethylene mil lb	321.3	58.8	(NA)	(D)
2911A3	Propane mil lb	–	–	(NA)	–
2911A4	Propylene mil lb	640.2	93.3	(NA)	(D)
2911A7	Butadiene mil lb	2 690.0	446.6	(NA)	516.7
2911A8	Other refined petroleum products (butane, isobutane, butylene, isobutylene, naptha, gas oils, etc.) mil lb	311.7	65.2	(NA)	127.5
190002	Other (including crude oil, natural gas, and still gas)	(X)	(D)	(X)	27.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	62.2	26.6	(S)	24.2
281981	Inorganic chemicals	(X)	89.1	(X)	121.8
289501	Carbon black mil lb	179.2	29.4	157.4	29.9
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	58.0	(X)	36.1
970099	All other materials and components, parts, containers, and supplies	(X)	524.4	(X)	350.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	19.8	(X)	52.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2823, CELLULOSIC MANMADE FIBERS				
	Materials, ingredients, containers, and supplies	**(X)**	**842.9**	**(X)**	**593.8**
	Synthetic organic chemicals:				
286921	Acrylonitrile (100 percent basis) mil lb	–	–	–	–
286963	Caprolactam (100 percent basis) mil lb	–	–	(NA)	(4)
286965	Glycols (ethylene, propylene, etc.) (100 percent basis) mil lb	(D)	(D)	(D)	(D)
286517	Dimethyl terephthalate (DMT) (100 percent basis) mil lb	(D)	(D)	(NA)	(4)
286518	Terephthalic acid (TPA) (100 percent basis) mil lb	(D)	(D)	(NA)	(4)
286001	All other synthetic organic chemicals	(X)	(D)	(X)	(D)
	Plastics resins:				
282181	Polypropylene resins (dry basis) mil lb	(D)	(D)	(NA)	(4)
282135	Nylon resins (dry basis) mil lb	(D)	(D)	–	–
282105	All other plastics resins (dry basis) mil lb	(D)	(D)	(D)	(D)
261105	Woodpulp (air dry basis) 1,000 s tons	(D)	(D)	315.2	204.2
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	(D)	(X)	12.7
970099	All other materials and components, parts, containers, and supplies	(X)	(D)	(X)	4240.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	–	(X)	52.1
	INDUSTRY 2824, ORGANIC FIBERS, NONCELLULOSIC				
	Materials, ingredients, containers, and supplies	**(X)**	**4 754.2**	**(X)**	**4 584.0**
	Synthetic organic chemicals:				
286921	Acrylonitrile (100 percent basis) mil lb	(D)	(D)	814.7	197.8
286963	Caprolactam (100 percent basis) mil lb	(D)	(D)	1 068.7	385.2
286965	Glycols (ethylene, propylene, etc.) (100 percent basis) mil lb	1 845.5	413.4	*1 076.9	211.7
286517	Dimethyl terephthalate (DMT) (100 percent basis) mil lb	1 148.9	273.0	1 282.6	293.4
286518	Terephthalic acid (TPA) (100 percent basis) mil lb	1 901.9	478.2	1 287.4	334.9
286001	All other synthetic organic chemicals	(X)	1 300.5	(X)	(D)
	Plastics resins:				
282181	Polypropylene resins (dry basis) mil lb	**804.9	278.6	591.7	256.1
282135	Nylon resins (dry basis) mil lb	322.9	166.9	*245.8	166.1
282105	All other plastics resins (dry basis) mil lb	(S)	141.2	**179.7	88.3
261105	Woodpulp (air dry basis) 1,000 s tons	(D)	(D)	(D)	(D)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	92.0	(X)	83.7
970099	All other materials and components, parts, containers, and supplies	(X)	960.0	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	15.5	(X)	15.5

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1992, data for material codes 2911A1 and 2911A3 are included in material code 2911A8.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1987, data for material codes 286963, 286519, 286518, and 282181 were included in material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
28241 24	28241 25
28241 29	28241 13
28241 29	28241 19
28241 29	28241 21
28241 29	28241 23
28241 29	28241 25
28241 45	28241 35
28241 45	28241 43
28242	28247
28242 61	28247 13
28242 61	28247 15
28242 61	28247 16
28242 61	28247 19
28242 63	28247 13
28242 63	28247 15
28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
28242 65	28247 15
28242 65	28247 16
28242 65	28247 19
28242 66	28247 31
28242 66	28247 33
28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
28249 15	28247 13
28249 15	28247 15
28249 15	28247 16
28249 15	28247 19
28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
28447	28445
28447 11	28445 21
28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
28610	28611
28610	28612
28610 10	28612 57
28610 15	28611 31
28610 15	28611 98
28610 20	28612 91
28610 25	28612 94
28610 30	28612 96
28610 35	28612 98
28610 40	28612 31
28610 40	28612 61
28610 40	28612 89
28692	28695
28692 10	28695 11
28692 15	28695 25
28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
28744 11	28744 20
28744 11	28744 40
28744 11	28744 60
28744 21	28744 20
28744 21	28744 40
28744 21	28744 60
28744 31	28744 30
28744 31	28744 50
28744 31	28744 70
28750 11	28750 20
28750 11	28750 40
28750 11	28750 60
28750 21	28750 20
28750 21	28750 40
28750 21	28750 60
28750 31	28750 30
28750 31	28750 50
28750 31	28750 70
28795 81	28795 20
28795 81	28795 21
28795 81	28795 79
28796 85	28796 25
28796 85	28796 51
28796 85	28796 71
28796 85	28796 81
28798 85	28798 30
28798 85	28798 83
28799 17	28799 15
28799 30	28799 35
28799 40	28799 35
28799 45	28799 15
28799 45	28799 35
28914 24	28914 23
28914 24	28914 25
28914 61	28914 98
28914 99	28914 98
28916 25	28916 20
28916 25	28916 30
28916 25	28916 40
28917 46	28917 41
28917 46	28917 51
28917 46	28917 61
28920 20	28920 19
28920 20	28920 21
28920 24	28920 13
28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
28931 17	28931 19
28932 32	28932 33
28932 32	28932 38
28932 44	28932 34
28932 44	28932 45
28932 46	28932 34
28932 46	28932 45
28933 41	28933 43
28933 42	28933 43
28933 44	28933 45
28933 46	28933 45
28934 87	28934 85
28934 87	28934 86
28934 89	28934 85
28934 89	28934 86
28992 24	28992 23
28992 24	28992 25
28992 59	28992 53
28992 59	28992 55
28992 59	28992 57
28995 13	28995 11
28995 13	28995 12
28995 13	28995 19
28995 16	28995 14
28995 16	28995 15
28995 16	28995 19
28995 34	28995 35
28995 34	28995 36
28995 43	28995 40
28995 43	28995 42
28995 43	28995 45
28995 68	28995 69
28995 68	28995 70
28995 68	28995 71
28995 81	28995 82
28995 81	28995 83
28995 81	28995 84
28995 86	28995 88
28995 86	28995 89
28995 95	28995 94
28995 95	28995 96
28995 97	28995 55
28995 97	28995 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
28161 11	28161 00
28161 21	28162 55
28162 13	28162 65
28162 30	28162 65
28162 40	28162 65
28162 50	28162 65
28162 60	28162 65
28163 41	28163 98
28163 45	28163 98
28163 89	28163 98
28163 95	28163 98
28163 97	28163 98
28220 00	28220 11
28220 00	28220 12
28220 00	28220 40
28220 00	28220 45
28220 00	28220 50
28220 00	28220 57
28220 00	28220 60
28220 00	28220 72
28220 00	28220 82
28230 34	28230 33
28230 34	28230 37
28230 38	28230 33
28230 38	28230 37
28230 39	28230 33
28230 39	28230 37
28230 41	28230 45
28230 71	28230 45
28241 13	28241 15
28241 13	28241 24
28241 13	28241 29
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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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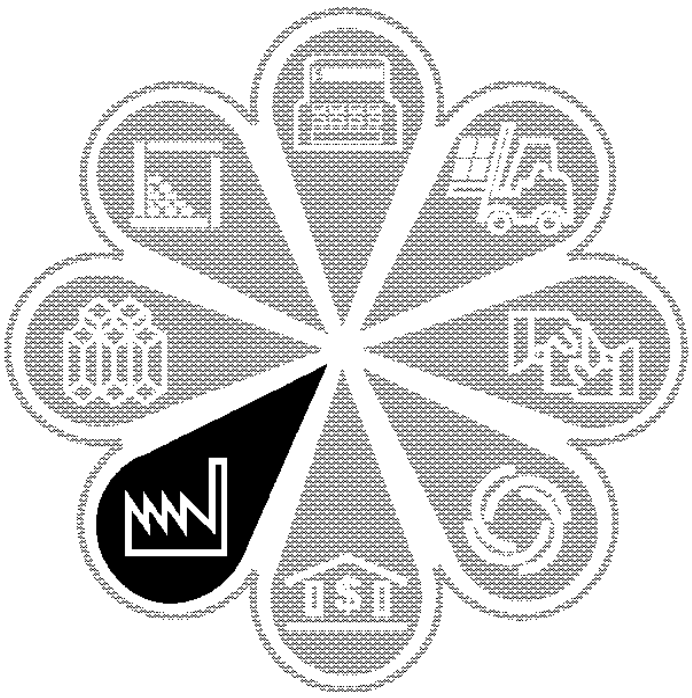
1992 Census of Manufactures

MC92-I-28C

INDUSTRY SERIES

Drugs

Industries 2833, 2834, 2835, and 2836



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28C

INDUSTRY SERIES

Drugs

Industries 2833, 2834, 2835, and 2836

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Walter Hunter.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2833	Medicinals and Botanicals
2834	Pharmaceutical Preparations
2835	Diagnostic Substances
2836	Biological Products, Except Diagnostic

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2833, MEDICINALS AND BOTANICALS

This industry is made up of establishments primarily engaged in (1) manufacturing bulk organic and inorganic medicinal chemicals and their derivatives, and (2) processing (grading, grinding, and milling) bulk botanical drugs and herbs. Included in this industry are establishments primarily engaged in manufacturing agar-agar and similar products of natural origin, endocrine products, manufacturing or isolating basic vitamins, and isolating active medicinal principals such as alkaloids from botanical drugs and herbs. Products of this industry also are collected in the U.S. International Trade Commission Report, Synthetic Organic Chemicals.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2833, Medicinals and Botanicals, had employment of 13.0 thousand. The employment figure was 12 percent above the 11.6 thousand reported in 1987.

The leading States in employment in 1992 were New Jersey, Indiana, Virginia, and Pennsylvania, accounting for approximately 59 percent of the industry's employment. This represents a shift from 1987 when New Jersey, Missouri, California, and Indiana accounted for approximately 62 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2833 shipped $5.8 billion of medicinals and botanicals considered primary to the industry, $431.5 million of secondary products, and had $206.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 69 percent.

The products primary to industry 2833, no matter in what industry they were produced, appear in table 6a and aggregate to $6.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the medicinals and botanicals industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS

This industry is made up of establishments primarily engaged in manufacturing, fabricating, or processing drugs in pharmaceutical preparations for human or veterinary use. The greater part of the products of these establishments are finished in the form intended for final consumption, such as ampoules, tablets, capsules, vials, ointments, medicinal powders, solutions, and suspensions. Products of this industry consist of two important lines, namely: (1) pharmaceutical preparations promoted primarily to the dental, medical, or veterinary professions, and (2) pharmaceutical preparations promoted primarily to the public. Products of this industry also are collected in the Current Industrial Report MA-28G, Pharmaceutical Preparations, Except Biologicals. For information regarding the CIR, see Contracts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2834, Pharmaceutical Preparations, had employment of 122.8 thousand. The employment figure was 7 percent below the 131.6 thousand reported in 1987.

The leading States in employment in 1992 were New Jersey, New York, Pennsylvania, and California, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when New Jersey, Indiana, Pennsylvania, and New York accounted for approximately 49 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $50.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2834 shipped $41.1 billion of pharmaceutical preparations considered primary to the industry, $3.7 billion of secondary products, and had $5.6 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2834, no matter in what industry they were produced, appear in table 6a and aggregate to $43.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pharmaceutical preparations industry amounted to $13.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2835, DIAGNOSTIC SUBSTANCES

This industry is made up of establishments primarily engaged in manufacturing in vitro and in vivo diagnostic substances, whether or not packaged for retail sale. These materials are chemical, biological, or radioactive substances used in diagnosing or monitoring the state of human or veterinary health by identifying and measuring normal or abnormal constituents of body fluids or tissues.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2835, Diagnostic Substances, had employment of 39.8 thousand. The employment figure was 158 percent above the 15.4 thousand reported in 1987. Compared with 1991, employment increased 30 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Maryland, Massachusetts, and Missouri, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when California, Maryland, New Jersey, and New York accounted for approximately 64 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2835 shipped $5.2 billion of diagnostic substances considered primary to the industry, $1.1 billion of secondary products, and had $538.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 68 percent.

The products primary to industry 2835, no matter in what industry they were produced, appear in table 6a and aggregate to $6.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the diagnostic substances industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC

This industry is made up of establishments primarily engaged in the production of bacterial and virus vaccines, toxoids, and analogous products (such as allergenic extracts), serums, plasmas, and other blood derivatives for human or veterinary use, other than in vitro and in vivo diagnostic substances. Included in this industry are establishments primarily engaged in the production of microbiological products for other uses. Establishments primarily engaged in manufacturing in vitro and in vivo diagnostic substances are classified in industry 2835.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2836, Biological Products, Except Diagnostic, had employment of 18.4 thousand. The employment figure was 38 percent above the 13.3 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, Nebraska, and North Carolina, accounting for approximately 46 percent of the industry's employment. This represents a shift from 1987 when California, Iowa, Illinois, and Nebraska accounted for approximately 43 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2836 shipped $3.3 billion of biological products, except diagnostic, considered primary to the industry, $376.2 million of secondary products, and had $269.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 74 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 75 percent.

The products primary to industry 2836, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the biologicals products, except diagnostic, industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2833, MEDICINALS AND BOTANICALS															
1992 Census	208	225	74	13.0	587.1	7.4	15.1	285.6	3 365.7	3 245.9	6 438.5	550.5	934.3	93	83
1991 ASM	(NA)	(NA)	(NA)	12.5	540.2	7.2	14.3	286.8	3 166.4	3 200.0	6 308.2	487.3	858.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.9	423.4	6.5	13.1	227.3	2 392.2	2 579.2	4 919.4	194.5	658.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.4	420.3	6.6	13.3	216.6	2 225.7	2 596.0	4 752.5	219.3	595.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.3	381.4	6.2	11.7	188.2	2 086.2	2 052.9	4 150.4	150.5	481.9	(NA)	(NA)
1987 Census	208	225	84	11.6	376.5	6.1	12.0	183.8	1 780.7	1 613.4	3 350.2	114.5	492.2	91	69
1986 ASM	(NA)	(NA)	(NA)	15.8	497.6	8.3	16.6	234.9	1 854.9	1 285.0	3 153.1	147.2	560.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.7	497.5	8.6	17.5	238.1	1 970.8	1 298.4	3 282.9	170.0	570.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.3	497.5	9.5	18.0	225.0	1 992.4	1 446.8	3 410.3	260.8	635.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.7	472.0	9.8	19.0	230.6	2 057.5	1 287.2	3 370.6	273.9	598.2	(NA)	(NA)
1982 Census	210	228	94	17.8	463.2	10.2	20.9	228.8	2 054.7	1 335.2	3 397.9	283.6	628.3	83	74
1981 ASM	(NA)	(NA)	(NA)	17.4	421.0	10.2	20.4	218.5	1 843.0	1 467.8	3 267.2	220.9	630.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.5	338.0	9.1	18.3	181.5	1 572.1	1 272.7	2 809.3	152.7	487.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.6	274.0	8.4	17.3	148.7	1 356.6	1 032.2	2 351.7	149.3	417.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.6	242.3	8.3	17.3	133.0	1 166.1	864.7	1 984.9	127.2	357.5	(NA)	(NA)
1977 Census	154	177	76	14.4	219.9	8.4	17.1	127.2	1 162.2	739.0	1 889.9	123.8	307.0	82	68
INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS															
1992 Census	585	691	365	122.8	4 949.4	62.5	126.9	1 866.5	37 229.3	13 542.5	50 417.9	2 450.0	6 151.2	92	95
1991 ASM	(NA)	(NA)	(NA)	129.1	5 012.3	59.2	117.0	1 728.4	34 978.0	12 869.8	47 375.6	1 771.6	5 363.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	143.8	5 530.9	61.5	121.5	1 786.7	32 744.7	11 763.7	44 182.3	1 808.7	4 979.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	141.8	5 142.6	62.4	121.5	1 679.9	29 449.8	10 717.3	40 028.0	1 932.5	4 579.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	133.4	4 458.3	60.8	119.0	1 538.6	26 327.4	9 755.5	35 825.3	1 724.9	4 356.4	(NA)	(NA)
1987 Census	640	732	364	131.6	4 168.1	59.9	117.5	1 458.8	23 883.6	8 463.0	32 094.1	1 471.1	3 895.6	90	97
1986 ASM	(NA)	(NA)	(NA)	124.2	3 780.3	58.7	113.5	1 361.6	20 597.9	7 661.4	28 179.3	1 057.8	3 396.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	123.0	3 595.4	58.4	111.8	1 297.1	19 094.7	6 417.8	25 335.3	1 171.1	3 229.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	123.8	3 367.1	59.7	111.0	1 216.6	16 922.6	6 169.9	22 887.6	1 060.0	2 990.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	123.7	3 173.7	61.9	117.6	1 201.3	15 476.4	5 898.8	21 222.0	833.9	2 818.1	(NA)	(NA)
1982 Census	584	683	332	124.4	3 052.5	62.2	120.0	1 163.4	13 484.0	5 529.8	18 997.6	861.2	2 616.9	89	96
1981 ASM	(NA)	(NA)	(NA)	130.5	2 918.1	64.8	125.6	1 114.7	12 058.7	5 531.9	17 503.2	729.3	2 577.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	135.3	2 734.9	68.4	125.5	1 037.6	11 048.1	4 751.0	15 638.8	674.5	2 491.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	130.0	2 370.5	66.7	125.8	932.1	9 714.0	4 202.4	13 738.0	595.3	2 272.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	129.6	2 272.4	64.0	126.7	861.6	9 039.3	3 848.8	12 797.8	491.5	2 025.5	(NA)	(NA)
1977 Census	655	756	293	126.4	2 029.5	63.1	123.1	779.4	8 214.4	3 394.2	11 459.4	419.3	1 892.6	86	97
INDUSTRY 2835, DIAGNOSTIC SUBSTANCES															
1992 Census	205	234	144	39.8	1 658.3	14.6	29.5	413.8	5 196.1	1 701.2	6 837.8	587.3	1 105.5	83	84
1991 ASM	(NA)	(NA)	(NA)	30.5	1 253.5	9.9	19.4	352.5	3 616.9	1 165.9	4 746.1	302.0	724.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.9	499.0	6.6	13.1	154.6	1 790.1	686.8	2 462.2	147.1	438.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.1	526.8	6.8	13.5	155.8	1 560.7	754.3	2 325.1	116.8	457.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.2	476.4	7.5	15.3	167.3	1 572.4	752.4	2 261.3	93.3	493.9	(NA)	(NA)
1987 Census	137	158	98	15.4	437.1	6.8	13.6	146.0	1 553.3	657.4	2 205.0	93.5	390.3	89	68
INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC															
1992 Census	193	275	140	18.4	627.2	8.0	15.1	188.4	2 754.6	1 313.5	3 974.0	294.3	753.0	90	74
1991 ASM	(NA)	(NA)	(NA)	12.1	391.5	6.4	12.1	133.1	1 483.3	962.4	2 405.6	108.3	537.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.3	397.4	6.8	13.4	122.6	1 317.4	901.9	2 155.8	129.9	494.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.5	384.0	7.0	12.7	118.1	1 121.5	895.6	2 008.3	123.6	422.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.7	340.9	6.5	12.3	112.3	1 039.7	742.0	1 749.5	89.1	381.7	(NA)	(NA)
1987 Census	174	241	114	13.3	322.1	6.8	12.1	107.3	943.0	676.1	1 614.1	69.9	350.9	87	75

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2833, MEDICINALS AND BOTANICALS								
1992 Census	45 162	57	2 041	18.91	50	60	258 900	17	222.89
1991 ASM	43 216	58	1 986	20.06	51	59	253 312	17	221.43
1990 ASM	38 844	60	2 015	17.35	52	61	219 468	18	182.61
1989 ASM	36 868	58	2 015	16.29	55	63	195 237	19	167.35
1988 ASM	33 752	55	1 887	16.09	49	59	184 619	18	178.31
1987 Census	32 457	53	1 967	15.32	48	59	153 509	21	148.39
1986 ASM	31 494	53	2 000	14.15	41	57	117 399	27	111.74
1985 ASM	31 688	55	2 035	13.61	40	55	125 529	25	112.62
1984 ASM	28 757	55	1 895	12.50	42	57	115 168	25	110.69
1983 ASM	26 667	55	1 939	12.14	38	52	116 243	23	108.29
1982 Census	26 022	57	2 049	10.95	39	53	115 433	23	98.31
1981 ASM	24 195	59	2 000	10.71	45	58	105 920	23	90.34
1980 ASM	21 806	59	2 011	9.92	45	57	101 426	21	85.91
1979 ASM	18 767	58	2 060	8.60	44	56	92 918	20	78.42
1978 ASM	16 596	57	2 084	7.69	44	56	79 870	21	67.40
1977 Census	15 271	58	2 036	7.44	39	51	80 708	19	67.96
	INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS								
1992 Census	40 305	51	2 030	14.71	27	37	303 170	13	293.38
1991 ASM	38 825	46	1 976	14.77	27	38	270 937	14	298.96
1990 ASM	38 462	43	1 976	14.71	27	39	227 710	17	269.50
1989 ASM	36 267	44	1 947	13.83	27	40	207 685	17	242.39
1988 ASM	33 421	46	1 957	12.93	27	40	197 357	17	221.24
1987 Census	31 672	46	1 962	12.42	26	39	181 486	17	203.26
1986 ASM	30 437	47	1 934	12.00	27	41	165 845	18	181.48
1985 ASM	29 231	47	1 914	11.60	25	40	155 241	19	170.79
1984 ASM	27 198	48	1 859	10.96	27	42	136 693	20	152.46
1983 ASM	25 656	50	1 900	10.22	28	43	125 112	21	131.60
1982 Census	24 538	50	1 929	9.70	29	45	108 392	23	112.37
1981 ASM	22 361	50	1 938	8.88	32	48	92 404	24	96.01
1980 ASM	20 214	51	1 835	8.27	30	48	81 656	25	88.03
1979 ASM	18 235	51	1 886	7.41	31	48	74 723	24	77.22
1978 ASM	17 534	49	1 980	6.80	30	48	69 748	25	71.34
1977 Census	16 056	50	1 951	6.33	30	47	64 987	25	66.73
	INDUSTRY 2835, DIAGNOSTIC SUBSTANCES								
1992 Census	41 666	37	2 021	14.03	25	49	130 555	32	176.14
1991 ASM	41 098	32	1 960	18.17	25	51	118 587	35	186.44
1990 ASM	33 490	44	1 985	11.80	28	48	120 141	28	136.65
1989 ASM	32 720	42	1 985	11.54	32	55	96 938	34	115.61
1988 ASM	29 407	46	2 040	10.93	33	54	97 062	30	102.77
1987 Census	28 383	44	2 000	10.74	30	50	100 864	28	114.21
	INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC								
1992 Census	34 087	43	1 888	12.48	33	49	149 707	23	182.42
1991 ASM	32 355	53	1 891	11.00	40	56	122 587	26	122.59
1990 ASM	29 880	51	1 971	9.15	42	60	99 053	30	98.31
1989 ASM	26 483	48	1 814	9.30	45	64	77 345	34	88.31
1988 ASM	24 883	47	1 892	9.13	42	62	75 891	33	84.53
1987 Census	24 218	51	1 779	8.87	42	62	70 902	34	77.93

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992													1987	
		All establishments		All employees		Production workers									
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2833, MEDICINALS AND BOTANICALS														
United States	–	**225**	**74**	**13.0**	**587.1**	**7.4**	**15.1**	**285.6**	**3 365.7**	**3 245.9**	**6 438.5**	**550.5**	**11.6**	**1 780.7**
California	–	38	12	.9	28.5	.5	1.0	11.6	111.1	65.4	171.2	5.7	G	(D)
Colorado	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	–	6	5	.8	40.4	.4	.9	17.4	65.0	232.5	275.6	(D)	F	(D)
Indiana	–	3	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2833, MEDICINALS AND BOTANICALS—Con.														
Michigan	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	11.9
Minnesota	–	6	3	.2	6.6	.1	.1	1.7	12.0	25.6	36.2	.6	(NA)	(NA)
Missouri	E3	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	23	14	3.0	178.9	1.7	3.4	80.8	897.2	707.5	1 573.8	70.7	4.1	630.7
New York	–	16	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.2	F	(D)
North Carolina	–	8	3	.5	21.4	.3	.7	12.4	140.7	76.3	214.9	(D)	E	(D)
Pennsylvania	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	11	2	.1	3.6	.1	.2	2.3	59.0	24.3	81.3	.9	(NA)	(NA)
Virginia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS														
United States	**–**	**691**	**365**	**122.8**	**4 949.4**	**62.5**	**126.9**	**1 866.5**	**37 229.3**	**13 542.5**	**50 417.9**	**2 450.0**	**131.6**	**23 883.6**
Arizona	–	7	4	.9	30.0	.6	1.4	16.7	169.5	80.8	258.4	12.5	F	(D)
California	–	85	41	10.6	455.3	4.6	10.1	133.5	2 198.4	1 259.4	3 402.6	168.6	(NA)	(D)
Colorado	–	14	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Connecticut	–	11	7	8.0	460.9	1.5	3.0	57.5	1 118.3	406.0	1 544.8	149.8	(NA)	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E2	27	11	1.4	42.5	.7	1.4	15.5	133.2	74.7	202.9	6.8	.7	44.4
Georgia	E2	12	8	.7	29.0	.2	.4	3.6	61.5	33.0	92.4	8.1	.3	33.5
Illinois	–	32	16	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	15	7	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	E6	11	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.5	E	(D)
Kansas	–	7	6	1.2	39.9	.5	.9	10.0	166.9	88.5	255.4	5.5	F	(D)
Louisiana	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	F	(D)
Maryland	–	11	4	.8	24.6	.5	1.1	14.8	66.7	44.7	106.6	3.7	.7	60.3
Massachusetts	–	19	10	1.8	75.9	.9	2.0	25.3	330.5	118.1	439.4	55.9	G	(D)
Michigan	–	20	11	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	11	6	.5	17.3	.2	.5	6.1	92.4	44.4	136.3	5.9	E	(D)
Mississippi	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	29	10	2.1	70.9	1.1	2.2	30.5	1 207.2	334.4	1 482.9	46.6	3.0	1 061.6
Nebraska	–	6	3	.6	18.2	.3	.6	8.1	118.4	74.3	180.9	(D)	E	(D)
New Hampshire	E1	5	2	.1	2.6	.1	.1	.8	9.9	3.3	13.2	1.2	(NA)	(NA)
New Jersey	–	79	54	24.1	1 079.5	9.2	16.8	262.0	7 032.0	2 210.4	9 166.9	489.5	22.5	4 708.5
New York	–	75	49	13.5	485.8	7.5	14.1	220.0	3 397.0	1 154.3	4 532.6	150.1	(NA)	(D)
North Carolina	–	25	15	9.3	288.8	6.4	12.1	160.4	4 790.7	1 339.7	6 097.0	246.8	(NA)	(D)
Ohio	–	24	12	2.2	79.5	1.3	2.5	36.8	1 209.2	253.7	1 463.9	33.7	(NA)	(D)
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	E1	10	2	.3	6.1	.2	.3	3.0	22.5	24.5	46.1	(D)	.2	14.7
Pennsylvania	–	44	24	11.4	497.3	5.7	11.5	203.8	5 296.2	2 321.5	7 625.3	(D)	14.1	3 139.9
Rhode Island	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	8	6	1.5	39.9	1.1	2.3	29.1	481.0	149.9	633.5	10.1	1.3	336.0
Tennessee	–	9	5	3.4	111.1	1.9	3.6	35.9	965.6	307.1	1 279.2	40.3	(NA)	(D)
Texas	–	31	11	5.0	204.1	2.9	6.1	95.5	701.1	391.0	1 101.2	14.8	4.3	485.1
Utah	–	9	6	.7	18.8	.3	.7	6.6	104.1	41.8	144.1	6.6	(NA)	(D)
Virginia	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
West Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	6	5	.5	17.5	.2	.5	6.1	62.1	33.2	94.2	(D)	.4	46.0
INDUSTRY 2835, DIAGNOSTIC SUBSTANCES														
United States	**–**	**234**	**144**	**39.8**	**1 658.3**	**14.6**	**29.5**	**413.8**	**5 196.1**	**1 701.2**	**6 837.8**	**587.3**	**15.4**	**1 553.3**
California	–	61	40	6.4	260.2	2.3	4.4	52.3	791.3	210.8	989.8	56.2	(NA)	(D)
Florida	E1	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	6	3	.3	8.0	.2	.4	3.7	19.5	8.3	27.5	1.1	(NA)	(D)
Illinois	–	7	5	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	11	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	123.8
Massachusetts	–	18	16	2.3	94.7	1.1	2.1	32.6	317.5	79.4	394.3	23.8	F	(D)
Michigan	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	7	4	.6	10.7	.3	.6	7.0	41.0	17.4	58.3	(D)	(NA)	(NA)
Missouri	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	15	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	E4	15	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.7	1.3	97.4
North Carolina	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	3	3	.2	4.7	.1	.2	1.8	8.0	2.5	10.2	.3	(NA)	(NA)
Pennsylvania	–	7	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2835, DIAGNOSTIC SUBSTANCES—Con.														
Rhode Island	E8	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	12	5	.3	10.4	.1	.3	2.8	24.7	14.4	39.5	.9	.4	37.0
Utah	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E6	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC														
United States	**E1**	**275**	**140**	**18.4**	**627.2**	**8.0**	**15.1**	**188.4**	**2 754.6**	**1 313.5**	**3 974.0**	**294.3**	**13.3**	**943.0**
Arkansas	E1	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	32	14	5.6	247.3	1.2	2.3	41.2	1 236.3	407.3	1 571.9	170.4	3.1	151.5
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Delaware	E2	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E2	9	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	E	(D)
Georgia	–	6	2	.2	6.4	.1	.2	1.8	22.0	8.4	30.1	(D)	(NA)	(D)
Illinois	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	10	5	.8	21.4	.4	.8	9.4	124.7	64.9	191.4	(D)	.9	92.4
Kansas	–	10	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E1	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E1	10	5	.6	23.7	.3	.6	9.1	58.7	24.5	80.3	2.7	E	(D)
Massachusetts	E2	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	E7	8	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	6	4	.3	6.6	.2	.4	3.0	20.9	9.2	29.0	(D)	E	(D)
Missouri	E1	12	3	.5	14.1	.3	.4	5.3	36.9	22.6	60.3	2.3	F	(D)
Nebraska	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E4	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E6	11	9	1.1	33.6	.5	.9	13.1	123.6	107.5	220.1	9.2	E	(D)
North Carolina	E1	7	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	12.9	F	(D)
Ohio	E1	12	5	.4	6.3	.3	.5	4.3	17.2	16.6	34.3	.6	E	(D)
Oklahoma	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	21	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	94.2
South Dakota	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	7	4	.4	8.4	.3	.4	3.5	9.8	10.4	20.3	.4	E	(D)
Texas	E1	22	3	.3	8.1	.2	.4	3.5	18.0	11.4	29.7	1.0	(NA)	(D)
Utah	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	E2	8	8	.6	18.8	.3	.5	6.3	58.5	22.2	79.1	4.4	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Medicinals and botanicals (SIC 2833)	Pharmaceutical preparations (SIC 2834)	Diagnostic substances (SIC 2835)	Biological products, except diagnostic (SIC 2836)
Companies ---- number	208	585	205	193
All establishments ---- number	225	691	234	275
With 1 to 19 employees ---- number	151	326	90	135
With 20 to 99 employees ---- number	54	175	89	103
With 100 employees or more ---- number	20	190	55	37
Employment and labor costs:				
Employees ---- 1,000	13.0	122.8	39.8	18.4
Compensation, total ---- mil dol	703.1	6 175.3	2 069.3	777.2
Annual payroll ---- mil dol	587.1	4 949.4	1 658.3	627.2
Fringe benefits ---- mil dol	116.0	1 225.9	411.0	149.9
Social Security and other legally required payments ---- mil dol	43.9	418.6	143.2	53.6
Employer voluntary payments ---- mil dol	72.1	807.3	267.8	96.3

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Medicinals and botanicals (SIC 2833)	Pharmaceutical preparations (SIC 2834)	Diagnostic substances (SIC 2835)	Biological products, except diagnostic (SIC 2836)
Production workers:				
Average for year ---- 1,000	7.4	62.5	14.6	8.0
March ---- 1,000	7.4	62.7	14.5	7.9
May ---- 1,000	7.5	62.4	14.6	7.9
August ---- 1,000	7.5	62.7	14.7	8.2
November ---- 1,000	7.4	62.3	14.7	8.2
Hours ---- millions	15.1	126.9	29.5	15.1
Wages ---- mil dol	285.6	1 866.5	413.8	188.4
Cost of materials[1] ---- mil dol	3 245.9	13 542.5	1 701.2	1 313.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	2 947.2	10 750.8	1 344.7	1 111.8
Resales ---- mil dol	158.1	1 832.9	276.4	81.2
Fuels ---- mil dol	47.1	130.2	14.8	8.7
Purchased electricity ---- mil dol	58.1	235.8	54.2	29.0
Contract work ---- mil dol	35.4	592.8	11.2	82.8
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	1 326.6	3 872.8	975.7	448.0
Generated less sold ---- mil kWh	(D)	432.3	–	–
Total value of shipments ---- mil dol	6 438.5	50 417.9	6 837.8	3 974.0
Value added ---- mil dol	3 365.7	37 229.3	5 196.1	2 754.6
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	781.4	5 514.9	1 024.9	664.1
Finished goods ---- mil dol	234.6	2 304.6	438.3	257.7
Work in process ---- mil dol	283.4	1 307.4	281.3	264.6
Materials and supplies ---- mil dol	263.4	1 903.0	305.3	141.8
End of 1992 ---- mil dol	934.3	6 151.2	1 105.5	753.0
Finished goods ---- mil dol	311.0	2 521.0	486.8	263.0
Work in process ---- mil dol	380.1	1 444.9	292.4	353.4
Materials and supplies ---- mil dol	243.2	2 185.3	326.3	136.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Medicinals and botanicals (SIC 2833)	Pharmaceutical preparations (SIC 2834)	Diagnostic substances (SIC 2835)	Biological products, except diagnostic (SIC 2836)
Gross book value of depreciable assets:				
Total:				
Beginning of year	2 981.0	13 853.4	2 982.7	1 366.6
New capital expenditures[1]	550.5	2 450.0	587.3	294.3
Used capital expenditures	(D)	119.7	16.2	(D)
Retirements	(D)	478.4	150.6	(D)
End of year	3 452.7	15 944.7	3 435.6	1 681.0
Buildings and other structures:				
Beginning of year	916.9	5 249.0	923.4	496.7
New capital expenditures	67.7	843.3	135.0	153.9
Used capital expenditures	(D)	47.1	5.9	(D)
Retirements	(D)	95.1	18.9	(D)
End of year	981.4	6 044.3	1 045.4	661.7
Machinery and equipment:				
Beginning of year	2 064.1	8 604.4	2 059.3	870.0
New capital expenditures[1]	482.7	1 606.7	452.3	140.4
Used capital expenditures	(D)	72.6	10.3	(D)
Retirements	(D)	383.2	131.7	(D)
End of year	2 471.3	9 900.4	2 390.3	1 019.4
Depreciation charges during 1992:				
Total	196.5	933.9	348.3	123.6
Buildings and other structures	29.0	212.6	49.1	34.6
Machinery and equipment	167.5	721.3	299.2	89.0
Rental payments:				
Total	10.6	186.4	79.1	33.0
Buildings and other structures	5.5	105.2	41.8	16.3
Machinery and equipment	5.1	81.2	37.3	16.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Medicinals and botanicals (SIC 2833)		Pharmaceutical preparations (SIC 2834)		Diagnostic substances (SIC 2835)		Biological products, except diagnostic (SIC 2836)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	8.8	(X)	64.7	(X)	12.6	(X)	6.7	(X)
Response coverage ratio (percent)[2]	95.6	(X)	87.7	(X)	94.0	(X)	82.6	(X)
Machinery	38.5	(X)	166.2	(X)	17.9	(X)	18.2	(X)
Response coverage ratio (percent)[2]	94.4	(X)	87.6	(X)	94.0	(X)	82.6	(X)
Other purchased services:								
Communications	6.7	(X)	59.5	(X)	32.1	(X)	8.2	(X)
Response coverage ratio (percent)[2]	82.9	(X)	84.8	(X)	94.0	(X)	81.3	(X)
Legal	2.0	(X)	80.0	(X)	29.7	(X)	3.9	(X)
Response coverage ratio (percent)[2]	95.6	(X)	83.5	(X)	94.0	(X)	79.0	(X)
Accounting and bookkeeping	1.6	(X)	8.5	(X)	2.3	(X)	1.1	(X)
Response coverage ratio (percent)[2]	95.6	(X)	85.2	(X)	94.0	(X)	82.6	(X)
Advertising	.8	(X)	1 099.2	(X)	113.7	(X)	12.7	(X)
Response coverage ratio (percent)[2]	95.6	(X)	83.8	(X)	94.0	(X)	82.6	(X)
Software and other data processing	2.0	(X)	55.9	(X)	11.2	(X)	1.9	(X)
Response coverage ratio (percent)[2]	95.6	(X)	87.0	(X)	94.0	(X)	82.5	(X)
Refuse removal, including hazardous waste	37.0	(X)	40.1	(X)	12.8	(X)	4.4	(X)
Response coverage ratio (percent)[2]	95.6	(X)	89.7	(X)	91.3	(X)	79.0	(X)
New machinery and equipment expenditures	482.7	(X)	1 606.7	(X)	452.3	(X)	140.4	(X)
Automobiles, trucks, etc., for highway use	1.1	1	5.7	13	34.9	3	.5	30
Computers and peripheral data processing equipment	15.4	1	163.4	1	71.7	6	19.5	10
All other	466.3	1	1 437.6	1	345.7	1	120.4	3
Adjustment ratio[3]	1.0	(X)	1.1	(X)	1.1	(X)	1.9	(X)
Cost of materials, components, parts, etc., used	2 947.2	(X)	10 750.8	(X)	1 344.7	(X)	1 111.8	(X)
Materials purchased or transferred from foreign sources[4]	976.8	3	3 329.5	2	168.4	6	125.2	7
Materials purchased or transferred from domestic sources	1 970.3	1	7 421.3	1	1 176.3	1	986.5	1
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.6	(X)	1.3	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2833, MEDICINALS AND BOTANICALS												
Total	**–**	**225**	**13.0**	**587.1**	**7.4**	**15.1**	**285.6**	**3 365.7**	**3 245.9**	**6 438.5**	**550.5**	**934.3**
Establishments with an average of–												
1 to 4 employees	–	62	.1	2.8	.1	.1	1.5	11.5	12.4	23.8	.9	3.0
5 to 9 employees	–	42	.3	6.8	.2	.3	3.8	34.9	25.9	58.3	1.5	9.9
10 to 19 employees	–	47	.7	19.9	.4	.8	10.3	241.4	124.5	357.1	4.4	39.7
20 to 49 employees	–	29	.9	24.0	.5	1.1	11.0	73.9	110.0	182.0	5.0	21.8
50 to 99 employees	–	25	1.9	67.0	.9	2.0	26.9	308.4	344.5	653.9	23.4	95.6
100 to 249 employees	–	10	9.2	466.6	5.3	10.7	232.0	2 695.7	2 628.7	5 163.4	515.2	764.3
250 to 499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	86	.3	6.5	.2	.4	3.6	17.8	19.0	36.8	1.4	4.6
INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS												
Total	**–**	**691**	**122.8**	**4 949.4**	**62.5**	**126.9**	**1 866.5**	**37 229.3**	**13 542.5**	**50 417.9**	**2 450.0**	**6 151.2**
Establishments with an average of–												
1 to 4 employees	E3	152	.2	6.9	.1	.2	2.1	85.7	29.9	115.6	55.6	4.9
5 to 9 employees	E7	73	.5	16.1	.2	.5	5.1	78.7	27.1	105.4	(D)	11.6
10 to 19 employees	E2	101	1.4	35.9	.7	1.4	12.2	181.9	102.9	284.6	9.3	36.7
20 to 49 employees	E1	110	3.7	95.3	2.0	4.0	38.7	506.2	311.1	815.7	27.3	89.9
50 to 99 employees	–	65	4.8	149.8	2.6	5.3	61.8	1 428.5	540.9	1 966.8	50.1	236.6
100 to 249 employees	–	77	11.5	357.8	6.4	13.0	151.9	1 967.8	972.0	2 912.4	192.0	425.3
250 to 499 employees	–	56	19.6	702.7	11.7	22.1	337.6	8 372.5	3 111.6	11 394.6	266.8	1 496.7
500 to 999 employees	–	30	20.5	762.6	12.7	26.1	369.9	7 562.2	2 606.1	10 077.7	316.6	1 463.7
1,000 to 2,499 employees	–	21	40.3	1 759.1	17.8	35.2	574.9	10 616.0	3 999.2	14 525.7	714.3	1 428.0
2,500 employees or more	–	6	20.2	1 063.2	8.4	19.2	312.1	6 429.8	1 841.8	8 219.4	818.1	957.9
Covered by administrative records[2]	E9	177	.6	11.9	.2	.5	3.9	47.9	16.5	64.5	2.6	6.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2835, DIAGNOSTIC SUBSTANCES												
Total	**–**	**234**	**39.8**	**1 658.3**	**14.6**	**29.5**	**413.8**	**5 196.1**	**1 701.2**	**6 837.8**	**587.3**	**1 105.5**
Establishments with an average of—												
1 to 4 employees	–	29	.1	1.7	(Z)	(Z)	.5	5.6	1.8	7.4	.2	1.1
5 to 9 employees	–	30	.2	5.4	.1	.2	1.7	16.8	5.2	21.9	.7	3.4
10 to 19 employees	–	31	.5	15.5	.2	.5	5.9	42.7	21.2	64.6	3.3	8.4
20 to 49 employees	–	58	1.8	59.2	.8	1.6	18.2	153.5	72.3	223.6	12.3	40.5
50 to 99 employees	–	31	2.2	69.6	1.1	2.1	24.0	257.9	109.5	364.9	11.5	73.6
100 to 249 employees	–	28	4.1	151.2	1.8	3.6	47.6	683.1	224.8	905.6	26.6	142.6
250 to 499 employees	E1	15	5.3	185.1	2.4	4.6	57.4	696.3	403.4	1 084.2	53.2	187.2
500 to 999 employees	–	8	5.8	279.8	2.0	3.9	57.6	982.1	248.0	1 220.8	479.4	146.3
1,000 to 2,499 employees	–	3	19.9	890.8	6.2	12.8	200.9	2 358.2	615.0	2 944.8	(D)	502.2
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	43	.2	4.1	.1	.1	1.1	13.3	3.5	16.8	.5	2.9
INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC												
Total	**E1**	**275**	**18.4**	**627.2**	**8.0**	**15.1**	**188.4**	**2 754.6**	**1 313.5**	**3 974.0**	**294.3**	**753.0**
Establishments with an average of—												
1 to 4 employees	E8	53	.1	2.9	(Z)	.1	1.0	7.2	5.4	12.6	.6	2.7
5 to 9 employees	E7	38	.3	7.6	.1	.2	2.7	22.0	12.1	34.1	2.2	6.6
10 to 19 employees	E5	44	.6	12.7	.4	.6	5.2	38.0	22.5	60.5	15.3	11.1
20 to 49 employees	E2	69	2.0	46.5	1.3	2.3	20.1	127.1	78.9	204.3	7.5	44.3
50 to 99 employees	E3	34	2.3	59.0	1.5	2.7	25.2	146.5	123.0	267.3	12.0	46.0
100 to 249 employees	E4	22	3.4	110.0	1.6	2.9	37.0	309.9	191.8	482.5	32.5	133.3
250 to 499 employees	–	7	2.5	86.2	1.0	1.8	29.1	286.1	169.3	452.9	22.4	98.0
500 to 999 employees	–	6	7.2	302.3	2.2	4.4	68.1	1 817.8	710.4	2 459.9	201.9	411.1
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	71	.3	7.3	.1	.2	2.3	14.4	11.6	26.1	1.4	5.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2833	**Medicinals and botanicals:**										
	All establishments in industry	225	13.0	587.1	7.4	15.1	285.6	3 365.7	3 245.9	6 438.5	550.5
	Establishments with this product class primary:										
28331	Synthetic organic medicinal chemicals, in bulk	57	10.2	508.7	5.8	11.9	253.7	3 013.9	2 815.2	5 658.4	531.0
28333	Other medicinal chemicals and botanical products, in bulk, n.e.c.	46	2.1	61.5	1.1	2.3	22.9	297.1	373.4	668.0	15.3
2834	**Pharmaceutical preparations:**										
	All establishments in industry	691	122.8	4 949.4	62.5	126.9	1 866.5	37 229.3	13 542.5	50 417.9	2 450.0
	Establishments with this product class primary:										
28341	Pharmaceutical preparations affecting neoplasms, the endocrine system, and metabolic diseases, for human use	16	9.8	503.9	5.3	12.0	207.3	3 603.3	1 078.7	4 643.5	311.3
28342	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use	64	29.5	1 254.3	14.3	28.1	419.5	7 628.0	2 790.5	10 268.9	550.3
28343	Pharmaceutical preparations acting on the cardiovascular system, for human use	23	6.5	269.6	2.5	5.0	86.8	2 754.5	1 062.3	3 749.7	84.4
28344	Pharmaceutical preparations acting on the respiratory system, for human use	34	15.9	668.8	6.6	12.4	192.2	5 742.1	1 204.2	6 898.2	299.9
28345	Pharmaceutical preparations acting on the digestive or the genito-urinary systems, for human use	21	5.9	253.2	3.4	7.4	127.3	5 544.6	2 566.5	8 123.8	235.9
28346	Pharmaceutical preparations acting on the skin, for human use	42	6.7	257.2	3.5	7.0	81.2	1 084.8	483.3	1 558.8	61.5
28347	Vitamin, nutrient, and hematinic preparations, for human use	80	18.4	532.6	12.6	24.8	297.1	1 764.6	1 199.1	2 953.0	119.9
28348	Pharmaceutical preparations affecting parasitic and infective diseases, for human use	32	21.1	968.1	10.0	21.7	365.6	8 053.2	2 626.0	10 641.4	671.4
28349	Pharmaceutical preparations, for veterinary use	38	3.1	95.1	1.2	2.4	29.7	442.5	320.2	759.0	37.5

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2835	**Diagnostic substances:**										
	All establishments in industry	234	39.8	1 658.3	14.6	29.5	413.8	5 196.1	1 701.2	6 837.8	587.3
	Establishments with this product class primary:										
28351	Diagnostic substances, in vitro	159	36.8	1 553.5	13.2	26.5	375.3	4 576.4	1 512.0	6 034.6	565.4
28352	Diagnostic substances, in vivo	14	2.3	88.0	1.1	2.4	33.3	573.7	176.0	744.0	19.9
2836	**Biological products, except diagnostic:**										
	All establishments in industry	275	18.4	627.2	8.0	15.1	188.4	2 754.6	1 313.5	3 974.0	294.3
	Establishments with this product class primary:										
28361	Blood and blood derivatives, for human use	73	5.5	159.4	3.5	6.3	73.5	692.0	683.3	1 352.9	50.8
28362	Vaccines, toxoids, and antigens, except allergens, for human use	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28363	Other biologics for human use	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28364	Biological products for veterinary, industrial, and other uses, n.e.c., except diagnostics	60	6.2	190.4	2.8	5.4	66.6	724.5	320.2	1 034.0	71.7

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2833, MEDICINALS AND BOTANICALS			
Total value of shipments	6 438.5	3 350.2	3 397.9
Primary products value of shipments	5 800.9	2 929.5	2 749.1
Secondary products value of shipments	431.5	288.5	548.9
Total miscellaneous receipts	206.0	132.2	99.9
Value of resales	197.8	127.5	83.2
Contract receipts	7.6	3.0	15.4
Other miscellaneous receipts	.7	1.7	1.3
Primary products specialization ratio	93	91	83
Value of primary products shipments made in all industries	6 949.7	4 224.4	3 732.7
Value of primary products shipments made in this industry	5 800.9	2 929.5	2 749.1
Value of primary products shipments made in other industries	1 148.8	1 294.9	983.7
Coverage ratio	83	69	74
INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS			
Total value of shipments	50 417.9	32 094.1	18 997.6
Primary products value of shipments	41 091.4	25 817.0	16 072.8
Secondary products value of shipments	3 720.9	2 835.8	1 972.0
Total miscellaneous receipts	5 605.6	3 441.3	952.8
Value of resales	5 259.4	3 391.7	908.8
Contract receipts	158.2	41.5	35.6
Other miscellaneous receipts	188.0	8.1	8.4
Sales of scrap and refuse	(D)	(NA)	.5
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	118.6	(NA)	3.4
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	92	90	89
Value of primary products shipments made in all industries	43 095.5	26 610.3	16 690.5
Value of primary products shipments made in this industry	41 091.4	25 817.0	16 072.8
Value of primary products shipments made in other industries	2 004.0	793.3	617.7
Coverage ratio	95	97	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2835, DIAGNOSTIC SUBSTANCES			
Total value of shipments	6 837.8	2 205.0	(NA)
Primary products value of shipments	5 207.6	1 829.3	(NA)
Secondary products value of shipments	1 091.8	226.3	(NA)
Total miscellaneous receipts	538.4	149.5	(NA)
Value of resales	460.9	121.4	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Sales of scrap and refuse	(D)	(NA)	(NA)
Receipts for research and development	11.1	(NA)	(NA)
Other miscellaneous receipts	28.8	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	–	(NA)	(NA)
Primary products specialization ratio	83	89	(NA)
Value of primary products shipments made in all industries	6 177.1	2 683.4	(NA)
Value of primary products shipments made in this industry	5 207.6	1 829.3	(NA)
Value of primary products shipments made in other industries	969.5	854.1	(NA)
Coverage ratio	84	68	(NA)
INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC			
Total value of shipments	3 974.0	1 614.1	(NA)
Primary products value of shipments	3 328.2	1 319.8	(NA)
Secondary products value of shipments	376.2	188.7	(NA)
Total miscellaneous receipts	269.6	105.6	(NA)
Value of resales	167.7	84.8	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Sales of scrap and refuse	(D)	(NA)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	16.5	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	–	(NA)	(NA)
Primary products specialization ratio	90	87	(NA)
Value of primary products shipments made in all industries	4 494.0	1 765.2	(NA)
Value of primary products shipments made in this industry	3 328.2	1 319.8	(NA)
Value of primary products shipments made in other industries	1 165.8	445.4	(NA)
Coverage ratio	74	75	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2833– —	**MEDICINALS AND BOTANICALS**				
	Total	**(NA)**	**6 949.7**	**(NA)**	**4 224.4**
28331	Synthetic organic medicinal chemicals, in bulk	(NA)	5 774.9	(NA)	3 648.0
28331 10	Antibiotics, including all uses such as veterinary, food supplements, food preservation, etc.; except preparations	23	3 169.6	23	1 895.2
28331 20	Other synthetic organic medicinal chemicals, except antibiotics	54	2 523.9	42	1 743.8
28331 00	Synthetic organic medicinal chemicals, in bulk, n.s.k.	(NA)	81.4	(NA)	8.9
28333	Other medicinal chemicals and botanical products, in bulk, n.e.c.	(NA)	1 070.5	(NA)	370.5
	Botanical drugs:				
28333 15	Alkaloids, including opium and nicotine	7	18.8	4	25.9
28333 18	Other botanical drugs, including glycosides and ginseng extract	9	46.7	8	63.2
	Naturally occurring vitamins:				
28333 23	Vitamin C	16	63.5	8	15.2
28333 24	Vitamin E	12	145.6	10	32.9
28333 26	Other naturally occurring vitamins (from yeast, fish, liver, etc.)	12	66.9	14	20.3
28333 44	Drugs of animal origin, including hormones, dried glands, organs, and tissues and extractions thereof	6	36.5	(NA)	15.3
28333 92	Artificial mixtures of two substances or more for therapeutic or prophylactic uses	12	254.3	(NA)	38.7
28333 99	Other organic and inorganic medicinal chemicals, except diagnostics	33	413.6	(NA)	125.3
28333 00	Other medicinal chemicals and botanical products, in bulk, n.e.c., n.s.k.	(NA)	24.6	(NA)	33.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2833– —	**MEDICINALS AND BOTANICALS**—Con.				
28330	Medicinals and botanicals, n.s.k.	(NA)	104.3	(NA)	205.9
28330 00	Medicinals and botanicals, n.s.k.[2]	(NA)	68.8	(NA)	89.3
28330 02	Medicinals and botanicals, n.s.k.[3]	(NA)	35.5	(NA)	116.6
2834– —	**PHARMACEUTICAL PREPARATIONS**				
	Total	**(NA)**	**43 095.5**	**(NA)**	**26 610.3**
28341	Pharmaceutical preparations affecting neoplasms, the endocrine system, and metabolic diseases, for human use	(NA)	3 509.5	(NA)	1 946.1
28341 00	Pharmaceutical preparations affecting neoplasms, the endocrine system, and metabolic diseases, for human use[4]	68	3 509.5	69	1 946.1
28342	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use	(NA)	8 416.8	(NA)	5 654.4
28342 00	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use[4]	118	8 416.8	111	5 654.4
28343	Pharmaceutical preparations acting on the cardiovascular system, for human use	(NA)	5 076.6	(NA)	3 712.9
28343 00	Pharmaceutical preparations acting on the cardiovascular system, for human use[4]	73	5 076.6	69	3 712.9
28344	Pharmaceutical preparations acting on the respiratory system, for human use	(NA)	5 037.0	(NA)	2 738.0
28344 00	Pharmaceutical preparations acting on the respiratory system, for human use[4]	103	5 037.0	91	2 738.0
28345	Pharmaceutical preparations acting on the digestive or the genito-urinary systems, for human use	(NA)	7 026.3	(NA)	2 874.6
28345 00	Pharmaceutical preparations acting on the digestive or the genito-urinary system, for human use[4]	104	7 026.3	106	2 874.6
28346	Pharmaceutical preparations acting on the skin, for human use	(NA)	1 745.9	(NA)	1 251.9
28346 00	Pharmaceutical preparations acting on the skin, for human use[4]	108	1 745.9	108	1 251.9
28347	Vitamin, nutrient, and hematinic preparations, for human use	(NA)	3 131.7	(NA)	2 566.0
28347 00	Vitamin, nutrient, and hematinic preparations, for human use[4]	126	3 131.7	108	2 566.0
28348	Pharmaceutical preparations affecting parasitic and infective diseases, for human use	(NA)	7 127.0	(NA)	4 034.1
28348 00	Pharmaceutical preparations affecting parasitic and infective diseases, for human use[4]	79	7 127.0	80	4 034.1
28349	Pharmaceutical preparations, for veterinary use	(NA)	1 306.9	(NA)	994.6
28349 00	Pharmaceutical preparations, for veterinary use[4]	89	1 306.9	85	994.6
28340	Pharmaceutical preparations, n.s.k.	(NA)	717.7	(NA)	837.7
28340 00	Pharmaceutical preparations, n.s.k.[2]	(NA)	653.9	(NA)	507.8
28340 02	Pharmaceutical preparations, n.s.k.[3]	(NA)	63.8	(NA)	329.9
2835– —	**DIAGNOSTIC SUBSTANCES**				
	Total	**(NA)**	**6 177.1**	**(NA)**	**2 683.4**
28351	Diagnostic substances, in vitro	(NA)	5 067.7	(NA)	1 900.5
	Clinical chemistry products (including toxicology):				
28351 10	Reagents	74	2 877.5	50	1 185.1
28351 15	Standards and controls	31	238.9	22	83.9
28351 20	Blood bank products	7	249.7	9	81.2
28351 25	Hematology products	14	60.2	15	85.7
28351 30	Coagulation products	6	(D)	4	(D)
28351 35	Microbiology, virology, serology, cytology, and histology products	42	355.2	29	208.2
28351 40	Culture media	28	302.5	14	108.0
28351 45	Other in vitro diagnostics	55	698.1	29	(D)
28351 00	Diagnostic substances, in vitro, n.s.k.	(NA)	(D)	(NA)	–
28352	Diagnostic substances, in vivo	(NA)	1 051.8	(NA)	679.6
28352 12	Contrast media products (both iodinated and barium products), including angiourographic agents	5	(D)	(NA)	562.8
28352 20	In vivo radioactive reagents (both diagnostic and therapeutic)	7	323.2	3	91.1
28352 25	Other in vivo diagnostics	10	(D)	4	25.7
28352 00	Diagnostic substances, in vivo, n.s.k.	(NA)	–	(NA)	–
28350	Diagnostic substances, n.s.k.	(NA)	57.6	(NA)	103.4
28350 00	Diagnostic substances, n.s.k.[5]	(NA)	42.3	(NA)	75.7
28350 02	Diagnostic substances, n.s.k.[6]	(NA)	15.3	(NA)	27.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2836– –	**BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC**				
	Total	**(NA)**	**4 494.0**	**(NA)**	**1 765.2**
28361	Blood and blood derivatives, for human use	(NA)	1 051.9	(NA)	578.0
28361 15	Human blood plasma	6	(D)	(NA)	572.1
28361 20	Other blood and blood derivatives or fractions, except those used for passive immunization	9	(D)	(NA)	–
28361 00	Blood and blood derivatives, for human use, n.s.k.	(NA)	–	(NA)	5.8
28362	Vaccines, toxoids, and antigens, except allergens, for human use	(NA)	983.2	(NA)	433.6
28362 00	Vaccines, toxoids, and antigens, except allergens, for human use	7	983.2	(NA)	433.6
28363	Other biologics for human use	(NA)	1 418.9	(NA)	172.8
28363 10	Antitoxins, antivenoms, immune globulins, therapeutic immune serums, etc., for therapeutic use and passive immunization	17	1 381.0		
28363 20	Allergenic extracts and other biologics for human use including poison ivy and oak extracts, except diagnostic allergens	9	38.0		
28363 00	Other biologics for human use, n.s.k.	(NA)	–	(NA)	–
28364	Biological products for veterinary, industrial, and other uses, n.e.c., except diagnostics	(NA)	795.7	(NA)	379.8
28364 10	Veterinary vaccines, including vaccines against foot-and-mouth disease	21	310.3	20	214.6
28364 15	Bacterins, toxoids, and other antigens, except allergens, for active immunization	13	99.4	9	31.5
28364 22	Other biologics including veterinary blood derivatives, antitoxins, immune serums, and allergens, except diagnostics	17	71.2	(NA)	20.2
28364 30	Biological products for industrial and other uses, except culture media	29	251.3	14	92.8
28364 00	Biological products for veterinary, industrial, and other uses, n.e.c., except diagnostics, n.s.k.	(NA)	63.5	(NA)	20.8
28360	Biological products, except diagnostic, n.s.k.	(NA)	244.3	(NA)	201.0
28360 00	Biological products, except diagnostic, n.s.k.[2]	(NA)	218.2	(NA)	153.3
28360 02	Biological products, except diagnostic, n.s.k.[3]	(NA)	26.1	(NA)	47.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Typically for establishments with 15 employees or more.
[3]Typically for establishments with less than 15 employees.
[4]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[5]Typically for establishments with 10 employees or more.
[6]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28331, SYNTHETIC ORGANIC MEDICINAL CHEMICALS, IN BULK		
United States	**5 774.9**	**3 648.0**
California	75.2	29.6
Georgia	269.9	(NA)
Massachusetts	8.9	(NA)
Michigan	310.3	330.0
Missouri	110.0	133.4
New Jersey	1 444.6	849.1
New York	108.7	119.8
North Carolina	185.9	(NA)
South Carolina	59.1	(NA)
28333, OTHER MEDICINAL CHEMICALS AND BOTANICAL PRODUCTS, IN BULK, N.E.C.		
United States	**1 070.5**	**370.5**
California	132.6	56.2
Minnesota	31.3	(NA)
New Jersey	58.8	100.7
New York	35.1	32.3
North Carolina	4.4	(NA)
Texas	12.1	(NA)
28341, PHARMACEUTICAL PREPARATIONS AFFECTING NEOPLASMS, THE ENDOCRINE SYSTEM, AND METABOLIC DISEASES, FOR HUMAN USE		
United States	**3 509.5**	**1 946.1**
California	330.2	126.8
Colorado	7.7	(NA)
Illinois	122.9	58.7
New Jersey	946.8	284.4
New York	437.2	312.1
Ohio	115.7	40.7
28342, PHARMACEUTICAL PREPARATIONS ACTING ON THE CENTRAL NERVOUS SYSTEM AND THE SENSE ORGANS, FOR HUMAN USE		
United States	**8 416.8**	**5 654.4**
California	447.4	294.8
Illinois	171.2	(NA)
Missouri	43.7	(NA)
New Jersey	2 129.6	1 081.4
New York	994.4	648.1

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28342, PHARMACEUTICAL PREPARATIONS ACTING ON THE CENTRAL NERVOUS SYSTEM AND THE SENSE ORGANS, FOR HUMAN USE—Con.		
Ohio	127.1	209.9
Pennsylvania	1 173.4	1 411.3
Tennessee	56.5	64.2
Texas	434.8	(NA)
28343, PHARMACEUTICAL PREPARATIONS ACTING ON THE CARDIOVASCULAR SYSTEM, FOR HUMAN USE		
United States	**5 076.6**	**3 712.9**
California	365.0	38.3
Illinois	185.1	94.8
Michigan	83.7	(NA)
New Jersey	789.5	1 100.3
New York	319.8	464.4
Ohio	55.1	60.4
28344, PHARMACEUTICAL PREPARATIONS ACTING ON THE RESPIRATORY SYSTEM, FOR HUMAN USE		
United States	**5 037.0**	**2 738.0**
California	167.2	81.5
Georgia	7.7	(NA)
Illinois	156.4	85.7
New Jersey	895.2	749.2
New York	143.2	184.6
North Carolina	647.4	391.5
Pennsylvania	842.1	435.7
28345, PHARMACEUTICAL PREPARATIONS ACTING ON THE DIGESTIVE OR THE GENITO-URINARY SYSTEMS, FOR HUMAN USE		
United States	**7 026.3**	**2 874.6**
Illinois	16.5	30.5
Maryland	36.7	16.1
New Jersey	442.2	258.7
Ohio	52.0	79.3
Tennessee	86.3	105.7
Virginia	95.5	50.2
28346, PHARMACEUTICAL PREPARATIONS ACTING ON THE SKIN, FOR HUMAN USE		
United States	**1 745.9**	**1 251.9**
California	94.8	51.9
Connecticut	117.3	(NA)
Illinois	67.6	34.3
New Jersey	334.7	229.3
New York	259.7	201.3
North Carolina	73.2	30.7
Pennsylvania	222.4	161.1
Tennessee	142.9	(NA)
Texas	47.6	42.0
28347, VITAMIN, NUTRIENT, AND HEMATINIC PREPARATIONS, FOR HUMAN USE		
United States	**3 131.7**	**2 566.0**
California	598.7	369.4
Illinois	184.9	(NA)
Michigan	72.3	37.8
Missouri	42.3	(NA)
New Jersey	263.6	298.9
New York	493.2	279.0
North Carolina	582.4	(NA)
Ohio	26.8	(NA)
Pennsylvania	34.9	47.3
South Carolina	118.9	(NA)
28348, PHARMACEUTICAL PREPARATIONS AFFECTING PARASITIC AND INFECTIVE DISEASES, FOR HUMAN USE		
United States	**7 127.0**	**4 034.1**
Missouri	27.5	(NA)
New Jersey	975.1	623.0
New York	704.1	505.0
Pennsylvania	968.5	694.9
Texas	51.9	(NA)
28349, PHARMACEUTICAL PREPARATIONS, FOR VETERINARY USE		
United States	**1 306.9**	**994.6**
Illinois	49.4	44.0
Iowa	120.6	75.6
Kansas	97.8	56.7
Minnesota	22.0	(NA)
Missouri	186.5	(NA)
New Jersey	105.3	208.4
New York	38.6	29.4
Ohio	9.9	(NA)
Pennsylvania	17.8	23.5
Tennessee	41.0	(NA)
28351, DIAGNOSTIC SUBSTANCES, IN VITRO		
United States	**5 067.7**	**1 900.5**
California	1 046.8	411.3
Georgia	25.4	(NA)
Maryland	251.8	175.3
Massachusetts	205.3	51.6
Minnesota	55.3	(NA)
New Jersey	365.1	163.2
New York	85.5	93.0
Ohio	36.4	(NA)
Oregon	9.3	(NA)
Pennsylvania	69.0	34.5
Texas	30.7	185.1
Wisconsin	17.8	(NA)
28352, DIAGNOSTIC SUBSTANCES, IN VIVO		
United States	**1 051.8**	**679.6**
28361, BLOOD AND BLOOD DERIVATIVES, FOR HUMAN USE		
United States	**1 051.9**	**578.0**
Pennsylvania	11.5	(NA)
28362, VACCINES, TOXOIDS, AND ANTIGENS, EXCEPT ALLERGENS, FOR HUMAN USE		
United States	**983.2**	**433.6**
28363, OTHER BIOLOGICS FOR HUMAN USE		
United States	**1 418.9**	**172.8**
Pennsylvania	22.2	(NA)
28364, BIOLOGICAL PRODUCTS FOR VETERINARY, INDUSTRIAL, AND OTHER USES, N.E.C., EXCEPT DIAGNOSTICS		
United States	**795.7**	**379.8**
Iowa	131.1	76.3
Kansas	45.1	25.5
Maryland	65.4	(NA)
Minnesota	14.6	(NA)
New York	70.2	(NA)
Pennsylvania	9.6	(NA)
Texas	5.3	(NA)
Wisconsin	73.5	29.6

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2833-	**Medicinals and botanicals**	**6 949.7**	**6 647.0**	**5 789.0**	**5 392.6**	**4 948.1**	**4 224.4**	**3 732.7**	**2 205.9**
28331	Synthetic organic medicinal chemicals, in bulk	5 774.9	5 928.1	5 305.7	4 858.2	4 443.1	3 648.0	3 101.4	1 787.8
28333	Other medicinal chemicals and botanical products, in bulk, n.e.c.	1 070.5	355.6	268.9	324.5	306.4	370.5	405.0	313.7
28330	Medicinals and botanicals, n.s.k.	104.3	363.3	214.3	209.9	198.6	205.9	226.3	104.4
2834-	**Pharmaceutical preparations**	**43 095.5**	**37 415.5**	**35 279.9**	**32 712.6**	**29 554.5**	**26 610.3**	**16 690.5**	**9 639.5**
28341	Pharmaceutical preparations affecting neoplasms, the endocrine system, and metabolic diseases, for human use	3 509.5	2 885.9	2 743.5	2 504.5	2 005.5	1 946.1	1 635.1	905.3
28342	Pharmaceutical preparations acting on the central nervous system and the sense organs, for human use	8 416.8	7 254.5	7 028.6	6 382.8	5 936.4	5 654.4	3 758.8	2 254.4
28343	Pharmaceutical preparations acting on the cardiovascular system, for human use	5 076.6	4 697.4	5 245.8	5 006.0	4 323.3	3 712.9	1 836.6	748.4
28344	Pharmaceutical preparations acting on the respiratory system, for human use	5 037.0	4 157.6	3 703.7	3 221.9	3 144.3	2 738.0	1 588.1	871.4
28345	Pharmaceutical preparations acting on the digestive or the genito-urinary systems, for human use	7 026.3	5 517.1	4 747.1	4 289.2	3 805.7	2 874.6	1 345.5	1 080.3
28346	Pharmaceutical preparations acting on the skin, for human use	1 745.9	1 562.0	1 535.2	1 473.2	1 408.2	1 251.9	824.5	613.1
28347	Vitamin, nutrient, and hematinic preparations, for human use	3 131.7	2 767.2	2 580.9	2 741.4	2 593.7	2 566.0	2 103.5	1 315.4
28348	Pharmaceutical preparations affecting parasitic and infective diseases, for human use	7 127.0	5 864.7	5 345.3	5 020.8	4 442.0	4 034.1	2 438.6	1 292.6
28349	Pharmaceutical preparations, for veterinary use	1 306.9	1 468.7	1 086.9	1 040.6	1 050.4	994.6	778.6	353.3
28340	Pharmaceutical preparations, n.s.k.	717.7	1 240.4	1 262.9	1 032.1	844.9	837.7	381.0	205.3
2835-	**Diagnostic substances**	**6 177.1**	**4 973.3**	**4 234.0**	**3 470.7**	**3 062.9**	**2 683.4**	**1 321.8**	**(NA)**
28351	Diagnostic substances, in vitro	5 067.7	3 965.5	3 360.6	2 801.1	2 349.1	1 900.5		(NA)
28352	Diagnostic substances, in vivo	1 051.8	838.5	746.0	576.7	614.9	679.6	1 321.8	(NA)
28350	Diagnostic substances, n.s.k.	57.6	169.2	127.4	92.9	98.9	103.4		(NA)
2836-	**Biological products, except diagnostic**	**4 494.0**	**2 844.3**	**2 528.6**	**2 219.9**	**1 966.0**	**1 765.2**	**1 094.7**	**(NA)**
28361	Blood and blood derivatives, for human use	1 051.9	885.4	837.3	795.1	671.7	578.0	361.0	243.1
28362	Vaccines, toxoids, and antigens, except allergens, for human use	983.2	852.8	801.4	580.8	473.8	433.6	188.0	99.4
28363	Other biologics for human use	1 418.9	282.2	179.3	195.7	160.1	172.8	126.2	(NA)
28364	Biological products for veterinary, industrial, and other uses, n.e.c., except diagnostics	795.7	664.2	578.9	483.1	449.6	379.8	206.0	46.6
28360	Biological products, except diagnostic, n.s.k.	244.3	159.6	131.8	165.1	210.9	201.0	213.5	87.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2833, MEDICINALS AND BOTANICALS		
	Materials, ingredients, containers, and supplies	**2 947.2**	**1 424.1**
	Antibiotics, in bulk:		
283318	For human and veterinary use	(D)	(D)
283319	For animal feeds	(D)	(1)
	Vitamins, natural and synthetic, in bulk:		
283301	For human and veterinary use	52.9	(D)
283302	For animal feeds	84.6	(1)
019101	Agricultural products (crude) including flowers, grains, seeds, herbs, etc.	63.6	33.6
200101	Processed food and kindred products including lactose, meat packing plant products, yeast, etc.	7.8	6.0
283011	Blood derivatives and extenders	(D)	(D)
283306	All other bulk medicinal and botanical uncompounded drugs, except antibiotics and vitamins	661.0	(D)
289943	Gelatin (pharmaceutical grade) and gelatin capsules	2.4	(D)
281900	Industrial inorganic chemicals, except medicinals	58.2	58.1
286504	Cyclic crudes and intermediates including organic colors	39.7	59.0
286906	Other synthetic organic chemicals including halogenated hydrocarbons	223.7	(1)
308008	Fabricated plastics products, including plastics closures, film, and packaging items, except containers	1.9	(D)
346611	Metal closures and crowns for containers	(D)	.2
270011	Labels, coupons, instructions, and other printed material	1.2	1.7
	Containers:		
308015	Plastics containers	5.8	3.7
322101	Glass containers	1.9	.3
340001	Metal containers	4.2	1.6
265001	Paperboard containers, boxes, and corrugated paperboard	12.4	8.8
970099	All other materials and components, parts, containers, and supplies	304.8	[1]294.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	121.5	180.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2834, PHARMACEUTICAL PREPARATIONS		
	Materials, ingredients, containers, and supplies	**10 750.8**	**6 374.0**
	Antibiotics, in bulk:		
283318	For human and veterinary use	1 805.3	578.2
283319	For animal feeds	77.9	(1)
	Vitamins, natural and synthetic, in bulk:		
283301	For human and veterinary use	427.8	279.2
283302	For animal feeds	19.6	(1)
019101	Agricultural products (crude) including flowers, grains, seeds, herbs, etc.	74.7	71.1
200101	Processed food and kindred products including lactose, meat packing plant products, yeast, etc.	89.4	40.3
283011	Blood derivatives and extenders	8.4	48.3
283306	All other bulk medicinal and botanical uncompounded drugs, except antibiotics and vitamins	3 687.9	1 659.1
289943	Gelatin (pharmaceutical grade) and gelatin capsules	48.8	58.5
281900	Industrial inorganic chemicals, except medicinals	281.9	86.2
286504	Cyclic crudes and intermediates including organic colors	218.4	137.4
286906	Other synthetic organic chemicals including halogenated hydrocarbons	183.2	(1)
308008	Fabricated plastics products, including plastics closures, film, and packaging items, except containers	347.5	193.4
346611	Metal closures and crowns for containers	43.5	47.9
270011	Labels, coupons, instructions, and other printed material	276.0	132.4
	Containers:		
308015	Plastics containers	349.3	254.2
322101	Glass containers	189.9	157.1
340001	Metal containers	65.3	51.9
265001	Paperboard containers, boxes, and corrugated paperboard	513.1	261.2
970099	All other materials and components, parts, containers, and supplies	1 541.1	[1]1 510.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	501.8	807.2
	INDUSTRY 2835, DIAGNOSTIC SUBSTANCES		
	Materials, ingredients, containers, and supplies	**1 344.7**	**540.8**
	Antibiotics, in bulk:		
283318	For human and veterinary use	(D)	2.7
283319	For animal feeds	–	(1)
	Vitamins, natural and synthetic, in bulk:		
283301	For human and veterinary use	(D)	(D)
283302	For animal feeds	–	(1)
019101	Agricultural products (crude) including flowers, grains, seeds, herbs, etc.	(D)	(D)
200101	Processed food and kindred products including lactose, meat packing plant products, yeast, etc.	20.7	(D)
283011	Blood derivatives and extenders	71.5	55.5
283306	All other bulk medicinal and botanical uncompounded drugs, except antibiotics and vitamins	113.5	32.1
289943	Gelatin (pharmaceutical grade) and gelatin capsules	(D)	(D)
281900	Industrial inorganic chemicals, except medicinals	109.0	97.7
286504	Cyclic crudes and intermediates including organic colors	(D)	(D)
286906	Other synthetic organic chemicals including halogenated hydrocarbons	156.9	(1)
308008	Fabricated plastics products, including plastics closures, film, and packaging items, except containers	276.7	14.3
346611	Metal closures and crowns for containers	10.6	8.6
270011	Labels, coupons, instructions, and other printed material	24.7	10.2
	Containers:		
308015	Plastics containers	27.8	11.9
322101	Glass containers	28.8	26.3
340001	Metal containers	6.0	.8
265001	Paperboard containers, boxes, and corrugated paperboard	21.3	11.3
970099	All other materials and components, parts, containers, and supplies	317.9	[1]178.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	101.4	87.0
	INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC		
	Materials, ingredients, containers, and supplies	**1 111.8**	**594.0**
	Antibiotics, in bulk:		
283318	For human and veterinary use	51.1	19.5
283319	For animal feeds	–	(1)
	Vitamins, natural and synthetic, in bulk:		
283301	For human and veterinary use	2.0	2.6
283302	For animal feeds	(D)	(1)
019101	Agricultural products (crude) including flowers, grains, seeds, herbs, etc.	23.0	6.9
200101	Processed food and kindred products including lactose, meat packing plant products, yeast, etc.	28.4	5.4
283011	Blood derivatives and extenders	486.7	(D)
283306	All other bulk medicinal and botanical uncompounded drugs, except antibiotics and vitamins	25.7	29.9
289943	Gelatin (pharmaceutical grade) and gelatin capsules	(D)	(D)
281900	Industrial inorganic chemicals, except medicinals	31.5	17.2
286504	Cyclic crudes and intermediates including organic colors	(D)	(D)
286906	Other synthetic organic chemicals including halogenated hydrocarbons	1.8	(1)
308008	Fabricated plastics products, including plastics closures, film, and packaging items, except containers	33.5	(D)
346611	Metal closures and crowns for containers	3.3	1.0
270011	Labels, coupons, instructions, and other printed material	5.9	7.7

See footnotes at end of table.

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TSF:28C_92.DAT;1 5/ 24/ 95 10:40:53 UTF:28C_93.DAT;4 5/ 25/ 95 10:29:13 META:TIPS96-10302228.DAT;1 5/ 25/ 95 10:30:59

Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2836, BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC—Con.		
	Containers:		
308015	Plastics containers	14.2	19.4
322101	Glass containers	13.0	15.6
340001	Metal containers	(D)	.5
265001	Paperboard containers, boxes, and corrugated paperboard	18.4	15.9
970099	All other materials and components, parts, containers, and supplies	228.0	[1]250.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	142.8	89.8

[1]For 1987, data were included in material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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TSF:28C_92.DAT;1 5/24/95 10:40:53 UTF:28C_93.DAT;4 5/25/95 10:29:13 META:TIPS96-10302228.DAT;1 5/25/95 10:30:59

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
28241 24	28241 25
28241 29	28241 13
28241 29	28241 19
28241 29	28241 21
28241 29	28241 23
28241 29	28241 25
28241 45	28241 35
28241 45	28241 43
28242	28247
28242 61	28247 13
28242 61	28247 15
28242 61	28247 16
28242 61	28247 19
28242 63	28247 13
28242 63	28247 15
28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
28242 65	28247 15
28242 65	28247 16
28242 65	28247 19
28242 66	28247 31
28242 66	28247 33
28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
28249 15	28247 13
28249 15	28247 15
28249 15	28247 16
28249 15	28247 19
28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
28447	28445
28447 11	28445 21
28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
28610	28611
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28610 15	28611 31
28610 15	28611 98
28610 20	28612 91
28610 25	28612 94
28610 30	28612 96
28610 35	28612 98
28610 40	28612 31
28610 40	28612 61
28610 40	28612 89
28692	28695
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28692 15	28695 25
28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
28744 11	28744 20
28744 11	28744 40
28744 11	28744 60
28744 21	28744 20
28744 21	28744 40
28744 21	28744 60
28744 31	28744 30
28744 31	28744 50
28744 31	28744 70
28750 11	28750 20
28750 11	28750 40
28750 11	28750 60
28750 21	28750 20
28750 21	28750 40
28750 21	28750 60
28750 31	28750 30
28750 31	28750 50
28750 31	28750 70
28795 81	28795 20
28795 81	28795 21
28795 81	28795 79
28796 85	28796 25
28796 85	28796 51
28796 85	28796 71
28796 85	28796 81
28798 85	28798 30
28798 85	28798 83
28799 17	28799 15
28799 30	28799 35
28799 40	28799 35
28799 45	28799 15
28799 45	28799 35
28914 24	28914 23
28914 24	28914 25
28914 61	28914 98
28914 99	28914 98
28916 25	28916 20
28916 25	28916 30
28916 25	28916 40
28917 46	28917 41
28917 46	28917 51
28917 46	28917 61
28920 20	28920 19
28920 20	28920 21
28920 24	28920 13
28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
28931 17	28931 19
28932 32	28932 33
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28932 44	28932 45
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28933 44	28933 45
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28934 89	28934 85
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28992 24	28992 25
28992 59	28992 53
28992 59	28992 55
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28995 13	28995 19
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28995 16	28995 19
28995 34	28995 35
28995 34	28995 36
28995 43	28995 40
28995 43	28995 42
28995 43	28995 45
28995 68	28995 69
28995 68	28995 70
28995 68	28995 71
28995 81	28995 82
28995 81	28995 83
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
28161 11	28161 00
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28162 13	28162 65
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28162 50	28162 65
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28163 41	28163 98
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28163 95	28163 98
28163 97	28163 98
28220 00	28220 11
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28220 00	28220 40
28220 00	28220 45
28220 00	28220 50
28220 00	28220 57
28220 00	28220 60
28220 00	28220 72
28220 00	28220 82
28230 34	28230 33
28230 34	28230 37
28230 38	28230 33
28230 38	28230 37
28230 39	28230 33
28230 39	28230 37
28230 41	28230 45
28230 71	28230 45
28241 13	28241 15
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28241 35	28241 45
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28244 36	28244 15
28244 36	28244 29
28244 38	28244 15
28244 38	28244 29
28244 41	28244 15
28244 41	28244 29
28244 43	28244 42
28244 43	28244 44
28244 45	28244 42
28244 45	28244 44
28247	28242
28247	28249
28247 13	28242 61
28247 13	28242 63
28247 13	28242 65
28247 13	28249 15
28247 13	28249 17
28247 15	28242 61
28247 15	28242 63
28247 15	28242 65
28247 15	28249 15
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28247 16	28242 65
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28247 16	28249 17
28247 19	28242 61
28247 19	28242 63
28247 19	28242 65
28247 19	28249 15
28247 19	28249 17
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28247 31	28249 19
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28247 33	28249 19
28247 41	28242 69
28247 41	28249 19
28248 81	28248 75
28248 81	28248 79
28333 43	28333 44
28333 45	28333 44
28333 82	28333 99
28333 93	28333 92
28333 94	28333 92
28333 98	28333 99
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28352 15	28352 12
28362 10	28362 00
28362 20	28362 00
28364 20	28364 22
28364 25	28364 22
28411 62	28411 78
28411 73	28411 78
28411 79	28411 78
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28412 07	28412 05
28412 08	28412 04
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28413 11	28413 13
28413 11	28413 14
28413 22	28413 98
28413 97	28413 98
28423 42	28423 49
28423 45	28423 41
28423 45	28423 46
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28423 49	28423 48
28423 95	28423 15
28423 95	28423 30
28423 95	28423 49
28423 95	28423 90
28423 95	28423 97
28424 42	28424 43
28424 44	28424 43
28430 35	28430 55
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28444 71	28444 98
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28444 95	28444 98
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28445 99	28447 95
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28611 98	28610 15
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28612 31	28610 40
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28612 89	28610 40
28612 91	28610 20
28612 94	28610 25
28612 96	28610 30
28612 98	28610 35
28695	28692
28695	28698
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28695 11	28692 20
28695 25	28692 15
28695 25	28692 25
28695 27	28692 19
28695 27	28692 29
28695 31	28698 31
28695 37	28698 37
28695 53	28698 53
28695 55	28698 55
28695 98	28698 98
28744 20	28744 11
28744 20	28744 21
28744 30	28744 31
28744 40	28744 11
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28744 50	28744 31
28744 60	28744 11
28744 60	28744 21
28744 70	28744 31
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28750 50	28750 31
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28750 70	28750 31
28795 20	28795 81
28795 21	28795 81
28795 79	28795 81
28796 25	28796 85
28796 51	28796 85
28796 71	28796 85
28796 81	28796 85
28798 30	28798 85
28798 83	28798 85
28799 15	28799 17
28799 15	28799 45
28799 35	28799 30
28799 35	28799 40
28799 35	28799 45
28914 23	28914 24
28914 25	28914 24
28914 98	28914 61
28914 98	28914 99
28916 20	28916 25
28916 30	28916 25
28916 40	28916 25
28917 41	28917 46
28917 51	28917 46
28917 61	28917 46
28920 13	28920 24
28920 15	28920 24
28920 19	28920 20
28920 21	28920 20
28920 27	28920 24
28920 51	28920 54
28920 57	28920 54
28931 06	28931 17
28931 19	28931 17
28932 33	28932 32
28932 34	28932 44
28932 34	28932 46
28932 38	28932 32
28932 45	28932 44
28932 45	28932 46
28933 43	28933 41
28933 43	28933 42
28933 45	28933 44
28933 45	28933 46
28934 85	28934 87
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28934 86	28934 87
28934 86	28934 89
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28992 25	28992 24
28992 53	28992 59
28992 55	28992 59
28992 57	28992 59
28995 11	28995 13
28995 12	28995 13
28995 14	28995 16
28995 15	28995 16
28995 19	28995 13
28995 19	28995 16
28995 35	28995 34
28995 36	28995 34
28995 40	28995 43
28995 42	28995 43
28995 45	28995 43
28995 55	28995 97
28995 69	28995 68
28995 70	28995 68
28995 71	28995 68
28995 82	28995 81
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28995 88	28995 86
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28995 94	28995 95
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28995 99	28995 97

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2812100	MA28A, Inorganic Chemicals	2834200	MA28G, Pharmaceutical Preparations, Except Biologicals
2812300	MA28A, Inorganic Chemicals	2834300	MA28G, Pharmaceutical Preparations, Except Biologicals
2812500	MA28A, Inorganic Chemicals	2834400	MA28G, Pharmaceutical Preparations, Except Biologicals
2813200	MA28C, Industrial Gases	2834500	MA28G, Pharmaceutical Preparations, Except Biologicals
2813300	MA28C, Industrial Gases	2834600	MA28G, Pharmaceutical Preparations, Except Biologicals
2813500	MA28C, Industrial Gases	2834700	MA28G, Pharmaceutical Preparations, Except Biologicals
2813600	MA28C, Industrial Gases	2834800	MA28G, Pharmaceutical Preparations, Except Biologicals
2813700	MA28C, Industrial Gases	2834900	MA28G, Pharmaceutical Preparations, Except Biologicals
2816100	MA28A, Inorganic Chemicals	2842243	MA28A, Inorganic Chemicals
2816310	MA28A, Inorganic Chemicals	2842253	MA28A, Inorganic Chemicals
2819300	MA28B, Fertilizer Materials	2851100	MA28F, Paint, Varnish, and Lacquer
2819300	MA28A, Inorganic Chemicals	2851200	MA28F, Paint, Varnish, and Lacquer
2819400	MA28A, Inorganic Chemicals	2851300	MA28F, Paint, Varnish, and Lacquer
2819500	MA28A, Inorganic Chemicals	2851500	MA28F, Paint, Varnish, and Lacquer
2819600	MA28A, Inorganic Chemicals	2873100	MA28B, Fertilizer Materials
2819700	MA28A, Inorganic Chemicals	2873200	MA28B, Fertilizer Materials
2819800	MA28A, Inorganic Chemicals	2874100	MA28B, Fertilizer Materials
2819900	MA28A, Inorganic Chemicals	2874200	MA28B, Fertilizer Materials
2834100	MA28G, Pharmaceutical Preparations, Except Biologicals		

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:25 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
TSF:TIPS92-08240613.DAT;1 1/ 6/ 95 08:24:14 UTF:TIPS93-08240613.DAT;1 1/ 6/ 95 08:24:14 META:TIPS96-08240613.DAT;1 1/ 6/ 95 08:25:16

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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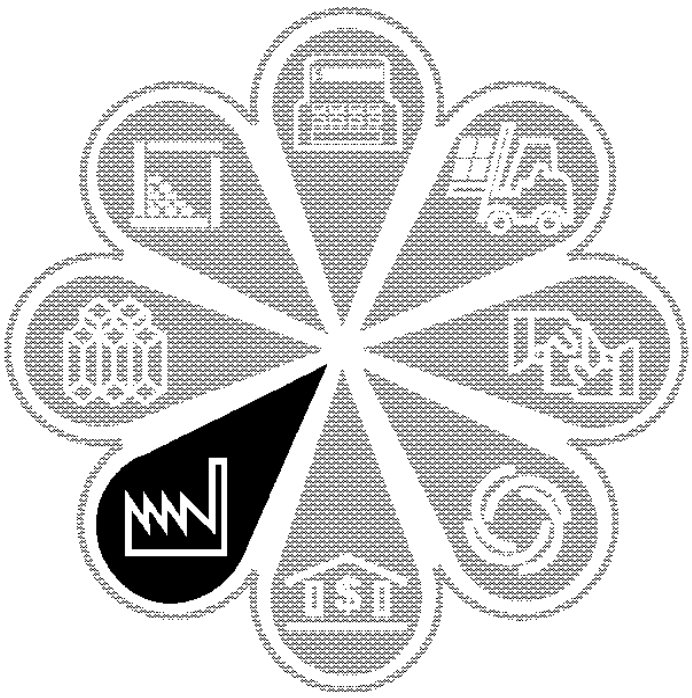
1992 Census of Manufactures

MC92-I-28D

INDUSTRY SERIES

Soaps, Cleaners, and Toilet Goods

Industries 2841, 2842, 2843, and 2844



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2841	Soap and Other Detergents
2842	Polishes and Sanitation Goods
2843	Surface Active Agents
2844	Toilet Preparations

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2841, SOAP AND OTHER DETERGENTS

This industry is made up of establishments primarily engaged in manufacturing soap, synthetic organic detergents, inorganic alkaline detergents or any combination thereof, and establishments producing crude and refined glycerin from vegetable and animal fats. Establishments primarily engaged in manufacturing shampoos or shaving products, whether from soap or synthetic detergents, are classified in industry 2844; and those manufacturing synthetic glycerin are classified in 2869.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2841, Soap and Other Detergents, had employment of 32.9 thousand. The employment figure was 4 percent above the 31.7 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, California, and Illinois, accounting for approximately 43 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $14.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2841 shipped $10.0 billion of soaps and other detergents considered primary to the industry, $2.7 billion of secondary products, and had $2.0 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 79 percent (specialization ratio). In 1987, the specialization ratio was 80 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 91 percent.

The products primary to industry 2841, no matter in what industry they were produced, appear in table 6a and aggregate to $11.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the soap and other detergents industry amounted to $7.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2842, POLISHES AND SANITATION GOODS

This industry is made up of establishments primarily engaged in manufacturing furniture, metal, and other polishes; waxes and dressings for fabricated leather and other materials; household, institutional, and industrial plant disinfectants; nonpersonal deodorants; drycleaning preparations; household bleaches; and other sanitation preparations. Establishments primarily engaged in manufacturing industrial bleaches are classified in industry 2819, and those manufacturing household pesticidal preparations are classified in industry 2879. Products of this industry also are collected in the Current Industrial Report (CIR) MA-28A, Inorganic Chemicals. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2842, Polishes and Sanitation Goods, had employment of 22.0 thousand. The employment figure was 7 percent above the 20.6 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Illinois, Ohio, and California. This represents a shift from 1987 when Illinois, New York, Wisconsin, and Georgia were the leading States.

The total value of shipments for establishments classified in this industry was $6.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2842 shipped $4.6 billion of polishes and sanitation goods considered primary to the industry, $1.5 billion of secondary products, and had $643.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 76 percent (specialization ratio). In 1987, the specialization ratio was 73 percent.

Establishments in this industry also accounted for 70 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 77 percent.

The products primary to industry 2842, no matter in what industry they were produced, appear in table 6a and aggregate to $6.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the polish and sanitation goods industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 2843, SURFACE ACTIVE AGENTS

This industry is made up of establishments primarily engaged in producing surface active preparations for use as wetting agents, emulsifiers, and penetrants. Establishments primarily engaged in producing sulfonated oils and fats and related products are also included.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2843, Surface Active Agents, had employment of 8.2 thousand. The employment figure was 10 percent below the 9.1 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, North Carolina, New Jersey, and South Carolina, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Illinois, New Jersey, South Carolina, and Louisiana, accounted for approximately 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2843 shipped $2.4 billion of surface active agents considered primary to the industry, $359.9 million of secondary products, and had $152.8 million of miscellaneous receipts,

resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 75 percent.

Establishments in this industry also accounted for 62 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 75 percent.

The products primary to industry 2843, no matter in what industry they were produced, appear in table 6a and aggregate to $3.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the surface active agents industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 2844, TOILET PREPARATIONS

This industry is made up of establishments primarily engaged in manufacturing perfumes (natural and synthetic), cosmetics, and other toilet preparations. It also includes establishments engaged in blending and compounding perfume bases; and those manufacturing shampoos and shaving products, whether from soap or synthetic detergents. Establishments primarily engaged in manufacturing synthetic perfume and flavoring materials are classified in industry 2869, and those manufacturing essential oils are classified in industry 2899.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2844, Toilet Preparations, had employment of 60.1 thousand. The employment figure was 4 percent above the 57.9 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New Jersey, New York, California, and Illinois, accounting for approximately 53 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 58 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $18.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2844 shipped $16.9 billion of toilet preparations considered primary to the industry, $788.8 million of secondary products, and had $1.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2844, no matter in what industry they were produced, appear in table 6a and aggregate to $18.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the toilet preparations industry amounted to $5.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2841, SOAP AND OTHER DETERGENTS															
1992 Census	635	710	228	32.9	1 175.9	20.0	41.0	608.7	7 723.3	6 960.1	14 760.9	571.4	1 366.7	79	91
1991 ASM	(NA)	(NA)	(NA)	36.6	1 220.7	23.1	44.1	647.1	8 164.6	7 158.9	15 298.5	630.8	1 503.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	36.3	1 197.7	22.8	42.7	625.5	7 971.2	7 509.8	15 373.4	475.8	1 510.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.8	1 093.1	22.0	39.8	571.6	6 548.2	6 790.7	13 280.7	396.0	1 280.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	33.3	1 011.8	21.0	41.3	573.4	6 393.4	5 995.9	12 306.3	368.3	1 252.9	(NA)	(NA)
1987 Census	683	764	230	31.7	955.7	19.3	39.2	541.4	5 892.1	5 673.4	11 558.5	338.7	1 211.8	80	91
1986 ASM	(NA)	(NA)	(NA)	32.3	974.5	19.4	40.4	543.1	4 639.1	5 703.2	10 346.1	287.7	1 179.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	34.1	946.0	20.0	40.0	528.1	4 481.8	5 529.7	10 052.7	317.0	1 215.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	32.8	896.7	19.2	40.8	494.2	4 366.8	5 184.4	9 468.4	318.9	1 144.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	35.5	860.5	21.3	42.9	490.6	4 282.5	4 780.6	9 116.6	240.9	1 046.1	(NA)	(NA)
1982 Census	642	723	232	35.4	827.1	21.2	42.5	457.1	4 777.1	4 371.9	9 167.3	261.9	1 059.9	84	91
1981 ASM	(NA)	(NA)	(NA)	36.0	804.2	22.5	46.2	463.3	4 391.9	4 770.6	9 101.8	189.3	1 069.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.1	714.8	22.4	45.8	419.2	4 353.2	3 979.8	8 274.9	212.4	995.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.1	639.0	21.5	44.0	377.1	3 353.1	3 635.1	6 915.0	180.4	872.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.3	569.3	20.9	41.9	339.3	3 143.2	3 337.4	6 407.8	143.2	781.3	(NA)	(NA)
1977 Census	554	635	225	32.1	521.6	20.5	41.0	308.1	2 867.5	2 817.9	5 671.4	134.9	643.4	84	89
INDUSTRY 2842, POLISHES AND SANITATION GOODS															
1992 Census	694	749	225	22.0	662.4	13.4	27.2	322.1	4 214.9	2 463.4	6 676.2	121.5	559.8	76	70
1991 ASM	(NA)	(NA)	(NA)	19.6	573.4	12.2	24.4	270.5	3 894.6	2 283.9	6 171.5	137.2	491.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.6	532.2	12.3	24.4	259.4	3 691.4	2 167.9	5 847.9	95.0	481.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.2	555.6	13.4	26.7	273.3	3 733.8	2 299.4	5 987.4	141.1	501.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.5	502.2	13.4	26.9	271.6	3 764.2	2 109.8	5 857.7	71.7	474.2	(NA)	(NA)
1987 Census	669	726	213	20.6	500.4	13.2	26.5	262.1	3 654.1	1 943.8	5 593.9	117.7	445.2	73	77
1986 ASM	(NA)	(NA)	(NA)	21.1	478.5	13.2	27.9	259.1	3 080.1	1 854.4	4 927.7	105.7	435.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	20.2	443.2	12.8	26.4	238.6	2 792.6	1 758.0	4 540.7	78.0	412.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	21.9	459.8	13.8	28.2	252.0	2 794.4	2 144.9	4 902.1	87.3	468.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	21.2	432.0	13.4	27.4	238.2	2 781.4	1 942.5	4 717.0	55.9	445.9	(NA)	(NA)
1982 Census	747	807	219	23.0	443.7	14.6	29.1	236.1	2 626.2	1 974.4	4 613.7	80.9	463.2	74	78
1981 ASM	(NA)	(NA)	(NA)	24.2	421.7	15.2	28.5	218.3	2 564.3	2 219.5	4 747.2	93.4	412.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	24.6	392.6	14.7	26.9	176.3	2 226.4	1 919.0	4 129.7	66.2	396.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.5	357.5	14.8	26.6	156.1	2 022.3	1 744.3	3 725.8	68.8	350.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	23.1	312.8	15.6	29.6	168.1	1 925.0	1 658.8	3 562.4	71.5	302.3	(NA)	(NA)
1977 Census	943	1 018	237	22.0	274.1	14.1	27.2	148.3	1 663.7	1 478.5	3 136.2	51.8	273.5	76	79
INDUSTRY 2843, SURFACE ACTIVE AGENTS															
1992 Census	176	205	90	8.2	320.3	4.2	9.0	134.5	1 171.5	1 689.5	2 864.0	92.4	334.9	87	62
1991 ASM	(NA)	(NA)	(NA)	9.3	339.5	4.8	10.7	152.8	1 267.8	2 024.8	3 298.8	157.4	384.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.1	332.1	4.6	10.2	139.8	1 241.0	1 945.7	3 168.3	165.0	379.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.0	311.8	4.6	10.3	137.2	1 193.2	1 771.8	2 959.2	129.3	371.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.0	296.5	4.8	10.2	139.7	1 391.3	2 045.4	3 398.4	191.7	391.2	(NA)	(NA)
1987 Census	184	217	99	9.1	289.8	4.7	10.0	133.7	1 318.0	1 683.7	3 002.2	103.4	344.3	75	75
1986 ASM	(NA)	(NA)	(NA)	9.5	286.9	4.4	9.5	115.6	1 182.8	1 590.2	2 779.5	71.4	331.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.3	261.9	4.4	9.2	106.3	1 095.9	1 449.5	2 534.4	76.4	313.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.3	253.4	4.5	9.4	103.7	1 013.2	1 494.2	2 481.9	76.7	306.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.3	238.8	4.3	8.9	93.6	836.0	1 426.8	2 275.8	88.8	280.0	(NA)	(NA)
1982 Census	181	210	96	8.5	208.2	3.8	7.9	77.4	747.8	1 314.3	2 067.2	86.6	259.8	81	65
1981 ASM	(NA)	(NA)	(NA)	7.9	182.7	3.9	8.6	72.4	952.4	1 138.9	2 061.5	82.1	197.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.4	153.2	3.6	7.6	57.9	744.3	980.0	1 732.3	61.8	171.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.8	127.6	3.4	7.2	52.8	571.9	795.0	1 358.6	87.9	161.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.0	123.7	3.9	8.3	56.4	458.6	748.8	1 183.5	109.1	162.1	(NA)	(NA)
1977 Census	149	175	84	6.5	101.7	3.7	7.7	47.2	345.0	602.6	943.5	40.9	116.2	81	55
INDUSTRY 2844, TOILET PREPARATIONS															
1992 Census	707	756	305	60.1	1 783.3	37.2	75.6	817.7	13 167.2	5 611.3	18 753.5	507.3	2 239.4	96	90
1991 ASM	(NA)	(NA)	(NA)	57.4	1 616.3	35.6	69.8	754.2	12 047.4	5 046.3	17 085.4	299.5	2 024.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	61.1	1 620.6	38.1	74.3	753.1	12 104.2	4 904.6	17 048.4	280.4	2 027.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	63.8	1 615.5	39.4	75.4	730.4	11 979.2	4 758.2	16 641.9	313.7	2 104.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	64.9	1 551.3	40.5	78.1	709.0	12 053.2	4 445.1	16 293.6	292.6	2 065.9	(NA)	(NA)
1987 Census	649	694	272	57.9	1 353.1	35.1	69.9	644.3	10 787.6	3 895.2	14 592.9	225.5	1 729.9	95	88
1986 ASM	(NA)	(NA)	(NA)	58.8	1 388.1	33.8	66.0	615.4	9 725.1	3 647.0	13 332.9	276.9	1 563.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	59.8	1 250.4	34.7	66.0	582.8	8 975.6	3 527.1	12 426.9	291.0	1 422.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	60.9	1 208.4	35.9	67.6	566.5	8 310.0	3 450.2	11 664.9	231.3	1 363.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	60.9	1 142.5	36.3	69.9	536.6	7 603.0	3 338.8	10 925.1	245.4	1 248.8	(NA)	(NA)
1982 Census	596	639	257	60.4	1 102.1	35.8	68.6	520.7	7 130.6	3 026.3	10 183.2	220.7	1 136.0	96	89
1981 ASM	(NA)	(NA)	(NA)	54.1	911.5	33.5	63.9	453.4	5 972.8	2 785.0	8 688.2	197.3	1 107.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	54.9	853.7	34.0	65.7	436.5	5 413.3	2 450.4	7 874.1	193.1	974.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	54.0	773.8	34.9	65.8	402.5	5 190.5	2 286.6	7 422.2	150.7	981.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	54.1	721.7	33.6	62.4	356.9	4 957.2	2 329.0	7 228.1	134.5	869.4	(NA)	(NA)
1977 Census	644	693	192	50.9	627.9	32.8	62.9	318.9	4 526.7	2 059.4	6 557.2	105.6	760.3	95	87

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2841, SOAP AND OTHER DETERGENTS								
1992 Census	35 742	61	2 050	14.85	47	55	234 751	15	188.37
1991 ASM	33 352	63	1 909	14.67	47	55	223 077	15	185.14
1990 ASM	32 994	63	1 873	14.65	49	57	219 592	15	186.68
1989 ASM	31 411	63	1 809	14.36	51	59	188 167	17	164.53
1988 ASM	30 384	63	1 967	13.88	49	57	191 994	16	154.80
1987 Census	30 148	61	2 031	13.81	49	57	185 871	16	150.31
1986 ASM	30 170	60	2 082	13.44	55	65	143 625	21	114.83
1985 ASM	27 742	59	2 000	13.20	55	64	131 431	21	112.05
1984 ASM	27 338	59	2 125	12.11	55	64	133 134	21	107.03
1983 ASM	24 239	60	2 014	11.44	52	62	120 634	20	99.83
1982 Census	23 364	60	2 005	10.76	48	57	134 946	17	112.40
1981 ASM	22 339	63	2 053	10.03	52	61	121 997	18	95.06
1980 ASM	20 365	64	2 045	9.15	48	57	124 023	16	95.05
1979 ASM	19 305	65	2 047	8.57	53	62	101 302	19	76.21
1978 ASM	17 625	65	2 005	8.10	52	61	97 313	18	75.02
1977 Census	16 249	64	2 000	7.51	50	59	89 330	18	69.94
	INDUSTRY 2842, POLISHES AND SANITATION GOODS								
1992 Census	30 109	61	2 030	11.84	37	47	191 586	16	154.96
1991 ASM	29 255	62	2 000	11.09	37	46	198 704	15	159.61
1990 ASM	27 153	63	1 984	10.63	37	46	188 337	14	151.29
1989 ASM	26 208	63	1 993	10.24	38	48	176 123	15	139.84
1988 ASM	24 498	65	2 007	10.10	36	45	183 620	13	139.93
1987 Census	24 291	64	2 008	9.89	35	44	177 384	14	137.89
1986 ASM	22 678	63	2 114	9.29	38	47	145 976	16	110.40
1985 ASM	21 941	63	2 063	9.04	39	48	138 248	16	105.78
1984 ASM	20 995	63	2 043	8.94	44	53	127 598	16	99.09
1983 ASM	20 377	63	2 045	8.69	41	50	131 198	16	101.51
1982 Census	19 291	63	1 993	8.11	43	52	114 183	17	90.25
1981 ASM	17 426	63	1 875	7.66	47	56	105 963	16	89.98
1980 ASM	15 959	60	1 830	6.55	46	56	90 504	18	82.77
1979 ASM	14 592	60	1 797	5.87	47	56	82 543	18	76.03
1978 ASM	13 541	68	1 897	5.68	47	55	83 333	16	65.03
1977 Census	12 459	64	1 929	5.45	47	56	75 623	16	61.17
	INDUSTRY 2843, SURFACE ACTIVE AGENTS								
1992 Census	39 061	51	2 143	14.94	59	70	142 866	27	130.17
1991 ASM	36 505	52	2 229	14.28	61	72	136 323	27	118.49
1990 ASM	36 495	51	2 217	13.71	61	72	136 374	27	121.67
1989 ASM	34 644	51	2 239	13.32	60	70	132 578	26	115.84
1988 ASM	32 944	53	2 125	13.70	60	69	154 589	21	136.40
1987 Census	31 846	52	2 128	13.37	56	66	144 835	22	131.80
1986 ASM	30 200	46	2 159	12.17	57	68	124 505	24	124.51
1985 ASM	28 161	47	2 091	11.55	57	68	117 839	24	119.12
1984 ASM	27 247	48	2 089	11.03	60	70	108 946	25	107.79
1983 ASM	25 677	46	2 070	10.52	63	73	89 892	29	93.93
1982 Census	24 494	45	2 079	9.80	64	74	87 976	28	94.66
1981 ASM	23 127	49	2 205	8.42	55	64	120 557	19	110.74
1980 ASM	20 703	49	2 111	7.62	57	65	100 581	21	97.93
1979 ASM	18 765	50	2 118	7.33	59	68	84 103	22	79.43
1978 ASM	17 671	56	2 128	6.80	63	74	65 514	27	55.25
1977 Census	15 646	57	2 081	6.13	64	75	53 077	29	44.81
	INDUSTRY 2844, TOILET PREPARATIONS								
1992 Census	29 672	62	2 032	10.82	30	39	219 088	14	174.17
1991 ASM	28 159	62	1 961	10.81	30	39	209 885	13	172.60
1990 ASM	26 524	62	1 950	10.14	29	38	198 105	13	162.91
1989 ASM	25 321	62	1 914	9.69	29	38	187 762	13	158.88
1988 ASM	23 903	62	1 928	9.08	27	37	185 720	13	154.33
1987 Census	23 370	61	1 991	9.22	27	36	186 314	13	154.33
1986 ASM	23 607	57	1 953	9.32	27	38	165 393	14	147.35
1985 ASM	20 910	58	1 902	8.83	28	38	150 094	14	135.99
1984 ASM	19 842	59	1 883	8.38	30	40	136 453	15	122.93
1983 ASM	18 760	60	1 926	7.68	31	41	124 844	15	108.77
1982 Census	18 247	59	1 916	7.59	30	41	118 056	15	103.94
1981 ASM	16 848	62	1 907	7.10	32	43	110 403	15	93.47
1980 ASM	15 550	62	1 932	6.64	31	42	98 603	16	82.39
1979 ASM	14 330	65	1 885	6.12	31	41	96 120	15	78.88
1978 ASM	13 340	62	1 857	5.72	32	42	91 630	15	79.44
1977 Census	12 336	64	1 918	5.07	31	41	88 933	14	71.97

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2841, SOAP AND OTHER DETERGENTS														
United States	–	**710**	**228**	**32.9**	**1 175.9**	**20.0**	**41.0**	**608.7**	**7 723.3**	**6 960.1**	**14 760.9**	**571.4**	**31.7**	**5 892.1**
California	E1	99	37	3.0	99.2	2.0	4.1	59.2	545.7	843.2	1 384.9	30.2	3.1	423.3
Connecticut	E1	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Florida	E2	29	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	26.9
Georgia	–	29	16	2.2	72.4	1.1	2.1	32.4	519.9	496.6	1 028.4	26.3	1.5	317.5
Illinois	–	48	16	2.4	78.1	1.7	3.3	48.6	517.0	336.4	864.8	16.5	2.3	493.2
Indiana	–	11	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	–	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	16	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	42	8	5.0	196.5	2.1	4.0	56.2	971.6	690.8	1 657.3	(D)	(NA)	(D)
Minnesota	–	16	7	.6	22.4	.3	.5	6.7	86.2	91.4	176.1	3.1	.8	90.5
Mississippi	–	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E2	26	7	1.8	73.3	1.3	2.8	48.4	474.6	481.5	1 022.0	(D)	2.0	391.0
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	42	20	1.4	45.8	.9	1.7	21.8	292.0	226.2	515.8	7.7	1.8	334.9
New York	E2	31	7	1.0	25.8	.7	1.5	16.5	108.6	93.8	206.1	6.3	1.7	260.0
North Carolina	–	14	3	.5	18.3	.1	.3	3.2	50.0	43.4	92.6	(D)	E	(D)
Ohio	–	43	21	4.0	144.9	2.6	5.4	84.3	1 485.9	1 348.8	2 823.8	219.6	3.0	1 026.9
Oregon	E4	11	1	.1	4.0	(Z)	.1	.9	11.0	8.8	19.5	.3	(NA)	(NA)
Pennsylvania	E3	33	10	.9	24.1	.6	1.3	13.0	162.4	110.3	293.2	(D)	.7	58.3
Rhode Island	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	E1	13	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(D)
Tennessee	E1	14	5	.6	17.1	.4	.7	7.4	111.5	52.3	158.2	3.6	E	(D)
Texas	–	53	13	1.3	38.2	.8	1.6	22.3	260.6	191.5	460.1	5.4	1.3	220.3
Utah	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	E1	22	6	.5	14.3	.3	.6	5.3	31.0	61.1	93.6	(D)	E	(D)
INDUSTRY 2842, POLISHES AND SANITATION GOODS														
United States	**E1**	**749**	**225**	**22.0**	**662.4**	**13.4**	**27.2**	**322.1**	**4 214.9**	**2 463.4**	**6 676.2**	**121.5**	**20.6**	**3 654.1**
California	E1	89	23	1.6	56.8	.8	1.7	23.8	269.2	161.4	431.1	5.1	1.6	233.8
Colorado	E1	10	2	.2	5.8	(Z)	.1	.9	18.2	13.9	32.2	.4	.2	21.0
Connecticut	E3	9	3	.2	4.7	.1	.1	2.3	15.7	17.5	33.6	(D)	.2	16.0
Delaware	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E2	44	11	.7	17.2	.5	.9	9.0	101.3	68.1	172.1	3.4	.5	77.5
Georgia	–	28	10	1.3	33.4	.9	1.9	22.0	313.9	174.6	484.4	5.0	1.6	199.4
Illinois	E1	53	22	2.2	69.4	1.4	2.8	36.4	476.6	263.1	748.7	11.6	2.8	550.5
Indiana	–	19	11	.9	24.7	.4	.7	5.1	72.4	60.4	136.2	1.8	E	(D)
Iowa	E6	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	E3	8	3	.2	4.9	.1	.2	1.7	14.0	10.0	23.9	.5	(NA)	(NA)
Kentucky	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	E3	19	3	.2	3.3	.1	.1	1.2	12.5	9.3	21.8	.5	(NA)	(NA)
Maryland	E1	14	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	59.2
Massachusetts	E3	21	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	E	(D)
Michigan	E2	23	5	.2	6.5	.1	.3	3.0	28.3	35.6	63.7	(D)	E	(D)
Minnesota	E1	19	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	E5	10	3	.4	8.7	.3	.6	5.3	10.9	24.5	36.6	(D)	(NA)	(NA)
Missouri	–	24	12	1.1	33.1	.7	1.5	16.7	276.0	178.3	445.1	3.1	.9	167.7
New Hampshire	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	35	12	1.3	44.7	.9	1.8	24.2	389.0	188.5	579.1	6.9	2.4	439.4
New York	E4	57	14	1.2	28.8	.7	1.5	13.1	126.0	79.7	203.2	4.2	1.4	112.9
North Carolina	–	20	5	.4	10.6	.2	.4	3.4	26.8	26.5	52.6	1.6	E	(D)
Ohio	–	34	17	1.9	60.0	1.3	2.6	30.8	340.3	185.2	529.7	8.2	G	(D)
Pennsylvania	–	33	10	1.2	30.6	.7	1.0	11.6	140.8	114.6	255.8	3.3	1.0	102.1
South Carolina	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E2	21	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E1	43	11	.9	19.6	.5	1.0	8.7	128.9	62.2	191.1	4.2	E	(D)
Wisconsin	–	20	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 2843, SURFACE ACTIVE AGENTS														
United States	–	**205**	**90**	**8.2**	**320.3**	**4.2**	**9.0**	**134.5**	**1 171.5**	**1 689.5**	**2 864.0**	**92.4**	**9.1**	**1 318.0**
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	E1	11	4	.6	25.6	.3	.6	7.4	76.2	97.8	173.5	6.7	.8	78.9
Illinois	–	16	11	1.5	61.4	.9	1.8	29.1	276.5	359.5	629.6	19.8	1.4	216.1
Maryland	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	13	6	.4	13.9	.1	.3	4.0	45.5	50.5	93.1	2.2	E	(D)
Mississippi	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	23	10	.8	35.5	.4	.9	15.1	82.2	160.7	244.4	8.2	1.2	128.4
New York	E2	8	3	.3	12.4	.1	.3	5.5	44.6	35.5	79.9	2.5	.4	46.5
North Carolina	E2	25	9	.9	34.2	.4	.9	9.7	94.1	152.2	245.0	12.9	F	(D)
Pennsylvania	E1	10	5	.2	7.1	.1	.3	3.3	40.2	50.0	89.8	2.0	.2	11.6
South Carolina	–	20	12	.8	28.8	.4	.8	10.3	96.5	178.2	275.4	6.1	F	(D)
Texas	–	12	6	.6	24.9	.3	.7	10.8	102.2	159.0	264.0	8.8	F	(D)
Wisconsin	–	5	4	.2	9.6	.1	.2	5.1	51.4	96.3	150.1	3.8	.2	39.4

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2844, TOILET PREPARATIONS														
United States	–	**756**	**305**	**60.1**	**1 783.3**	**37.2**	**75.6**	**817.7**	**13 167.2**	**5 611.3**	**18 753.5**	**507.3**	**57.9**	**10 787.6**
Arizona	–	9	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	7	3	1.2	31.0	1.0	1.9	21.9	63.6	137.2	210.1	(D)	G	(D)
California	E2	141	50	8.0	226.1	4.6	9.4	82.9	1 004.8	601.1	1 583.4	45.0	5.9	746.8
Connecticut	–	21	13	2.6	95.9	1.3	2.7	34.2	832.0	276.0	1 105.1	8.3	G	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	43	12	1.0	23.6	.7	1.3	10.4	167.4	89.8	258.7	6.3	1.3	128.9
Georgia	–	19	8	.8	21.0	.5	1.0	9.9	159.8	75.6	236.2	8.5	.9	162.9
Idaho	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	39	20	4.5	138.3	3.1	6.3	73.2	1 169.3	580.9	1 744.7	35.4	5.3	1 192.4
Indiana	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E4	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	4	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	10	5	.9	37.5	.6	1.1	24.1	171.0	124.4	283.1	(D)	G	(D)
Michigan	E2	15	2	.3	4.9	.2	.5	3.1	22.5	11.7	33.9	(D)	(NA)	(D)
Minnesota	–	13	9	1.9	63.6	1.1	2.2	28.5	302.6	206.3	511.4	15.8	1.8	355.1
Missouri	–	12	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	103	59	10.9	368.3	6.6	13.1	156.0	2 442.7	1 016.3	3 456.1	129.9	14.0	2 397.1
New York	–	92	36	8.6	260.4	4.7	10.2	86.1	1 684.2	457.1	2 126.3	23.5	8.6	1 261.5
North Carolina	E1	10	7	3.1	73.0	2.2	4.3	45.6	845.4	276.9	1 129.0	(D)	(NA)	(D)
Ohio	–	24	8	1.9	57.7	1.2	2.5	31.3	478.5	231.5	705.8	12.4	1.7	647.5
Oklahoma	E7	5	2	.2	2.1	.1	.2	1.1	9.9	4.8	14.9	.2	(NA)	(D)
Pennsylvania	–	20	7	1.0	26.2	.7	1.4	16.6	308.5	80.9	394.5	(D)	.3	40.9
South Carolina	E3	5	3	.2	4.6	.1	.3	2.2	33.5	14.7	48.3	(D)	(NA)	(NA)
Tennessee	E5	9	7	1.5	34.2	1.2	2.7	23.3	249.2	105.1	352.3	5.8	G	(D)
Texas	E1	58	17	2.0	47.3	1.1	2.3	23.3	587.6	163.4	748.0	12.7	1.3	301.9
Virginia	–	7	5	1.3	36.1	.8	1.6	20.2	437.7	170.5	604.5	(D)	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Soap and other detergents (SIC 2841)	Polishes and sanitation goods (SIC 2842)	Surface active agents (SIC 2843)	Toilet preparations (SIC 2844)
Companies	number	635	694	176	707
All establishments	number	710	749	205	756
With 1 to 19 employees	number	482	524	115	451
With 20 to 99 employees	number	161	171	68	176
With 100 employees or more	number	67	54	22	129
Employment and labor costs:					
Employees	1,000	32.9	22.0	8.2	60.1
Compensation, total	mil dol	1 492.3	815.4	392.5	2 274.7
Annual payroll	mil dol	1 175.9	662.4	320.3	1 783.3
Fringe benefits	mil dol	316.5	153.0	72.2	491.4
Social Security and other legally required payments	mil dol	105.4	54.5	27.1	179.4
Employer voluntary payments	mil dol	211.1	98.5	45.1	312.0
Production workers:					
Average for year	1,000	20.0	13.4	4.2	37.2
March	1,000	20.0	13.2	4.3	36.9
May	1,000	20.1	13.4	4.3	37.0
August	1,000	20.0	13.8	4.3	38.8
November	1,000	19.7	13.2	4.1	35.9
Hours	millions	41.0	27.2	9.0	75.6
Wages	mil dol	608.7	322.1	134.5	817.7
Cost of materials[1]	mil dol	6 960.1	2 463.4	1 689.5	5 611.3
Materials, parts, containers, etc., consumed[2]	mil dol	5 731.1	2 054.2	1 510.8	4 799.5
Resales	mil dol	1 033.3	296.1	96.7	392.6
Fuels	mil dol	53.0	9.6	35.4	18.5
Purchased electricity	mil dol	66.7	25.1	30.9	63.2
Contract work	mil dol	75.9	78.3	15.7	337.6
Quantity of electric energy used for heat and power:					
Purchased	mil kWh	1 079.0	402.5	569.3	923.6
Generated less sold	mil kWh	(D)	–	–	–
Total value of shipments	mil dol	14 760.9	6 676.2	2 864.0	18 753.5
Value added	mil dol	7 723.3	4 214.9	1 171.5	13 167.2

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Soap and other detergents (SIC 2841)	Polishes and sanitation goods (SIC 2842)	Surface active agents (SIC 2843)	Toilet preparations (SIC 2844)
Inventories by stage of fabrication:				
Beginning of 1992 ---mil dol---	1 441.7	564.8	318.1	2 152.9
Finished goods ---mil dol---	783.3	307.7	196.2	1 043.4
Work in process ---mil dol---	194.0	37.2	32.2	251.1
Materials and supplies ---mil dol---	464.3	219.9	89.7	858.4
End of 1992 ---mil dol---	1 366.7	559.8	334.9	2 239.4
Finished goods ---mil dol---	736.9	309.2	192.9	1 076.5
Work in process ---mil dol---	162.9	37.9	32.5	243.0
Materials and supplies ---mil dol---	466.9	212.8	109.4	920.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Soap and other detergents (SIC 2841)	Polishes and sanitation goods (SIC 2842)	Surface active agents (SIC 2843)	Toilet preparations (SIC 2844)
Gross book value of depreciable assets:				
Total:				
Beginning of year	3 992.9	1 335.7	1 232.8	3 353.4
New capital expenditures[1]	571.4	121.5	92.4	507.3
Used capital expenditures	15.2	11.4	11.0	24.4
Retirements	82.8	49.5	24.8	123.0
End of year	4 496.7	1 419.1	1 311.3	3 762.1
Buildings and other structures:				
Beginning of year	2 000.0	444.9	228.2	1 058.6
New capital expenditures	101.3	28.8	13.8	154.2
Used capital expenditures	(D)	3.6	(D)	8.6
Retirements	(D)	12.1	(D)	13.4
End of year	2 083.7	465.2	243.2	1 208.0
Machinery and equipment:				
Beginning of year	1 993.0	890.8	1 004.6	2 294.9
New capital expenditures[1]	470.1	92.7	78.5	353.1
Used capital expenditures	(D)	7.7	(D)	15.8
Retirements	(D)	37.4	(D)	109.6
End of year	2 413.0	953.9	1 068.2	2 554.1
Depreciation charges during 1992:				
Total	226.9	81.9	81.3	240.2
Buildings and other structures	56.2	18.0	10.2	49.0
Machinery and equipment	170.8	63.9	71.1	191.2
Rental payments:				
Total	60.8	34.4	8.3	112.4
Buildings and other structures	34.8	20.9	4.2	71.0
Machinery and equipment	26.0	13.5	4.2	41.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Soap and other detergents (SIC 2841)		Polishes and sanitation goods (SIC 2842)		Surface active agents (SIC 2843)		Toilet preparations (SIC 2844)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	20.7	(X)	6.9	(X)	5.0	(X)	20.2	(X)
Response coverage ratio (percent)[2]	86.3	(X)	77.0	(X)	78.2	(X)	80.2	(X)
Machinery	53.5	(X)	27.3	(X)	18.7	(X)	58.2	(X)
Response coverage ratio (percent)[2]	88.3	(X)	80.2	(X)	80.5	(X)	80.2	(X)
Other purchased services:								
Communications	21.1	(X)	10.4	(X)	3.9	(X)	20.2	(X)
Response coverage ratio (percent)[2]	88.2	(X)	78.8	(X)	70.0	(X)	78.3	(X)
Legal	23.3	(X)	6.8	(X)	1.1	(X)	25.1	(X)
Response coverage ratio (percent)[2]	81.7	(X)	75.7	(X)	80.9	(X)	76.6	(X)
Accounting and bookkeeping	3.2	(X)	3.2	(X)	.4	(X)	39.0	(X)
Response coverage ratio (percent)[2]	81.6	(X)	76.3	(X)	73.3	(X)	75.1	(X)
Advertising	44.8	(X)	12.2	(X)	1.9	(X)	618.8	(X)
Response coverage ratio (percent)[2]	79.3	(X)	77.9	(X)	80.9	(X)	76.6	(X)
Software and other data processing	6.4	(X)	3.4	(X)	1.4	(X)	9.7	(X)
Response coverage ratio (percent)[2]	77.0	(X)	75.8	(X)	78.2	(X)	69.1	(X)
Refuse removal, including hazardous waste	16.9	(X)	7.9	(X)	9.5	(X)	23.2	(X)
Response coverage ratio (percent)[2]	79.8	(X)	80.2	(X)	82.2	(X)	71.5	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Soap and other detergents (SIC 2841)		Polishes and sanitation goods (SIC 2842)		Surface active agents (SIC 2843)		Toilet preparations (SIC 2844)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	470.1	(X)	92.7	(X)	78.5	(X)	353.1	(X)
Automobiles, trucks, etc., for highway use	9.5	66	1.2	46	2.6	60	5.5	21
Computers and peripheral data processing equipment	25.1	5	5.7	21	2.0	11	27.7	4
All other	435.6	2	85.8	2	73.9	3	319.8	1
Adjustment ratio[3]	1.0	(X)	1.1	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	5 731.1	(X)	2 054.2	(X)	1 510.8	(X)	4 799.5	(X)
Materials purchased or transferred from foreign sources[4]	74.3	11	31.7	17	66.4	19	194.5	5
Materials purchased or transferred from domestic sources	5 656.8	1	2 022.5	1	1 444.4	1	4 605.0	1
Adjustment ratio[3]	1.4	(X)	1.6	(X)	1.5	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2841, SOAP AND OTHER DETERGENTS												
Total	**–**	**710**	**32.9**	**1 175.9**	**20.0**	**41.0**	**608.7**	**7 723.3**	**6 960.1**	**14 760.9**	**571.4**	**1 366.7**
Establishments with an average of—												
1 to 4 employees	E8	234	.4	8.8	.3	.5	4.5	49.2	50.3	99.3	2.2	9.7
5 to 9 employees	E7	140	.9	23.1	.6	1.1	11.0	105.5	106.3	211.6	4.6	21.5
10 to 19 employees	E4	108	1.5	41.4	.8	1.5	16.3	147.3	151.9	299.4	6.2	27.6
20 to 49 employees	E2	108	3.4	103.4	1.8	3.6	40.7	418.5	427.6	850.5	16.1	75.1
50 to 99 employees	E1	53	3.5	119.5	1.8	3.8	51.8	610.7	462.8	1 083.7	47.0	89.5
100 to 249 employees	–	37	5.8	190.2	3.5	7.2	92.3	985.3	873.0	1 893.2	52.9	173.1
250 to 499 employees	–	20	7.3	257.4	5.5	11.1	169.8	2 747.7	2 622.2	5 401.2	174.0	445.8
500 to 999 employees	–	9	10.2	432.1	5.9	12.2	222.3	2 659.3	2 265.9	4 922.1	268.5	524.4
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	244	.5	10.9	.4	.8	5.5	48.0	47.4	95.5	2.3	9.5
INDUSTRY 2842, POLISHES AND SANITATION GOODS												
Total	**E1**	**749**	**22.0**	**662.4**	**13.4**	**27.2**	**322.1**	**4 214.9**	**2 463.4**	**6 676.2**	**121.5**	**559.8**
Establishments with an average of—												
1 to 4 employees	E8	289	.5	11.8	.3	.6	5.5	80.3	49.5	129.7	2.1	11.5
5 to 9 employees	E4	125	.8	20.6	.4	.9	9.4	88.0	65.7	153.4	2.1	15.2
10 to 19 employees	E2	110	1.5	40.5	.9	1.8	17.3	125.9	117.1	243.2	2.9	24.1
20 to 49 employees	E2	121	3.8	112.4	2.1	4.1	46.9	525.8	363.9	888.2	10.8	79.8
50 to 99 employees	E1	50	3.6	101.0	2.1	4.5	45.8	660.9	361.0	1 023.2	16.3	82.6
100 to 249 employees	E1	41	6.2	176.6	3.9	7.7	91.5	924.4	656.3	1 584.8	29.7	156.3
250 to 499 employees	–	11	5.5	199.5	3.7	7.6	105.7	1 809.5	849.8	2 653.8	57.7	190.3
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	240	.4	7.8	.2	.5	3.5	60.3	32.9	93.2	1.4	7.9
INDUSTRY 2843, SURFACE ACTIVE AGENTS												
Total	**–**	**205**	**8.2**	**320.3**	**4.2**	**9.0**	**134.5**	**1 171.5**	**1 689.5**	**2 864.0**	**92.4**	**334.9**
Establishments with an average of—												
1 to 4 employees	E7	50	.1	3.0	.1	.1	1.2	15.6	15.8	31.4	1.0	3.8
5 to 9 employees	E3	33	.2	7.8	.1	.3	3.5	28.7	40.8	70.0	2.2	7.9
10 to 19 employees	E1	32	.5	16.4	.2	.5	5.6	61.9	83.1	146.8	3.3	20.1
20 to 49 employees	E1	44	1.4	51.4	.7	1.5	19.5	170.7	281.5	453.3	15.0	42.8
50 to 99 employees	–	24	1.8	67.2	1.0	2.0	29.0	223.7	415.8	639.3	19.8	78.8
100 to 249 employees	–	16	2.3	89.1	1.0	2.1	33.9	317.7	431.9	749.8	24.3	87.5
250 to 499 employees	–	6	2.0	85.3	1.2	2.5	41.8	353.2	420.8	773.5	26.8	93.9
Covered by administrative records[2]	E9	39	.1	2.1	(Z)	.1	.9	6.7	9.9	16.6	.7	2.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2844, TOILET PREPARATIONS												
Total	**–**	**756**	**60.1**	**1 783.3**	**37.2**	**75.6**	**817.7**	**13 167.2**	**5 611.3**	**18 753.5**	**507.3**	**2 239.4**
Establishments with an average of—												
1 to 4 employees	E8	232	.4	8.7	.3	.5	4.0	73.0	28.7	100.5	1.9	14.1
5 to 9 employees	E7	123	.8	16.7	.5	1.0	7.5	111.5	45.6	157.0	2.5	18.6
10 to 19 employees	E6	96	1.3	27.3	.8	1.5	11.5	152.8	73.5	225.8	3.5	27.3
20 to 49 employees	E3	112	3.6	88.9	2.1	4.1	33.1	378.1	224.2	597.6	10.2	83.9
50 to 99 employees	E1	64	4.5	120.4	2.9	5.8	54.5	549.0	311.1	878.0	15.7	105.3
100 to 249 employees	E1	68	10.5	280.2	6.5	12.9	127.2	1 608.1	971.3	2 552.5	84.9	346.4
250 to 499 employees	–	30	10.8	302.4	7.1	14.8	151.3	2 355.6	924.6	3 266.8	95.3	404.4
500 to 999 employees	–	24	15.5	495.7	10.2	20.5	249.1	4 907.5	1 849.5	6 771.9	190.6	614.0
1,000 to 2,499 employees	–	6	12.6	442.9	6.9	14.5	179.5	3 031.5	1 182.8	4 203.4	102.6	625.3
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	259	.8	11.7	.5	.9	5.4	75.6	29.8	105.4	1.7	12.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2841	**Soap and other detergents:**										
	All establishments in industry	710	32.9	1 175.9	20.0	41.0	608.7	7 723.3	6 960.1	14 760.9	571.4
	Establishments with this product class primary:										
28411	Soaps and detergents, commercial, industrial, and institutional	188	9.0	299.9	4.3	8.8	109.8	1 579.2	1 090.1	2 669.1	80.2
28412	Household detergents	67	15.1	579.7	9.9	20.4	339.6	4 367.4	4 289.4	8 744.4	312.1
28413	Soaps, except specialty cleaners, household	24	5.1	195.4	3.6	7.6	116.3	1 389.9	1 227.8	2 607.5	161.2
2842	**Polishes and sanitation goods:**										
	All establishments in industry	749	22.0	662.4	13.4	27.2	322.1	4 214.9	2 463.4	6 676.2	121.5
	Establishments with this product class primary:										
28422	Household bleaches (chlorine and nonchlorine)	40	1.9	59.9	1.4	2.9	40.6	755.1	357.2	1 114.3	16.6
28423	Specialty cleaning and sanitation products	202	10.3	293.3	6.6	13.2	152.1	1 493.3	986.7	2 496.6	38.1
28424	Polishing preparations and related products	110	5.6	206.6	3.0	6.3	85.6	1 354.7	767.9	2 104.4	51.9
2843	**Surface active agents:**										
	All establishments in industry	205	8.2	320.3	4.2	9.0	134.5	1 171.5	1 689.5	2 864.0	92.4
2844	**Toilet preparations:**										
	All establishments in industry	756	60.1	1 783.3	37.2	75.6	817.7	13 167.2	5 611.3	18 753.5	507.3
	Establishments with this product class primary:										
28441	Shaving preparations	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28442	Perfumes, toilet waters, and colognes	44	4.6	159.8	2.3	4.2	54.6	1 149.4	665.8	1 792.7	19.9
28443	Hair preparations (including shampoos)	80	15.1	469.1	9.2	18.3	198.8	2 967.9	1 596.4	4 532.8	118.0
28444	Dentifrices, mouthwashes, gargles, and rinses	18	2.6	75.1	2.0	4.1	49.4	1 248.6	412.6	1 656.7	47.6
28446	Creams, lotions and oils, excluding shaving, hair, and deodorant	48	6.0	166.5	3.6	7.9	79.8	1 362.1	450.4	1 814.5	35.1
28447	Other cosmetics and toilet preparations	72	25.1	778.3	15.8	32.9	371.6	5 560.5	2 109.5	7 706.4	265.4

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2841, SOAP AND OTHER DETERGENTS			
Total value of shipments	14 760.9	11 558.5	9 167.3
Primary products value of shipments	10 047.8	8 644.2	7 123.5
Secondary products value of shipments	2 739.8	2 136.2	1 388.2
Total miscellaneous receipts	1 973.3	778.1	655.6
Value of resales	1 863.7	741.8	638.9
Contract receipts	(D)	28.6	12.2
Other miscellaneous receipts	(D)	7.6	4.5
Sales of scrap and refuse	.1	(NA)	(D)
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	4.0
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	79	80	84
Value of primary products shipments made in all industries	11 054.2	9 527.1	7 852.3
Value of primary products shipments made in this industry	10 047.8	8 644.2	7 123.5
Value of primary products shipments made in other industries	1 006.5	882.9	728.8
Coverage ratio	91	91	91
INDUSTRY 2842, POLISHES AND SANITATION GOODS			
Total value of shipments	6 676.2	5 593.9	4 613.7
Primary products value of shipments	4 566.1	3 890.7	3 149.8
Secondary products value of shipments	1 466.6	1 475.3	1 118.0
Total miscellaneous receipts	643.5	227.9	345.9
Value of resales	597.9	213.2	339.1
Contract receipts	33.7	11.4	4.7
Other miscellaneous receipts	11.9	3.2	2.1
Sales of scrap and refuse	.1	(NA)	(Z)
Receipts for research and development	.1	(NA)	(D)
Other miscellaneous receipts	11.1	(NA)	1.6
Other miscellaneous receipts, n.s.k.	.6	(NA)	(D)
Primary products specialization ratio	76	73	74
Value of primary products shipments made in all industries	6 496.9	5 112.5	4 047.1
Value of primary products shipments made in this industry	4 566.1	3 890.7	3 149.8
Value of primary products shipments made in other industries	1 930.8	1 221.8	897.3
Coverage ratio	70	77	78
INDUSTRY 2843, SURFACE ACTIVE AGENTS			
Total value of shipments	2 864.0	3 002.2	2 067.2
Primary products value of shipments	2 351.3	2 160.3	1 633.6
Secondary products value of shipments	359.9	714.5	385.2
Total miscellaneous receipts	152.8	127.4	48.4
Value of resales	144.7	109.2	46.3
Contract receipts	(D)	16.9	1.7
Other miscellaneous receipts	(D)	1.3	.4
Sales of scrap and refuse	(D)	(NA)	(D)
Receipts for research and development	–	(NA)	–
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(D)
Primary products specialization ratio	87	75	81
Value of primary products shipments made in all industries	3 779.8	2 884.5	2 495.7
Value of primary products shipments made in this industry	2 351.3	2 160.3	1 633.6
Value of primary products shipments made in other industries	1 428.5	724.2	862.0
Coverage ratio	62	75	65
INDUSTRY 2844, TOILET PREPARATIONS			
Total value of shipments	18 753.5	14 592.9	10 183.2
Primary products value of shipments	16 908.6	13 063.0	9 241.5
Secondary products value of shipments	788.8	679.9	428.8
Total miscellaneous receipts	1 056.1	849.9	512.9
Value of resales	971.6	712.1	458.6
Contract receipts	71.7	120.3	26.3
Other miscellaneous receipts	12.8	17.6	28.0
Sales of scrap and refuse	7.8	(NA)	(D)
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	4.8	(NA)	5.0
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	96	95	96
Value of primary products shipments made in all industries	18 842.7	14 871.3	10 437.1
Value of primary products shipments made in this industry	16 908.6	13 063.0	9 241.5
Value of primary products shipments made in other industries	1 934.2	1 808.3	1 195.6
Coverage ratio	90	88	89

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2841– —	**SOAP AND OTHER DETERGENTS**						
	Total	**(NA)**	**(X)**	**11 054.2**	**(NA)**	**(X)**	**9 527.1**
28411	Soaps and detergents, commercial, industrial, and institutional	(NA)	(X)	2 149.1	(NA)	(X)	1 790.9
	Soaps, except specialty cleaners:						
28411 12	Chips, flakes, granulated, powdered, and sprayed, including washing powders, mil lb	36	**157.4	84.3	32	*193.8	83.3
28411 14	Liquid (potash and other), excluding shampoos, mil gal	53	*81.0	187.7	33	(S)	91.9
28411 19	Other soaps, including mechanics' hand soap, mil lb	31	214.2	74.3	26	168.9	103.2
	Alkaline detergents:						
	Dishwashing compounds:						
28411 21	Liquid, mil gal	50	34.7	151.1	31	*20.6	95.5
28411 23	Dry, mil lb	31	243.6	106.3	24	158.8	162.7
28411 24	Scouring cleaners, mil lb	14	57.2	20.3	11	101.1	44.5
	Other alkaline detergents:						
28411 25	Liquid, mil gal	113	*156.6	392.8	80	*70.2	323.3
28411 26	Dry hard surface cleaners, mil lb	51	*174.7	85.0	40	214.2	85.8
28411 28	Other dry cleaners, mil lb	18	123.7	79.9	23	77.6	57.2
	Synthetic organic detergents:						
	Dry:						
28411 41	Anionic base, mil lb	17	34.5	30.0	14	99.9	89.8
28411 43	Nonionic base or other, mil lb	24	56.9	53.7	23	87.4	40.3
	Liquid:						
28411 45	Anionic base, mil gal	52	74.4	196.6	45	455.6	102.6
28411 46	Cationic or amphoteric, mil gal	18	11.7	64.1	14	5.8	32.5
28411 49	Nonionic or other, mil gal	57	31.2	132.4	37	*36.3	107.3
	Acid-type cleaners:						
	Liquid dairy, farm, and food plant cleaners, sanitizers, etc.:						
28411 65	Halogenated, mil gal	13	9.1	29.5	12	15.9	32.7
28411 67	Nonhalogenated, mil gal	31	21.6	104.7	23	(S)	91.5
28411 77	Liquid metal cleaners, mil gal	53	(S)	91.8	31	7.7	44.1
28411 78	All other acid-type cleaners, including dry cleaners	38	(X)	75.9	(NA)	(X)	80.5
28411 00	Soaps and detergents, commercial, industrial, and institutional, n.s.k.	(NA)	(X)	188.6	(NA)	(X)	122.2
28412	Household detergents	(NA)	(X)	6 029.9	(NA)	(X)	5 247.5
	Alkaline detergents:						
	Automatic dishwashing detergents:						
28412 01	Liquid, mil gal	14	19.7	53.6	11	(S)	113.6
28412 03	Dry, mil lb	15	765.9	286.5	13	*419.5	247.4
	Hard surface cleaners, including general-purpose cleaners and degreasers:						
28412 04	Liquid, mil gal	65					
28412 05	Aerosol, mil gal	8	(S)	503.6	(NA)	(NA)	[3]706.5
28412 06	Dry, mil lb	4					
	Scouring cleaners:						
28412 09	Liquid, mil gal	6	(S)	214.0	13	429.4	234.0
28412 10	Dry, mil lb	5					
28412 11	All other alkaline detergents	4	(X)	4.3	(NA)	(X)	([3])
	Household laundry detergents:						
	Dry:						
28412 21	Light-duty, mil lb	8	(S)	7.4	10	212.9	93.8
28412 24	Heavy-duty, phosphate based, mil lb	22	**1 264.8	920.6	15	2 644.1	1 548.6
28412 26	Heavy-duty, phosphate free, mil lb	24	*2 869.9	1 868.7	16	1 051.7	464.5
	Liquid:						
28412 31	Light-duty, mil gal	21	*141.1	729.8	23	(S)	497.6
28412 35	Heavy-duty, mil gal	23	*274.6	1 309.1	20	*330.1	1 173.2
28412 61	Presoaks, mil lb	10	68.1	72.7	13	119.1	134.6
28412 00	Household detergents, n.s.k.	(NA)	(X)	59.6	(NA)	(X)	33.7
28413	Soaps, except specialty cleaners, household	(NA)	(X)	1 965.0	(NA)	(X)	1 423.3
	Toilet soaps, excluding medicated soaps:						
	Bars:						
28413 12	Deodorant, mil lb	21	(S)	986.4			
28413 13	Nondeodorant, mil lb	30	(S)	602.6	25	940.9	1 193.5
28413 14	Novelty, mil lb	15	*29.3	75.4			
28413 15	Liquids, mil gal	26	(S)	218.1	18	31.2	137.0
28413 98	Other household soaps, including mechanics' hand soaps (except waterless) and medicated soaps	20	(X)	80.3	(NA)	(X)	89.1
28413 00	Soaps, except specialty cleaners, household, n.s.k.	(NA)	(X)	2.2	(NA)	(X)	3.7
28414	Glycerin, natural	(NA)	(X)	138.3	(NA)	(X)	172.4
28414 11	Crude, 100 percent basis, mil lb	7	103.8	34.6	7	36.4	32.0
28414 31	High-gravity, dynamite, and yellow distilled, 100 percent basis, mil lb	1	**251.8	103.7	4	24.4	21.2
28414 51	Chemically pure, 100 percent basis, mil lb	7			6	164.5	117.6
28414 00	Glycerin, natural, n.s.k.	(NA)	(X)	–	(NA)	(X)	1.6
28410	Soap and other detergents, n.s.k.	(NA)	(X)	771.9	(NA)	(X)	893.0
28410 00	Soap and other detergents, n.s.k.[4]	(NA)	(X)	676.5	(NA)	(X)	408.0
28410 02	Soap and other detergents, n.s.k.[5]	(NA)	(X)	95.5	(NA)	(X)	485.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2842– —	**POLISHES AND SANITATION GOODS**						
	Total	**(NA)**	**(X)**	**6 496.9**	**(NA)**	**(X)**	**5 112.5**
28422	Household bleaches (chlorine and nonchlorine)	(NA)	(X)	941.7	(NA)	(X)	812.4
28422 43	Household liquid bleaches (sodium hypochlorite, etc.)[6]	39	(X)	743.9	34	(X)	607.1
28422 53	Household dry bleaches (calcium hypochlorite, etc.)[6]	23	(X)	188.7	15	(X)	196.3
28422 00	Household bleaches (chlorine and nonchlorine), n.s.k.	(NA)	(X)	9.1	(NA)	(X)	9.0
28423	Specialty cleaning and sanitation products	(NA)	(X)	3 599.7	(NA)	(X)	2 719.2
28423 11	Glass window cleaning preparations, except automotive windshield washer fluid	62	(X)	171.7	55	(X)	200.5
28423 15	Automotive windshield washer fluid	21	(X)	29.5	(NA)	(X)	(7)
28423 21	Oven cleaners	23	(X)	64.5	21	(X)	59.1
28423 26	Toilet bowl cleaners	50	(X)	241.1	56	(X)	239.1
28423 28	Drain pipe solvents	31	(X)	131.1	26	(X)	75.1
28423 30	Bathroom, tub, and tile cleaners	47	(X)	124.9	(NA)	(X)	(7)
28423 32	Disinfectants, nonagricultural	89	(X)	517.4	79	(X)	375.6
	Household laundry aids:						
	Fabrics softeners and rinses:						
28423 44	Liquid	35	(X)	538.0	27	(X)	478.3
28423 41	Dry	4	(X)	(D)	11	(X)	224.0
28423 46	Dryer sheets	7	(X)	147.7			
28423 48	Laundry starch preparations, including permanent types	10	(X)	49.4	(NA)	(X)	68.7
28423 49	Other aids, including ironing aids and dry cleaning spotting preparations	18	(X)	102.3	(NA)	(X)	(7)
	Rug and upholstery cleaners:						
28423 51	Consumer type preparations	32	(X)	149.2	20	(X)	129.5
28423 53	Industrial and institutional	34	(X)	23.4	32	(X)	39.5
28423 71	Household ammonia	15	(X)	17.1	13	(X)	30.2
	Air and room fresheners:						
28423 81	Aerosol type	31	(X)	219.6	17	(X)	77.2
28423 85	Other (except potpourri)	50	(X)	264.7	44	(X)	288.6
28423 90	Cat litter, except natural and untreated materials	7	(X)	(D)	(NA)	(X)	(7)
28423 97	Other specialty detergents including sweeping compounds, waterless hand cleaners, wallpaper cleaners, etc.	130	(X)	331.1	(NA)	(X)	7285.1
28423 00	Specialty cleaning and sanitation products, n.s.k.	(NA)	(X)	137.1	(NA)	(X)	148.7
28424	Polishing preparations and related products	(NA)	(X)	1 057.4	(NA)	(X)	798.0
28424 11	Automobile body polish and cleaners	72	(X)	284.5	44	(X)	185.1
28424 15	Furniture polish and cleaners	28	(X)	185.2	24	(X)	155.3
	Floor polish:						
28424 21	Water emulsion—mil gal	83	44.8	252.5	54	29.4	203.9
28424 23	Liquid (nonemulsion)—mil gal	21	**19.1	35.1	15	5.9	33.4
28424 25	Other than liquid form, including paste and cake—mil lb	7	(S)	3.8	8	(S)	7.9
28424 43	Shoe polishes and cleaners	11	(X)	99.9	(NA)	(X)	42.8
28424 63	Leather dressings and finishes, excluding shoe polish—mil lb	20	(S)	51.0	11	(S)	45.9
28424 98	Other polishing preparations and related products, including metal polish and polishing cloths and papers	62	(X)	136.4	37	(X)	81.1
28424 00	Polishing preparations and related products, n.s.k.	(NA)	(X)	9.0	(NA)	(X)	42.6
28420	Polishes and sanitation goods, n.s.k.	(NA)	(X)	898.2	(NA)	(X)	782.9
28420 00	Polishes and sanitation goods, n.s.k.[4]	(NA)	(X)	804.9	(NA)	(X)	521.3
28420 02	Polishes and sanitation goods, n.s.k.[5]	(NA)	(X)	93.2	(NA)	(X)	261.6
2843– —	**SURFACTANTS, FINISHING AGENTS, AND ASSISTANTS**						
	Total	**(NA)**	**(X)**	**3 779.8**	**(NA)**	**(X)**	**2 884.5**
28430	Surfactants, finishing agents, and assistants	(NA)	(X)	3 779.8	(NA)	(X)	2 884.5
	Assistants and finishes, textile and leather:						
	Textile:						
28430 31	Assistants—mil lb	35	**270.4	163.7	32	235.8	121.7
28430 61	Finishes—mil lb	45	*639.8	275.3	34	*247.3	121.2
28430 55	Leather assistants and finishes—mil lb	7	49.9	53.0	(NA)	27.0	22.4
28430 85	Surfactants (bulk surface active agents)	102	(X)	2 988.5	123	(X)	2 345.4
28430 00	Surfactants, finishing agents, and assistants, n.s.k.[8]	(NA)	(X)	282.7	(NA)	(X)	200.9
28430 02	Surfactants, finishing agents, and assistants, n.s.k.[9]	(NA)	(X)	16.6	(NA)	(X)	72.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2844– —	**TOILET PREPARATIONS**				
	Total	**(NA)**	**18 842.7**	**(NA)**	**14 871.3**
28441	Shaving preparations	(NA)	499.0	(NA)	480.7
28441 49	Shaving soap and cream	21	270.4	18	206.2
28441 56	Aftershave preparations (all forms)	18	217.8	26	260.0
28441 59	Other shaving preparations, including preshave preparations and styptics	5	10.8	8	12.9
28441 00	Shaving preparations, n.s.k.	(NA)	–	(NA)	1.5
28442	Perfumes, toilet waters, and colognes	(NA)	2 205.6	(NA)	1 995.3
28442 11	Perfume oil mixtures and blends	35	522.9	21	420.2
28442 23	Perfumes	25	372.6	26	205.0
28442 35	Toilet waters	14	206.2	15	219.8
28442 45	Colognes	34	985.8	36	965.1
28442 00	Perfumes, toilet waters, and colognes, n.s.k.	(NA)	118.1	(NA)	185.2
28443	Hair preparations (including shampoos)	(NA)	4 606.9	(NA)	3 602.1
	Shampoos, including products with additives for coloring, dandruff removal, etc:				
	Containing soap:				
28443 11	Professional	22	56.9	17	28.0
28443 12	Consumer use	49	562.3	33	253.5
	Synthetic organic detergents:				
	Liquid:				
28443 14	Professional	22	102.2	25	76.3
28443 15	Consumer use	44	878.1	43	831.6
28443 18	Cream and gels	10	21.4	9	43.1
	Hair tonics, including hair and scalp conditioners:				
28443 20	Professional	30	107.5	25	70.4
28443 22	Consumer use	46	520.9	40	423.4
28443 26	Hair mousse (professional and consumer use)	24	139.4	(NA)	82.4
	Perms:				
28443 36	Home (complete and refill)	10	111.9	14	112.7
28443 39	Professional	27	210.1	22	210.7
28443 41	Hair dressings, including brilliantines, creams, and pomades	31	133.2	22	108.5
28443 51	Hair coloring preparations (bleaches, dyes, rinses, tints, etc.)	28	755.9	20	567.8
	Hair spray:				
28443 63	Aerosol	26	334.0	24	372.5
28443 64	Nonaerosol	51	442.1	38	224.7
28443 65	Hair rinses, except color rinses	8	21.1	12	34.8
28443 95	Other hair preparations, including heat setting wave solutions	26	88.9	19	96.4
28443 00	Hair preparations (including shampoos), n.s.k.	(NA)	121.0	(NA)	65.2
28444	Dentifrices, mouthwashes, gargles, and rinses	(NA)	1 706.9	(NA)	1 401.5
28444 21	Toothpaste, including gels and tooth powder	21	1 153.1	19	893.3
28444 31	Denture cleaners	6			
28444 98	Other oral hygiene products, including dental floss, dental adhesives, etc.; excluding toothbrushes and toothpicks	32	553.8	(NA)	506.6
28444 00	Dentifrices, mouthwashes, gargles, and rinses, n.s.k.	(NA)	–	(NA)	1.6
28446	Creams, lotions and oils, excluding shaving, hair, and deodorant	(NA)	3 075.7	(NA)	([10])
	Creams, excluding shaving, hair, deodorant, and manicuring:				
28446 11	Cleansing creams	40	377.9	(NA)	182.3
28446 13	Foundation creams	23	359.4	26	494.1
28446 15	Lubricating creams, including hormone creams	16	287.6	27	370.9
28446 17	Moisturizing creams	52	532.9	25	167.6
28446 19	Other creams, except eye and manicuring creams	17	53.7		
	Lotions and oils, excluding hair, shaving preparations, and bath:				
28446 21	Suntan lotions and oils	25	126.5	25	136.4
28446 22	Sunscreens and sunblocks	27	188.3	32	55.0
28446 23	Cleansing lotions	21	126.0	20	124.5
28446 24	Cosmetic oils, including baby oils but excluding suntan oils	17	42.8	13	25.6
28446 25	Hand lotions	59	530.6	62	375.1
28446 26	Body lotions	45	170.7	30	286.4
28446 29	Other lotions and oils, excluding hair, shaving, and bath	19	74.1		
28446 00	Creams, lotions and oils, excluding shaving, hair, and deodorant, n.s.k.	(NA)	205.1	(NA)	([10])
28447	Other cosmetics and toilet preparations	(NA)	5 681.6	(NA)	[10]6 492.2
28447 11	Lip preparations (lipstick, lip gloss, lip conditioners, etc.)	40	753.4	47	502.6
28447 15	Blushers	23	224.4	24	154.3
28447 21	Eye preparations (mascara, eye shadow, eye liners, eye creams, etc.)	32	781.1	36	656.5
28447 25	Feminine hygiene douches and deodorants, except medicated	6	81.1	4	([11])
	Underarm deodorants:				
28447 31	Aerosol and spray types	12	176.1	16	263.2
28447 35	Roll-ons, solids, etc.	30	1 023.4	33	779.9
	Manicuring preparations:				
28447 41	Nail enamels and polishes	24	355.6	23	281.7
28447 45	Nail enamel and polish removers	12	46.9	12	49.9
28447 51	Other manicuring preparations, including nail and cuticle conditioners and creams	10	49.4	10	49.8
	Powder:				
28447 55	Talcum and toilet powder	38	242.5	30	213.8
28447 61	Face powder (pressed and loose)	26	434.5	26	136.6
28447 65	Other powder, including foot powder, etc.	7	10.5	7	47.2
28447 71	Bath salts, tablets, oils, and bubble baths	35	275.8	39	151.0
28447 75	Premoistened towelettes, including wipes for babies	11	452.4	9	243.6
28447 81	Facial scrubs and masks	23	73.8	17	53.1
28447 85	Depilatories	7	29.6	7	21.5
28447 95	Other cosmetics and toiletries	38	408.8	36	[11]397.9
28447 00	Other cosmetics and toilet preparations, n.s.k.	(NA)	262.4	(NA)	[10]271.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2844– ––	**TOILET PREPARATIONS**—Con.				
28440	Toilet preparations, n.s.k.	(NA)	1 067.0	(NA)	899.5
28440 00	Toilet preparations, n.s.k.[8]	(NA)	962.8	(NA)	530.0
28440 02	Toilet preparations, n.s.k.[9]	(NA)	104.2	(NA)	369.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for product code 28412 11 were included with 28412 04, 28412 05, and 28412 06.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[7]For 1987, data for product codes 28423 15, 28423 30, 28423 49, and 28423 90 were included in product code 28423 97.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.
[10]1987 product class 28445, Other Cosmetics and Toilet Preparations, was split into two product classes for 1992; 28446, Creams, Lotions, and Oils, Excluding Shaving, Hair, and Deodorant, and 28447, Other Cosmetics and Toilet Preparations. The 1987 total value and n.s.k value for 28446 and 28447 appears in 28447 and 28447 00 respectively. Detail for these two product classes is shown where applicable.
[11]For 1987, data for product code 28447 25 were included in 28447 95.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28411, SOAPS AND DETERGENTS, COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL		
United States	**2 149.1**	**1 790.9**
California	240.1	218.7
Florida	15.4	14.0
Georgia	188.1	125.0
Illinois	269.4	244.4
Indiana	52.4	46.4
Kansas	36.8	16.4
Massachusetts	40.2	62.5
Michigan	143.5	73.6
Minnesota	29.5	25.5
Missouri	67.2	85.7
New Jersey	272.3	248.7
New York	31.1	25.1
North Carolina	73.4	40.6
Ohio	206.5	219.2
Pennsylvania	92.0	48.3
Tennessee	22.5	12.8
Texas	188.3	134.4
Wisconsin	67.3	58.0
28412, HOUSEHOLD DETERGENTS		
United States	**6 029.9**	**5 247.5**
California	529.5	418.5
Illinois	123.8	193.1
Minnesota	4.1	(NA)
Missouri	720.9	595.6
New Jersey	64.2	291.3
Texas	135.8	139.3
Washington	2.6	(NA)
28413, SOAPS, EXCEPT SPECIALTY CLEANERS, HOUSEHOLD		
United States	**1 965.0**	**1 423.3**
California	125.0	93.4
Georgia	3.6	(NA)
New Jersey	14.3	9.8
New York	5.9	(NA)
Ohio	456.6	275.4
Texas	9.4	29.6
28414, GLYCERIN, NATURAL		
United States	**138.3**	**172.4**
Illinois	28.2	44.6
28422, HOUSEHOLD BLEACHES (CHLORINE AND NONCHLORINE)		
United States	**941.7**	**812.4**
California	121.1	106.2
Florida	51.3	(NA)
Georgia	113.6	(NA)
Missouri	40.3	52.0
Texas	98.5	(NA)
Washington	7.4	6.3
Wisconsin	4.7	(NA)
28423, SPECIALTY CLEANING AND SANITATION PRODUCTS		
United States	**3 599.7**	**2 719.2**
Arizona	4.4	(NA)
California	204.5	183.0
Florida	41.1	18.1
Georgia	242.7	155.8
Illinois	371.0	403.3
Indiana	37.1	12.0
Kansas	12.4	10.0
Louisiana	6.5	7.4
Maryland	122.7	95.5
Massachusetts	48.7	5.4
Michigan	86.6	87.9
Minnesota	66.8	(NA)
Missouri	334.7	217.8
New Jersey	316.2	344.0
New York	95.6	77.7

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28423, SPECIALTY CLEANING AND SANITATION PRODUCTS—Con.		
North Carolina	39.5	21.8
Ohio	658.0	544.5
Oregon	5.7	(NA)
Pennsylvania	84.7	45.4
Tennessee	47.4	(NA)
Texas	112.9	28.5
Virginia	6.1	3.6
Washington	2.2	2.9
Wisconsin	435.9	(NA)
28424, POLISHING PREPARATIONS AND RELATED PRODUCTS		
United States	**1 057.4**	**798.0**
California	62.6	49.6
Colorado	11.4	(NA)
Florida	3.3	2.1
Georgia	59.3	35.0
Illinois	121.8	101.1
Indiana	27.0	25.9
Massachusetts	26.9	26.1
Michigan	54.9	29.7
Minnesota	4.0	4.8
Missouri	19.5	12.9
New Jersey	19.4	22.1
New York	29.9	17.7
North Carolina	53.9	(NA)
Ohio	79.5	111.4
Pennsylvania	103.8	65.4
Tennessee	4.8	(NA)
Texas	16.0	7.5
Wisconsin	290.8	239.6
28441, SHAVING PREPARATIONS		
United States	**499.0**	**480.7**
California	3.7	(NA)
Indiana	28.5	(NA)
Iowa	27.8	(NA)
Massachusetts	46.1	(NA)
Michigan	4.8	(NA)
Minnesota	2.9	(NA)
Missouri	11.5	(NA)
New Jersey	124.2	185.8
New York	15.0	(NA)
North Carolina	45.2	(NA)
Ohio	10.0	(NA)
Tennessee	56.5	(NA)
Texas	8.5	(NA)
Wisconsin	91.6	(NA)
28442, PERFUMES, TOILET WATERS, AND COLOGNES		
United States	**2 205.6**	**1 995.3**
California	9.9	13.6
New Jersey	1 004.8	742.3
New York	329.9	284.9
28443, HAIR PREPARATIONS (INCLUDING SHAMPOOS)		
United States	**4 606.9**	**3 602.1**
California	641.9	452.9
Georgia	56.5	74.9
Illinois	970.6	656.1
Indiana	25.3	(NA)
Minnesota	363.3	354.1
New Jersey	442.8	378.0
New York	72.8	103.3
Pennsylvania	7.1	(NA)
Tennessee	95.1	81.9
Texas	47.4	38.2
28444, DENTIFRICES, MOUTHWASHES, GARGLES, AND RINSES		
United States	**1 706.9**	**1 401.5**
California	29.3	(NA)
Michigan	89.0	35.2
Missouri	44.3	(NA)
New Jersey	213.2	261.9
New York	7.8	(NA)
28446, CREAMS, LOTIONS AND OILS, EXCLUDING SHAVING, HAIR, AND DEODORANT		
United States	**3 075.7**	**(NA)**
California	250.4	(NA)
Connecticut	176.6	(NA)
Florida	78.3	(NA)
Minnesota	15.9	(NA)
Missouri	151.5	(NA)
New Jersey	357.7	(NA)
New York	433.1	(NA)
28447, OTHER COSMETICS AND TOILET PREPARATIONS		
United States	**5 681.6**	**(NA)**
Arkansas	204.0	(NA)
California	209.1	(NA)
Connecticut	32.2	(NA)
Illinois	246.5	(NA)
Minnesota	84.3	(NA)
Missouri	154.1	(NA)
New Jersey	1 089.3	(NA)
New York	1 060.1	(NA)
North Carolina	522.3	(NA)
Ohio	179.5	(NA)
Pennsylvania	11.5	(NA)
Tennessee	102.3	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2841-	**Soap and other detergents**	**11 054.2**	**11 784.5**	**11 860.4**	**10 916.2**	**9 960.7**	**9 527.1**	**7 852.3**	**4 999.6**
28411	Soaps and detergents, commercial, industrial, and institutional	2 149.1	2 456.7	2 380.6	2 300.0	1 854.0	1 790.9	1 538.5	1 005.8
28412	Household detergents	6 029.9	6 209.3	6 397.0	5 710.8	5 463.1	5 247.5	4 349.3	2 817.2
28413	Soaps, except specialty cleaners, household	1 965.0	2 171.8	2 108.6	1 874.2	1 577.1	1 423.3	1 220.4	707.0
28414	Glycerin, natural	138.3	134.1	153.7	182.8	144.1	172.4	153.7	101.0
28410	Soap and other detergents, n.s.k.	771.9	812.5	820.6	848.4	922.3	893.0	590.3	368.6
2842-	**Polishes and sanitation goods**	**6 496.9**	**5 545.8**	**5 530.7**	**5 305.7**	**5 190.6**	**5 112.5**	**4 047.1**	**2 668.5**
28422	Household bleaches (chlorine and nonchlorine)	941.7	778.4	770.7	754.4	705.8	812.4	528.4	353.8
28423	Specialty cleaning and sanitation products	3 599.7	3 238.1	3 247.5	2 866.4	2 835.5	2 719.2	2 327.8	1 478.2
28424	Polishing preparations and related products	1 057.4	820.8	852.2	876.0	835.9	798.0	648.0	505.7
28420	Polishes and sanitation goods, n.s.k.	898.2	708.5	660.2	808.9	813.3	782.9	542.9	330.8
2843-	**Surfactants, finishing agents, and assistants**	**3 779.8**	**3 974.7**	**3 877.0**	**3 670.9**	**3 192.5**	**2 884.5**	**2 495.7**	**1 341.0**
28430	Surfactants, finishing agents, and assistants	3 779.8	3 974.7	3 877.0	3 670.9	3 192.5	2 884.5	2 495.7	1 341.0

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2844-	**Toilet preparations**	**18 842.7**	**17 389.6**	**17 366.0**	**16 871.6**	**16 409.4**	**14 871.3**	**10 437.1**	**6 393.5**
28441	Shaving preparations	499.0	481.0	481.4	502.8	531.1	480.7	328.7	268.2
28442	Perfumes, toilet waters, and colognes	2 205.6	2 433.3	2 118.3	2 080.8	2 225.9	1 995.3	1 634.1	1 096.8
28443	Hair preparations (including shampoos)	4 606.9	4 149.6	4 197.7	4 051.1	3 871.5	3 602.1	2 430.0	1 474.9
28444	Dentifrices, mouthwashes, gargles, and rinses	1 706.9	1 816.9	1 977.5	1 846.8	1 764.0	1 401.5	1 178.9	659.6
28446	Creams, lotions and oils, excluding shaving, hair, and deodorant	3 075.7	7 525.1	7 656.5	7 472.6	7 124.3	6 492.2	4 266.5	2 597.4
28447	Other cosmetics and toilet preparations	5 681.6							
28440	Toilet preparations, n.s.k.	1 067.0	983.6	934.6	917.5	892.6	899.5	598.9	296.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2841, SOAP AND OTHER DETERGENTS				
	Materials, ingredients, containers, and supplies	**(X)**	**5 731.1**	**(X)**	**5 069.3**
284303	Bulk surface active intermediates (active wt) mil lb	490.7	257.0	313.9	125.5
	Bulk surface active agents, except intermediates:				
284305	Bulk surface active agents primarily for detergent purposes (active wt) mil lb	499.1	266.7	386.9	175.3
284306	Other bulk surface active agents (emulsifiers, wetting agents, penetrants, etc.) (active wt) mil lb	85.3	42.8	64.0	24.6
284141	Glycerin (100 percent) mil lb	(D)	(2)	*37.9	22.3
207011	Vegetable oil mil lb	(D)	(2)	288.5	54.2
284421	Perfume oil mixtures and blends mil lb	*37.4	219.2	557.6	392.4
289921	Fatty acids mil lb	299.9	102.1	*72.7	22.8
207711	Grease and inedible tallow mil lb	765.3	130.2	532.1	105.2
281211	Chlorine (100 percent Cl) 1,000 s tons	(S)	9.3	(S)	11.7
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	713.3	96.2	665.6	72.3
281238	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons	470.3	104.2	*564.8	59.7
281972	Sodium tripolyphosphate (STPP) (100 percent) 1,000 s tons	259.8	153.7	470.3	296.5
281971	All other potassium and sodium compounds	(X)	281.3	(X)	(3)
291002	Refined petroleum products including mineral oil, naphtha solvents, petrolatum, waxes, etc.	(X)	32.1	(X)	34.5
280002	All other organic and inorganic chemicals	(X)	21 685.8	(X)	983.9
270011	Labels, coupons, instructions, and other printed material	(X)	70.2	(X)	212.5
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	563.8	(X)	520.9
340001	Metal containers	(X)	25.5	(X)	36.0
308015	Plastics containers	(X)	499.6	(X)	512.1
308095	Fabricated plastics products, including dispensing pumps and trigger and mist sprayers; except containers	(X)	38.7	(X)	(3)
970099	All other materials and components, parts, containers, and supplies	(X)	602.1	(X)	3859.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	550.7	(X)	547.2
	INDUSTRY 2842, POLISHES AND SANITATION GOODS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 054.2**	**(X)**	**1 729.3**
284303	Bulk surface active intermediates (active wt) mil lb	48.2	23.8	*18.8	8.4
	Bulk surface active agents, except intermediates:				
284305	Bulk surface active agents primarily for detergent purposes (active wt) mil lb	*32.8	20.7	(S)	65.9
284306	Other bulk surface active agents (emulsifiers, wetting agents, penetrants, etc.) (active wt) mil lb	39.1	28.7	**39.8	17.7
284141	Glycerin (100 percent) mil lb	(D)	(5)	(NA)	(6)
207011	Vegetable oil mil lb	(S)	1.1	(S)	1.9
284421	Perfume oil mixtures and blends mil lb	**10.4	67.0	*10.7	46.7
289921	Fatty acids mil lb	**13.0	5.3	**16.9	5.8
207711	Grease and inedible tallow mil lb	*5.0	3.4	(S)	4.7
281211	Chlorine (100 percent Cl) 1,000 s tons	*129.4	15.5	**201.7	29.6
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	55.6	8.3	103.5	12.1
281238	Sodium hydroxide (caustic soda) (100 percent NaOH) 1,000 s tons	155.1	31.6	190.2	24.1
281972	Sodium tripolyphosphate (STPP) (100 percent) 1,000 s tons	**3.5	2.7	**11.8	4.3
281971	All other potassium and sodium compounds	(X)	22.4	(X)	(6)
291002	Refined petroleum products including mineral oil, naphtha solvents, petrolatum, waxes, etc.	(X)	72.1	(X)	40.1
280002	All other organic and inorganic chemicals	(X)	5234.3	(X)	239.9
270011	Labels, coupons, instructions, and other printed material	(X)	46.1	(X)	28.1
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	147.0	(X)	133.7
340001	Metal containers	(X)	143.8	(X)	139.2
308015	Plastics containers	(X)	250.8	(X)	227.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2842, POLISHES AND SANITATION GOODS—Con.				
308095	Fabricated plastics products, including dispensing pumps and trigger and mist sprayers; except containers	(X)	99.6	(X)	([6])
970099	All other materials and components, parts, containers, and supplies	(X)	359.4	(X)	[6]282.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	470.3	(X)	417.0
	INDUSTRY 2843, SURFACE ACTIVE AGENTS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 510.8**	**(X)**	**1 493.7**
284303	Bulk surface active intermediates (active wt) mil lb	187.7	58.7	118.5	70.5
	Bulk surface active agents, except intermediates:				
284305	Bulk surface active agents primarily for detergent purposes (active wt) mil lb	150.7	54.1	150.6	55.6
284306	Other bulk surface active agents (emulsifiers, wetting agents, penetrants, etc.) (active wt) mil lb	*29.0	26.8	110.4	45.2
284141	Glycerin (100 percent) mil lb	14.8	8.4	11.0	8.0
207011	Vegetable oil mil lb	235.9	65.9	125.1	32.6
284421	Perfume oil mixtures and blends mil lb	(S)	.2	(S)	.2
289921	Fatty acids mil lb	224.6	109.7	*200.2	56.2
207711	Grease and inedible tallow mil lb	88.2	30.6	147.7	29.9
281211	Chlorine (100 percent Cl) 1,000 s tons	(D)	([7])	**40.9	6.7
281228	Sodium carbonate (soda ash) (58 percent Na_2O) 1,000 s tons	**5.1	.7	(S)	1.2
281238	Sodium hydroxide (caustic soda)(100 percent NaOH) 1,000 s tons	20.0	3.5	*40.7	48.4
281972	Sodium tripolyphosphate (STPP) (100 percent) 1,000 s tons	**.2	.1	(S)	.5
281971	All other potassium and sodium compounds	(X)	4.2	(X)	([3])
291002	Refined petroleum products including mineral oil, naphtha solvents, petrolatum, waxes, etc.	(X)	93.0	(X)	156.0
280002	All other organic and inorganic chemicals	(X)	[7]353.4	(X)	476.3
270011	Labels, coupons, instructions, and other printed material	(X)	.6	(X)	.6
	Containers:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	13.3	(X)	13.6
340001	Metal containers	(X)	24.9	(X)	19.0
308015	Plastics containers	(X)	6.7	(X)	2.5
308095	Fabricated plastics products, including dispensing pumps and trigger and mist sprayers; except containers	(X)	([8])	(X)	([3])
970099	All other materials and components, parts, containers, and supplies	(X)	[8]419.6	(X)	[3]220.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	236.4	(X)	250.3

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2844, TOILET PREPARATIONS		
	Materials, ingredients, containers, and supplies	**4 799.5**	**3 381.1**
284421	Perfume oil mixtures and blends	323.8	216.2
286931	Perfume materials (synthetic organic)	92.7	50.9
289951	Essential oils, natural	95.3	102.7
284307	Bulk surface active agents other than sulfonated oils and fats	170.6	63.6
207020	Fats, oils, greases, and tallow (animal, marine, and vegetable)	107.3	75.3
291102	Refined petroleum products, including mineral oil, naphtha solvents, petrolatum, waxes, etc.	119.2	71.1
286955	Alcohols	101.4	60.5
286906	Other synthetic organic chemicals including halogenated hydrocarbons	215.2	106.4
281970	Silicates	96.4	49.6
308095	Fabricated plastics products, including dispensing pumps and trigger and mist sprayers; except containers	190.4	127.2
	Containers:		
308015	Plastics containers	993.4	633.5
322101	Glass containers	206.3	169.7
260012	Paper and paperboard containers including shipping containers, setup and folding cartons, etc.	566.6	383.0
340001	Metal containers	194.2	150.9
970099	All other materials and components, parts, containers, and supplies	618.6	446.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	708.0	674.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1992, data for material codes 284141 and 207011 are included in 280002 to avoid disclosing data for individual companies.

[3]For 1987, data for material codes 281971 and 308095 were included with 970099.

[4]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[5]For 1992, data for material code 284141 are included with 280002 to avoid disclosing data for individual companies.

[6]For 1987, data for material codes 284141, 281971, and 308095 were included with 970099.

[7]For 1992, data for material code 281211 are included with 280002 to avoid disclosing data for individual companies.

[8]For 1992, data for material code 308095 are included with 970099 to avoid disclosing data for indlvidual companies.

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TSF:28D_92.DAT;3 5/ 24/ 95 08:37:47 UTF:28D_93.DAT;4 5/ 24/ 95 11:10:09 META:TIPS96-11142392.DAT;1 5/ 24/ 95 11:15:11

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
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28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
28242 65	28247 15
28242 65	28247 16
28242 65	28247 19
28242 66	28247 31
28242 66	28247 33
28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
28249 15	28247 13
28249 15	28247 15
28249 15	28247 16
28249 15	28247 19
28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
28447	28445
28447 11	28445 21
28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
28610	28611
28610	28612
28610 10	28612 57
28610 15	28611 31
28610 15	28611 98
28610 20	28612 91
28610 25	28612 94
28610 30	28612 96
28610 35	28612 98
28610 40	28612 31
28610 40	28612 61
28610 40	28612 89
28692	28695
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28692 15	28695 25
28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
28744 11	28744 20
28744 11	28744 40
28744 11	28744 60
28744 21	28744 20
28744 21	28744 40
28744 21	28744 60
28744 31	28744 30
28744 31	28744 50
28744 31	28744 70
28750 11	28750 20
28750 11	28750 40
28750 11	28750 60
28750 21	28750 20
28750 21	28750 40
28750 21	28750 60
28750 31	28750 30
28750 31	28750 50
28750 31	28750 70
28795 81	28795 20
28795 81	28795 21
28795 81	28795 79
28796 85	28796 25
28796 85	28796 51
28796 85	28796 71
28796 85	28796 81
28798 85	28798 30
28798 85	28798 83
28799 17	28799 15
28799 30	28799 35
28799 40	28799 35
28799 45	28799 15
28799 45	28799 35
28914 24	28914 23
28914 24	28914 25
28914 61	28914 98
28914 99	28914 98
28916 25	28916 20
28916 25	28916 30
28916 25	28916 40
28917 46	28917 41
28917 46	28917 51
28917 46	28917 61
28920 20	28920 19
28920 20	28920 21
28920 24	28920 13
28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
28931 17	28931 19
28932 32	28932 33
28932 32	28932 38
28932 44	28932 34
28932 44	28932 45
28932 46	28932 34
28932 46	28932 45
28933 41	28933 43
28933 42	28933 43
28933 44	28933 45
28933 46	28933 45
28934 87	28934 85
28934 87	28934 86
28934 89	28934 85
28934 89	28934 86
28992 24	28992 23
28992 24	28992 25
28992 59	28992 53
28992 59	28992 55
28992 59	28992 57
28995 13	28995 11
28995 13	28995 12
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28995 16	28995 14
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28995 16	28995 19
28995 34	28995 35
28995 34	28995 36
28995 43	28995 40
28995 43	28995 42
28995 43	28995 45
28995 68	28995 69
28995 68	28995 70
28995 68	28995 71
28995 81	28995 82
28995 81	28995 83
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28995 95	28995 94
28995 95	28995 96
28995 97	28995 55
28995 97	28995 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
28161 11	28161 00
28161 21	28162 55
28162 13	28162 65
28162 30	28162 65
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28162 50	28162 65
28162 60	28162 65
28163 41	28163 98
28163 45	28163 98
28163 89	28163 98
28163 95	28163 98
28163 97	28163 98
28220 00	28220 11
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28230 38	28230 33
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28230 39	28230 37
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28241 13	28241 15
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28248 81	28248 79
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28333 45	28333 44
28333 82	28333 99
28333 93	28333 92
28333 94	28333 92
28333 98	28333 99
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28352 15	28352 12
28362 10	28362 00
28362 20	28362 00
28364 20	28364 22
28364 25	28364 22
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28411 73	28411 78
28411 79	28411 78
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28412 18	28412 06
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28413 11	28413 14
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28423 42	28423 49
28423 45	28423 41
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28423 47	28423 48
28423 49	28423 48
28423 95	28423 15
28423 95	28423 30
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28423 95	28423 90
28423 95	28423 97
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28424 44	28424 43
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28445 59	28447 81
28445 61	28447 71
28445 91	28447 85
28445 99	28447 95
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28611 98	28610 15
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28612 61	28610 40
28612 89	28610 40
28612 91	28610 20
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2812100	MA28A, Inorganic Chemicals	2834200	MA28G, Pharmaceutical Preparations, Except Biologicals
2812300	MA28A, Inorganic Chemicals	2834300	MA28G, Pharmaceutical Preparations, Except Biologicals
2812500	MA28A, Inorganic Chemicals	2834400	MA28G, Pharmaceutical Preparations, Except Biologicals
2813200	MA28C, Industrial Gases	2834500	MA28G, Pharmaceutical Preparations, Except Biologicals
2813300	MA28C, Industrial Gases	2834600	MA28G, Pharmaceutical Preparations, Except Biologicals
2813500	MA28C, Industrial Gases	2834700	MA28G, Pharmaceutical Preparations, Except Biologicals
2813600	MA28C, Industrial Gases	2834800	MA28G, Pharmaceutical Preparations, Except Biologicals
2813700	MA28C, Industrial Gases	2834900	MA28G, Pharmaceutical Preparations, Except Biologicals
2816100	MA28A, Inorganic Chemicals	2842243	MA28A, Inorganic Chemicals
2816310	MA28A, Inorganic Chemicals	2842253	MA28A, Inorganic Chemicals
2819300	MA28B, Fertilizer Materials	2851100	MA28F, Paint, Varnish, and Lacquer
2819300	MA28A, Inorganic Chemicals	2851200	MA28F, Paint, Varnish, and Lacquer
2819400	MA28A, Inorganic Chemicals	2851300	MA28F, Paint, Varnish, and Lacquer
2819500	MA28A, Inorganic Chemicals	2851500	MA28F, Paint, Varnish, and Lacquer
2819600	MA28A, Inorganic Chemicals	2873100	MA28B, Fertilizer Materials
2819700	MA28A, Inorganic Chemicals	2873200	MA28B, Fertilizer Materials
2819800	MA28A, Inorganic Chemicals	2874100	MA28B, Fertilizer Materials
2819900	MA28A, Inorganic Chemicals	2874200	MA28B, Fertilizer Materials
2834100	MA28G, Pharmaceutical Preparations, Except Biologicals		

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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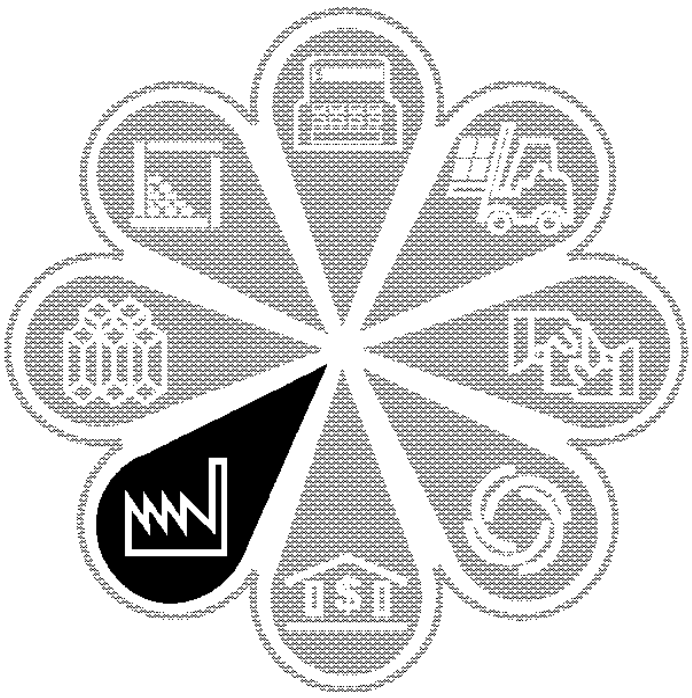
1992
Census of Manufactures

MC92-I-28E

INDUSTRY SERIES

Paints and Allied Products

Industry 2851



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28E

INDUSTRY SERIES

Paints and Allied Products

Industry 2851

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Kim Ciurca.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Paints and Allied Products

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-- Not applicable for this report.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2851	Paints and Allied Products

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing paints (in paste and ready-mixed form); varnishes; lacquers; enamels and shellac; putties, wood fillers, and sealers; paint and varnish removers; paint brush cleaners; and allied paint products.

Establishments primarily engaged in manufacturing carbon black are classified in industry 2895. Establishments primarily engaged in manufacturing bone black, lamp black, and inorganic color pigments are classified in industry 2816. Establishments primarily engaged in manufacturing organic color pigments are classified in industry 2865. Establishments primarily engaged in manufacturing plastics materials are classified in industry 2821. Establishments primarily engaged in manufacturing printing ink are classified in industry 2893. Establishments primarily engaged in manufacturing caulking compounds and sealants are classified in industry 2891. Establishments primarily engaged in manufacturing artists' paints are classified in industry 3952. Establishments primarily engaged in manufacturing turpentine are classified in industry 2861.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2851, Paints and Allied Products, had employment of 51.2 thousand. The employment figure was 4.2 percent below the 55.2 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Illinois, and California, accounting for approximately 33.0 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 33.3 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $15.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2851 shipped $13.8 billion of paints and allied products considered primary to the industry, $305.9 million of secondary products, and had $875.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 97 percent.

The products primary to industry 2851, no matter in what industry they were produced, appear in table 6a and aggregate to $14.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paints and allied products industry amounted to $7.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS														
1992 Census	1 130	1 418	578	51.2	1 711.4	25.7	53.2	676.5	7 158.7	7 806.2	14 973.7	290.2	1 759.2	98	97
1991 ASM	(NA)	(NA)	(NA)	51.1	1 568.2	25.2	52.1	630.1	6 784.1	7 434.7	14 254.9	255.7	1 718.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	53.9	1 627.6	27.2	55.6	660.9	6 765.7	7 461.2	14 238.7	271.3	1 834.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	55.0	1 607.5	27.7	55.8	652.2	6 453.0	7 291.5	13 656.3	240.8	1 773.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	56.9	1 564.7	28.3	57.0	638.2	6 488.9	7 088.6	13 531.7	252.7	1 724.3	(NA)	(NA)
1987 Census	1 121	1 428	626	55.2	1 491.6	28.3	56.3	628.2	6 220.7	6 509.9	12 702.4	275.1	1 548.9	98	97
1986 ASM	(NA)	(NA)	(NA)	55.8	1 416.3	28.8	57.0	611.4	5 407.2	6 302.6	11 724.9	254.2	1 494.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	55.5	1 359.5	29.0	56.9	596.5	5 169.3	6 396.8	11 562.4	248.8	1 555.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	55.3	1 286.8	29.1	56.9	564.4	4 932.1	6 011.3	10 848.4	283.6	1 461.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	53.6	1 207.7	27.5	54.1	504.4	4 706.3	5 577.3	10 194.6	280.1	1 375.3	(NA)	(NA)
1982 Census	1 170	1 441	620	54.1	1 157.7	27.6	53.6	481.1	3 952.5	5 167.6	9 162.1	219.2	1 231.5	97	96
1981 ASM	(NA)	(NA)	(NA)	60.1	1 167.0	31.5	61.8	494.5	3 867.3	5 350.8	9 143.5	230.6	1 170.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	62.3	1 081.7	32.7	63.4	463.3	3 559.2	4 793.8	8 340.0	205.4	1 068.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	63.1	1 024.5	34.8	68.1	466.2	3 363.6	4 610.7	7 910.5	187.2	1 055.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	61.5	943.4	32.9	65.6	426.9	2 954.6	4 197.1	7 167.4	174.6	944.3	(NA)	(NA)
1977 Census	1 288	1 579	653	61.4	882.6	33.0	66.2	394.1	2 821.3	3 848.9	6 629.7	167.4	937.6	96	97

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS								
1992 Census	33 426	50	2 070	12.72	52	64	139 818	24	134.56
1991 ASM	30 689	49	2 067	12.09	52	63	132 761	23	130.21
1990 ASM	30 197	50	2 044	11.89	52	64	125 523	24	121.69
1989 ASM	29 227	50	2 014	11.69	53	65	117 327	25	115.65
1988 ASM	27 499	50	2 014	11.20	52	64	114 040	24	113.84
1987 Census	27 022	51	1 989	11.16	51	63	112 694	24	110.49
1986 ASM	25 382	52	1 979	10.73	54	66	96 903	26	94.86
1985 ASM	24 495	52	1 962	10.48	55	67	93 141	26	90.85
1984 ASM	23 269	53	1 955	9.92	55	67	89 188	26	86.68
1983 ASM	22 532	51	1 967	9.32	55	67	87 804	26	86.99
1982 Census	21 399	51	1 942	8.98	56	69	73 059	29	73.74
1981 ASM	19 418	52	1 962	8.00	59	71	64 348	30	62.58
1980 ASM	17 363	52	1 939	7.31	57	70	57 130	30	56.14
1979 ASM	16 236	55	1 957	6.85	58	71	53 306	30	49.39
1978 ASM	15 340	53	1 994	6.51	59	72	48 042	32	45.04
1977 Census	14 375	54	2 006	5.95	58	71	45 950	31	42.62

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS														
United States	**–**	**1 418**	**578**	**51.2**	**1 711.4**	**25.7**	**53.2**	**676.5**	**7 158.7**	**7 806.2**	**14 973.7**	**290.2**	**55.2**	**6 220.7**
Alabama	–	21	9	.9	29.0	.3	.6	8.4	74.7	113.3	186.3	(D)	.5	49.5
Arizona	–	18	4	.2	4.5	.1	.2	1.9	27.4	20.4	48.3	.6	(NA)	(NA)
Arkansas	–	9	3	.4	10.8	.2	.4	4.3	20.3	37.3	57.6	(D)	E	(D)
California	E1	189	62	5.4	181.8	2.7	5.4	70.3	843.6	903.7	1 758.6	23.5	6.4	748.1
Colorado	–	7	3	.2	6.4	.1	.1	1.7	21.6	30.5	50.6	.4	.4	23.1
Connecticut	–	14	5	.3	13.9	.1	.3	3.8	40.5	41.1	80.3	(D)	E	(D)
Delaware	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	83	20	1.3	35.8	.6	1.2	12.1	148.3	145.9	297.8	4.5	1.6	135.8
Georgia	–	45	20	1.5	45.6	.8	1.7	19.4	268.5	372.4	637.3	5.5	1.7	196.0
Illinois	E1	125	65	5.5	188.8	3.1	6.3	80.2	801.3	875.0	1 675.5	(D)	5.4	620.8
Indiana	–	34	20	1.7	59.0	.8	1.7	23.3	203.8	192.5	398.8	(D)	G	(D)
Iowa	–	12	7	.7	21.5	.4	.9	9.6	129.1	136.5	266.1	(D)	.5	57.9
Kansas	–	8	4	.3	8.0	.2	.3	3.5	19.1	29.3	50.1	(D)	E	(D)
Kentucky	–	26	16	1.2	33.1	.8	1.6	17.5	373.6	214.3	588.1	5.3	1.4	300.9
Louisiana	E2	11	3	.2	6.2	.1	.3	2.6	29.9	35.0	64.9	.5	(NA)	(NA)
Maryland	–	20	10	1.2	40.1	.5	1.0	12.9	198.8	263.9	463.7	7.0	1.2	223.6
Massachusetts	E1	41	22	1.6	59.7	.8	1.7	25.3	186.8	152.3	336.2	7.2	1.2	134.2
Michigan	E1	76	27	3.2	119.3	1.6	3.7	50.3	381.8	565.2	931.5	24.2	(NA)	(D)
Minnesota	–	17	8	.5	17.2	.2	.4	4.4	35.8	45.2	81.3	3.5	.8	59.9
Mississippi	–	6	2	.2	5.9	.1	.2	1.3	16.0	23.1	38.9	.2	.2	12.2
Missouri	–	57	21	1.4	41.0	.7	1.4	16.4	167.3	204.3	374.3	7.1	2.1	214.2
New Jersey	–	91	39	2.8	91.0	1.6	3.3	40.7	400.6	370.0	761.4	14.5	(NA)	(D)
New York	–	62	24	1.6	46.7	.9	1.9	19.3	145.2	119.7	268.4	(D)	G	(D)
North Carolina	–	28	15	1.5	54.4	.7	1.4	17.7	174.4	194.7	369.8	5.5	G	(D)
Ohio	–	79	43	6.0	224.0	2.5	5.3	79.2	928.1	914.7	1 852.8	65.6	6.6	757.1
Oklahoma	E2	12	6	.3	8.7	.1	.3	3.6	26.3	24.6	50.4	.3	.2	11.7
Oregon	–	22	6	.4	13.1	.2	.4	5.4	44.1	55.8	99.5	1.2	.5	47.1
Pennsylvania	E1	65	31	3.0	106.4	1.5	3.1	42.3	443.1	430.7	875.9	11.9	3.2	290.9
South Carolina	E1	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	E	(D)
Tennessee	E5	31	9	.8	23.7	.4	1.0	10.0	63.5	126.7	190.1	4.8	.9	61.3
Texas	–	84	29	2.5	75.2	1.3	2.9	32.6	409.8	505.0	917.4	25.1	3.1	380.1
Virginia	–	18	9	.8	31.4	.5	1.0	15.9	108.6	250.7	359.0	(D)	1.0	173.6
Washington	–	25	9	.5	15.5	.2	.4	4.4	52.1	57.8	109.6	2.4	.5	46.5
Wisconsin	E1	38	13	1.8	60.1	.9	1.8	23.8	217.6	222.8	444.5	10.2	1.3	145.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paints and allied products (SIC 2851)	Item	Paints and allied products (SIC 2851)
Companies ---- number	1 130	Production workers—Con.	
		Hours ---- millions	53.2
All establishments ---- number	1 418		
With 1 to 19 employees ---- number	840	Wages ---- mil dol	676.5
With 20 to 99 employees ---- number	452		
With 100 employees or more ---- number	126		
		Cost of materials[1] ---- mil dol	7 806.2
Employment and labor costs:		Materials, parts, containers, etc., consumed[2] ---- mil dol	7 122.1
Employees ---- 1,000	51.2	Resales ---- mil dol	549.1
Compensation, total ---- mil dol	2 138.8	Fuels ---- mil dol	33.3
Annual payroll ---- mil dol	1 711.4	Purchased electricity ---- mil dol	74.7
Fringe benefits ---- mil dol	427.4	Contract work ---- mil dol	27.0
Social Security and other legally required payments ---- mil dol	172.9		
Employer voluntary payments ---- mil dol	254.6		
		Quantity of electric energy used for heat and power:	
		Purchased ---- mil kWh	1 139.4
Production workers:		Generated less sold ---- mil kWh	(D)
Average for year ---- 1,000	25.7		
March ---- 1,000	26.2	Total value of shipments ---- mil dol	14 973.7
May ---- 1,000	25.7		
August ---- 1,000	26.2		
November ---- 1,000	24.7	Value added ---- mil dol	7 158.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paints and allied products (SIC 2851)	Item	Paints and allied products (SIC 2851)
Inventories by stage of fabrication:		Inventories by stage of fabrication—Con.	
Beginning of 1992 ---mil dol--	1 771.4	End of 1992 ---mil dol--	1 759.2
Finished goods ---mil dol--	1 026.2	Finished goods ---mil dol--	1 010.4
Work in process ---mil dol--	103.8	Work in process ---mil dol--	110.8
Materials and supplies ---mil dol--	641.4	Materials and supplies ---mil dol--	638.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paints and allied products (SIC 2851)	Item	Paints and allied products (SIC 2851)
Gross book value of depreciable assets:		Gross book value of depreciable assets—Con.	
Total:		Machinery and equipment—Con.	
Beginning of year	3 128.0	Beginning of year—Con.	
New capital expenditures[1]	290.2	New capital expenditures[1]	222.0
Used capital expenditures	34.7	Used capital expenditures	25.1
Retirements	93.8	Retirements	74.3
End of year	3 359.2	End of year	2 389.7
Buildings and other structures:		Depreciation charges during 1992:	
Beginning of year	911.0	Total	201.7
New capital expenditures	68.2	Buildings and other structures	38.2
Used capital expenditures	9.7	Machinery and equipment	163.6
Retirements	19.4	Rental payments:	
End of year	969.5	Total	77.0
Machinery and equipment:		Buildings and other structures	41.2
Beginning of year	2 216.9	Machinery and equipment	35.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Paints and allied products (SIC 2851)		Item	Paints and allied products (SIC 2851)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)		Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:			Purchased services—Con.		
Cost of purchased services for the repair of–			Other purchased services—Con.		
Buildings and other structures	20.0	(X)	Software and other data processing	7.7	(X)
Response coverage ratio (percent)[2]	71.1	(X)	Response coverage ratio (percent)[2]	67.6	(X)
Machinery	48.2	(X)	Refuse removal, including hazardous waste	52.7	(X)
Response coverage ratio (percent)[2]	72.3	(X)	Response coverage ratio (percent)[2]	72.4	(X)
Other purchased services:			New machinery and equipment expenditures	222.0	(X)
Communications	22.6	(X)	Automobiles, trucks, etc., for highway use	6.3	20
Response coverage ratio (percent)[2]	70.8	(X)	Computers and peripheral data processing equipment	13.3	6
Legal	17.4	(X)	All other	202.4	1
Response coverage ratio (percent)[2]	68.6	(X)	Adjustment ratio[3]	1.3	(X)
Accounting and bookkeeping	7.4	(X)	Cost of materials, components, parts, etc., used	7 122.1	(X)
Response coverage ratio (percent)[2]	69.2	(X)	Materials purchased or transferred from foreign sources[4]	166.3	7
Advertising	64.6	(X)	Materials purchased or transferred from domestic sources	6 955.8	1
Response coverage ratio (percent)[2]	68.1	(X)	Adjustment ratio[3]	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS												
Total	–	**1 418**	**51.2**	**1 711.4**	**25.7**	**53.2**	**676.5**	**7 158.7**	**7 806.2**	**14 973.7**	**290.2**	**1 759.2**
Establishments with an average of—												
1 to 4 employees	E7	329	.6	17.5	.4	.8	7.1	79.2	77.5	157.0	2.2	18.4
5 to 9 employees	E3	247	1.7	46.6	.9	1.8	17.8	174.6	164.6	338.5	5.9	41.3
10 to 19 employees	E1	264	3.8	108.9	2.0	4.1	45.5	362.4	448.5	811.9	9.2	101.4
20 to 49 employees	–	306	9.7	292.3	5.0	10.3	114.6	1 005.1	1 177.8	2 187.6	34.4	276.5
50 to 99 employees	–	146	10.3	350.9	5.1	10.7	134.3	1 555.8	1 554.8	3 117.4	43.6	387.2
100 to 249 employees	–	100	14.8	512.1	7.9	16.4	215.9	2 443.0	2 662.5	5 092.4	126.2	554.2
250 to 499 employees	E1	23	10.4	383.1	4.4	9.2	141.3	1 538.7	1 720.5	3 268.8	68.8	380.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	342	.9	19.6	.6	1.1	7.8	78.8	70.9	149.7	2.2	18.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2851	**Paints and allied products:** All establishments in industry	1 418	51.2	1 711.4	25.7	53.2	676.5	7 158.7	7 806.2	14 973.7	290.2
	Establishments with this product class primary:										
28511	Architectural coatings	292	16.8	534.3	8.6	17.4	225.1	2 992.8	3 162.8	6 169.0	67.1
28512	Product finishes for original equipment manufacturers (OEM), excluding marine coatings	286	17.0	623.0	7.8	16.6	226.0	1 701.5	2 189.5	3 884.8	131.1
28513	Special purpose coatings including all marine coatings	179	10.1	339.1	5.3	11.0	138.7	1 713.9	1 564.6	3 280.5	62.3
28515	Miscellaneous allied paint products	104	4.0	131.5	2.1	4.6	51.9	415.5	569.4	983.9	17.8

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years**

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS			
Total value of shipments	14 973.7	12 702.4	9 162.1
Primary products value of shipments	13 792.8	11 728.3	8 203.3
Secondary products value of shipments	305.9	241.3	288.4
Total miscellaneous receipts	875.1	732.8	670.4
Value of resales	849.0	711.9	629.5
Contract receipts	18.1	14.3	10.5
Other miscellaneous receipts	8.0	6.6	30.4
Sales of scrap and refuse	(D)	(NA)	.3
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	4.8	(NA)	29.9
Other miscellaneous receipts, n.s.k.	.2	(NA)	(D)
Primary products specialization ratio	98	98	97
Value of primary products shipments made in all industries	14 274.9	12 078.3	8 506.5
Value of primary products shipments made in this industry	13 792.8	11 728.3	8 203.3
Value of primary products shipments made in other industries	482.2	350.0	303.2
Coverage ratio	97	97	96

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2851– —	**PAINTS AND ALLIED PRODUCTS**				
	Total	**(NA)**	**14 274.9**	**(NA)**	**12 078.3**
28511	Architectural coatings	(NA)	5 325.2	(NA)	4 172.7
28511 00	Architectural coatings[2]	297	5 325.2	285	4 172.7
28512	Product finishes for original equipment manufacturers (OEM), excluding marine coatings	(NA)	4 220.6	(NA)	3 772.4
28512 00	Product finishes for original equipment manufacturers (OEM), excluding marine coatings[2]	315	4 220.6	267	3 772.4
28513	Special purpose coatings including all marine coatings	(NA)	2 868.8	(NA)	2 148.2
28513 00	Special purpose coatings including all marine coatings (industrial construction and maintenance, traffic marking, etc.)[2]	289	2 868.8	245	2 148.2
28515	Miscellaneous allied paint products	(NA)	1 226.9	(NA)	994.4
28515 00	Miscellaneous allied paint products (paint and varnish removers, thinners, pigment dispersions, glazing compounds, etc.)[2]	215	1 226.9	232	994.4
28510	Paints and allied products, n.s.k.	(NA)	633.4	(NA)	990.5
28510 00	Paints and allied products, n.s.k.[3]	(NA)	475.4	(NA)	560.7
28510 02	Paints and allied products, n.s.k.[4]	(NA)	158.0	(NA)	429.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28511, ARCHITECTURAL COATINGS		
United States	**5 325.2**	**4 172.7**
Alabama	54.7	35.1
Arizona	39.7	(NA)
Arkansas	5.5	(NA)
California	927.7	652.2
Florida	203.4	173.6
Georgia	362.1	258.5
Illinois	781.3	526.1
Indiana	52.3	47.6
Iowa	40.1	(NA)
Kansas	9.2	(NA)
Kentucky	214.4	176.1
Maryland	274.6	262.9
Massachusetts	137.8	140.7
Michigan	43.0	26.6
Minnesota	13.7	(NA)
Missouri	168.4	97.3
New Jersey	261.6	190.6
New York	118.1	169.2
North Carolina	90.8	55.5
Ohio	338.8	256.0
Oklahoma	22.8	6.8
Oregon	40.0	17.2
Pennsylvania	225.8	180.7
Tennessee	30.2	27.8
Texas	457.9	406.4
Virginia	41.4	44.8
Washington	66.7	53.1
Wisconsin	58.6	72.6

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28512, PRODUCT FINISHES FOR ORIGINAL EQUIPMENT MANUFACTURERS (OEM), EXCLUDING MARINE COATINGS		
United States	**4 220.6**	**3 772.4**
Alabama	107.4	64.7
California	217.2	274.0
Connecticut	21.3	17.0
Florida	13.8	10.2
Georgia	80.2	106.5
Illinois	429.1	423.2
Indiana	237.4	157.3
Iowa	46.5	23.3
Kentucky	18.6	55.1
Maryland	2.6	(NA)
Massachusetts	36.4	33.4
Michigan	532.7	644.6
Minnesota	31.3	16.6
Missouri	64.2	63.1
New Jersey	170.2	136.3
New York	84.0	67.9
North Carolina	224.3	186.9
Ohio	861.3	795.8
Oklahoma	10.0	6.8
Oregon	29.4	(NA)
Pennsylvania	379.2	251.0
South Carolina	31.4	22.8
Tennessee	29.4	18.7
Texas	145.9	109.2
Washington	11.3	(NA)
28513, SPECIAL PURPOSE COATINGS INCLUDING ALL MARINE COATINGS		
United States	**2 868.8**	**2 148.2**
Alabama	10.9	5.7
California	286.2	183.1
Florida	22.1	29.6
Georgia	93.7	52.3

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28513, SPECIAL PURPOSE COATINGS INCLUDING ALL MARINE COATINGS—Con.			**28515, MISCELLANEOUS ALLIED PAINT PRODUCTS**		
			United States	**1 226.9**	**994.4**
Illinois	141.0	133.3			
Indiana	65.3	32.4	California	90.0	102.8
Kansas	22.7	(NA)	Florida	10.4	4.4
Louisiana	45.7	(NA)	Georgia	44.8	44.9
Maryland	113.1	102.7	Illinois	164.3	144.8
			Indiana	27.1	34.1
Massachusetts	68.4	20.0	Kansas	4.5	(NA)
Michigan	174.8	87.2	Kentucky	66.9	46.7
Missouri	105.6	205.9	Massachusetts	20.9	23.1
New Jersey	224.1	186.9	Michigan	83.7	22.0
New York	34.2	33.1	Missouri	14.7	14.4
			New Jersey	104.8	170.8
Ohio	293.5	343.8	New York	25.3	18.0
Oregon	21.2	(NA)	Ohio	131.0	50.9
Pennsylvania	153.1	98.1	Oregon	2.1	6.7
Tennessee	6.6	(NA)	Pennsylvania	47.1	24.6
Texas	208.5	134.3	Tennessee	109.5	(NA)
Washington	8.4	4.4	Texas	38.4	31.9
Wisconsin	65.8	25.2	Wisconsin	6.0	(NA)

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2851-	**Paints and allied products**	**14 274.9**	**13 722.2**	**13 680.7**	**13 184.7**	**12 850.9**	**12 078.3**	**8 506.5**	**6 123.0**
28511	Architectural coatings	5 325.2	4 866.9	4 886.8	4 515.1	4 371.0	4 172.7	3 076.3	2 234.0
28512	Product finishes for original equipment manufacturers (OEM), excluding marine coatings	4 220.6	3 885.4	3 949.0	4 203.0	4 053.1	3 772.4	2 491.8	1 957.2
28513	Special purpose coatings including all marine coatings	2 868.8	2 886.6	2 696.8	2 444.3	2 346.5	2 148.2	1 380.7	727.8
28515	Miscellaneous allied paint products	1 226.9	1 147.7	1 126.8	1 138.4	1 072.7	994.4	801.6	672.9
28510	Paints and allied products, n.s.k.	633.4	935.7	1 021.3	883.9	1 007.7	990.5	756.2	531.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2851, PAINTS AND ALLIED PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**7 122.1**	**(X)**	**5 917.7**
207619	Vegetable oils, mil lb	125.4	50.9	*183.0	65.0
	Pigments:				
281611	Titanium dioxide pigments, composite and pure (100 percent TiO_2), mil lb	904.5	763.8	763.7	544.5
281602	Other inorganic pigments (chrome colors, whiting, white and red lead, litharge, lithopane, etc.)	(X)	254.5	(X)	189.3
286532	Organic color pigments, lakes, and toners	(X)	333.5	(X)	200.4
	Solvents:				
286554	Hydrocarbons (toluene, xylene, etc.), mil lb	*893.0	163.7	**818.2	144.7
286907	Alcohols (butyl, ethyl, isopropyl, etc.), mil lb	314.7	99.2	*283.6	83.6
286971	Ketones and esters (methyl ethyl ketone, ethyl acetate, etc.), mil lb	398.6	176.4	435.2	153.3
286002	Other solvents, mil lb	420.9	149.5	*382.5	131.5
	Plastics resins:				
282111	Alkyds, mil lb	763.3	414.4	*626.3	285.6
282112	Acrylics, mil lb	802.8	495.6	627.9	343.0
282113	Vinyl, mil lb	603.7	217.9	**595.0	168.0
282114	Other plastics resins, mil lb	678.7	585.7	*764.5	516.7
291105	Petroleum thinners (naphtha)	(X)	110.7	(X)	74.9
329509	Minerals and earths, ground or otherwise treated (calcium carbonate, talc, silica, kaolin, etc.) for use as extenders	(X)	210.4	(X)	152.6
280008	All other organic and inorganic chemicals, n.e.c.	(X)	686.9	(X)	552.9
340001	Metal containers	(X)	393.7	(X)	379.6
970099	All other materials and components, parts, containers, and supplies	(X)	725.1	(X)	655.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	1 290.2	(X)	1 276.2

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2812100	MA28A, Inorganic Chemicals	2834200	MA28G, Pharmaceutical Preparations, Except Biologicals
2812300	MA28A, Inorganic Chemicals	2834300	MA28G, Pharmaceutical Preparations, Except Biologicals
2812500	MA28A, Inorganic Chemicals	2834400	MA28G, Pharmaceutical Preparations, Except Biologicals
2813200	MA28C, Industrial Gases	2834500	MA28G, Pharmaceutical Preparations, Except Biologicals
2813300	MA28C, Industrial Gases	2834600	MA28G, Pharmaceutical Preparations, Except Biologicals
2813500	MA28C, Industrial Gases	2834700	MA28G, Pharmaceutical Preparations, Except Biologicals
2813600	MA28C, Industrial Gases	2834800	MA28G, Pharmaceutical Preparations, Except Biologicals
2813700	MA28C, Industrial Gases	2834900	MA28G, Pharmaceutical Preparations, Except Biologicals
2816100	MA28A, Inorganic Chemicals	2842243	MA28A, Inorganic Chemicals
2816310	MA28A, Inorganic Chemicals	2842253	MA28A, Inorganic Chemicals
2819300	MA28B, Fertilizer Materials		
2819300	MA28A, Inorganic Chemicals	2851100	MA28F, Paint, Varnish, and Lacquer
2819400	MA28A, Inorganic Chemicals	2851200	MA28F, Paint, Varnish, and Lacquer
2819500	MA28A, Inorganic Chemicals	2851300	MA28F, Paint, Varnish, and Lacquer
2819600	MA28A, Inorganic Chemicals	2851500	MA28F, Paint, Varnish, and Lacquer
2819700	MA28A, Inorganic Chemicals	2873100	MA28B, Fertilizer Materials
2819800	MA28A, Inorganic Chemicals	2873200	MA28B, Fertilizer Materials
2819900	MA28A, Inorganic Chemicals	2874100	MA28B, Fertilizer Materials
2834100	MA28G, Pharmaceutical Preparations, Except Biologicals	2874200	MA28B, Fertilizer Materials

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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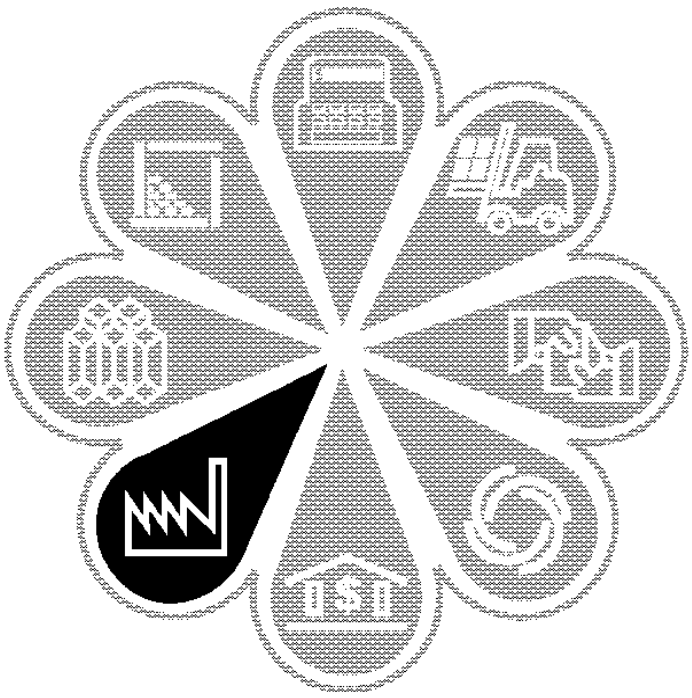
1992 Census of Manufactures

MC92-I-28F

INDUSTRY SERIES

Industrial Organic Chemicals

Industries 2861, 2865, and 2869



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28F

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
2861	Gum and Wood Chemicals
2865	Cyclic Crudes and Intermediates
2869	Industrial Organic Chemicals, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2861, GUM AND WOOD CHEMICALS

This industry is made up of establishments primarily engaged in manufacturing hardwood and softwood distillation products, wood and gum naval stores, charcoal, natural dyestuffs, and natural tanning materials. Establishments primarily engaged in manufacturing synthetic organic tanning materials are classified in industry 2869. Establishments primarily engaged in manufacturing synthetic organic dyes are classified in industry 2865.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2861, Gum and Wood Chemicals, had employment of 2.5 thousand. The employment figure was 4 percent below the 2.6 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, Florida, and Louisiana, accounting for approximately 51 percent of the industry's employment. This represents a shift from 1987 when Missouri, Florida, and Virginia accounted for approximately 39 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $734.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2861 shipped $615.9 million of gum and wood chemical products considered primary to the industry, $91.2 million of secondary products, and had $27.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio also was 87 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 73 percent.

The products primary to industry 2861, no matter in what industry they were produced, appear in table 6a and aggregate to $790.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the gum and

wood chemicals industry amounted to $352.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES

This industry is made up of establishments primarily engaged in manufacturing cyclic organic crudes and intermediates, and organic dyes and pigments. Important products of this industry include: (1) aromatic chemicals, such as benzene, toluene, mixed xylenes and napthalene; (2) synthetic organic dyes; and (3) synthetic organic pigments. Establishments primarily engaged in manufacturing coal tar crudes in chemical recovery ovens are classified in industry 3312, and petroleum refineries which produce such products as byproducts of petroleum refining are classified in industry 2911.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2911, Cyclic Crudes and Intermediates, had employment of 22.2 thousand. The employment figure was 3 percent below the 22.8 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New Jersey, New York, Pennsylvania, and South Carolina, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when Texas, New Jersey, Ohio, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $9.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2865 shipped $7.8 billion of cyclic crudes and intermediates considered primary to the industry, $1.3 billion of secondary products, and had $432.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 80 percent.

Establishments in this industry also accounted for 61 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 61 percent.

The products primary to industry 2865, no matter in what industry they were produced, appear in table 6a and aggregate to $12.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cyclic crudes and intermediates industry amounted to $6.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing industrial organic chemicals, not elsewhere classified. Important products of this industry include: (1) aliphatic and other acyclic organic chemicals, such as ethylene, butylene, and butadiene; acetic, chloroacetic, adipic, formic, oxalic, and tartaric acids and their metallic salts; chloral, formaldehyde, and methylamine; (2) solvents, such as amyl, butyl, and ethyl alcohols; methanol; amyl, butyl, and ethyl acetates; ethyl ether, ethylene glycol ether, and diethylene glycol ether; acetone, carbon disulfide and chlorinated solvents, such as carbon tetrachloride, perchloroethylene, and trichloroethylene; (3) polyhydric alcohols, such as ethylene glycol, sorbitol, pentaerythritol, synthetic glycerin; (4) synthetic perfume and flavoring materials, such as coumarin, methyl salicylate, saccharin, citral, citronellal, synthetic geraniol, ionone, terpineol, and synthetic vanillin; (5) rubber processing chemicals, such as accelerators and antioxidants, both cyclic and acyclic; (6) plasticizers, both cyclic and acyclic, such as esters of phosphoric acid, phthalic anhydride, adipic acid, lauric acid, oleic acid, sebacic acid, and stearic acid; (7) synthetic tanning agents, such as naphthalene sulforic acid condensates; (8) chemical warfare gases; and (9) esters, amines, etc., of polyhydic alcohols and fatty and other acids. Establishments primarily engaged in manufacturing plastics materials and nonvulcanizable elastomers are classified in industry 2821; those manufacturing synthetic rubber are classified in industry 2822; those manufacturing essential oils are classified in industry 2899; those manufacturing wood distillation products, naval stores, and natural dyeing and tanning material are classified in

industry 2861; those manufacturing manmade textile fibers are classified in industries 2823 and 2824; those manufacturing specialty cleaning, polishing, and sanitation preparations are classified in industry 2842; those manufacturing urea are classified in industry 2873; those manufacturing organic pigments are classified in industry 2865; those manufacturing inorganic pigments are classified in industry 2816; and those manufacturing aliphatics and aromatics as byproducts of petroleum refining are classified in industry 2911. Distilleries engaged in the manufacture of grain alcohol for beverage purposes are classified in industry 2085.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2869, Industrial Organic Chemicals, N.E.C., had employment of 100.1 thousand. The employment figure was less than 1 percent below the 100.3 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Louisiana, and New Jersey, accounting for approximately 50 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $54.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2869 shipped $39.1 billion of industrial organic chemicals, not elsewhere classified, considered primary to the industry, $12.5 billion of secondary products, and had $2.6 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 76 percent (specialization ratio). In 1987, the specialization ratio was 75 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 84 percent.

The products primary to industry 2869, no matter in what industry they were produced, appear in table 6a and aggregate to $46.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial organic chemicals, not elsewhere classified industry amounted to $31.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2861, GUM AND WOOD CHEMICALS															
1992 Census	47	76	28	2.5	67.8	1.9	4.0	47.0	379.0	352.1	734.6	42.8	133.2	87	78
1991 ASM	(NA)	(NA)	(NA)	2.5	63.6	2.0	4.0	44.1	363.0	360.9	711.4	19.8	139.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.5	59.9	2.0	3.8	41.4	340.5	304.9	642.9	40.2	123.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.7	65.9	2.1	4.3	46.4	327.3	345.9	668.9	24.7	126.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.7	61.1	2.2	4.3	44.6	284.7	299.8	566.2	19.8	122.3	(NA)	(NA)
1987 Census	52	77	29	2.6	57.4	2.1	4.1	42.0	212.6	275.4	486.5	35.2	98.3	87	73
1986 ASM	(NA)	(NA)	(NA)	2.9	63.7	2.3	4.9	44.8	205.5	287.8	493.1	19.5	103.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.3	64.9	2.6	5.5	46.9	172.1	340.8	514.2	25.0	110.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.4	88.6	3.3	7.1	61.7	256.3	431.0	669.0	26.6	158.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.6	86.6	2.6	5.2	58.7	161.3	438.3	603.7	26.3	153.5	(NA)	(NA)
1982 Census	67	92	40	4.5	82.5	3.5	7.5	56.7	215.5	409.2	624.2	40.2	159.7	84	77
1981 ASM	(NA)	(NA)	(NA)	4.7	78.7	4.0	8.3	60.7	291.1	360.1	643.2	37.4	140.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	4.2	64.5	3.2	6.7	44.2	229.7	266.2	480.9	29.1	99.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	4.2	61.1	3.4	7.4	43.1	196.1	214.4	401.7	39.9	82.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	4.9	63.9	3.7	7.7	44.8	220.2	258.7	469.2	54.4	83.8	(NA)	(NA)
1977 Census	100	119	37	4.8	54.0	3.8	7.8	38.9	185.0	205.3	391.3	27.0	65.7	76	67
INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES															
1992 Census	150	206	143	22.2	934.6	13.2	29.1	497.5	3 333.0	6 311.4	9 572.8	540.7	1 394.2	86	61
1991 ASM	(NA)	(NA)	(NA)	23.5	962.0	14.1	30.9	524.2	3 830.3	6 796.4	10 651.8	713.9	1 408.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.0	910.9	13.9	29.6	498.4	3 980.1	7 027.7	10 892.6	954.9	1 467.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.8	873.6	13.9	29.5	482.1	3 794.2	7 020.7	10 812.0	584.9	1 329.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.9	877.8	13.9	29.5	472.3	4 252.5	6 121.7	10 301.9	428.3	1 306.8	(NA)	(NA)
1987 Census	131	186	121	22.8	786.6	13.4	27.6	434.9	3 414.2	5 502.7	8 859.4	378.8	1 120.0	80	61
INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.															
1992 Census	489	705	428	100.1	4 504.8	57.4	126.3	2 408.8	22 511.7	31 860.6	54 254.2	4 216.6	6 188.4	76	85
1991 ASM	(NA)	(NA)	(NA)	101.0	4 403.0	58.4	125.0	2 326.5	22 248.0	30 671.3	53 069.3	4 537.6	6 047.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	100.3	4 216.3	58.8	126.2	2 263.2	24 492.4	30 091.0	54 160.0	4 156.2	6 299.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	97.9	3 944.8	58.3	125.1	2 148.4	25 299.1	29 433.1	54 512.4	3 484.2	5 710.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	97.1	3 717.2	56.9	122.3	2 032.6	22 448.1	27 102.2	49 103.5	2 753.6	5 362.5	(NA)	(NA)
1987 Census	491	699	431	100.3	3 697.2	57.9	122.4	1 962.2	17 526.4	24 225.5	41 812.1	1 985.9	4 830.0	75	84

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2861, GUM AND WOOD CHEMICALS									
1992 Census	27 120	76	2 105	11.75	48	57	151 600	18	94.75
1991 ASM	25 440	80	2 000	11.03	51	60	145 200	18	90.75
1990 ASM	23 960	80	1 900	10.89	47	57	136 200	18	89.61
1989 ASM	24 407	78	2 048	10.79	52	62	121 222	20	76.12
1988 ASM	22 630	81	1 955	10.37	53	64	105 444	21	66.21
1987 Census	22 077	81	1 952	10.24	57	68	81 769	27	51.85
1986 ASM	21 966	79	2 130	9.14	58	71	70 862	31	41.94
1985 ASM	19 667	79	2 115	8.53	66	79	52 152	38	31.29
1984 ASM	20 136	75	2 152	8.69	64	78	58 250	35	36.10
1983 ASM	24 056	72	2 000	11.29	73	87	44 806	54	31.02
1982 Census	18 333	78	2 143	7.56	66	79	47 889	38	28.73
1981 ASM	16 745	85	2 075	7.31	56	68	61 936	27	35.07
1980 ASM	15 357	76	2 094	6.60	55	69	54 690	28	34.28
1979 ASM	14 548	81	2 176	5.82	53	69	46 690	31	26.50
1978 ASM	13 041	76	2 081	5.82	55	69	44 939	29	28.60
1977 Census	11 250	79	2 053	4.99	52	66	38 542	29	23.72
INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES									
1992 Census	42 095	59	2 205	17.10	66	76	150 135	28	114.54
1991 ASM	40 936	60	2 191	16.96	64	73	162 991	25	123.96
1990 ASM	39 604	60	2 129	16.84	65	73	173 048	23	134.46
1989 ASM	38 316	61	2 122	16.34	65	73	166 412	23	128.62
1988 ASM	36 728	58	2 122	16.01	59	68	177 929	21	144.15
1987 Census	34 500	59	2 060	15.76	62	71	149 746	23	123.70

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.								
1992 Census	45 003	57	2 200	19.07	59	67	224 892	20	178.24
1991 ASM	43 594	58	2 140	18.61	58	66	220 277	20	177.98
1990 ASM	42 037	59	2 146	17.93	56	63	244 191	17	194.08
1989 ASM	40 294	60	2 146	17.17	54	61	258 418	16	202.23
1988 ASM	38 282	59	2 149	16.62	55	63	231 185	17	183.55
1987 Census	36 861	58	2 114	16.03	58	67	174 740	21	143.19

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2861, GUM AND WOOD CHEMICALS														
United States	**E1**	**76**	**28**	**2.5**	**67.8**	**1.9**	**4.0**	**47.0**	**379.0**	**352.1**	**734.6**	**42.8**	**2.6**	**212.6**
Arkansas	E1	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
Florida	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	E1	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E1	16	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES														
United States	**–**	**206**	**143**	**22.2**	**934.6**	**13.2**	**29.1**	**497.5**	**3 333.0**	**6 311.4**	**9 572.8**	**540.7**	**22.8**	**3 414.2**
Alabama	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E3	13	3	.2	7.4	.2	.4	4.3	26.5	28.1	55.0	2.1	G	(D)
Delaware	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	11	9	1.3	56.0	.9	2.0	37.7	204.4	247.2	453.5	20.7	2.0	296.9
Indiana	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	5	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	8	8	.9	36.3	.6	1.3	19.4	109.4	146.5	254.2	(D)	F	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	39	25	2.4	98.1	1.4	2.9	45.5	327.7	447.8	779.8	(D)	G	(D)
New York	E1	11	10	1.9	86.8	1.1	2.6	41.8	325.6	300.1	616.7	(D)	G	(D)
North Carolina	–	9	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	19	15	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	17	10	1.7	65.4	.9	1.8	32.1	189.2	390.5	581.2	(D)	G	(D)
Rhode Island	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	10	9	1.5	61.9	.8	1.6	26.0	342.3	466.7	794.9	(D)	1.0	227.1
Tennessee	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	15	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
West Virginia	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.														
United States	–	**705**	**428**	**100.1**	**4 504.8**	**57.4**	**126.3**	**2 408.8**	**22 511.7**	**31 860.6**	**54 254.2**	**4 216.6**	**100.3**	**17 526.4**
Alabama	–	17	10	1.6	71.3	1.0	2.3	39.5	325.9	207.7	532.7	(D)	G	(D)
Arkansas	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	87.2	G	(D)
California	E1	48	15	1.4	51.5	.9	1.9	30.0	335.3	251.3	587.4	41.4	G	(D)
Connecticut	E1	15	10	.6	27.8	.4	.9	15.7	104.3	185.3	282.2	4.1	(NA)	(D)
Delaware	E1	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	21	11	1.3	50.1	.8	1.7	24.2	199.0	239.2	438.3	(D)	G	(D)
Georgia	–	14	9	1.2	49.5	.6	1.4	24.0	520.4	263.5	784.9	33.4	1.0	238.0
Illinois	–	37	26	3.3	156.0	1.9	4.1	77.1	1 147.5	1 273.2	2 453.3	101.7	3.4	685.3
Indiana	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	4	3	.3	10.8	.2	.4	3.7	22.2	40.7	63.1	(D)	(NA)	(D)
Kansas	–	11	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	11	9	3.1	144.2	2.0	4.7	89.0	825.5	753.6	1 583.0	188.4	(NA)	(D)
Louisiana	–	31	27	11.1	559.3	6.1	16.0	279.5	2 859.5	4 857.3	7 679.1	1 018.2	9.9	2 827.5
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	9	7	.7	30.4	.4	.9	19.4	132.5	62.4	197.5	(D)	F	(D)
Michigan	–	15	9	5.2	211.4	2.5	4.5	84.6	757.7	631.4	1 351.0	(D)	(NA)	(D)
Minnesota	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	(NA)	(NA)
Mississippi	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	E	(D)
Missouri	–	18	10	1.8	62.3	.8	1.7	29.2	181.3	219.3	409.7	15.4	G	(D)
New Hampshire	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	69	46	8.3	354.3	3.7	8.8	155.7	1 473.4	1 329.5	2 816.2	133.9	9.2	1 377.4
New Mexico	E1	4	1	.4	12.0	(Z)	.1	1.1	24.6	11.4	36.0	(D)	.3	8.1
New York	–	39	18	2.8	117.4	1.8	3.8	62.2	487.0	423.6	926.9	38.2	3.5	399.5
North Carolina	E1	25	12	1.3	53.4	.7	1.5	22.4	278.5	287.8	561.3	(D)	G	(D)
Ohio	–	44	22	3.1	129.8	2.1	4.6	79.9	516.9	818.1	1 322.9	47.8	3.4	447.8
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	24	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	21.2	2.0	279.8
South Carolina	–	18	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.7	G	(D)
Tennessee	–	11	10	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.1	485.9
Texas	–	97	76	30.7	1 553.3	18.3	39.0	898.6	8 545.7	16 015.6	24 476.8	1 709.0	26.2	6 433.3
Virginia	–	14	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	11	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	13	13	4.6	199.2	3.0	6.2	122.2	912.5	763.9	1 688.4	126.2	(NA)	(D)
Wisconsin	–	14	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)	Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)
Companies ---- number	47	150	489	Employment and labor costs—Con.			
				Compensation, total—Con.			
All establishments ---- number	76	206	705	Fringe benefits—Con.			
With 1 to 19 employees ---- number	48	63	277	Employer voluntary payments ---- mil dol	10.0	158.7	829.9
With 20 to 99 employees ---- number	21	74	231				
With 100 employees or more ---- number	7	69	197	Production workers:			
				Average for year ---- 1,000	1.9	13.2	57.4
Employment and labor costs:				March ---- 1,000	2.0	13.2	57.6
Employees ---- 1,000	2.5	22.2	100.1	May ---- 1,000	2.0	13.3	57.4
Compensation, total ---- mil dol	84.7	1 185.9	5 725.9	August ---- 1,000	1.9	13.2	57.6
Annual payroll ---- mil dol	67.8	934.6	4 504.8	November ---- 1,000	1.8	13.1	57.0
Fringe benefits ---- mil dol	16.8	251.4	1 221.1				
Social Security and other legally required payments ---- mil dol	6.8	92.7	391.2	Hours ---- millions	4.0	29.1	126.3

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)	Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)
Production workers—Con.				Total value of shipments—mil dol	734.6	9 572.8	54 254.2
Wages—mil dol	47.0	497.5	2 408.8	Value added—mil dol	379.0	3 333.0	22 511.7
Cost of materials[1]—mil dol	352.1	6 311.4	31 860.6	Inventories by stage of fabrication:			
Materials, parts, containers, etc., consumed[2]—mil dol	318.2	5 604.1	26 535.5	Beginning of 1992—mil dol	135.3	1 312.8	6 070.9
Resales—mil dol	5.8	155.5	1 732.0	Finished goods—mil dol	87.2	677.6	3 386.6
Fuels—mil dol	16.5	256.4	1 771.8	Work in process—mil dol	13.5	166.3	781.0
Purchased electricity—mil dol	8.8	166.7	778.7	Materials and supplies—mil dol	34.6	468.8	1 903.3
Contract work—mil dol	2.8	128.6	1 042.6	End of 1992—mil dol	133.2	1 394.2	6 188.4
Quantity of electric energy used for heat and power:				Finished goods—mil dol	84.5	726.0	3 466.3
Purchased—mil kWh	201.1	3 891.9	19 868.0	Work in process—mil dol	12.6	189.4	819.4
Generated less sold—mil kWh	–	399.4	14 834.5	Materials and supplies—mil dol	36.1	478.8	1 902.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)	Item	Gum and wood chemicals (SIC 2861)	Cyclic crudes and intermediates (SIC 2865)	Industrial organic chemicals, n.e.c. (SIC 2869)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	404.2	6 484.1	46 569.7	Beginning of year—Con.			
New capital expenditures[1]	42.8	540.7	4 216.6	New capital expenditures[1]	39.0	484.1	3 893.2
Used capital expenditures	(D)	19.9	76.5	Used capital expenditures	(D)	14.0	(D)
Retirements	(D)	136.6	1 368.3	Retirements	(D)	119.0	(D)
End of year	435.6	6 908.1	49 494.5	End of year	375.5	6 171.1	44 815.0
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	57.0	692.0	4 441.7	Total	24.2	392.4	2 703.6
New capital expenditures	3.8	56.6	323.3	Buildings and other structures	2.5	30.2	266.9
Used capital expenditures	–	5.9	(D)	Machinery and equipment	21.8	362.2	2 436.7
Retirements	.7	17.6	(D)	Rental payments:			
End of year	60.1	737.0	4 679.5	Total	2.4	28.7	219.6
Machinery and equipment:				Buildings and other structures	.7	12.3	53.4
Beginning of year	347.2	5 792.0	42 128.0	Machinery and equipment	1.7	16.4	166.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gum and wood chemicals (SIC 2861)		Cyclic crudes and intermediates (SIC 2865)		Industrial organic chemicals, n.e.c. (SIC 2869)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	.2	(X)	43.0	(X)	123.9	(X)
Response coverage ratio (percent)[2]	90.4	(X)	85.6	(X)	89.0	(X)
Machinery	6.8	(X)	155.8	(X)	840.7	(X)
Response coverage ratio (percent)[2]	90.4	(X)	84.5	(X)	87.6	(X)
Other purchased services:						
Communications	.6	(X)	9.1	(X)	50.9	(X)
Response coverage ratio (percent)[2]	55.6	(X)	86.1	(X)	89.5	(X)
Legal	(Z)	(X)	17.1	(X)	25.7	(X)
Response coverage ratio (percent)[2]	80.6	(X)	84.1	(X)	91.0	(X)
Accounting and bookkeeping	–	(X)	1.5	(X)	7.1	(X)
Response coverage ratio (percent)[2]	80.6	(X)	82.5	(X)	88.6	(X)
Advertising	(Z)	(X)	2.3	(X)	55.5	(X)
Response coverage ratio (percent)[2]	80.6	(X)	82.6	(X)	88.7	(X)
Software and other data processing	.2	(X)	9.1	(X)	38.6	(X)
Response coverage ratio (percent)[2]	80.6	(X)	82.6	(X)	91.3	(X)
Refuse removal, including hazardous waste	.9	(X)	41.6	(X)	203.5	(X)
Response coverage ratio (percent)[2]	86.8	(X)	87.8	(X)	93.6	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gum and wood chemicals (SIC 2861)		Cyclic crudes and intermediates (SIC 2865)		Industrial organic chemicals, n.e.c. (SIC 2869)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	39.0	(X)	484.1	(X)	3 893.2	(X)
Automobiles, trucks, etc., for highway use	.1	13	1.2	12	11.5	8
Computers and peripheral data processing equipment	.3	9	9.5	7	90.8	2
All other	38.5	1	473.4	1	3 790.9	1
Adjustment ratio[3]	1.2	(X)	1.1	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	318.2	(X)	5 604.1	(X)	26 535.5	(X)
Materials purchased or transferred from foreign sources[4]	5.6	16	611.2	4	1 853.4	6
Materials purchased or transferred from domestic sources	312.5	1	4 992.9	1	24 682.0	1
Adjustment ratio[3]	1.1	(X)	1.6	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2861, GUM AND WOOD CHEMICALS												
Total	**E1**	**76**	**2.5**	**67.8**	**1.9**	**4.0**	**47.0**	**379.0**	**352.1**	**734.6**	**42.8**	**133.2**
Establishments with an average of—												
1 to 4 employees	E9	28	.1	1.2	(Z)	.1	.8	7.5	4.8	12.2	.6	1.7
5 to 9 employees	E6	11	.1	1.6	.1	.1	1.0	6.2	7.3	13.5	1.3	2.6
10 to 19 employees	E3	9	.1	2.8	.1	.2	1.8	10.5	13.2	23.8	(D)	3.8
20 to 49 employees	E5	8	.2	5.4	.2	.3	3.1	32.7	30.4	61.5	3.4	12.7
50 to 99 employees	–	13	1.0	28.6	.8	1.6	18.1	157.5	107.8	264.1	15.1	42.7
100 to 249 employees	–	6	1.0	28.3	.9	1.7	22.1	164.7	188.5	359.4	22.3	69.7
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	18	(Z)	.7	(Z)	.1	.5	2.8	3.7	6.6	.5	1.2
INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES												
Total	**–**	**206**	**22.2**	**934.6**	**13.2**	**29.1**	**497.5**	**3 333.0**	**6 311.4**	**9 572.8**	**540.7**	**1 394.2**
Establishments with an average of—												
1 to 4 employees	E7	26	.1	1.7	(Z)	.1	1.0	6.9	12.6	19.4	1.3	2.6
5 to 9 employees	E4	15	.1	3.5	.1	.1	2.0	12.5	22.4	34.9	1.9	4.8
10 to 19 employees	E5	22	.3	9.0	.2	.4	4.8	30.3	50.8	80.8	4.3	11.9
20 to 49 employees	–	40	1.2	43.1	.7	1.5	21.5	153.1	277.4	430.9	11.2	64.9
50 to 99 employees	–	34	2.4	93.3	1.5	3.2	49.1	306.7	417.3	726.6	30.1	115.8
100 to 249 employees	–	43	6.8	265.5	4.1	9.3	142.4	1 296.1	1 819.2	3 099.4	151.8	455.9
250 to 499 employees	–	18	6.2	264.0	3.7	7.8	144.6	973.5	1 724.9	2 667.9	106.7	392.2
500 to 999 employees	–	7	5.2	254.5	3.0	6.6	132.1	553.9	1 986.7	2 512.9	233.5	346.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	18	(Z)	.7	(Z)	(Z)	.4	2.6	4.8	7.4	.5	1.0
INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.												
Total	**–**	**705**	**100.1**	**4 504.8**	**57.4**	**126.3**	**2 408.8**	**22 511.7**	**31 860.6**	**54 254.2**	**4 216.6**	**6 188.4**
Establishments with an average of—												
1 to 4 employees	E5	100	.2	6.6	.1	.2	3.4	53.2	49.6	102.6	5.3	10.3
5 to 9 employees	E4	80	.5	16.6	.3	.7	9.2	105.1	103.7	208.7	9.5	20.2
10 to 19 employees	E4	97	1.3	45.8	.8	1.7	23.9	207.2	331.7	533.9	30.6	64.0
20 to 49 employees	E1	125	4.2	153.7	2.4	5.0	71.6	822.0	863.4	1 701.5	71.5	199.9
50 to 99 employees	–	106	7.6	315.1	4.3	9.4	160.2	1 623.6	1 887.7	3 460.9	242.1	492.9
100 to 249 employees	–	111	18.2	752.6	10.5	23.0	399.5	3 999.0	4 852.9	8 855.9	521.5	1 110.5
250 to 499 employees	–	41	14.1	670.3	8.4	18.2	368.7	3 702.6	6 360.1	9 971.1	846.5	1 213.0
500 to 999 employees	–	30	21.1	1 018.0	12.6	28.0	577.1	5 393.7	8 372.8	13 755.0	1 155.8	1 322.6
1,000 to 2,499 employees	–	10	14.3	733.6	8.9	21.2	428.6	3 432.7	5 582.7	9 051.0	788.1	864.9
2,500 employees or more	–	5	18.7	792.5	9.0	18.8	366.4	3 172.7	3 456.0	6 613.5	545.7	890.0
Covered by administrative records[2]	E9	73	.1	3.4	.1	.2	1.9	14.0	17.2	31.2	2.2	3.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2861	**Gum and wood chemicals:**										
	All establishments in industry	76	2.5	67.8	1.9	4.0	47.0	379.0	352.1	734.6	42.8
2865	**Cyclic crudes and intermediates:**										
	All establishments in industry	206	22.2	934.6	13.2	29.1	497.5	3 333.0	6 311.4	9 572.8	540.7
	Establishments with this product class primary:										
28651	Cyclic intermediates	44	9.4	431.8	5.5	12.2	229.5	1 537.2	3 331.3	4 836.9	187.5
28652	Synthetic organic dyes	38	5.2	206.7	3.0	6.0	99.0	672.8	925.7	1 579.3	205.4
28653	Synthetic organic pigments, lakes, and toners	42	4.5	166.0	2.7	6.4	92.7	481.3	662.0	1 135.2	85.9
28655	Tar, tar crudes, and tar pitches	15	.9	29.8	.7	1.3	21.1	109.6	194.7	300.9	(D)
28656	Aromatics (benzene, toluene, xylene, etc.), not made in a refinery	10	1.2	59.4	.7	1.7	30.4	383.2	1 007.7	1 381.3	(D)
2869	**Industrial organic chemicals, n.e.c.:**										
	All establishments in industry	705	100.1	4 504.8	57.4	126.3	2 408.8	22 511.7	31 860.6	54 254.2	4 216.6
	Establishments with this product class primary:										
28691	Liquefied refinery gases (aliphatics), not made in a refinery	38	12.5	639.0	7.1	15.8	330.4	3 864.8	8 993.8	12 842.5	608.1
28692	Ethyl alcohol	18	1.6	60.3	1.1	2.6	38.0	256.3	790.7	1 040.1	31.9
28693	Synthetic organic chemicals, n.e.c.	66	6.8	303.1	3.9	8.4	155.7	1 843.7	1 409.9	3 267.9	133.8
28694	Bulk pesticides and other bulk synthetic organic agricultural chemicals	12	1.3	56.6	.8	1.8	30.6	522.1	312.1	820.0	56.7
28696	Miscellaneous end-use chemicals and chemical products	92	11.1	491.9	6.4	14.4	261.4	2 519.2	3 699.9	6 189.6	502.9
28697	Miscellaneous cyclic and acyclic chemicals and chemical products	165	56.2	2 516.4	32.0	69.9	1 372.2	11 567.4	14 765.6	26 267.2	2 458.3
28698	Other industrial organic chemicals (data which are not reported to the International Trade Commission)	93	8.1	349.3	4.6	10.3	175.4	1 582.3	1 510.8	3 095.7	369.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years**

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2861, GUM AND WOOD CHEMICALS			
Total value of shipments	734.6	486.5	624.2
Primary products value of shipments	615.9	404.2	509.1
Secondary products value of shipments	91.2	62.3	98.0
Total miscellaneous receipts	27.5	20.0	17.0
Value of resales	8.1	17.3	11.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	87	87	84
Value of primary products shipments made in all industries	790.9	551.6	658.5
Value of primary products shipments made in this industry	615.9	404.2	509.1
Value of primary products shipments made in other industries	175.0	147.4	149.4
Coverage ratio	78	73	77

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES			
Total value of shipments	9 572.8	8 859.4	(NA)
Primary products value of shipments	7 819.4	6 773.1	(NA)
Secondary products value of shipments	1 320.5	1 710.9	(NA)
Total miscellaneous receipts	432.9	375.4	(NA)
Value of resales	189.2	167.6	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	86	80	(NA)
Value of primary products shipments made in all industries	12 822.0	11 138.7	(NA)
Value of primary products shipments made in this industry	7 819.4	6 773.1	(NA)
Value of primary products shipments made in other industries	5 002.7	4 365.6	(NA)
Coverage ratio	61	61	(NA)
INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.			
Total value of shipments	54 254.2	41 812.1	(NA)
Primary products value of shipments	39 116.1	29 813.0	(NA)
Secondary products value of shipments	12 548.9	10 190.5	(NA)
Total miscellaneous receipts	2 589.2	1 808.6	(NA)
Value of resales	2 173.1	1 554.9	(NA)
Contract receipts	143.6	177.9	(NA)
Other miscellaneous receipts	272.5	75.8	(NA)
Sales of scrap and refuse	(D)	(NA)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Receipts for sold electricity	(D)	(NA)	(NA)
Other miscellaneous receipts	40.0	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	.5	(NA)	(NA)
Primary products specialization ratio	76	75	(NA)
Value of primary products shipments made in all industries	46 120.5	35 451.6	(NA)
Value of primary products shipments made in this industry	39 116.1	29 813.0	(NA)
Value of primary products shipments made in other industries	7 004.4	5 638.6	(NA)
Coverage ratio	85	84	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
2861– —	**GUM AND WOOD CHEMICALS**								
	Total	**(NA)**	**(X)**	**(X)**	**790.9**	**(NA)**	**(X)**	**(X)**	**551.6**
28610	Gum and wood chemicals, including wood distillation products	(NA)	(X)	(X)	790.9	(NA)	(X)	(X)	551.6
28610 10	Hardwood charcoal and charcoal briquets, including blends with lignite or other materials, 1,000 s tons	14	(X)	(S)	405.0	7	(X)	554.0	225.9
28610 15	Softwood distillation products, including wood rosin, charcoal and charcoal briquets, vegetable pitches, etc.	2	(X)	(X)	(D)	(NA)	(X)	(X)	94.9
	Tall oil:								
28610 20	Crude, mil lb	24	**1 638.5	1 697.9	115.3	29	(S)	1 289.8	63.8
28610 25	Refined (containing less than 90 percent free fatty acids, including tall oil resins, other than tall oil rosin), mil lb	7	**141.3	*122.0	14.8	7	(S)	239.6	21.9
28610 30	Rosin, mil lb	6	(X)	265.0	68.3	8	(X)	234.6	47.6
28610 35	Other tall oil derivatives, including rosin acid salts (except tall oil fatty acids)	4	(X)	(X)	(D)	7	(X)	(X)	28.4
28610 40	Other gum and wood chemicals, including gum naval stores, natural tanning and dying materials, tannic acid, etc.	7	(X)	(X)	80.5	(NA)	(X)	(X)	7.2
28610 00	Gum and wood chemicals, n.s.k.[3]	(NA)	(X)	(X)	33.4	(NA)	(X)	(X)	37.8
28610 02	Gum and wood chemicals, n.s.k.[4]	(NA)	(X)	(X)	6.6	(NA)	(X)	(X)	24.2

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2865– —	**CYCLIC CRUDES AND INTERMEDIATES**						
	Total	**(NA)**	**(X)**	**12 822.0**	**(NA)**	**(X)**	**11 138.7**
28651	Cyclic intermediates	(NA)	(X)	7 658.9	(NA)	(X)	7 771.6
28651 00	Cyclic (coal tar) intermediates	70	(X)	7 658.9	88	(X)	7 771.6
28652	Synthetic organic dyes	(NA)	(X)	1 341.7	(NA)	(X)	858.7
28652 00	Synthetic organic dyes	53	(X)	1 341.7	35	(X)	858.7
28653	Synthetic organic pigments, lakes, and toners	(NA)	(X)	1 233.5	(NA)	(X)	814.5
28653 00	Synthetic organic pigments, lakes, and toners	43	(X)	1 233.5	30	(X)	814.5
28655	Tar, tar crudes, and tar pitches	(NA)	(X)	493.2	(NA)	(X)	389.5
28655 00	Tar, tar crudes, and tar pitches	15	(X)	493.2	9	(X)	389.5
28656	Aromatics (benzene, toluene, xylene, etc.), not made in a refinery	(NA)	(X)	1 965.1	(NA)	(X)	1 124.0
28656 58	Chemical raw material	20	(X)	1 723.2	14	(X)	(D)
28656 59	Other uses—mil lb	9	1 885.0	241.9	3	(D)	(D)
28656 00	Aromatics (benzene, toluene, xylene, etc.), not made in a refinery, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.4
28650	Cyclic crudes and intermediates, n.s.k.	(NA)	(X)	129.7	(NA)	(X)	180.4
28650 00	Cyclic crudes and intermediates, n.s.k.[3]	(NA)	(X)	122.3	(NA)	(X)	114.5
28650 02	Cyclic crudes and intermediates, n.s.k.[4]	(NA)	(X)	7.4	(NA)	(X)	65.9
2869– —	**INDUSTRIAL ORGANIC CHEMICALS, N.E.C.**						
	Total	**(NA)**	**(X)**	**46 120.5**	**(NA)**	**(X)**	**35 451.7**
28691	Liquefied refinery gases (aliphatics), not made in a refinery	(NA)	(X)	8 310.2	(NA)	(X)	4 925.4
28691 32	Chemical raw material	30	(X)	6 717.4	22	(X)	4 639.9
28691 33	Other uses—mil lb	18	(S)	1 592.8	7	(NA)	270.7
28691 00	Liquefied refinery gases (aliphatics), not made in a refinery, n.s.k.	(NA)	(X)	–	(NA)	(X)	14.8
28692	Ethyl alcohol	(NA)	(X)	1 433.4	(NA)	(X)	974.9
	Manufactured by the wet mill process:						
28692 10	Pure (natural) (proof gal basis)—mil gal	5	175.5	62.6	(NA)	(S)	[5]119.8
28692 15	Fuel ethanol—mil gal	10	872.0	860.1	14	[6]796.4	[6]755.5
28692 19	Other denatured (special or complete), including natural and synthetic, for uses other than rubbing—mil gal	5	264.6	105.3	5	[7]76.5	[7]99.6
	Manufactured by other processes (dry mill/distillation):						
28692 20	Pure (natural) (proof gal basis)—mil gal	7	(S)	104.1	(NA)	(S)	([5])
28692 25	Fuel ethanol—mil gal	8	174.2	216.2	(NA)	([6])	([6])
28692 29	Other denatured (special or complete), including natural and synthetic, for uses other than rubbing—mil gal	9	(S)	85.2	(NA)	([7])	([7])
28692 00	Ethyl alcohol, n.s.k.	(NA)	(X)	–	(NA)	(X)	([8])
28693	Synthetic organic chemicals, n.e.c.	(NA)	(X)	3 548.1	(NA)	(X)	2 529.6
	Flavor and perfume materials:						
28693 13	Chemical compounds for use as flavor and perfume materials, unmixed	27	(X)	1 617.8	26	(X)	643.8
28693 15	Chemical compounds for use as flavor and perfume materials, mixed	17	(X)	271.0	21	(X)	264.7
28693 31	Rubber-processing chemicals	22	(X)	623.6	27	(X)	501.3
28693 51	Plasticizers	42	(X)	915.8	42	(X)	1 064.9
28693 00	Synthetic organic chemicals, n.e.c., n.s.k.	(NA)	(X)	119.8	(NA)	(X)	54.8
28694	Bulk pesticides and other bulk synthetic organic agricultural chemicals	(NA)	(X)	1 217.4	(NA)	(X)	1 551.8
28694 00	Bulk pesticides and other bulk synthetic organic agricultural chemicals, except preparations	41	(X)	1 217.4	50	(X)	1 551.8
28696	Miscellaneous end-use chemicals and chemical products	(NA)	(X)	6 318.5	(NA)	(X)	3 478.9
28696 00	Miscellaneous end-use chemicals and chemical products, excluding urea	142	(X)	6 318.5	117	(X)	3 478.9
28697	Miscellaneous cyclic and acyclic chemicals and chemical products	(NA)	(X)	21 452.4	(NA)	(X)	19 290.0
28697 00	Miscellaneous cyclic and acyclic chemicals and chemical products	150	(X)	21 452.4	169	(X)	19 290.0
28698	Other industrial organic chemicals (data which are not reported to the International Trade Commission)	(NA)	(X)	3 118.8	(NA)	(X)	1 429.1
28698 31	Flavor oil mixtures and blends—mil lb	14	(S)	205.1	8	26.3	185.0
28698 37	Reagent and high purity grades of organic chemicals refined from purchased technical grades	13	(X)	344.4	7	(X)	71.4
	Natural organic chemicals, n.e.c.:						
28698 53	Derivatives of fatty substances, including salts, alcohols, and esters, except plasticizers and surface active agents	20	(X)	302.1	(NA)	(X)	285.5
28698 55	Other natural organic chemicals, n.e.c.	27	(X)	355.9			
28698 98	Other industrial organic chemicals, n.e.c.	85	(X)	1 910.8	57	(X)	818.4
28698 00	Other industrial organic chemicals (data which are not reported to the International Trade Commission), n.s.k.	(NA)	(X)	.4	(NA)	(X)	[8]69.8
28690	Industrial organic chemicals, n.e.c., n.s.k.	(NA)	(X)	721.8	(NA)	(X)	1 271.9
28690 00	Industrial organic chemicals, n.e.c., n.s.k.[3]	(NA)	(X)	690.7	(NA)	(X)	1 066.8
28690 02	Industrial organic chemicals, n.e.c., n.s.k.[4]	(NA)	(X)	31.1	(NA)	(X)	205.1

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]For 1987, code 28692 10 includes data for code 28692 20.
[6]For 1987, code 28692 15 includes data for code 28692 25.
[7]For 1987, code 28692 19 includes data for code 28692 29.
[8]For 1987, data for code 28692 00 were included with code 28698 00.

Table 6a–2. **Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Aromatics	(NA)	(X)	4 156.6	(NA)	(X)	3 258.6
28656	Not made in petroleum refineries	(NA)	(X)	1 965.1	(NA)	(X)	1 124.0
	Made in petroleum refineries	(NA)	(X)	2 191.5	(NA)	(X)	2 134.6
	Manufactured as a chemical raw material	(NA)	(X)	3 507.2	(NA)	(X)	2 936.5
28656 58	Not made in petroleum refineries	20	(X)	1 723.2	14	(X)	(D)
2911D 55	Made in petroleum refineries	20	(X)	1 784.0	19	(X)	(D)
	Manufactured for other uses, mil lb	(NA)	5 520.8	649.4	(NA)	(NA)	318.7
28656 59	Not made in petroleum refineries, mil lb	9	1 885.0	241.9	3	(D)	(D)
2911D 57	Made in petroleum refineries, mil lb	8	3 635.9	407.5	4	(D)	(D)
28656 00	Aromatics not made in petroleum refineries, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.4
	Aliphatics	(NA)	(X)	13 197.6	(NA)	(X)	r8 989.8
28691	Not made in petroleum refineries	(NA)	(X)	8 310.2	(NA)	(X)	4 925.4
2911A	Made in petroleum refineries	(NA)	(X)	4 887.3	(NA)	(X)	r4 064.4
	Manufactured as a chemical raw material	(NA)	(X)	9 641.8	(NA)	(X)	6 853.4
28691 32	Not made in petroleum refineries	30	(X)	6 717.4	22	(X)	4 639.9
2911A 21	Made in petroleum refineries	39	(X)	2 924.4	40	(X)	2 213.5
	Manufactured for other uses, mil lb	(NA)	(S)	3 555.7	(NA)	(NA)	1 456.5
28691 33	Not made in petroleum refineries, mil lb	18	(S)	1 592.8	7	(NA)	270.7
2911A 22	Made in petroleum refineries, mil lb	32	136.3	1 962.9	31	(NA)	1 185.8
	Aliphatics, n.s.k.	(NA)	(X)	–	(NA)	(X)	r679.9
28691 00	Not made in petroleum refineries	(NA)	(X)	–	(NA)	(X)	14.8
2911A 00	Made in petroleum refineries	(NA)	(X)	–	(NA)	(X)	r665.1

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28651, CYCLIC INTERMEDIATES		
United States	**7 658.9**	**7 771.6**
Connecticut	10.0	(NA)
Illinois	180.8	372.4
Louisiana	497.6	1 200.2
Michigan	230.4	(NA)
New Jersey	273.8	263.2
New York	244.9	118.4
Pennsylvania	285.7	299.9
Texas	3 238.3	2 857.9
28652, SYNTHETIC ORGANIC DYES		
United States	**1 341.7**	**858.7**
New Jersey	236.5	235.2
North Carolina	171.4	78.9
South Carolina	309.5	153.6
28653, SYNTHETIC ORGANIC PIGMENTS, LAKES, AND TONERS		
United States	**1 233.5**	**814.5**
Illinois	174.1	64.6
Kentucky	75.6	(NA)
New Jersey	244.5	179.7
Ohio	235.4	152.0
Pennsylvania	49.7	(NA)
South Carolina	66.4	34.5
28655, TAR, TAR CRUDES, AND TAR PITCHES		
United States	**493.2**	**389.5**
Ohio	75.6	(NA)
28656, AROMATICS (BENZENE, TOLUENE, XYLENE, ETC.), NOT MADE IN A REFINERY		
United States	**1 965.1**	**1 124.0**
Louisiana	601.4	(NA)
Texas	1 159.8	848.2
28691, LIQUEFIED REFINERY GASES (ALIPHATICS), NOT MADE IN A REFINERY		
United States	**8 310.2**	**4 925.4**
Louisiana	1 492.1	1 508.1
New Jersey	80.5	(NA)
Texas	6 303.7	3 323.7
28692, ETHYL ALCOHOL		
United States	**1 433.4**	**974.9**
Illinois	648.3	(NA)
Iowa	350.5	(NA)
Missouri	11.4	(NA)
28693, SYNTHETIC ORGANIC CHEMICALS, N.E.C.		
United States	**3 548.1**	**2 529.6**
Alabama	42.3	31.4
Florida	78.5	(NA)
Michigan	33.5	(NA)
Missouri	37.3	28.0
New Jersey	718.4	577.6
New York	141.8	125.7
Ohio	102.8	134.4
Pennsylvania	116.2	106.7
Texas	162.6	200.7
West Virginia	223.3	183.6
28694, BULK PESTICIDES AND OTHER BULK SYNTHETIC ORGANIC AGRICULTURAL CHEMICALS		
United States	**1 217.4**	**1 551.8**
New Jersey	44.7	45.9
Ohio	6.0	32.9
Pennsylvania	13.9	(NA)
Tennessee	41.2	52.5
Texas	391.0	341.2
28696, MISCELLANEOUS END-USE CHEMICALS AND CHEMICAL PRODUCTS		
United States	**6 318.5**	**3 478.9**
Alabama	101.9	78.8
California	63.3	101.1
Kentucky	123.1	(NA)
Louisiana	508.8	184.4
Michigan	144.7	(NA)
Missouri	61.2	75.8
New Jersey	662.5	605.6
New York	37.6	68.2
North Carolina	163.1	90.8
Ohio	399.2	212.3
Pennsylvania	43.1	28.7
South Carolina	216.8	144.4
Texas	2 513.6	855.3
Wisconsin	89.6	59.4
28697, MISCELLANEOUS CYCLIC AND ACYCLIC CHEMICALS AND CHEMICAL PRODUCTS		
United States	**21 452.4**	**19 290.0**
Alabama	511.1	296.4
Arkansas	452.7	191.7
California	466.6	279.5
Florida	304.0	256.0
Illinois	382.9	406.2
Iowa	101.3	(NA)
Kansas	185.0	211.4
Kentucky	1 172.2	757.0
Louisiana	3 204.4	3 259.7
Michigan	516.0	415.5
Missouri	88.2	94.3
New Jersey	365.6	725.5
New York	404.7	361.3
North Carolina	68.4	119.3
Ohio	500.8	537.0
Oregon	11.0	(NA)
Pennsylvania	312.6	246.1
South Carolina	136.1	139.2
Tennessee	669.7	442.3
Texas	9 353.9	8 174.6
West Virginia	1 111.1	1 110.3
Wisconsin	25.8	23.5
28698, OTHER INDUSTRIAL ORGANIC CHEMICALS (DATA WHICH ARE NOT REPORTED TO THE INTERNATIONAL TRADE COMMISSION)		
United States	**3 118.8**	**1 429.1**
California	22.2	(NA)
Connecticut	23.5	(NA)
Florida	31.5	(NA)
Georgia	80.8	(NA)
Illinois	467.0	(NA)
Kansas	26.1	(NA)
Kentucky	10.9	(NA)
New Jersey	335.3	(NA)
New York	228.2	(NA)
North Carolina	186.3	(NA)
Ohio	95.7	(NA)
Pennsylvania	70.4	(NA)
South Carolina	119.4	(NA)
Tennessee	91.2	(NA)
Texas	357.1	(NA)
Washington	25.6	(NA)
Wisconsin	49.8	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2861-	**Gum and wood chemicals**	**790.9**	**808.3**	**767.3**	**756.8**	**656.7**	**551.6**	**658.5**	**436.1**
28610	Gum and wood chemicals, including wood distillation products	790.9	42.3	41.7	41.8	31.8	31.3	9.8	24.1
2865-	**Cyclic crudes and intermediates**	**12 822.0**	**14 096.1**	**14 763.4**	**14 940.0**	**13 686.1**	**11 138.7**	**9 039.7**	**(NA)**
28651	Cyclic intermediates	7 658.9	9 570.0	10 237.5	10 692.7	9 899.8	7 771.6	5 943.0	4 130.4
28652	Synthetic organic dyes	1 341.7	1 285.3	1 182.7	1 118.4	944.8	858.7	700.2	722.1
28653	Synthetic organic pigments, lakes, and toners	1 233.5	1 078.5	1 052.1	1 018.6	874.2	814.5	535.3	414.5
28655	Tar, tar crudes, and tar pitches	493.2	440.5	407.5	396.4	419.7	389.5	452.8	204.9
28656	Aromatics (benzene, toluene, xylene, etc.), not made in a refinery	1 965.1	1 532.8	1 681.5	1 538.6	1 363.0	1 124.0	1 353.7	(NA)
28650	Cyclic crudes and intermediates, n.s.k.	129.7	189.0	202.0	175.2	184.6	180.4	54.7	42.4
2869-	**Industrial organic chemicals, n.e.c.**	**46 120.5**	**45 229.8**	**46 280.3**	**46 247.2**	**42 806.2**	**35 451.7**	**30 655.9**	**(NA)**
28691	Liquefied refinery gases (aliphatics), not made in a refinery	8 310.2	7 121.6	8 188.3	8 224.7	7 288.3	4 925.4	3 941.4	(NA)
28692	Ethyl alcohol	1 433.4	(NA)	(NA)	(NA)	(NA)	974.9	355.7	224.5
28693	Synthetic organic chemicals, n.e.c.	3 548.1	3 719.3	3 702.2	3 476.9	3 098.1	2 529.6	1 873.1	1 600.5
28694	Bulk pesticides and other bulk synthetic organic agricultural chemicals	1 217.4	2 041.0	2 159.1	2 195.6	1 755.0	1 551.8	1 785.8	1 474.0
28696	Miscellaneous end-use chemicals and chemical products	6 318.5	5 113.7	5 003.1	4 542.2	4 373.4	3 478.9	3 135.0	2 070.5
28697	Miscellaneous cyclic and acyclic chemicals and chemical products	21 452.4	22 696.7	22 659.8	23 549.4	21 815.4	19 290.0	18 499.9	13 424.7
28698	Other industrial organic chemicals (data which are not reported to the International Trade Commission)	3 118.8	(NA)	(NA)	(NA)	(NA)	1 429.1	781.7	421.4
28690	Industrial organic chemicals, n.e.c., n.s.k.	721.8	780.2	885.4	908.8	1 169.7	1 271.9	283.3	162.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2861, GUM AND WOOD CHEMICALS				
	Materials, ingredients, containers, and supplies	**(X)**	**318.2**	**(X)**	**236.2**
286102	Tall oil and rosin ---- mil lb	794.4	72.8	1 003.9	37.7
280000	Industrial organic and inorganic chemicals, including acids and alcohols, but excluding fatty acids	(X)	14.5	(X)	19.6
242011	Chips, slabs, edgings, shavings, sawdust, and other wood waste	(X)	(D)	(X)	20.8
122101	Lignite, raw or prepared, used as a raw material	(X)	(D)	(X)	16.4
	Containers:				
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	10.7	(X)	19.9
340001	Metal containers	(X)	4.1	(X)	(2)
970099	All other materials and components, parts, containers, and supplies	(X)	121.3	(X)	288.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	34.7	(X)	33.4
	INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES				
	Materials, ingredients, containers, and supplies	**(X)**	**5 604.1**	**(X)**	**4 755.3**
	Acids, except spent acids:				
281944	Hydrochloric acid (100 percent HCl) ---- 1,000 s tons	*59.8	5.9	*90.0	7.6
281946	Hydrofluoric acid (100 percent HF) ---- 1,000 s tons				
287311	Nitric acid (100 percent HNO_3) ---- 1,000 s tons	220.8	24.4	278.7	27.0
281931	Sulfuric acid (100 percent H_2SO_4), except spent ---- 1,000 s tons	*249.5	24.8	**285.6	22.8
287312	Ammonia, synthetic anhydrous (100 percent NH_3) ---- 1,000 s tons	171.1	29.2	195.8	22.4
281211	Chlorine (100 percent Cl) ---- 1,000 s tons	342.8	25.2	441.8	57.3
281238	Sodium hydroxide (caustic soda) (100 percent NaOH) ---- 1,000 s tons	214.1	52.7	*218.2	25.1
280099	All other industrial inorganic chemicals	(X)	241.4	(X)	83.3
281301	Acetylene and other industrial gases (compressed and liquefied), including argon, carbon dioxide, nitrogen, etc.	(X)	20.6	(X)	20.8
286952	Alcohol, ethyl (pure and denatured)	(X)	2.6	(X)	40.4
286957	Other alcohols, including amyl, butyl, methyl, and propyl	(X)	51.6		
286519	Toluene and xylene (100 percent basis) ---- mil lb	(D)	(D)	3 865.4	431.4
286513	Phenol (100 percent basis) ---- mil lb	(D)	(D)	21.2	6.7
286590	Ortho and para-xylene (100 percent basis) ---- mil lb	(D)	(D)	2 448.5	369.7
286552	Benzol (benzene) (100 percent C_6H_6) ---- mil lb	2 855.6	436.5	2 799.5	566.1
286553	Tar, crude ---- 1,000 s tons	1 276.5	131.3	1 176.0	114.3
286505	Other cyclic crudes and intermediates ---- mil lb	**496.5	517.0	(NA)	(2)
286970	Acetone (natural and synthetic) ---- mil lb	1.4	.4	.7	.2
286099	Other synthetic organic chemicals, n.e.c.	(X)	760.4	(X)	998.1
	Hydrocarbons used as raw materials or feedstocks:				
131152	Natural gas used as a raw material ---- bil cu ft	60.4	156.0		
2911A1	Ethane ---- mil lb	(D)	(D)		
2911A2	Ethylene ---- mil lb	651.1	117.6		
2911A3	Propane ---- mil lb	787.7	61.2	(X)	433.8
2911A4	Propylene ---- mil lb	**650.8	123.6		
2911A5	Butane and iso-butane ---- mil lb	(D)	(D)		
2911A6	Butylene and iso-butylene ---- mil lb	(D)	(D)		
190012	Other hydrocarbons	(X)	215.1		
147901	Sulfur ---- 1,000 l tons	(D)	(D)	(S)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. ---- mil lb	14.8	7.7	(S)	2.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2865, CYCLIC CRUDES AND INTERMEDIATES—Con.				
019101	Agricultural products (crude), including flowers, grains, seeds, herbs, etc.—mil lb	(D)	(D)	(NA)	(2)
355911	Parts and attachments for machinery and equipment	(X)	39.4	(X)	59.7
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	14.6	(X)	12.9
340001	Metal containers	(X)	27.5	(X)	23.5
970099	All other materials and components, parts, containers, and supplies	(X)	1 339.5	(X)	2 1 188.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	123.1	(X)	241.7
	INDUSTRY 2869, INDUSTRIAL ORGANIC CHEMICALS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**26 535.5**	**(X)**	**19 787.5**
	Acids, except spent acids:				
281944	Hydrochloric acid (100 percent HCl)—1,000 s tons	(S)	18.9	294.1	21.4
281946	Hydrofluoric acid (100 percent HF)—1,000 s tons	125.9	101.6	156.5	95.9
287311	Nitric acid (100 percent HNO_3)—1,000 s tons	73.5	9.3	86.0	10.2
281931	Sulfuric acid (100 percent H_2SO_4), except spent—1,000 s tons	1 158.8	79.5	1 477.0	100.3
287312	Ammonia, synthetic anhydrous (100 percent NH_3)—1,000 s tons	1 742.8	172.6	1 281.9	142.9
281211	Chlorine (100 percent Cl)—1,000 s tons	*791.6	50.0	2 637.0	295.4
281238	Sodium hydroxide (caustic soda) (100 percent NaOH)—1,000 s tons	*1 398.9	300.1	920.9	100.1
280099	All other industrial inorganic chemicals	(X)	975.8	(X)	692.2
281301	Acetylene and other industrial gases (compressed and liquefied), including argon, carbon dioxide, nitrogen, etc.	(X)	162.1	(X)	81.8
286952	Alcohol, ethyl (pure and denatured)	(X)	270.1	(X)	125.6
286957	Other alcohols, including amyl, butyl, methyl, and propyl	(X)	913.7	(X)	386.9
286519	Toluene and xylene (100 percent basis)—mil lb	2 449.5	310.6	1 570.2	182.3
286513	Phenol (100 percent basis)—mil lb	2 569.8	481.8	844.1	154.5
286590	Ortho and para-xylene (100 percent basis)—mil lb	2 418.4	347.3	1 647.5	204.0
286552	Benzol (benzene) (100 percent C_6H_6)—mil lb	3 852.6	573.8	829.0	223.4
286553	Tar, crude—1,000 s tons	–	–	(Z)	(Z)
286505	Other cyclic crudes and intermediates—mil lb	**2 846.2	698.2	(NA)	(2)
286970	Acetone (natural and synthetic)—mil lb	931.8	175.1	*629.7	90.2
286099	Other synthetic organic chemicals, n.e.c.	(X)	2 382.3	(X)	1 885.6
	Hydrocarbons used as raw materials or feedstocks:				
131152	Natural gas used as a raw material—bil cu ft	171.6	326.0	99.6	196.4
2911A1	Ethane—mil lb	17 708.9	1 330.1	(NA)	516.3
2911A2	Ethylene—mil lb	8 827.1	1 432.9	(NA)	852.4
2911A3	Propane—mil lb	17 587.6	1 338.8	(NA)	926.9
2911A4	Propylene—mil lb	14 977.2	1 539.4	(NA)	1 014.4
2911A5	Butane and iso-butane—mil lb	4 281.1	686.1	(NA)	252.0
2911A6	Butylene and iso-butylene—mil lb	2 430.8	469.6	(NA)	214.6
190012	Other hydrocarbons	(X)	2 619.8	(X)	1 467.5
147901	Sulfur—1,000 l tons	983.2	72.6	788.3	100.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.—mil lb	37.7	16.6	136.1	54.8
019101	Agricultural products (crude), including flowers, grains, seeds, herbs, etc.—mil lb	10 940.7	544.2	(NA)	(2)
355911	Parts and attachments for machinery and equipment	(X)	248.7	(X)	187.0
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	168.6	(X)	88.4
340001	Metal containers	(X)	148.6	(X)	81.7
970099	All other materials and components, parts, containers, and supplies	(X)	6 562.6	(X)	2 7 541.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	1 008.0	(X)	1 501.2

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]These materials were included with material code 970099 for 1987.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

Table 8. **Employees Engaged in Construction and Value of Work Done: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting construction employees[1]					Response coverage ratio (col C ÷ col A)
				Total		Engaged in construction[2]			
		Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Value of work done (millions)	
		A	B	C	D	E	F	G	H
2865	Cyclic crudes and intermediates	22.2	934.6	6.0	261.4	1.2	39.4	58.4	.27
2869	Industrial organic chemicals, n.e.c.	100.1	4 504.8	20.6	956.6	4.3	175.4	401.4	.20

[1]Data exclude government-owned, contractor-operated plants.

[2]Establishments in selected industries were instructed to report number of employees, included in total employment, that were engaged in construction, maintenance, or repair of the plant and utilized as a separate work force. Coverage ratio (col. H) indicates proportion of industry employment represented by establishments that reported construction employees. Coverage ratio excludes (a) construction workers not employed by establishment (working under contract or provided by another establishment of the company), (b) establishments that reported having no construction employees, (c) establishments that did not respond to inquiry, and (d) establishments that were not mailed a form or from which a form had not been received at the time data were tabulated.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
28241 24	28241 25
28241 29	28241 13
28241 29	28241 19
28241 29	28241 21
28241 29	28241 23
28241 29	28241 25
28241 45	28241 35
28241 45	28241 43
28242	28247
28242 61	28247 13
28242 61	28247 15
28242 61	28247 16
28242 61	28247 19
28242 63	28247 13
28242 63	28247 15
28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
28242 65	28247 15
28242 65	28247 16
28242 65	28247 19
28242 66	28247 31
28242 66	28247 33
28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
28249 15	28247 13
28249 15	28247 15
28249 15	28247 16
28249 15	28247 19
28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
28447	28445
28447 11	28445 21
28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
28610	28611
28610	28612
28610 10	28612 57
28610 15	28611 31
28610 15	28611 98
28610 20	28612 91
28610 25	28612 94
28610 30	28612 96
28610 35	28612 98
28610 40	28612 31
28610 40	28612 61
28610 40	28612 89
28692	28695
28692 10	28695 11
28692 15	28695 25
28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
28744 11	28744 20
28744 11	28744 40
28744 11	28744 60
28744 21	28744 20
28744 21	28744 40
28744 21	28744 60
28744 31	28744 30
28744 31	28744 50
28744 31	28744 70
28750 11	28750 20
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28750 31	28750 70
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28799 30	28799 35
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28799 45	28799 35
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28914 24	28914 25
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28914 99	28914 98
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28916 25	28916 30
28916 25	28916 40
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28917 46	28917 51
28917 46	28917 61
28920 20	28920 19
28920 20	28920 21
28920 24	28920 13
28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
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28932 32	28932 33
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28933 46	28933 45
28934 87	28934 85
28934 87	28934 86
28934 89	28934 85
28934 89	28934 86
28992 24	28992 23
28992 24	28992 25
28992 59	28992 53
28992 59	28992 55
28992 59	28992 57
28995 13	28995 11
28995 13	28995 12
28995 13	28995 19
28995 16	28995 14
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28995 16	28995 19
28995 34	28995 35
28995 34	28995 36
28995 43	28995 40
28995 43	28995 42
28995 43	28995 45
28995 68	28995 69
28995 68	28995 70
28995 68	28995 71
28995 81	28995 82
28995 81	28995 83
28995 81	28995 84
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28995 97	28995 55
28995 97	28995 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
28161 11	28161 00
28161 21	28162 55
28162 13	28162 65
28162 30	28162 65
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28162 50	28162 65
28162 60	28162 65
28163 41	28163 98
28163 45	28163 98
28163 89	28163 98
28163 95	28163 98
28163 97	28163 98
28220 00	28220 11
28220 00	28220 12
28220 00	28220 40
28220 00	28220 45
28220 00	28220 50
28220 00	28220 57
28220 00	28220 60
28220 00	28220 72
28220 00	28220 82
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28230 34	28230 37
28230 38	28230 33
28230 38	28230 37
28230 39	28230 33
28230 39	28230 37
28230 41	28230 45
28230 71	28230 45
28241 13	28241 15
28241 13	28241 24
28241 13	28241 29
28241 19	28241 15
28241 19	28241 24
28241 19	28241 29
28241 21	28241 15
28241 21	28241 24
28241 21	28241 29
28241 23	28241 15
28241 23	28241 24
28241 23	28241 29
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28241 25	28241 24
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28244 32	28244 29
28244 34	28244 15
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28244 36	28244 29
28244 38	28244 15
28244 38	28244 29
28244 41	28244 15
28244 41	28244 29
28244 43	28244 42
28244 43	28244 44
28244 45	28244 42
28244 45	28244 44
28247	28242
28247	28249
28247 13	28242 61
28247 13	28242 63
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28247 13	28249 15
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28247 19	28242 61
28247 19	28242 63
28247 19	28242 65
28247 19	28249 15
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28247 33	28242 66
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28333 94	28333 92
28333 98	28333 99
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28352 15	28352 12
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28362 20	28362 00
28364 20	28364 22
28364 25	28364 22
28411 62	28411 78
28411 73	28411 78
28411 79	28411 78
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28995 19	28995 16
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28995 40	28995 43
28995 42	28995 43
28995 45	28995 43
28995 55	28995 97
28995 69	28995 68
28995 70	28995 68
28995 71	28995 68
28995 82	28995 81
28995 83	28995 81
28995 84	28995 81
28995 88	28995 86
28995 89	28995 86
28995 94	28995 95
28995 96	28995 95
28995 99	28995 97

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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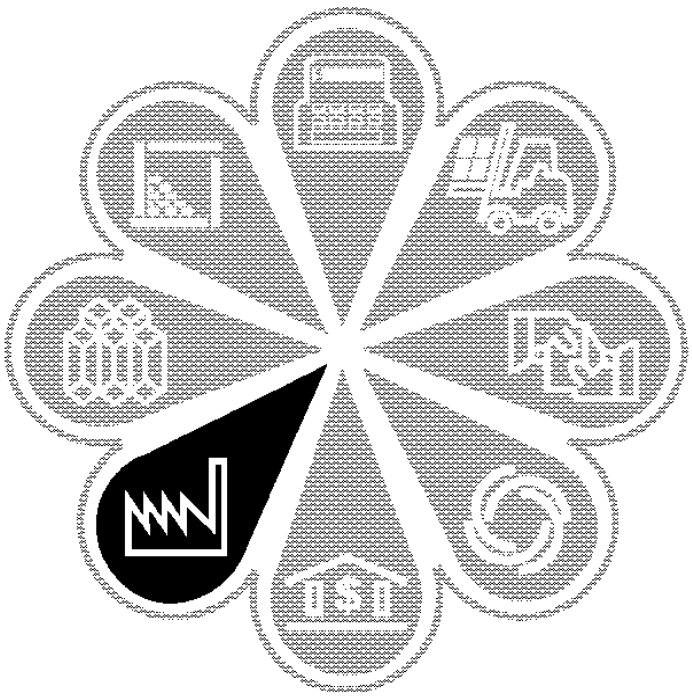
1992 Census of Manufactures

MC92-I-28G

INDUSTRY SERIES

Agricultural Chemicals

Industries 2873, 2874, 2875, and 2879



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28G

INDUSTRY SERIES

Agricultural Chemicals

Industries 2873, 2874, 2875, and 2879

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Walter Hunter.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2873	Nitrogenous Fertilizers
2874	Phosphatic Fertilizers
2875	Fertilizers, Mixing Only
2879	Agricultural Chemicals, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2873, NITROGENOUS FERTILIZERS

This industry is made up of establishments primarily engaged in manufacturing nitrogenous fertilizer materials, or mixed fertilizers from nitrogenous materials produced in the same establishment. Included are ammonia fertilizer compounds and anhydrous ammonia, nitric acid, ammonium nitrate, ammonium sulfate and nitrogen solutions, urea, and natural organic fertilizers (except compost) and mixtures. Establishments primarily engaged in the manufacture of industrial inorganic chemicals, n.e.c., are classified in industry 2819 and industrial organic chemicals, n.e.c., in industry 2869. Products of this industry also are collected in the Current Industrial Report (CIR) MA-28B and M-28B, Inorganic Fertilizer Materials and Related Products (annual and monthly surveys). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2873, Nitrogenous Fertilizers, had employment of 7.0 thousand. The employment figure was 5 percent below the 7.4 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Louisiana, Mississippi, Oklahoma, and Texas, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Louisiana, Mississippi, Oklahoma, and Georgia accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2873 shipped $2.8 billion of nitrogenous fertilizers considered primary to the industry, $186.0 million of secondary products, and had $148.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary

products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 81 percent.

The products primary to industry 2873, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nitrogenous fertilizer industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 2874, PHOSPHATIC FERTILIZERS

This industry is made up of establishments primarily engaged in manufacturing phosphatic fertilizer materials, or mixed fertilizers from phosphatic materials produced in the same establishment. Included are phosphoric acid; normal, enriched, and concentrated superphosphates; ammonium phosphates; nitrophosphates; and calcium metaphosphates. Certain products primary to industry 2874 also are primary to industry 2875. Establishments primarily engaged in manufacturing industrial inorganic chemicals, n.e.c., are classified in industry 2819. Products of this industry also are collected in the Current Industrial Report (CIR) MA-28B and M-28B, Inorganic Fertilizer Materials and Related Products (annual and monthly surveys). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2874, Phosphatic Fertilizers, had employment of 9.5 thousand. The employment figure was 1 percent above the 9.4 thousand reported in 1987.

The leading States in employment in 1992 were Florida, Louisiana, North Carolina, and Idaho, accounting for approximately 78 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 83 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2874 shipped $3.7 billion of phosphatic fertilizers considered primary to the industry, $362.4 million of secondary products, and had $247.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 2874, no matter in what industry they were produced, appear in table 6a and aggregate to $4.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the phosphatic fertilizers industry amounted to $3.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 2875, FERTILIZERS, MIXING ONLY

This industry is made up of establishments primarily engaged in mixing fertilizers from purchased fertilizer materials. Certain products primary to industry 2875 also are primary to industry 2874.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2875, Fertilizers, Mixing Only, had employment of 6.9 thousand. The employment figure was 8 percent below the 7.5 thousand reported in 1987.

The leading States in employment in 1992 were Florida, Ohio, Texas, and California. This represents a shift from 1987 when Florida, Ohio, Pennsylvania, and California were the leading States.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

2875 shipped $1.7 billion of fertilizers, mixing only, considered primary to the industry, $38.6 million of secondary products, and had $422.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2875, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fertilizers, mixing only, industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.

This industry is made up of establishments primarily engaged in the formulation and preparation of ready-to-use agricultural and household pest control chemicals, including insecticides, fungicides, and herbicides, from technical chemicals or concentrates; and the production of concentrates which require further processing before use as agricultural pesticides. It also includes establishments engaged in manufacturing or formulating agricultural chemicals, not elsewhere classified, such as minor or trace elements and soil conditioners. Establishments primarily engaged in manufacturing basic or technical agricultural pest control chemicals are classified in industry group 281 if the chemicals are inorganic, and in industry group 286 if they are organic. Establishments primarily engaged in manufacturing agricultural lime products are classified in major group 32.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2879, Agricultural Chemicals, N.E.C., had employment of 16.9 thousand. The employment figure was 5 percent above the 16.1 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, Texas, Alabama, and California. This represents a shift from 1987 when Missouri, Texas, Indiana, and West Virginia were the leading States.

The total value of shipments for establishments classified in this industry was $9.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2879 shipped $7.2 billion of agricultural chemicals, not elsewhere classified, considered primary to the industry, $1.5 billion of secondary products, and had $398.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 82 percent (specialization ratio). In 1987, the specialization ratio was 77 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 2879, no matter in what industry they were produced, appear in table 6a and aggregate to $8.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the agricultural chemicals, not elsewhere classified, industry amounted to $3.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2873, NITROGENOUS FERTILIZERS															
1992 Census	103	152	77	7.0	257.6	4.7	10.1	158.1	1 262.5	1 871.7	3 174.6	208.8	407.1	94	79
1991 ASM	(NA)	(NA)	(NA)	7.3	260.2	4.7	10.3	152.1	1 290.5	1 982.1	3 238.1	220.1	444.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.5	253.6	4.8	10.4	143.5	1 213.3	1 905.3	3 113.4	99.4	435.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.0	231.6	4.4	9.7	136.1	1 156.8	1 724.4	2 866.0	122.7	396.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.2	222.0	4.4	9.6	124.4	1 173.2	1 626.4	2 761.0	48.1	359.1	(NA)	(NA)
1987 Census	117	164	72	7.4	222.8	4.5	9.6	125.2	874.7	1 503.5	2 447.2	36.9	348.6	93	81
1986 ASM	(NA)	(NA)	(NA)	6.6	202.4	4.0	8.8	114.1	626.6	1 433.6	2 177.6	84.9	358.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.7	259.5	5.4	11.0	149.8	1 086.3	2 393.9	3 469.6	112.5	544.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.5	244.0	5.2	10.8	136.8	1 307.1	2 346.3	3 574.8	77.9	524.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.7	231.0	5.1	10.8	131.5	913.2	2 006.8	2 950.2	55.3	483.5	(NA)	(NA)
1982 Census	109	143	75	10.4	268.1	6.3	13.5	156.3	981.0	2 395.3	3 391.1	145.3	511.8	88	79
1981 ASM	(NA)	(NA)	(NA)	10.7	269.7	6.8	15.2	155.9	1 373.1	2 394.8	3 662.9	151.8	457.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.0	242.9	7.2	15.2	149.1	1 381.1	2 059.3	3 423.3	114.2	356.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.1	221.6	7.1	15.0	135.4	987.2	1 651.8	2 673.3	197.1	327.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.1	225.5	7.5	15.9	132.8	1 073.4	1 586.1	2 661.9	300.6	382.1	(NA)	(NA)
1977 Census	110	152	88	12.1	207.9	7.9	17.1	128.4	1 204.7	1 447.3	2 603.4	734.4	378.0	84	74
INDUSTRY 2874, PHOSPHATIC FERTILIZERS															
1992 Census	54	75	41	9.5	342.1	6.7	15.8	218.4	1 245.5	3 076.4	4 332.8	307.7	383.9	91	92
1991 ASM	(NA)	(NA)	(NA)	10.3	368.4	7.3	16.4	240.2	1 372.6	3 619.4	4 983.9	197.1	446.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.5	364.0	7.5	17.0	232.9	1 151.1	3 462.4	4 636.2	137.5	457.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.8	348.5	7.4	16.1	218.2	1 167.0	3 035.7	4 187.3	132.2	450.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.4	324.7	7.1	15.7	207.0	1 619.5	2 882.2	4 474.1	133.7	421.5	(NA)	(NA)
1987 Census	55	77	42	9.4	284.5	6.2	13.3	172.1	1 169.3	2 609.6	3 819.3	63.6	387.3	92	96
1986 ASM	(NA)	(NA)	(NA)	11.3	321.9	7.3	15.1	191.2	612.4	2 709.6	3 396.4	218.2	459.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.0	350.5	8.7	18.0	218.2	771.4	3 392.1	4 184.2	178.7	586.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.0	337.2	8.9	18.8	217.0	1 065.0	3 576.6	4 541.1	139.8	601.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.9	308.0	9.1	19.0	206.1	965.5	2 981.4	3 969.4	99.2	522.2	(NA)	(NA)
1982 Census	69	110	74	14.3	328.2	9.7	20.0	206.8	760.5	3 055.8	3 921.9	229.6	581.9	94	94
1981 ASM	(NA)	(NA)	(NA)	15.6	345.3	10.8	24.4	221.5	1 078.2	3 338.8	4 316.2	688.0	692.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.6	316.6	11.0	25.0	206.6	1 501.6	3 110.8	4 535.0	319.9	517.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.9	267.0	10.5	23.2	176.9	1 068.2	2 415.9	3 523.9	117.3	375.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.5	236.6	10.2	22.2	154.6	771.4	2 080.1	2 863.7	219.9	402.7	(NA)	(NA)
1977 Census	44	91	69	14.4	212.8	10.1	21.7	139.2	817.7	1 917.6	2 681.7	111.8	419.7	93	91
INDUSTRY 2875, FERTILIZERS, MIXING ONLY															
1992 Census	313	401	99	6.9	181.9	4.2	9.4	83.7	634.1	1 562.7	2 188.8	43.7	270.3	98	97
1991 ASM	(NA)	(NA)	(NA)	6.7	157.4	4.1	9.1	72.4	506.7	1 443.8	1 954.3	26.4	248.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.1	163.6	4.3	9.5	74.7	552.9	1 465.3	2 018.8	31.2	240.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.4	138.0	4.1	8.6	68.9	457.9	1 373.2	1 831.7	26.6	246.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.5	145.9	4.7	9.4	73.3	526.3	1 375.2	1 864.2	16.2	303.7	(NA)	(NA)
1987 Census	307	452	115	7.5	145.2	4.7	9.6	71.8	464.3	1 240.4	1 701.1	26.3	254.9	99	94
1986 ASM	(NA)	(NA)	(NA)	8.2	150.0	5.1	10.4	76.7	492.3	1 242.7	1 738.9	19.3	251.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.2	149.7	5.2	10.3	76.4	515.8	1 369.4	1 894.2	22.0	273.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.5	147.1	5.5	10.8	74.5	487.3	1 450.5	1 947.2	30.4	325.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.3	146.1	5.8	11.4	74.4	516.4	1 386.1	1 902.9	34.3	341.4	(NA)	(NA)
1982 Census	372	544	149	9.8	155.7	6.0	12.2	76.5	406.5	1 445.5	1 903.4	35.4	344.1	97	94
1981 ASM	(NA)	(NA)	(NA)	12.0	157.6	7.4	16.5	89.4	589.1	1 914.3	2 489.4	48.8	331.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.6	157.9	7.7	17.3	84.9	735.4	1 856.6	2 535.6	61.4	365.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.4	132.6	7.1	15.0	68.9	697.8	1 447.4	2 113.4	85.0	241.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.9	129.0	7.0	13.7	63.7	466.4	1 255.4	1 716.1	48.1	305.9	(NA)	(NA)
1977 Census	456	673	204	12.4	139.1	8.1	16.0	68.9	488.9	1 373.0	1 866.6	41.9	306.5	95	98
INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.															
1992 Census	224	263	111	16.9	670.2	9.6	20.2	315.0	5 519.5	3 645.8	9 151.4	428.4	1 109.3	82	88
1991 ASM	(NA)	(NA)	(NA)	16.4	619.6	9.1	20.1	304.6	4 950.9	3 399.3	8 345.5	481.0	1 000.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.7	664.1	10.2	21.1	343.3	5 142.7	3 414.9	8 538.9	557.7	1 114.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.4	621.3	9.8	20.6	310.6	4 914.3	3 451.5	8 327.2	503.0	1 038.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.9	531.7	8.9	18.5	258.7	4 285.8	2 761.6	6 977.6	331.6	951.6	(NA)	(NA)
1987 Census	233	277	105	16.1	518.3	9.1	18.5	253.3	3 831.5	2 442.9	6 299.7	234.1	894.8	77	83
1986 ASM	(NA)	(NA)	(NA)	14.8	477.6	8.8	18.0	241.2	2 976.2	2 396.7	5 357.0	200.6	771.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.0	436.8	8.9	17.7	221.4	2 754.5	2 490.2	5 217.1	194.8	728.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.3	433.4	9.2	18.4	222.1	3 051.4	2 599.2	5 694.6	200.4	706.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.0	389.3	8.7	16.6	195.4	2 713.1	2 180.7	4 903.6	141.7	758.7	(NA)	(NA)
1982 Census	286	330	119	16.5	403.8	9.7	18.7	204.4	2 948.9	2 449.2	5 436.1	288.5	783.7	81	87
1981 ASM	(NA)	(NA)	(NA)	17.2	383.6	10.7	21.0	200.3	3 177.1	2 728.4	5 867.5	252.8	754.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.3	319.2	9.8	19.4	160.9	2 080.5	2 192.8	4 240.8	213.9	626.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.7	299.6	10.2	19.9	151.0	1 892.3	2 086.6	3 934.7	208.2	593.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.8	260.7	9.7	18.7	133.1	1 605.1	1 776.5	3 351.7	252.9	507.4	(NA)	(NA)
1977 Census	338	409	121	15.0	224.1	9.3	17.9	118.2	1 299.3	1 496.2	2 780.4	219.2	460.6	83	77

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2873, NITROGENOUS FERTILIZERS									
1992 Census	36 800	67	2 149	15.65	59	67	180 357	20	125.00
1991 ASM	35 644	64	2 191	14.77	61	69	176 781	20	125.29
1990 ASM	33 813	64	2 167	13.80	61	69	161 773	21	116.66
1989 ASM	33 086	63	2 205	14.03	60	68	165 257	20	119.26
1988 ASM	30 833	61	2 182	12.96	59	67	162 944	19	122.21
1987 Census	30 108	61	2 133	13.04	61	71	118 203	25	91.11
1986 ASM	30 667	61	2 200	12.97	66	75	94 939	32	71.20
1985 ASM	29 828	62	2 037	13.62	69	76	124 862	24	98.75
1984 ASM	28 706	61	2 077	12.67	66	72	153 776	19	121.03
1983 ASM	26 552	59	2 118	12.18	68	76	104 966	25	84.56
1982 Census	25 779	61	2 143	11.58	71	79	94 327	27	72.67
1981 ASM	25 206	64	2 235	10.26	65	73	128 327	20	90.34
1980 ASM	22 082	65	2 111	9.81	60	67	125 555	18	90.86
1979 ASM	19 964	64	2 113	9.03	62	70	88 937	22	65.81
1978 ASM	18 636	62	2 120	8.35	60	68	88 711	21	67.51
1977 Census	17 182	65	2 165	7.51	56	64	99 562	17	70.45
INDUSTRY 2874, PHOSPHATIC FERTILIZERS									
1992 Census	36 011	71	2 358	13.82	71	79	131 105	27	78.83
1991 ASM	35 767	71	2 247	14.65	73	80	133 262	27	83.70
1990 ASM	34 667	71	2 267	13.70	75	83	109 629	32	67.71
1989 ASM	32 269	69	2 176	13.55	72	81	108 056	30	72.48
1988 ASM	31 221	68	2 211	13.18	64	72	155 721	20	103.15
1987 Census	30 266	66	2 145	12.94	68	76	124 394	24	87.92
1986 ASM	28 487	65	2 068	12.66	80	89	54 195	53	40.56
1985 ASM	26 962	67	2 069	12.12	81	89	59 338	45	42.86
1984 ASM	25 938	68	2 112	11.54	79	86	81 923	32	56.65
1983 ASM	23 876	71	2 088	10.85	75	83	74 845	32	50.82
1982 Census	22 951	68	2 062	10.34	78	86	53 182	43	38.03
1981 ASM	22 135	69	2 259	9.08	77	85	69 115	32	44.19
1980 ASM	20 295	71	2 273	8.26	69	76	96 256	21	60.06
1979 ASM	17 919	70	2 210	7.62	69	76	71 691	25	46.04
1978 ASM	16 317	70	2 176	6.96	73	81	53 200	31	34.75
1977 Census	14 778	70	2 149	6.41	72	79	56 785	26	37.68
INDUSTRY 2875, FERTILIZERS, MIXING ONLY									
1992 Census	26 362	61	2 238	8.90	71	80	91 899	29	67.46
1991 ASM	23 493	61	2 220	7.96	74	82	75 627	31	55.68
1990 ASM	23 042	61	2 209	7.86	73	81	77 873	30	58.20
1989 ASM	21 563	64	2 098	8.01	75	83	71 547	30	53.24
1988 ASM	19 453	63	2 000	7.80	74	82	70 173	28	55.99
1987 Census	19 360	63	2 043	7.48	73	81	61 907	31	48.36
1986 ASM	18 293	62	2 039	7.38	71	80	60 037	30	47.34
1985 ASM	18 256	63	1 981	7.42	72	80	62 902	29	50.08
1984 ASM	17 306	65	1 964	6.90	74	82	57 329	30	45.12
1983 ASM	15 710	62	1 966	6.53	73	81	55 527	28	45.30
1982 Census	15 888	61	2 033	6.27	76	84	41 480	38	33.32
1981 ASM	13 133	62	2 230	5.42	77	83	49 092	27	35.70
1980 ASM	12 532	61	2 247	4.91	73	79	58 365	21	42.51
1979 ASM	12 750	68	2 113	4.59	68	75	67 096	19	46.52
1978 ASM	11 835	64	1 957	4.65	73	81	42 789	28	34.04
1977 Census	11 218	65	1 975	4.31	74	81	39 427	28	30.56
INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.									
1992 Census	39 657	57	2 104	15.59	40	47	326 598	12	273.24
1991 ASM	37 780	55	2 209	15.15	41	48	301 884	13	246.31
1990 ASM	37 520	58	2 069	16.27	40	48	290 548	13	243.73
1989 ASM	35 707	56	2 102	15.08	41	49	282 431	13	238.56
1988 ASM	33 440	56	2 079	13.98	40	47	269 547	12	231.66
1987 Census	32 193	57	2 033	13.69	39	47	237 981	14	207.11
1986 ASM	32 270	59	2 045	13.40	45	54	201 095	16	165.34
1985 ASM	29 120	59	1 989	12.51	48	56	183 633	16	155.62
1984 ASM	28 327	60	2 000	12.07	46	53	199 438	14	165.84
1983 ASM	25 953	58	1 908	11.77	44	52	180 873	14	163.44
1982 Census	24 473	59	1 928	10.93	45	52	178 721	14	157.70
1981 ASM	22 302	62	1 963	9.54	47	53	184 715	12	151.29
1980 ASM	19 583	60	1 980	8.29	52	59	127 638	15	107.24
1979 ASM	17 940	61	1 951	7.59	53	61	113 311	16	95.09
1978 ASM	16 500	61	1 928	7.12	53	61	101 589	16	85.83
1977 Census	14 940	62	1 925	6.60	54	62	86 620	17	72.59

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2873, NITROGENOUS FERTILIZERS														
United States	–	**152**	**77**	**7.0**	**257.6**	**4.7**	**10.1**	**158.1**	**1 262.5**	**1 871.7**	**3 174.6**	**208.8**	**7.4**	**874.7**
Alabama	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Alaska	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E4	17	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	5	3	.2	5.5	.1	.2	2.6	23.2	42.1	65.3	(D)	(NA)	(NA)
Georgia	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	7	3	.2	7.9	.2	.4	5.9	34.4	48.7	83.5	(D)	(NA)	(NA)
Iowa	–	5	4	.3	11.5	.2	.5	7.4	50.6	80.3	132.2	(D)	E	(D)
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	8	7	.9	42.4	.5	1.1	22.5	236.0	473.8	721.8	(D)	.9	218.4
Michigan	–	3	3	.1	3.4	.1	.3	2.5	9.0	8.6	18.0	(D)	(NA)	(NA)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	–	3	3	.2	8.9	.2	.3	5.1	36.1	63.5	96.9	(D)	.2	16.9
Nevada	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oklahoma	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	6	3	.2	4.4	.1	.3	2.9	19.4	19.6	39.4	.9	.2	17.4
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E1	12	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.4	(NA)	(D)
Utah	E7	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wyoming	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2874, PHOSPHATIC FERTILIZERS														
United States	–	**75**	**41**	**9.5**	**342.1**	**6.7**	**15.8**	**218.4**	**1 245.5**	**3 076.4**	**4 332.8**	**307.7**	**9.4**	**1 169.3**
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
California	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	15	13	5.9	211.7	4.1	10.1	131.7	681.2	1 859.5	2 527.9	218.9	5.1	712.2
Georgia	–	5	3	.2	4.4	.1	.3	2.9	24.4	37.0	62.2	.4	(NA)	(NA)
Idaho	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	9	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wyoming	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2875, FERTILIZERS, MIXING ONLY														
United States	–	**401**	**99**	**6.9**	**181.9**	**4.2**	**9.4**	**83.7**	**634.1**	**1 562.7**	**2 188.8**	**43.7**	**7.5**	**464.3**
Alabama	–	15	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	25	6	.5	14.5	.2	.5	5.0	37.8	60.7	99.0	1.9	E	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	42	17	1.0	23.7	.5	1.2	9.6	97.7	287.0	384.9	6.3	1.0	69.0
Georgia	E1	17	7	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	10.9
Hawaii	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	14	4	.2	4.6	.1	.2	2.2	8.5	33.6	42.4	(D)	(NA)	(D)
Indiana	E1	10	4	.2	3.9	.1	.2	1.6	13.5	28.0	42.1	.6	(NA)	(D)
Kentucky	–	7	3	.2	4.6	.1	.2	2.2	18.3	24.7	42.8	1.1	(NA)	(D)
Michigan	–	10	5	.2	6.8	.1	.3	2.2	14.2	32.9	47.8	.6	(NA)	(NA)
Missouri	–	13	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
New Jersey	–	10	2	.1	3.8	.1	.2	1.8	10.8	29.0	39.0	.5	(NA)	(NA)
North Carolina	E3	19	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	31	14	.9	23.3	.6	1.3	11.3	67.5	165.1	233.8	6.6	.7	27.9
Pennsylvania	–	13	2	.3	8.7	.1	.3	3.7	18.4	44.7	62.9	(D)	.5	40.1
South Carolina	E1	13	4	.3	6.8	.2	.4	3.8	28.7	45.0	75.0	(D)	(NA)	(NA)
Texas	–	26	5	.5	17.0	.4	.9	9.9	31.5	183.4	215.9	(D)	.4	18.8
Virginia	E2	9	2	.2	3.3	.1	.2	1.7	6.6	20.6	27.3	.4	E	(D)
Washington	E2	15	3	.3	9.3	.2	.4	5.2	21.7	121.5	127.1	2.4	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992											1987	
		All establishments		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.														
United States	**–**	**263**	**111**	**16.9**	**670.2**	**9.6**	**20.2**	**315.0**	**5 519.5**	**3 645.8**	**9 151.4**	**428.4**	**16.1**	**3 831.5**
Alabama	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
Arkansas	–	4	4	.4	8.9	.3	.5	5.1	90.4	68.1	167.1	3.7	(NA)	(D)
California	–	36	14	1.8	80.9	1.0	2.1	38.3	354.9	286.0	636.6	35.6	.7	165.1
Florida	–	8	3	.2	4.2	.1	.2	2.1	60.5	68.6	130.1	(D)	E	(D)
Georgia	–	15	7	.6	19.9	.3	.7	7.7	33.4	126.0	155.9	15.4	.6	93.8
Illinois	–	11	8	.4	14.9	.3	.6	7.9	91.9	146.8	240.1	(D)	.3	82.4
Iowa	–	8	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	202.5
Kansas	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	12	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Minnesota	–	9	2	.1	3.9	.1	.2	1.9	24.3	38.9	62.3	1.0	(NA)	(NA)
Missouri	–	18	9	2.7	106.7	1.2	2.7	34.9	1 143.4	519.4	1 634.4	(D)	(NA)	(D)
Nebraska	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	(NA)	(NA)
New York	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	8	5	.2	7.2	.1	.2	3.5	81.0	74.7	159.8	2.0	(NA)	(NA)
Ohio	–	8	4	.5	19.5	.3	.6	9.1	188.4	140.8	324.4	(D)	.5	189.9
Tennessee	E1	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	29.4
Texas	–	25	10	2.2	110.3	1.2	2.8	49.2	665.8	480.3	1 157.0	55.9	2.2	503.7
Virginia	–	3	3	.1	3.9	.1	.1	1.4	18.1	12.3	32.3	(D)	(NA)	(NA)
Washington	E4	9	4	.2	7.6	.1	.2	2.3	27.6	27.4	53.4	.8	(NA)	(NA)
West Virginia	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	G	(D)
Wisconsin	E2	6	4	.3	6.4	.1	.3	2.4	22.6	16.9	39.8	1.8	.2	16.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Nitrogenous fertilizers (SIC 2873)	Phosphatic fertilizers (SIC 2874)	Fertilizers, mixing only (SIC 2875)	Agricultural chemicals, n.e.c. (SIC 2879)
Companies	number	103	54	313	224
All establishments	number	152	75	401	263
With 1 to 19 employees	number	75	34	302	152
With 20 to 99 employees	number	54	20	90	82
With 100 employees or more	number	23	21	9	29
Employment and labor costs:					
Employees	1,000	7.0	9.5	6.9	16.9
Compensation, total	mil dol	320.2	443.5	219.7	867.4
Annual payroll	mil dol	257.6	342.1	181.9	670.2
Fringe benefits	mil dol	62.7	101.5	37.8	197.2
Social Security and other legally required payments	mil dol	25.7	36.7	17.4	61.3
Employer voluntary payments	mil dol	37.0	64.7	20.4	135.9
Production workers:					
Average for year	1,000	4.7	6.7	4.2	9.6
March	1,000	4.8	7.0	4.5	9.9
May	1,000	4.8	6.9	4.6	9.8
August	1,000	4.6	6.7	3.9	9.5
November	1,000	4.5	6.2	3.9	9.3
Hours	millions	10.1	15.8	9.4	20.2
Wages	mil dol	158.1	218.4	83.7	315.0
Cost of materials[1]	mil dol	1 871.7	3 076.4	1 562.7	3 645.8
Materials, parts, containers, etc., consumed[2]	mil dol	1 300.7	2 696.4	1 173.1	3 167.8
Resales	mil dol	125.0	212.2	350.3	205.9
Fuels	mil dol	281.3	52.3	14.1	82.3
Purchased electricity	mil dol	121.7	66.8	13.9	80.9
Contract work	mil dol	43.1	48.7	11.2	109.0
Quantity of electric energy used for heat and power:					
Purchased	mil kWh	3 241.7	1 648.9	288.9	1 745.0
Generated less sold	mil kWh	577.5	1 953.0	(D)	(D)
Total value of shipments	mil dol	3 174.6	4 332.8	2 188.8	9 151.4
Value added	mil dol	1 262.5	1 245.5	634.1	5 519.5

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nitrogenous fertilizers (SIC 2873)	Phosphatic fertilizers (SIC 2874)	Fertilizers, mixing only (SIC 2875)	Agricultural chemicals, n.e.c. (SIC 2879)
Inventories by stage of fabrication:				
Beginning of 1992—mil dol	420.2	403.0	264.9	1 092.3
Finished goods—mil dol	232.8	193.0	147.0	518.2
Work in process—mil dol	21.8	44.6	14.0	175.8
Materials and supplies—mil dol	165.6	165.4	103.8	398.3
End of 1992—mil dol	407.1	383.9	270.3	1 109.3
Finished goods—mil dol	194.0	181.0	157.0	491.2
Work in process—mil dol	20.2	45.7	12.1	216.8
Materials and supplies—mil dol	193.0	157.2	101.2	401.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nitrogenous fertilizers (SIC 2873)	Phosphatic fertilizers (SIC 2874)	Fertilizers, mixing only (SIC 2875)	Agricultural chemicals, n.e.c. (SIC 2879)
Gross book value of depreciable assets:				
Total:				
Beginning of year	2 695.2	2 944.0	596.1	4 402.5
New capital expenditures[1]	208.8	307.7	43.7	428.4
Used capital expenditures	(D)	(D)	2.4	3.7
Retirements	(D)	(D)	9.1	123.6
End of year	2 879.1	3 219.3	633.2	4 711.0
Buildings and other structures:				
Beginning of year	199.5	221.5	113.8	647.0
New capital expenditures	8.8	5.0	11.6	59.3
Used capital expenditures	(D)	(D)	.4	.3
Retirements	(D)	(D)	1.0	12.7
End of year	205.7	226.6	124.8	693.8
Machinery and equipment:				
Beginning of year	2 495.7	2 722.5	482.4	3 755.5
New capital expenditures[1]	200.0	302.7	32.1	369.1
Used capital expenditures	(D)	(D)	2.1	3.4
Retirements	(D)	(D)	8.1	110.9
End of year	2 673.4	2 992.7	508.4	4 017.2
Depreciation charges during 1992:				
Total	128.1	158.5	44.2	309.9
Buildings and other structures	13.5	11.3	6.7	32.7
Machinery and equipment	114.6	147.1	37.5	277.2
Rental payments:				
Total	19.4	21.2	15.9	34.1
Buildings and other structures	8.4	5.9	10.8	15.2
Machinery and equipment	11.0	15.3	5.1	19.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nitrogenous fertilizers (SIC 2873)		Phosphatic fertilizers (SIC 2874)		Fertilizers, mixing only (SIC 2875)		Agricultural chemicals, n.e.c. (SIC 2879)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	2.8	(X)	9.8	(X)	3.1	(X)	15.4	(X)
Response coverage ratio (percent)[2]	86.5	(X)	85.7	(X)	51.8	(X)	93.3	(X)
Machinery	81.7	(X)	89.3	(X)	19.3	(X)	106.5	(X)
Response coverage ratio (percent)[2]	93.0	(X)	88.7	(X)	53.5	(X)	86.7	(X)
Other purchased services:								
Communications	2.6	(X)	2.4	(X)	(S)	(X)	7.6	(X)
Response coverage ratio (percent)[2]	85.7	(X)	78.7	(X)	(S)	(X)	93.2	(X)
Legal	2.0	(X)	1.6	(X)	1.2	(X)	6.4	(X)
Response coverage ratio (percent)[2]	91.0	(X)	88.2	(X)	50.6	(X)	91.3	(X)
Accounting and bookkeeping	3.4	(X)	.4	(X)	5.2	(X)	2.4	(X)
Response coverage ratio (percent)[2]	88.3	(X)	85.2	(X)	51.9	(X)	91.3	(X)
Advertising	9.2	(X)	.2	(X)	(S)	(X)	20.9	(X)
Response coverage ratio (percent)[2]	89.3	(X)	85.7	(X)	(S)	(X)	87.0	(X)
Software and other data processing	.7	(X)	2.1	(X)	(S)	(X)	3.0	(X)
Response coverage ratio (percent)[2]	89.3	(X)	88.2	(X)	(S)	(X)	93.3	(X)
Refuse removal, including hazardous waste	1.8	(X)	1.3	(X)	.5	(X)	42.8	(X)
Response coverage ratio (percent)[2]	93.0	(X)	88.7	(X)	50.9	(X)	93.3	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nitrogenous fertilizers (SIC 2873)		Phosphatic fertilizers (SIC 2874)		Fertilizers, mixing only (SIC 2875)		Agricultural chemicals, n.e.c. (SIC 2879)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	200.0	(X)	302.7	(X)	32.1	(X)	369.1	(X)
Automobiles, trucks, etc., for highway use	1.3	10	.4	6	6.1	15	1.5	22
Computers and peripheral data processing equipment	2.9	3	2.4	1	1.0	9	13.5	3
All other	195.8	1	299.8	1	25.0	4	354.1	1
Adjustment ratio[3]	1.0	(X)	1.0	(X)	1.6	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	1 300.7	(X)	2 696.4	(X)	1 173.1	(X)	3 167.8	(X)
Materials purchased or transferred from foreign sources[4]	60.1	4	192.3	1	28.5	37	538.0	20
Materials purchased or transferred from domestic sources	1 240.6	1	2 504.2	1	1 144.7	1	2 629.7	5
Adjustment ratio[3]	1.2	(X)	1.5	(X)	1.8	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2873, NITROGENOUS FERTILIZERS												
Total	–	**152**	**7.0**	**257.6**	**4.7**	**10.1**	**158.1**	**1 262.5**	**1 871.7**	**3 174.6**	**208.8**	**407.1**
Establishments with an average of—												
1 to 4 employees	E5	41	.1	2.2	(Z)	.1	1.4	10.9	18.6	29.7	.7	4.6
5 to 9 employees	E6	19	.1	3.2	.1	.2	2.0	12.5	19.3	31.7	.7	5.5
10 to 19 employees	–	15	.2	5.2	.2	.4	3.5	15.8	20.2	36.5	2.0	5.8
20 to 49 employees	–	32	1.1	31.6	.8	1.7	22.1	118.0	281.8	411.5	7.2	65.4
50 to 99 employees	–	22	1.6	52.4	1.0	2.2	30.9	240.4	340.7	583.8	15.7	73.5
100 to 249 employees	–	21	3.9	162.9	2.5	5.5	98.3	865.0	1 191.0	2 081.3	182.4	252.4
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	35	.1	1.9	(Z)	.1	1.1	6.8	9.7	16.5	.4	2.2
INDUSTRY 2874, PHOSPHATIC FERTILIZERS												
Total	–	**75**	**9.5**	**342.1**	**6.7**	**15.8**	**218.4**	**1 245.5**	**3 076.4**	**4 332.8**	**307.7**	**383.9**
Establishments with an average of—												
1 to 4 employees	E9	11	(Z)	.4	(Z)	(Z)	.3	1.3	3.8	5.2	.2	.5
5 to 9 employees	E3	16	.1	2.8	.1	.2	1.8	11.6	22.6	34.5	.7	3.3
10 to 19 employees	E2	7	.1	2.2	.1	.1	1.5	13.3	11.4	25.0	.4	3.6
20 to 49 employees	–	15	.9	21.8	.6	1.3	14.3	134.4	522.5	661.5	4.0	41.6
50 to 99 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	(D)
100 to 249 employees	–	10	1.7	62.2	1.2	2.6	36.8	69.1	511.4	596.2	13.8	72.0
250 to 499 employees	–	6	2.2	87.8	1.7	3.8	63.7	434.2	798.1	1 233.9	126.0	90.5
500 to 999 employees	–	3	4.5	164.9	3.1	7.7	100.1	581.6	1 206.6	1 776.5	161.3	172.6
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	10	(Z)	.4	(Z)	(Z)	.3	1.2	3.5	4.8	.1	.5
INDUSTRY 2875, FERTILIZERS, MIXING ONLY												
Total	–	**401**	**6.9**	**181.9**	**4.2**	**9.4**	**83.7**	**634.1**	**1 562.7**	**2 188.8**	**43.7**	**270.3**
Establishments with an average of—												
1 to 4 employees	E5	109	.2	4.7	.2	.3	2.7	12.9	48.0	63.1	.6	7.6
5 to 9 employees	E2	96	.7	13.7	.4	.9	7.1	52.4	145.8	198.6	3.7	20.8
10 to 19 employees	E1	97	1.3	29.2	.8	1.7	14.5	122.0	338.4	461.1	7.2	48.2
20 to 49 employees	–	69	2.2	48.4	1.4	3.1	22.8	216.4	405.1	623.2	12.9	75.3
50 to 99 employees	–	21	1.3	41.9	.8	1.6	16.2	148.6	242.1	392.5	10.7	37.7
100 to 249 employees	–	9	1.3	44.0	.7	1.7	20.4	81.9	383.3	450.3	8.6	80.6
Covered by administrative records[2]	E9	73	.2	2.6	.1	.2	1.2	8.0	22.7	30.8	.3	3.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.												
Total	**–**	**263**	**16.9**	**670.2**	**9.6**	**20.2**	**315.0**	**5 519.5**	**3 645.8**	**9 151.4**	**428.4**	**1 109.3**
Establishments with an average of—												
1 to 4 employees	E6	71	.1	4.1	.1	.2	2.2	32.8	30.5	63.3	2.6	6.6
5 to 9 employees	E5	37	.2	6.9	.1	.3	3.6	50.5	37.4	88.0	3.9	16.1
10 to 19 employees	E1	44	.6	17.8	.4	.7	8.5	184.6	177.5	355.9	6.3	46.0
20 to 49 employees	–	51	1.8	48.7	1.0	2.2	21.9	370.9	414.7	796.4	19.3	110.0
50 to 99 employees	–	31	2.2	66.9	1.4	2.8	32.1	344.4	424.6	761.6	21.9	172.6
100 to 249 employees	–	14	2.2	79.4	1.3	2.6	30.8	517.5	538.0	1 051.4	21.8	140.2
250 to 499 employees	–	7	2.2	80.2	1.1	2.5	35.3	1 253.9	482.0	1 720.0	70.9	203.1
500 to 999 employees	–	4	2.5	123.7	1.6	3.4	71.3	1 276.4	613.8	1 874.2	122.6	144.0
1,000 to 2,499 employees	–	4	5.0	242.7	2.7	5.5	109.3	1 488.4	927.3	2 440.6	158.9	270.6
Covered by administrative records[2]	E9	53	.1	2.3	.1	.1	1.2	12.3	8.4	20.7	1.4	2.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2873	**Nitrogenous fertilizers:**										
	All establishments in industry	152	7.0	257.6	4.7	10.1	158.1	1 262.5	1 871.7	3 174.6	208.8
	Establishments with this product class primary:										
28731	Synthetic ammonia, nitric acid, and ammonium compounds	63	5.1	202.8	3.3	7.1	122.3	1 038.2	1 527.8	2 606.8	196.9
28732	Urea	7	.7	29.7	.5	1.0	18.2	142.3	234.0	375.3	7.7
28733	Fertilizer materials of organic origin	32	1.0	20.3	.8	1.7	14.8	64.5	84.6	149.7	3.1
2874	**Phosphatic fertilizers:**										
	All establishments in industry	75	9.5	342.1	6.7	15.8	218.4	1 245.5	3 076.4	4 332.8	307.7
	Establishments with this product class primary:										
28741	Phosphoric acid	9	2.9	111.4	2.0	4.9	72.9	343.6	833.2	1 175.2	61.5
28742	Superphosphate and other phosphatic fertilizer materials	20	5.4	195.3	3.9	9.1	125.0	796.4	2 029.6	2 818.3	237.1
28744	Mixed fertilizers	28	1.1	33.3	.8	1.6	19.3	100.0	197.5	317.7	8.5
2875	**Fertilizers, mixing only:**										
	All establishments in industry	401	6.9	181.9	4.2	9.4	83.7	634.1	1 562.7	2 188.8	43.7
2879	**Agricultural chemicals, n.e.c.:**										
	All establishments in industry	263	16.9	670.2	9.6	20.2	315.0	5 519.5	3 645.8	9 151.4	428.4
	Establishments with this product class primary:										
28795	Insecticidal preparations primarily for agricultural, garden, and health service use	33	3.9	165.2	2.0	4.2	67.8	883.6	758.4	1 623.4	60.5
28796	Herbicidal preparations primarily for agricultural, garden, and health service use	30	7.8	348.0	4.8	10.1	183.6	3 649.1	2 109.9	5 759.9	300.7
28797	Fungicidal preparations primarily for agricultural, garden, and health service use	15	.8	35.9	.4	.9	14.3	223.2	192.8	415.5	36.7
28798	Other pesticidal preparations and agricultural chemicals, n.e.c., primarily for agricultural use	24	.9	29.4	.5	1.0	12.2	233.0	208.9	446.0	5.3
28799	Household pesticidal preparations, including industrial exterminants	25	2.0	57.3	1.1	2.3	19.9	351.7	238.1	592.6	8.2

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2873, NITROGENOUS FERTILIZERS			
Total value of shipments	3 174.6	2 447.2	3 391.1
Primary products value of shipments	2 840.2	2 222.9	2 695.9
Secondary products value of shipments	186.0	157.3	366.9
Total miscellaneous receipts	148.4	67.0	328.2
Value of resales	145.6	57.3	321.6
Contract receipts	–	5.0	3.9
Other miscellaneous receipts	2.8	4.7	2.7
Primary products specialization ratio	94	93	88
Value of primary products shipments made in all industries	3 588.1	2 759.1	3 398.6
Value of primary products shipments made in this industry	2 840.2	2 222.9	2 695.9
Value of primary products shipments made in other industries	747.9	536.2	702.7
Coverage ratio	79	81	79
INDUSTRY 2874, PHOSPHATIC FERTILIZERS			
Total value of shipments	4 332.8	3 819.3	3 921.9
Primary products value of shipments	3 723.0	3 471.2	3 519.8
Secondary products value of shipments	362.4	300.1	224.8
Total miscellaneous receipts	247.4	48.0	177.3
Value of resales	223.1	45.1	175.3
Contract receipts	–	.6	.4
Other miscellaneous receipts	24.3	2.3	1.6
Sales of scrap and refuse	2.2	(NA)	(D)
Receipts for research and development	–	(NA)	–
Receipts for sold electricity	21.3	(NA)	(NA)
Other miscellaneous receipts	.7	(NA)	(D)
Other miscellaneous receipts, n.s.k.	.1	(NA)	(D)
Primary products specialization ratio	91	92	94
Value of primary products shipments made in all industries	4 049.4	3 609.0	3 742.0
Value of primary products shipments made in this industry	3 723.0	3 471.2	3 519.8
Value of primary products shipments made in other industries	326.4	137.8	222.2
Coverage ratio	92	96	94
INDUSTRY 2875, FERTILIZERS, MIXING ONLY			
Total value of shipments	2 188.8	1 701.1	1 903.4
Primary products value of shipments	1 727.6	1 290.2	1 440.3
Secondary products value of shipments	38.6	16.4	50.1
Total miscellaneous receipts	422.5	394.5	413.0
Value of resales	408.2	384.6	399.8
Contract receipts	7.5	5.2	6.4
Other miscellaneous receipts	6.9	4.7	6.8
Primary products specialization ratio	98	99	97
Value of primary products shipments made in all industries	1 781.5	1 370.6	1 528.9
Value of primary products shipments made in this industry	1 727.6	1 290.2	1 440.3
Value of primary products shipments made in other industries	53.9	80.4	88.6
Coverage ratio	97	94	94
INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.			
Total value of shipments	9 151.4	6 299.7	5 436.1
Primary products value of shipments	7 214.4	4 624.4	4 148.3
Secondary products value of shipments	1 538.7	1 390.3	966.7
Total miscellaneous receipts	398.2	285.0	321.1
Value of resales	288.3	164.4	242.4
Contract receipts	86.7	79.6	73.4
Other miscellaneous receipts	23.2	41.0	5.3
Primary products specialization ratio	82	77	81
Value of primary products shipments made in all industries	8 234.8	5 579.6	4 794.0
Value of primary products shipments made in this industry	7 214.4	4 624.4	4 148.3
Value of primary products shipments made in other industries	1 020.4	955.2	645.7
Coverage ratio	88	83	87

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2873– —	**NITROGENOUS FERTILIZERS**						
	Total	**(NA)**	**(X)**	**3 588.1**	**(NA)**	**(X)**	**2 759.1**
28731	Synthetic ammonia, nitric acid, and ammonium compounds	(NA)	(X)	2 689.8	(NA)	(X)	2 086.7
28731 00	Synthetic ammonia, nitric acid, and ammonium compounds[3]	71	(X)	2 689.8	76	(X)	2 086.7
28732	Urea	(NA)	(X)	708.8	(NA)	(X)	467.7
28732 00	Urea[3]	23	(X)	708.8	25	(X)	467.7
28733	Fertilizer materials of organic origin	(NA)	(X)	146.9	(NA)	(X)	74.3
28733 00	Fertilizer materials of organic origin, including activated sewage sludge, processed tankage, etc. (1,000 s tons)	28	(S)	146.9	15	*1 416.0	74.3
28730	Nitrogenous fertilizers, n.s.k.	(NA)	(X)	42.6	(NA)	(X)	130.4
28730 00	Nitrogenous fertilizers, n.s.k.[4]	(NA)	(X)	26.1	(NA)	(X)	85.5
28730 02	Nitrogenous fertilizers, n.s.k.[5]	(NA)	(X)	16.5	(NA)	(X)	44.9
2874– —	**PHOSPHATIC FERTILIZERS**						
	Total	**(NA)**	**(X)**	**4 049.4**	**(NA)**	**(X)**	**3 609.0**
28741	Phosphoric acid	(NA)	(X)	1 151.2	(NA)	(X)	1 164.9
28741 00	Phosphoric acid[3]	21	(X)	1 151.2	27	(X)	1 164.9
28742	Superphosphate and other phosphatic fertilizer materials	(NA)	(X)	2 534.3	(NA)	(X)	2 153.8
28742 00	Superphosphate and other phosphatic fertilizer materials[3]	28	(X)	2 534.3	26	(X)	2 153.8
28744	Mixed fertilizers[6]	(NA)	(X)	341.4	(NA)	(X)	256.6
28744 10	In packages, tablets, and similar forms of a gross weight not exceeding 10 kg (22 lb) (1,000 s tons)	4	(D)	(D)	2	(D)	(D)
	In bulk or in packages of a gross weight of 10 kg (22 lb) or more:						
28744 11	Dry, shipped in bulk[7] (1,000 s tons)	8	(D)	(D)	(NA)	(D)	(D)
28744 21	Dry, shipped in bags[7] (1,000 s tons)	9	443.9	87.9	(NA)	(D)	(D)
28744 31	Liquid[7] (1,000 s tons)	10	(S)	42.7	(NA)	(D)	(D)
28744 00	Mixed fertilizers, n.s.k.	(NA)	(X)	15.1	(NA)	(X)	67.8
28740	Phosphatic fertilizers, n.s.k.	(NA)	(X)	22.5	(NA)	(X)	33.7
28740 00	Phosphatic fertilizers, n.s.k.[8]	(NA)	(X)	17.8	(NA)	(X)	10.0
28740 02	Phosphatic fertilizers, n.s.k.[9]	(NA)	(X)	4.8	(NA)	(X)	23.7
2875– —	**FERTILIZERS, MIXING ONLY**						
	Total	**(NA)**	**(X)**	**1 781.5**	**(NA)**	**(X)**	**1 370.6**
28750	Mixed fertilizers, made by plants which do not manufacture fertilizer materials[6]	(NA)	(X)	1 781.5	(NA)	(X)	1 370.6
28750 10	In packages, tablets, and similar forms of a gross weight not exceeding 10 kg (22 lb) (1,000 s tons)	26	(D)	(D)	26	(S)	120.0
	In bulk or in packages of a gross weight of 10 kg or more:						
28750 11	Dry, shipped in bulk[7] (1,000 s tons)	92	(D)	(D)	(NA)	*3 627.2	668.5
28750 21	Dry, shipped in bags[7] (1,000 s tons)	86	(S)	531.2			
28750 31	Liquid[7] (1,000 s tons)	77	*1 916.3	277.9	(NA)	907.2	139.4
28750 00	Fertilizers, mixing only, n.s.k.[10]	(NA)	(X)	211.3	(NA)	(X)	380.7
28750 02	Fertilizers, mixing only, n.s.k.[11]	(NA)	(X)	30.8	(NA)	(X)	62.0
2879– —	**AGRICULTURAL CHEMICALS, N.E.C.**						
	Total	**(NA)**	**(X)**	**8 234.8**	**(NA)**	**(X)**	**5 579.6**
28795	Insecticidal preparations primarily for agricultural, garden, and health service use	(NA)	(X)	1 567.1	(NA)	(X)	1 169.6
28795 31	Carbamate insecticidal preparations (mil lb)	17	(S)	511.9	16	(S)	392.0
28795 41	Organo-phosphate insecticidal preparations (mil lb)	26	204.9	486.5	26	ʳ223.2	ʳ495.1
28795 61	Biological (botanical, bacterial, etc.) insecticidal preparations (mil lb)	12	(S)	66.1	11	(S)	33.2
28795 81	All other insecticidal preparations (mil lb)	22	175.0	304.2	(NA)	(NA)	229.4
28795 00	Insecticidal preparations primarily for agricultural, garden, and health service use, n.s.k.	(NA)	(X)	198.5	(NA)	(X)	19.9

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2879– –	**AGRICULTURAL CHEMICALS, N.E.C.**—Con.						
28796	Herbicidal preparations primarily for agricultural, garden, and health service use	(NA)	(X)	4 202.7	(NA)	(X)	2 713.5
28796 41	Phenoxy compound herbicidal preparations—mil lb	17	228.4	269.4	16	** ʳ227.5	ʳ216.8
28796 61	Urea herbicidal preparations—mil lb	6	(D)	(D)	7	22.8	101.9
28796 65	Triazine herbicidal preparations—mil lb	15	(S)	1 041.5	12	*227.7	607.6
28796 75	Benzoic herbicidal preparations—mil lb	5	(S)	68.8	4	10.7	34.8
28796 85	All other herbicidal preparations—mil lb	31	29 945.0	2 505.1	(NA)	(NA)	1 721.0
28796 00	Herbicidal preparations primarily for agricultural, garden, and health service use, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	31.4
28797	Fungicidal preparations primarily for agricultural, garden, and health service use	(NA)	(X)	699.6	(NA)	(X)	459.2
28797 21	Preparations containing inorganic compounds—mil lb	17	946.0	145.4	11	(S)	50.1
28797 51	Preparations containing organic compounds—mil lb	28	**189.3	537.3	18	*101.0	390.2
28797 00	Fungicidal preparations primarily for agricultural, garden, and health service use, n.s.k.	(NA)	(X)	16.8	(NA)	(X)	19.0
28798	Other pesticidal preparations and agricultural chemicals, n.e.c., primarily for agricultural use	(NA)	(X)	594.2	(NA)	(X)	283.0
	Fumigants:						
28798 12	Soil fumigants—mil lb	4	50.9	43.7	3	33.2	27.6
28798 18	All other fumigants, including space, excluding household—mil lb	1	(D)	(D)	4	13.3	25.7
28798 22	Defoliants and desiccants—mil lb	3	(D)	(D)	4	13.4	41.9
28798 85	All other pesticidal preparations and agricultural chemicals, n.e.c., primarily for agricultural and health service use	36	(X)	496.7	29	(X)	181.3
28798 00	Other pesticidal preparations and agricultural chemicals, n.e.c., primarily for agricultural use, n.s.k.	(NA)	(X)	20.4	(NA)	(X)	6.5
28799	Household pesticidal preparations, including industrial exterminants	(NA)	(X)	874.3	(NA)	(X)	635.5
	Insecticides for crawling insects, excluding fumigants:						
28799 12	Aerosols	21	(X)	268.8	17	(X)	155.7
28799 17	Nonaerosols	28	(X)	146.7	21	(X)	86.1
	Insecticides for flying insects, excluding fumigants:						
28799 21	Aerosols	15	(X)	84.4	15	(X)	167.4
28799 24	Nonaerosols	6	(X)	(D)	13	(X)	41.1
28799 30	Repellents and attractants for insects, birds, fish, and other animals, except for human and pet use	11	(X)	22.2	11	(X)	58.0
28799 40	Insect repellents for human use	6	(X)	(D)			
28799 45	Pet flea and tick products, including collars	16	(X)	133.9			
28799 71	Rodenticides	12	(X)	51.0	7	(X)	23.2
28799 86	Other household pesticidal preparations, n.e.c., including fumigants	12	(X)	81.8	10	(X)	53.5
28799 00	Household pesticidal preparations, including industrial exterminants, n.s.k.	(NA)	(X)	11.3	(NA)	(X)	50.5
28790	Agricultural chemicals, n.e.c., n.s.k.	(NA)	(X)	296.8	(NA)	(X)	318.7
28790 00	Agricultural chemicals, n.e.c., n.s.k.[4]	(NA)	(X)	277.1	(NA)	(X)	157.9
28790 02	Agricultural chemicals, n.e.c., n.s.k.[5]	(NA)	(X)	19.8	(NA)	(X)	160.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]This product class is primary to more than one industry.
[7]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.
[10]Typically for establishments with 5 employees or more.
[11]Typically for establishments with less than 5 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Mixed fertilizers	(NA)	(X)	2 122.9	(NA)	(X)	1 627.2
28744	Made by plants which manufacture fertilizer materials	(NA)	(X)	341.4	(NA)	(X)	256.6
28750	Made by plants which mix fertilizers from purchased materials	(NA)	(X)	1 781.5	(NA)	(X)	1 370.6
	In packages, tablets, and similar forms of a gross weight not exceeding 10 kg (22 lb) 1,000 s tons	(NA)	824.5	258.1	(NA)	(D)	(D)
28744 10	Made by plants which manufacture fertilizer materials 1,000 s tons	4	(D)	(D)	2	(D)	(D)
28750 10	Made by plants which mix fertilizers from purchased materials 1,000 s tons	26	(D)	(D)	26	(S)	120.0
	Dry, shipped in bulk 1,000 s tons	(NA)	**4 178.3	668.0	(NA)	(NA)	(NA)
28744 11	Made by plants which manufacture fertilizer materials[3] 1,000 s tons	8	(D)	(D)	(NA)	([3])	([3])
28750 11	Made by plants which mix fertilizers from purchased materials[3] 1,000 s tons	92	(D)	(D)	(NA)	[4] *3 627.2	[4]688.5
	Dry, shipped in bags 1,000 s tons	(NA)	(S)	619.1	(NA)	(NA)	(NA)
28744 21	Made by plants which manufacture fertilizer materials[3] 1,000 s tons	9	443.9	87.9	(NA)	([3])	([3])
28750 21	Made by plants which mix fertilizers from purchased materials[3] 1,000 s tons	86	(S)	531.2	(NA)	([4])	([4])
	Liquid 1,000 s tons	(NA)	*2 341.0	320.6	(NA)	(D)	(D)
28744 31	Made by plants which manufacture fertilizer materials[3] 1,000 s tons	10	(S)	42.7	(NA)	(D)	(D)
28750 31	Made by plants which mix fertilizers from purchased materials[3] 1,000 s tons	77	*1 916.3	277.9	(NA)	907.2	139.4
	Mixed fertilizers, n.s.k.	(NA)	(X)	257.1	(NA)	(X)	510.5
28744 00	Made by plants which manufacture fertilizer materials	(NA)	(X)	15.1	(NA)	(X)	67.8
28750 00	Made by plants which mix fertilizers from purchased materials	(NA)	(X)	211.3	(NA)	(X)	380.7
28750 02	Made by plants which mix fertilizers from purchased materials	(NA)	(X)	30.8	(NA)	(X)	62.0

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]For 1987, data for product code 28750 21 are included in the data for product code 28750 11.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28731, SYNTHETIC AMMONIA, NITRIC ACID, AND AMMONIUM COMPOUNDS		
United States	**2 689.8**	**2 086.7**
Arkansas	82.9	(NA)
California	58.4	73.8
Florida	136.4	(NA)
Georgia	126.6	(NA)
Iowa	97.4	61.6
Louisiana	543.3	554.4
Michigan	8.5	(NA)
Missouri	74.7	40.0
Nebraska	90.2	69.5
New Jersey	28.5	(NA)
Ohio	57.5	(NA)
Oklahoma	316.4	261.4
Texas	150.6	128.4
28732, UREA		
United States	**708.8**	**467.7**
Louisiana	233.6	165.3
Texas	19.3	(NA)
28733, FERTILIZER MATERIALS OF ORGANIC ORIGIN		
United States	**146.9**	**74.3**
California	20.2	17.4
New York	7.6	(NA)
Texas	20.2	(NA)
Virginia	6.6	(NA)
28741, PHOSPHORIC ACID		
United States	**1 151.2**	**1 164.9**
California	19.3	16.8
Florida	409.3	599.2
Louisiana	312.3	(NA)
28742, SUPERPHOSPHATE AND OTHER PHOSPHATIC FERTILIZER MATERIALS		
United States	**2 534.3**	**2 153.8**
Florida	1 665.4	1 430.3
28744, MIXED FERTILIZERS		
United States	**341.4**	**256.6**
Georgia	48.2	25.3
28795, INSECTICIDAL PREPARATIONS PRIMARILY FOR AGRICULTURAL, GARDEN, AND HEALTH SERVICE USE		
United States	**1 567.1**	**1 169.6**
California	205.7	(NA)
Georgia	46.8	(NA)
Iowa	9.6	27.9
Kansas	14.7	(NA)
Missouri	386.9	218.3
Ohio	19.1	(NA)
Texas	160.5	126.6
28796, HERBICIDAL PREPARATIONS PRIMARILY FOR AGRICULTURAL, GARDEN, AND HEALTH SERVICE USE		
United States	**4 202.7**	**2 713.5**
California	61.2	42.9
Illinois	180.8	(NA)
Missouri	912.5	537.2
Texas	211.3	161.3
28797, FUNGICIDAL PREPARATIONS PRIMARILY FOR AGRICULTURAL, GARDEN, AND HEALTH SERVICE USE		
United States	**699.6**	**459.2**
California	38.3	28.1
Missouri	75.6	40.9
28798, OTHER PESTICIDAL PREPARATIONS AND AGRICULTURAL CHEMICALS, N.E.C., PRIMARILY FOR AGRICULTURAL USE		
United States	**594.2**	**283.0**
California	52.2	30.2
28799, HOUSEHOLD PESTICIDAL PREPARATIONS, INCLUDING INDUSTRIAL EXTERMINANTS		
United States	**874.3**	**635.5**
Georgia	54.8	(NA)
Illinois	5.9	39.9
Missouri	141.8	64.1
New York	2.1	(NA)
Texas	111.2	34.4

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2873-	**Nitrogenous fertilizers**	**3 588.1**	**3 437.8**	**3 356.5**	**3 147.0**	**3 280.7**	**2 759.1**	**3 398.6**	**2 811.5**
28731	Synthetic ammonia, nitric acid, and ammonium compounds	2 689.8	2 571.9	2 515.4	2 394.8	2 474.6	2 086.7	2 745.6	2 300.8
28732	Urea	708.8	724.5	638.8	622.5	607.9	467.7	540.7	447.6
28733	Fertilizer materials of organic origin	146.9	87.9	83.7	72.3	81.7	74.3	30.0	29.5
28730	Nitrogenous fertilizers, n.s.k.	42.6	53.5	118.7	57.3	116.4	130.4	82.3	33.6
2874-	**Phosphatic fertilizers**	**4 049.4**	**4 571.6**	**4 462.0**	**4 284.5**	**4 149.5**	**3 609.0**	**3 742.0**	**2 552.6**
28741	Phosphoric acid	1 151.2	1 332.6	1 287.0	1 325.5	1 270.4	1 164.9	1 028.9	510.2
28742	Superphosphate and other phosphatic fertilizer materials	2 534.3	2 967.4	2 858.1	2 629.4	2 584.2	2 153.8	1 997.6	1 609.1
28744	Mixed fertilizers	341.4	235.2	269.7	294.2	260.9	256.6	708.6	429.3
28740	Phosphatic fertilizers, n.s.k.	22.5	36.3	47.3	35.4	34.0	33.7	6.8	3.9
2875-	**Fertilizers, mixing only**	**1 781.5**	**1 671.9**	**1 671.7**	**1 546.6**	**1 505.6**	**1 370.6**	**1 528.9**	**1 480.9**
28750	Mixed fertilizers, made by plants which do not manufacture fertilizer materials	1 781.5	1 671.9	1 671.7	1 546.6	1 505.6	1 370.6	1 528.9	1 480.9
2879-	**Agricultural chemicals, n.e.c.**	**8 234.8**	**7 447.9**	**7 280.4**	**7 276.7**	**6 359.5**	**5 579.6**	**4 794.0**	**2 704.0**
28795	Insecticidal preparations primarily for agricultural, garden, and health service use	1 567.1	1 443.9	1 402.9	1 469.2	1 367.6	1 169.6	966.2	828.2
28796	Herbicidal preparations primarily for agricultural, garden, and health service use	4 202.7	4 168.4	4 145.9	4 089.4	3 260.4	2 713.5	2 641.7	1 177.1
28797	Fungicidal preparations primarily for agricultural, garden, and health service use	699.6	515.3	453.0	494.2	468.6	459.2	348.6	196.9
28798	Other pesticidal preparations and agricultural chemicals, n.e.c., primarily for agricultural use	594.2	394.7	397.8	366.5	326.9	283.0	192.8	119.9
28799	Household pesticidal preparations, including industrial exterminants	874.3	616.1	583.2	589.2	615.5	635.5	468.2	227.8
28790	Agricultural chemicals, n.e.c., n.s.k.	296.8	309.5	297.7	268.4	320.4	318.7	176.4	154.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2873, NITROGENOUS FERTILIZERS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 300.7**	**(X)**	**973.8**
	Nitrogenous materials:				
287312	Ammonia, synthetic anhydrous (100 percent NH_3) 1,000 s tons	2 162.7	248.1	1 841.8	193.8
287319	Ammoniating or nitrogen solutions, including ammonium nitrate solutions, and mixtures containing urea (100 percent N) 1,000 s tons	(S)	12.2	(NA)	(NA)
287318	Ammonium nitrate (solid only) (100 percent NH_4NO_3) 1,000 s tons	(D)	(D)	(NA)	(NA)
287315	Ammonium sulfate (100 percent $(NH_4)_2SO_4$) 1,000 s tons	(D)	(D)	(D)	(D)
287322	Urea (solid only) (100 percent $CO(NH_2)_2$) 1,000 s tons	171.4	24.0	(NA)	(NA)
287317	Other nitrogenous materials including calcium cyanamide and limestone mixtures 1,000 s tons	*30.5	2.7	(NA)	(NA)
	Phosphatic materials:				
287422	Superphosphate - total used in mixed goods (100 percent P_2O_5) 1,000 s tons	(D)	(D)	(D)	(D)
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	1.9	.4	(D)	(D)
287429	Other phosphatic materials, including diammonium phosphate and monoammonium phosphate (100 percent P_2O_5) 1,000 s tons	(D)	(D)	(D)	(D)
	Potassic materials:				
147401	Muriate of potash (all grades) (60-62 percent K_2O) 1,000 s tons	(D)	(D)	(D)	(D)
147409	Other potassic materials, including potassium nitrate and sulfate 1,000 s tons	2.4	.7	(NA)	(NA)
190029	Inert fillers, secondary plant food, soil conditioners, sand, limestone, peat, nut hulls, etc. 1,000 s tons	(S)	6.5	(S)	25.0
281930	Sulfuric acid (new and spent) (100 percent H_2SO_4) 1,000 s tons	**40.6	1.8	(D)	(D)
147501	Phosphate rock 1,000 s tons	(D)	(D)	(D)	(D)
147901	Sulfur 1,000 l tons	(D)	(D)	(D)	(D)
131152	Natural gas used as a raw material, including feedstock and process heat bil cu ft	**342.7	625.5	289.5	462.9
267000	Bags, except textile, including shipping sacks, multiwall bags, and polyethylene liners	(X)	2.9	(X)	5.2
970099	All other materials and components, parts, containers, and supplies	(X)	216.0	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	109.5	(X)	98.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2874, PHOSPHATIC FERTILIZERS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 696.4**	**(X)**	**r2 415.4**
	Nitrogenous materials:				
287312	Ammonia, synthetic anhydrous (100 percent NH_3) 1,000 s tons	3 120.8	334.2	*2 298.7	249.5
287319	Ammoniating or nitrogen solutions, including ammonium nitrate solutions, and mixtures containing urea (100 percent N) 1,000 s tons	*38.9	6.1	(NA)	(3)
287318	Ammonium nitrate (solid only) (100 percent NH_4NO_3) 1,000 s tons	(D)	(D)	(NA)	(3)
287315	Ammonium sulfate (100 percent $(NH_4)_2SO_4$) 1,000 s tons	**51.4	3.9	(S)	2.1
287322	Urea (solid only) (100 percent $CO(NH_2)_2$) 1,000 s tons	74.5	11.3	(NA)	(3)
287317	Other nitrogenous materials including calcium cyanamide and limestone mixtures 1,000 s tons	(D)	(D)	(NA)	(3)
	Phosphatic materials:				
287422	Superphosphate - total used in mixed goods (100 percent P_2O_5) 1,000 s tons	37.7	6.6	*66.4	4.2
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	1 949.3	424.3	913.9	213.0
287429	Other phosphatic materials, including diammonium phosphate and monoammonium phosphate (100 percent P_2O_5) 1,000 s tons	249.9	36.4	9 211.6	17.2
	Potassic materials:				
147401	Muriate of potash (all grades) (60-62 percent K_2O) 1,000 s tons	157.8	15.1	192.6	14.6
147409	Other potassic materials, including potassium nitrate and sulfate 1,000 s tons	48.8	10.0	(NA)	(3)
190029	Inert fillers, secondary plant food, soil conditioners, sand, limestone, peat, nut hulls, etc. 1,000 s tons	*255.4	6.9	(S)	8.2
281930	Sulfuric acid (new and spent) (100 percent H_2SO_4) 1,000 s tons	3 402.1	115.7	*2 915.8	94.2
147501	Phosphate rock 1,000 s tons	33 960.4	753.7	*31 066.2	608.9
147901	Sulfur 1,000 l tons	8 473.9	709.6	*7 461.7	876.0
131152	Natural gas used as a raw material, including feedstock and process heat bil cu ft	(D)	(D)	**27.5	35.3
267000	Bags, except textile, including shipping sacks, multiwall bags, and polyethylene liners	(X)	4.6	(X)	5.0
970099	All other materials and components, parts, containers, and supplies	(X)	219.0	(X)	3191.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	29.4	(X)	r95.8
	INDUSTRY 2875, FERTILIZERS, MIXING ONLY				
	Materials, ingredients, containers, and supplies	**(X)**	**1 173.1**	**(X)**	**890.4**
	Nitrogenous materials:				
287312	Ammonia, synthetic anhydrous (100 percent NH_3) 1,000 s tons	339.4	39.6	*94.0	13.1
287319	Ammoniating or nitrogen solutions, including ammonium nitrate solutions, and mixtures containing urea (100 percent N) 1,000 s tons	*574.5	61.5	(NA)	(3)
287318	Ammonium nitrate (solid only) (100 percent NH_4NO_3) 1,000 s tons	232.0	30.0	(NA)	(3)
287315	Ammonium sulfate (100 percent $(NH_4)_2SO_4$) 1,000 s tons	*334.6	30.4	*400.9	28.2
287322	Urea (solid only) (100 percent $CO(NH_2)_2$) 1,000 s tons	376.4	60.0	(NA)	(3)
287317	Other nitrogenous materials including calcium cyanamide and limestone mixtures 1,000 s tons	95.9	16.8	(NA)	(3)
	Phosphatic materials:				
287422	Superphosphate - total used in mixed goods (100 percent P_2O_5) 1,000 s tons	*171.2	18.9	*308.9	27.9
287410	Phosphoric acid, except spent (100 percent P_2O_5) 1,000 s tons	171.2	49.4	145.5	36.1
287429	Other phosphatic materials, including diammonium phosphate and monoammonium phosphate (100 percent P_2O_5) 1,000 s tons	*345.4	59.3	4 240.1	81.2
	Potassic materials:				
147401	Muriate of potash (all grades) (60-62 percent K_2O) 1,000 s tons	*659.0	72.0	733.7	69.3
147409	Other potassic materials, including potassium nitrate and sulfate 1,000 s tons	193.8	34.4	(NA)	(3)
190029	Inert fillers, secondary plant food, soil conditioners, sand, limestone, peat, nut hulls, etc. 1,000 s tons	(S)	34.9	(S)	34.0
281930	Sulfuric acid (new and spent) (100 percent H_2SO_4) 1,000 s tons	*150.5	5.9	(S)	3.3
147501	Phosphate rock 1,000 s tons	(D)	(D)	(S)	.5
147901	Sulfur 1,000 l tons	(D)	(D)	21.7	2.7
131152	Natural gas used as a raw material, including feedstock and process heat bil cu ft	(D)	(D)	(NA)	(3)
267000	Bags, except textile, including shipping sacks, multiwall bags, and polyethylene liners	(X)	23.0	(X)	20.3
970099	All other materials and components, parts, containers, and supplies	(X)	302.9	(X)	3216.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	286.3	(X)	357.4
	INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 167.8**	**(X)**	**2 153.9**
	Solvents:				
291104	Petroleum distillates used as solvents mil lb	286.1	75.2	(S)	57.4
286926	Other synthetic organic chemical solvents mil lb	(S)	78.0	431.1	181.1
	Toxicants:				
286941	Synthetic organic pesticides and related synthetic organic agricultural chemicals mil lb	*350.9	758.3	**488.7	624.0
281907	Inorganic chemicals mil lb	479.9	192.5	(S)	91.6
284301	Surfactants	(X)	62.6	(X)	25.2
280008	All other organic and inorganic chemicals, n.e.c.	(X)	831.6	(X)	(3)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2879, AGRICULTURAL CHEMICALS, N.E.C.—Con.				
	Containers:				
308015	Plastics containers	(X)	87.6	(X)	58.6
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	72.4	(X)	55.1
340001	Metal containers	(X)	43.8	(X)	24.1
970099	All other materials and components, parts, containers, and supplies	(X)	772.0	(X)	[3]869.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	193.8	(X)	167.6

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, data for these material codes were not collected separately but were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
28241 15	28241 13
28241 15	28241 19
28241 15	28241 21
28241 15	28241 23
28241 15	28241 25
28241 24	28241 13
28241 24	28241 19
28241 24	28241 21
28241 24	28241 23
28241 24	28241 25
28241 29	28241 13
28241 29	28241 19
28241 29	28241 21
28241 29	28241 23
28241 29	28241 25
28241 45	28241 35
28241 45	28241 43
28242	28247
28242 61	28247 13
28242 61	28247 15
28242 61	28247 16
28242 61	28247 19
28242 63	28247 13
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28242 63	28247 16
28242 63	28247 19
28242 65	28247 13
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28242 66	28247 31
28242 66	28247 33
28242 69	28247 41
28244 15	28244 32
28244 15	28244 34
28244 15	28244 36
28244 15	28244 38
28244 15	28244 41
28244 29	28244 32
28244 29	28244 34
28244 29	28244 36
28244 29	28244 38
28244 29	28244 41
28244 42	28244 43
28244 42	28244 45
28244 44	28244 43
28244 44	28244 45
28248 75	28248 81
28248 79	28248 81
28249	28247
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28249 15	28247 15
28249 15	28247 16
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28249 17	28247 13
28249 17	28247 15
28249 17	28247 16
28249 17	28247 19
28249 19	28247 31
28249 19	28247 33
28249 19	28247 41
28333 44	28333 43
28333 44	28333 45
28333 92	28333 93
28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
28352 12	28352 10
28352 12	28352 15
28362 00	28362 10
28362 00	28362 20
28364 22	28364 20
28364 22	28364 25
28411 78	28411 62
28411 78	28411 73
28411 78	28411 79
28412 04	28412 07
28412 04	28412 08
28412 04	28412 15
28412 05	28412 07
28412 05	28412 15
28412 06	28412 18
28412 09	28412 12
28412 10	28412 12
28412 11	28412 15
28412 11	28412 18
28413 12	28413 11
28413 13	28413 11
28413 14	28413 11
28413 98	28413 22
28413 98	28413 97
28423 15	28423 95
28423 30	28423 95
28423 41	28423 45
28423 46	28423 45
28423 48	28423 47
28423 48	28423 49
28423 49	28423 42
28423 49	28423 95
28423 90	28423 95
28423 97	28423 95
28424 43	28424 42
28424 43	28424 44
28430 55	28430 35
28430 55	28430 65
28443 26	28443 25
28443 26	28443 27
28444 31	28444 95
28444 98	28444 71
28444 98	28444 95
28446	28445
28446 11	28445 02
28446 13	28445 03
28446 15	28445 04
28446 17	28445 05
28446 19	28445 05
28446 21	28445 08
28446 22	28445 09
28446 23	28445 16
28446 24	28445 17
28446 25	28445 18
28446 26	28445 19
28446 29	28445 19
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28447 15	28445 22
28447 21	28445 23
28447 25	28445 25
28447 25	28445 29
28447 31	28445 27
28447 35	28445 28
28447 41	28445 31
28447 45	28445 33
28447 51	28445 39
28447 55	28445 41
28447 61	28445 43
28447 65	28445 50
28447 71	28445 61
28447 75	28445 55
28447 81	28445 59
28447 85	28445 91
28447 95	28445 99
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28610 30	28612 96
28610 35	28612 98
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28610 40	28612 61
28610 40	28612 89
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28692 19	28695 27
28692 20	28695 11
28692 25	28695 25
28692 29	28695 27
28698	28695
28698 31	28695 31
28698 37	28695 37
28698 53	28695 53
28698 55	28695 55
28698 98	28695 98
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28744 11	28744 60
28744 21	28744 20
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28744 21	28744 60
28744 31	28744 30
28744 31	28744 50
28744 31	28744 70
28750 11	28750 20
28750 11	28750 40
28750 11	28750 60
28750 21	28750 20
28750 21	28750 40
28750 21	28750 60
28750 31	28750 30
28750 31	28750 50
28750 31	28750 70
28795 81	28795 20
28795 81	28795 21
28795 81	28795 79
28796 85	28796 25
28796 85	28796 51
28796 85	28796 71
28796 85	28796 81
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28799 17	28799 15
28799 30	28799 35
28799 40	28799 35
28799 45	28799 15
28799 45	28799 35
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28914 61	28914 98
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28916 25	28916 20
28916 25	28916 30
28916 25	28916 40
28917 46	28917 41
28917 46	28917 51
28917 46	28917 61
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28920 20	28920 21
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28920 24	28920 15
28920 24	28920 27
28920 54	28920 51
28920 54	28920 57
28931 17	28931 06
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28932 32	28932 33
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28995 16	28995 19
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

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28230 41	28230 45
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28247 15	28242 65
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28445 99	28447 95
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28612 96	28610 30
28612 98	28610 35
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28695 27	28692 19
28695 27	28692 29
28695 31	28698 31
28695 37	28698 37
28695 53	28698 53
28695 55	28698 55
28695 98	28698 98
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28744 20	28744 21
28744 30	28744 31
28744 40	28744 11
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28744 60	28744 11
28744 60	28744 21
28744 70	28744 31
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28795 20	28795 81
28795 21	28795 81
28795 79	28795 81
28796 25	28796 85
28796 51	28796 85
28796 71	28796 85
28796 81	28796 85
28798 30	28798 85
28798 83	28798 85
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28799 15	28799 45
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28799 35	28799 45
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28914 25	28914 24
28914 98	28914 61
28914 98	28914 99
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28916 30	28916 25
28916 40	28916 25
28917 41	28917 46
28917 51	28917 46
28917 61	28917 46
28920 13	28920 24
28920 15	28920 24
28920 19	28920 20
28920 21	28920 20
28920 27	28920 24
28920 51	28920 54
28920 57	28920 54
28931 06	28931 17
28931 19	28931 17
28932 33	28932 32
28932 34	28932 44
28932 34	28932 46
28932 38	28932 32
28932 45	28932 44
28932 45	28932 46
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28992 57	28992 59
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28995 14	28995 16
28995 15	28995 16
28995 19	28995 13
28995 19	28995 16
28995 35	28995 34
28995 36	28995 34
28995 40	28995 43
28995 42	28995 43
28995 45	28995 43
28995 55	28995 97
28995 69	28995 68
28995 70	28995 68
28995 71	28995 68
28995 82	28995 81
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28995 88	28995 86
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
2812100	MA28A, Inorganic Chemicals	2834200	MA28G, Pharmaceutical Preparations, Except Biologicals
2812300	MA28A, Inorganic Chemicals	2834300	MA28G, Pharmaceutical Preparations, Except Biologicals
2812500	MA28A, Inorganic Chemicals	2834400	MA28G, Pharmaceutical Preparations, Except Biologicals
2813200	MA28C, Industrial Gases	2834500	MA28G, Pharmaceutical Preparations, Except Biologicals
2813300	MA28C, Industrial Gases	2834600	MA28G, Pharmaceutical Preparations, Except Biologicals
2813500	MA28C, Industrial Gases	2834700	MA28G, Pharmaceutical Preparations, Except Biologicals
2813600	MA28C, Industrial Gases	2834800	MA28G, Pharmaceutical Preparations, Except Biologicals
2813700	MA28C, Industrial Gases	2834900	MA28G, Pharmaceutical Preparations, Except Biologicals
2816100	MA28A, Inorganic Chemicals	2842243	MA28A, Inorganic Chemicals
2816310	MA28A, Inorganic Chemicals	2842253	MA28A, Inorganic Chemicals
2819300	MA28B, Fertilizer Materials	2851100	MA28F, Paint, Varnish, and Lacquer
2819300	MA28A, Inorganic Chemicals	2851200	MA28F, Paint, Varnish, and Lacquer
2819400	MA28A, Inorganic Chemicals	2851300	MA28F, Paint, Varnish, and Lacquer
2819500	MA28A, Inorganic Chemicals	2851500	MA28F, Paint, Varnish, and Lacquer
2819600	MA28A, Inorganic Chemicals	2873100	MA28B, Fertilizer Materials
2819700	MA28A, Inorganic Chemicals	2873200	MA28B, Fertilizer Materials
2819800	MA28A, Inorganic Chemicals	2874100	MA28B, Fertilizer Materials
2819900	MA28A, Inorganic Chemicals	2874200	MA28B, Fertilizer Materials
2834100	MA28G, Pharmaceutical Preparations, Except Biologicals		

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:22 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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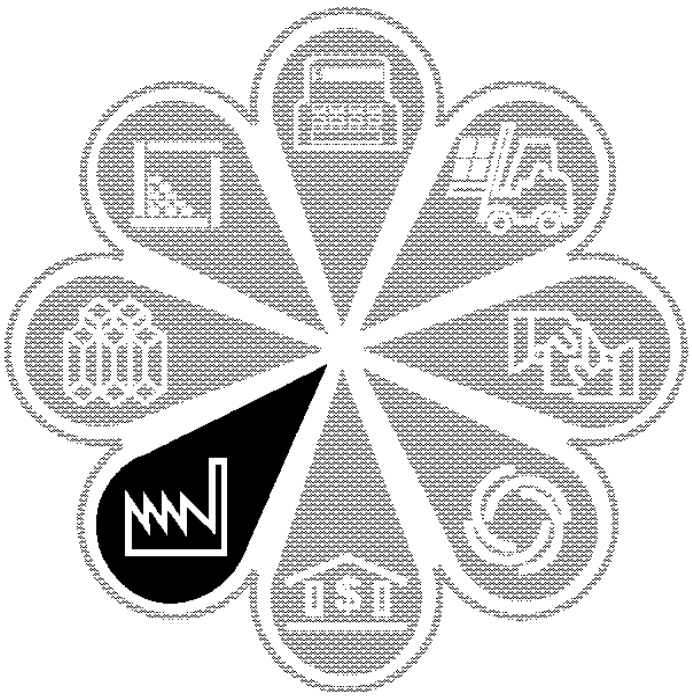
1992 Census of Manufactures

MC92-I-28H

INDUSTRY SERIES

Miscellaneous Chemical Products

Industries 2891, 2892, 2893, 2895, and 2899



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-28H

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

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Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
2891	Adhesives and Sealants
2892	Explosives
2893	Printing Ink
2895	Carbon Black
2899	Chemical Preparations, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2891, ADHESIVES AND SEALANTS

This industry is made up of establishments primarily engaged in manufacturing industrial and household adhesives; glues; caulking compounds; sealants; and linoleum, tile, and rubber cements from vegetable, animal, or synthetic plastics materials purchased or produced in the same establishment. Establishments primarily engaged in manufacturing gelatin and sizes are classified in industry 2899. Establishments primarily engaged in manufacturing vegetable gelatin or agar-agar are classified in industry 2833.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2891, Adhesives and Sealants, had employment of 21.1 thousand. The employment figure was 1 percent above the 20.9 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, New Jersey, and Ohio, accounting for approximately 40 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2891 shipped $4.8 billion of adhesives and sealants considered primary to the industry, $510.1 million of secondary products, and had $320.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 2891, no matter in what industry they were produced, appear in table 6a and aggregate to $5.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the adhesives and sealants industry amounted to $3.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 2892, EXPLOSIVES

This industry is made up of establishments primarily engaged in explosives. Establishments primarily engaged in manufacturing ammunition for small arms are classified in industry 3482. Establishments primarily engaged in manufacturing fireworks are classified in industry 2899.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2892, Explosives, had employment of 11.4 thousand. The employment figure was 17 percent below the 13.8 thousand reported in 1987. Compared with 1991, employment decreased 19 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Virginia, Tennessee, and California. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2892 shipped $855.7 million of explosives considered primary to the industry.

Establishments in this industry accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2892, no matter in what industry they were produced, appear in table 6a and aggregate to $892.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the explosives industry amounted to $402.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 2893, PRINTING INK

This industry is made up of establishments primarily engaged in manufacturing printing ink, including gravure ink, screen process ink, and lithographic ink. Establishments primarily engaged in manufacturing writing ink and fluids are classified in industry 2899. Establishments primarily engaged in manufacturing drawing ink are classified in industry 3952.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2893, Printing Ink, had employment of 12.3 thousand. The employment figure was 11 percent above the 11.1 thousand reported in 1987. Compared with 1991, employment increased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, and Ohio, accounting for approximately 30 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2893 shipped $2.9 billion of printing ink considered primary to the industry, $58.1 million of secondary products, and had $66.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 2893, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the printing ink industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 2895, CARBON BLACK

This industry is made up of establishments primarily engaged in manufacturing carbon black (channel and furnace black). Establishments primarily engaged in manufacturing bone and lamp black are classified in industry 2816.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2895, Carbon Black, had employment of 1.9 thousand. The employment figure was 6 percent above the 1.8 thousand reported in 1987.

The leading States in employment in 1992 were Texas and Louisiana, accounting for approximately 79 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 73 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $606.8 million.

The total cost of materials, services, and fuels and energy used by establishments classified in the carbon black industry amounted to $286.8 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing miscellaneous chemical preparations, not elsewhere classified, such as fatty acids, essential oils, gelatin (except vegetable), sizes, bluing, laundry sours, writing and stamp pad ink, industrial compounds, such as boiler and heat insulating compounds, metal, oil, and water treating compounds, waterproofing compounds, and chemical supplies for foundries. Establishments primarily engaged in manufacturing vegetable gelatin (agar-agar) are classified in industry 2833. Establishments primarily engaged in manufacturing dessert preparations based on gelatin are classified in industry 2099. Establishments primarily engaged in manufacturing printing ink are classified in industry 2893. Establishments primarily engaged in manufacturing drawing ink are classified in industry 3952.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2899, Chemical Preparations, N.E.C., had employment of 37.1 thousand. The employment figure was 2 percent below the 37.9 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Texas, and California, accounting for approximately 27 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 26 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $10.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2899 shipped $8.0 billion of chemical preparations, not elsewhere classified, considered primary to the industry, $1.4 billion of secondary products, and had $563.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 2899, no matter in what industry they were produced, appear in table 6a and aggregate to $9.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the chemical preparations, not elsewhere classified, industry amounted to $4.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 2891, ADHESIVES AND SEALANTS															
1992 Census	517	685	271	21.1	677.8	11.6	24.5	304.1	2 643.0	3 016.9	5 659.0	189.6	539.8	90	89
1991 ASM	(NA)	(NA)	(NA)	20.9	645.5	11.7	25.1	287.0	2 297.5	3 181.3	5 563.0	139.4	562.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.4	633.3	11.9	24.6	282.8	2 333.2	3 167.9	5 485.1	127.1	579.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.9	612.7	12.3	25.6	282.0	2 169.1	3 128.8	5 285.7	136.2	550.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.2	579.0	11.8	23.9	264.2	1 994.8	2 875.6	4 859.9	118.4	503.8	(NA)	(NA)
1987 Census	537	714	274	20.9	552.8	11.8	24.2	256.2	1 996.1	2 694.8	4 678.1	111.7	475.8	91	88
1986 ASM	(NA)	(NA)	(NA)	19.3	441.8	11.6	22.4	211.6	1 596.4	2 233.3	3 838.3	82.8	398.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.4	420.6	11.4	22.1	204.7	1 528.7	2 147.4	3 672.0	74.3	380.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.5	415.8	11.4	22.3	199.3	1 428.5	2 075.0	3 488.2	55.8	383.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	18.2	384.5	10.8	20.9	184.7	1 209.0	1 909.8	3 118.5	42.0	362.3	(NA)	(NA)
1982 Census	518	684	234	18.2	366.0	10.9	20.7	173.2	1 151.4	1 699.9	2 857.9	70.1	362.6	90	84
1981 ASM	(NA)	(NA)	(NA)	17.0	310.6	10.3	20.0	146.8	1 188.4	1 545.9	2 707.8	73.7	314.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.8	279.1	9.5	19.1	128.0	1 046.1	1 325.3	2 353.9	78.1	263.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.8	292.7	10.1	20.1	122.9	1 043.2	1 313.1	2 340.2	62.9	238.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.8	249.4	10.2	20.3	119.0	865.4	1 132.1	1 980.1	54.4	221.8	(NA)	(NA)
1977 Census	403	572	212	16.6	230.2	10.2	20.5	113.5	748.8	1 067.1	1 808.1	38.9	201.8	89	81
INDUSTRY 2892, EXPLOSIVES															
1992 Census	65	123	50	11.4	338.6	7.5	13.4	198.7	851.7	402.1	1 252.0	31.7	116.8	(D)	96
1991 ASM	(NA)	(NA)	(NA)	14.0	401.2	9.2	16.9	231.6	1 020.8	573.7	1 572.4	84.3	179.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.8	380.2	9.4	17.6	230.6	874.4	454.1	1 324.6	43.6	137.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.2	342.8	8.9	17.3	205.0	775.6	383.4	1 151.0	49.3	120.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.6	359.1	9.1	17.7	210.6	764.3	361.6	1 128.4	26.8	124.8	(NA)	(NA)
1987 Census	77	132	45	13.8	349.2	9.2	17.9	204.9	758.4	362.6	1 117.8	22.6	129.0	99	94
1986 ASM	(NA)	(NA)	(NA)	13.0	331.8	8.5	16.0	185.3	667.7	351.7	1 020.3	32.2	122.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.2	325.4	8.8	16.6	184.7	740.8	379.5	1 110.7	48.4	121.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.3	307.3	8.9	17.5	183.1	756.1	392.9	1 135.7	34.9	120.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.0	266.9	7.9	14.9	156.0	612.7	308.9	919.7	22.0	135.1	(NA)	(NA)
1982 Census	73	114	45	12.3	253.3	7.9	15.1	144.1	580.7	340.8	922.7	32.9	101.1	91	96
1981 ASM	(NA)	(NA)	(NA)	12.0	223.8	7.9	15.5	131.8	589.9	406.6	995.0	30.7	78.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.5	221.3	8.9	18.1	139.8	574.0	354.4	927.0	39.3	69.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.2	178.4	7.9	15.2	107.4	480.3	347.1	819.7	24.5	72.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.8	179.3	8.0	15.3	106.9	433.7	271.6	696.5	25.2	71.0	(NA)	(NA)
1977 Census	62	97	53	12.3	173.2	8.4	16.1	101.4	410.7	258.3	666.3	26.1	59.8	86	95
INDUSTRY 2893, PRINTING INK															
1992 Census	220	519	214	12.3	407.4	6.5	13.1	185.0	1 114.0	1 973.0	3 075.1	46.0	346.4	98	96
1991 ASM	(NA)	(NA)	(NA)	10.8	358.1	5.9	12.5	161.5	1 032.9	1 761.7	2 825.7	29.2	267.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.4	354.4	6.2	12.9	163.0	1 035.7	1 727.2	2 754.4	44.3	311.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.3	356.8	6.3	13.1	165.2	1 038.5	1 602.5	2 637.2	46.6	308.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.1	336.7	6.4	13.5	174.3	947.9	1 511.8	2 447.2	32.7	282.5	(NA)	(NA)
1987 Census	224	504	185	11.1	310.9	6.2	13.0	152.9	985.1	1 410.5	2 391.7	37.8	251.1	98	97
1986 ASM	(NA)	(NA)	(NA)	9.9	271.7	5.7	12.0	136.0	753.0	1 293.3	2 036.0	39.7	231.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.5	250.2	5.4	11.2	126.1	664.3	1 163.6	1 827.5	38.2	210.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.8	239.2	5.8	11.8	120.8	643.4	1 185.5	1 821.4	33.3	227.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.8	222.5	5.4	11.4	105.4	602.9	1 064.3	1 665.8	24.0	196.8	(NA)	(NA)
1982 Census	228	467	153	9.9	214.1	5.5	11.0	101.9	557.5	1 016.2	1 572.6	25.5	196.9	98	97
1981 ASM	(NA)	(NA)	(NA)	9.9	198.7	5.8	11.9	99.9	467.5	976.9	1 435.7	32.9	164.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	179.8	5.8	11.8	90.8	448.2	846.0	1 285.8	22.0	143.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.5	174.9	6.1	12.4	87.3	438.1	734.9	1 164.6	20.9	142.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.5	161.2	6.0	11.7	77.0	420.9	633.0	1 045.4	21.6	127.1	(NA)	(NA)
1977 Census	205	446	157	10.1	145.1	5.8	11.4	71.6	367.8	583.5	944.9	17.0	116.7	97	97
INDUSTRY 2895, CARBON BLACK															
1992 Census	9	23	20	1.9	73.7	1.2	2.7	46.1	320.4	286.8	606.8	28.7	64.9	100	100
1991 ASM	(NA)	(NA)	(NA)	2.0	72.0	1.2	2.8	48.1	315.0	282.7	604.3	53.3	65.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	1.8	70.1	1.2	2.7	46.8	380.0	316.3	691.9	60.1	69.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	1.9	71.1	1.3	2.7	46.8	318.7	325.8	640.3	50.6	61.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	1.8	67.4	1.3	3.0	48.1	330.8	284.0	615.7	49.0	58.7	(NA)	(NA)
1987 Census	7	22	21	1.8	64.7	1.4	3.0	46.2	272.6	306.8	569.6	39.2	57.6	100	100
1986 ASM	(NA)	(NA)	(NA)	1.8	63.1	1.3	3.0	44.8	243.9	315.3	570.2	23.2	44.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	1.9	60.8	1.4	3.1	44.0	288.8	425.3	715.0	40.3	60.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	1.9	63.1	1.5	3.2	45.6	312.4	505.6	804.5	46.2	70.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	2.0	57.1	1.4	3.1	41.4	170.3	440.8	623.9	27.3	51.5	(NA)	(NA)
1982 Census	8	25	24	2.1	54.9	1.6	3.0	39.1	190.8	433.7	632.9	39.4	80.4	100	95
1981 ASM	(NA)	(NA)	(NA)	2.3	54.9	1.7	3.4	39.5	202.1	528.6	721.1	54.7	51.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	2.3	52.5	1.7	3.6	37.7	131.9	363.7	498.0	27.7	45.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	2.4	49.7	1.9	4.3	37.6	186.8	367.9	547.3	42.2	42.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	2.4	44.8	1.9	4.2	33.8	171.8	313.8	490.4	27.7	27.6	(NA)	(NA)
1977 Census	8	31	31	2.5	42.5	2.0	4.6	32.5	170.2	303.9	468.4	22.7	32.7	100	95
INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.															
1992 Census	1 303	1 486	419	37.1	1 227.7	21.4	44.0	599.1	5 063.4	4 933.0	9 965.8	441.1	1 220.6	85	84
1991 ASM	(NA)	(NA)	(NA)	39.4	1 201.6	22.5	46.8	577.8	4 764.9	4 418.4	9 175.9	453.4	1 133.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	40.9	1 205.0	23.9	49.3	596.9	4 907.2	4 540.4	9 418.0	352.2	1 151.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	39.1	1 094.5	23.2	48.5	552.4	4 548.7	4 376.7	8 838.3	341.3	1 080.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	37.0	1 040.7	21.8	44.6	540.0	4 537.9	4 248.6	8 726.6	258.6	1 016.4	(NA)	(NA)
1987 Census	1 366	1 531	407	37.9	1 020.9	22.4	46.2	522.3	4 261.4	3 768.2	8 025.0	234.3	908.0	83	85
1986 ASM	(NA)	(NA)	(NA)	38.0	963.5	22.5	47.4	506.2	3 777.3	3 662.8	7 448.4	327.0	896.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	39.3	955.4	23.4	48.6	495.5	3 521.0	3 685.7	7 192.4	303.2	885.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	39.6	911.7	23.3	48.7	480.4	3 605.0	3 827.2	7 375.0	273.8	919.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	38.3	817.5	22.5	45.9	423.7	3 080.3	3 408.6	6 498.5	174.7	840.2	(NA)	(NA)
1982 Census	1 245	1 443	410	39.7	836.8	23.1	46.8	430.2	2 952.2	3 356.8	6 344.3	351.3	873.4	85	84
1981 ASM	(NA)	(NA)	(NA)	35.4	679.5	21.6	43.5	362.9	3 025.6	3 439.0	6 411.7	305.1	704.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	34.7	599.8	19.7	40.7	297.1	2 470.5	3 207.3	5 653.7	231.7	618.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	36.8	613.1	23.0	46.4	327.0	2 550.1	2 898.3	5 410.9	216.4	608.3	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	37.5	563.8	21.6	43.5	283.5	2 183.2	2 450.9	4 571.4	167.4	557.2	(NA)	(NA)
1977 Census	1 479	1 639	384	35.3	483.4	20.7	41.5	242.0	1 841.7	2 122.5	3 950.6	182.6	456.5	87	77

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2891, ADHESIVES AND SEALANTS								
1992 Census	32 123	55	2 112	12.41	53	65	125 261	26	107.88
1991 ASM	30 885	56	2 145	11.43	57	69	109 928	28	91.53
1990 ASM	29 593	56	2 067	11.50	58	69	109 028	27	94.85
1989 ASM	27 977	56	2 081	11.02	59	71	99 046	28	84.73
1988 ASM	27 311	56	2 025	11.05	59	71	94 094	29	83.46
1987 Census	26 450	56	2 051	10.59	58	69	95 507	28	82.48
1986 ASM	22 891	60	1 931	9.45	58	70	82 715	28	71.27
1985 ASM	22 859	62	1 939	9.26	58	70	83 082	28	69.17
1984 ASM	22 476	62	1 956	8.94	59	71	77 216	29	64.06
1983 ASM	21 126	59	1 935	8.84	61	74	66 429	32	57.85
1982 Census	20 110	60	1 899	8.37	59	72	63 264	32	55.62
1981 ASM	18 271	61	1 942	7.34	57	69	69 906	26	59.42
1980 ASM	16 613	57	2 011	6.70	56	68	62 268	27	54.77
1979 ASM	16 444	57	1 990	6.11	56	69	58 607	28	51.90
1978 ASM	14 845	61	1 990	5.86	57	70	51 512	29	42.63
1977 Census	13 867	61	2 010	5.54	59	72	45 108	31	36.53
	INDUSTRY 2892, EXPLOSIVES								
1992 Census	29 702	66	1 787	14.83	32	59	74 711	40	63.56
1991 ASM	28 657	66	1 837	13.70	36	62	72 914	39	60.40
1990 ASM	27 551	68	1 872	13.10	34	63	63 362	43	49.68
1989 ASM	25 970	67	1 944	11.85	33	63	58 758	44	44.83
1988 ASM	26 404	67	1 945	11.90	32	64	56 199	47	43.18
1987 Census	25 304	67	1 946	11.45	32	64	54 957	46	42.37
1986 ASM	25 523	65	1 882	11.58	34	67	51 362	50	41.73
1985 ASM	24 652	67	1 886	11.13	34	63	56 121	44	44.63
1984 ASM	23 105	67	1 966	10.46	35	62	56 850	41	43.21
1983 ASM	22 242	66	1 886	10.47	34	63	51 058	44	41.12
1982 Census	20 593	64	1 911	9.54	37	64	47 211	44	38.46
1981 ASM	18 650	66	1 962	8.50	41	63	49 158	38	38.06
1980 ASM	17 704	71	2 034	7.72	38	62	45 920	39	31.71
1979 ASM	15 929	71	1 924	7.07	42	64	42 884	37	31.60
1978 ASM	15 195	68	1 913	6.99	39	65	36 754	41	28.35
1977 Census	14 081	68	1 917	6.30	39	65	33 390	42	25.51
	INDUSTRY 2893, PRINTING INK								
1992 Census	33 122	53	2 015	14.12	64	77	90 569	37	85.04
1991 ASM	33 157	55	2 119	12.92	62	75	95 639	35	82.63
1990 ASM	31 088	54	2 081	12.64	63	76	90 851	34	80.29
1989 ASM	31 575	56	2 079	12.61	61	74	91 903	34	79.27
1988 ASM	30 333	58	2 109	12.91	62	76	85 396	36	70.21
1987 Census	28 009	56	2 097	11.76	59	72	88 748	32	75.78
1986 ASM	27 444	58	2 105	11.33	64	77	76 061	36	62.75
1985 ASM	26 337	57	2 074	11.26	64	77	69 926	38	59.31
1984 ASM	24 408	59	2 034	10.24	65	78	65 653	37	54.53
1983 ASM	22 704	55	2 111	9.25	64	77	61 520	37	52.89
1982 Census	21 626	56	2 000	9.26	65	78	56 313	38	50.68
1981 ASM	20 071	59	2 052	8.39	68	82	47 222	43	39.29
1980 ASM	18 536	60	2 034	7.69	66	80	46 206	40	37.98
1979 ASM	16 657	58	2 033	7.04	63	78	41 724	40	35.33
1978 ASM	15 352	57	1 950	6.58	61	76	40 086	38	35.97
1977 Census	14 366	57	1 966	6.28	62	77	36 416	39	32.26

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2895, CARBON BLACK								
1992 Census	38 789	63	2 250	17.07	47	59	168 632	23	118.67
1991 ASM	36 000	60	2 333	17.18	47	59	157 500	23	112.50
1990 ASM	38 944	67	2 250	17.33	46	56	211 111	18	140.74
1989 ASM	37 421	68	2 077	17.33	51	62	167 737	22	118.04
1988 ASM	37 444	72	2 308	16.03	46	57	183 778	20	110.27
1987 Census	35 944	78	2 143	15.40	54	65	151 444	24	90.87
1986 ASM	35 056	72	2 308	14.93	55	66	135 500	26	81.30
1985 ASM	32 000	74	2 214	14.19	59	68	152 000	21	93.16
1984 ASM	33 211	79	2 133	14.25	63	71	164 421	20	97.63
1983 ASM	28 550	70	2 214	13.35	71	80	85 150	34	54.94
1982 Census	26 143	76	1 875	13.03	69	77	90 857	29	63.60
1981 ASM	23 870	74	2 000	11.62	73	81	87 870	27	59.44
1980 ASM	22 826	74	2 118	10.47	73	84	57 348	40	36.64
1979 ASM	20 708	79	2 263	8.74	67	76	77 833	27	43.44
1978 ASM	18 667	79	2 211	8.05	64	73	71 583	26	40.90
1977 Census	17 000	80	2 300	7.07	65	74	68 080	25	37.00
	INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.								
1992 Census	33 092	58	2 056	13.62	49	62	136 480	24	115.08
1991 ASM	30 497	57	2 080	12.35	48	61	120 937	25	101.81
1990 ASM	29 462	58	2 063	12.11	48	61	119 980	25	99.54
1989 ASM	27 992	59	2 091	11.39	50	62	116 335	24	93.79
1988 ASM	28 127	59	2 046	12.11	49	61	122 646	23	101.75
1987 Census	26 937	59	2 063	11.31	47	60	112 438	24	92.24
1986 ASM	25 355	59	2 107	10.68	49	62	99 403	26	79.69
1985 ASM	24 310	60	2 077	10.20	51	65	89 593	27	72.45
1984 ASM	23 023	59	2 090	9.86	52	64	91 035	25	74.02
1983 ASM	21 345	59	2 040	9.23	52	65	80 426	27	67.11
1982 Census	21 078	58	2 026	9.19	53	66	74 363	28	63.08
1981 ASM	19 195	61	2 014	8.34	54	64	85 469	22	69.55
1980 ASM	17 285	57	2 066	7.30	57	67	71 196	24	60.70
1979 ASM	16 660	63	2 017	7.05	54	65	69 296	24	54.96
1978 ASM	15 035	58	2 014	6.52	54	66	58 219	26	50.19
1977 Census	13 694	59	2 005	5.83	54	66	52 173	26	44.38

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2891, ADHESIVES AND SEALANTS														
United States	–	**685**	**271**	**21.1**	**677.8**	**11.6**	**24.5**	**304.1**	**2 643.0**	**3 016.9**	**5 659.0**	**189.6**	**20.9**	**1 996.1**
California	–	75	30	2.1	68.0	1.0	2.2	30.6	202.6	196.9	400.9	8.9	G	(D)
Connecticut	–	13	6	1.5	42.8	.6	1.2	10.6	82.4	72.8	155.8	(D)	F	(D)
Florida	E2	20	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	15.6
Georgia	–	38	14	.7	22.7	.4	.8	10.5	124.4	138.8	262.9	5.0	F	(D)
Illinois	–	48	23	1.7	53.9	1.0	2.2	27.3	273.0	329.5	598.9	10.7	1.6	178.4
Indiana	–	19	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	E	(D)
Kansas	–	9	2	.1	4.0	.1	.1	1.8	9.8	15.2	25.3	.3	(NA)	(NA)
Kentucky	–	9	6	.8	26.4	.5	1.2	17.1	134.6	261.6	400.7	27.2	F	(D)
Maryland	–	8	5	.6	20.0	.3	.7	10.6	69.9	38.4	109.7	(D)	.6	76.3
Massachusetts	E1	24	10	.6	21.9	.3	.7	9.1	54.0	60.1	114.1	1.8	1.3	85.1
Michigan	E2	36	15	1.3	48.4	.7	1.6	21.9	162.4	172.0	337.1	6.7	1.1	119.8
Minnesota	–	10	4	.2	5.6	.1	.2	2.8	36.6	38.0	74.5	.6	(NA)	(D)
Missouri	E1	22	12	1.2	34.0	.7	1.5	16.0	145.1	135.5	285.0	18.4	.9	101.1
New Hampshire	–	6	3	.3	8.2	.2	.3	4.5	24.1	23.0	46.7	(D)	E	(D)
New Jersey	E1	53	25	1.5	52.9	.9	1.9	24.5	199.9	258.3	457.0	11.2	1.6	180.0
New York	E1	29	10	.8	21.1	.5	.9	8.7	89.3	85.8	173.9	3.4	G	(D)
North Carolina	–	20	7	.4	14.6	.3	.5	6.7	67.9	96.1	164.3	4.8	E	(D)
Ohio	–	53	27	3.1	106.0	1.5	3.1	40.1	411.5	408.6	817.2	16.8	3.0	284.5
Oklahoma	E4	6	3	.2	5.0	.1	.2	3.0	31.4	32.3	59.7	(D)	(NA)	(NA)
Oregon	E1	11	3	.2	8.3	.1	.3	3.8	35.3	64.9	99.6	1.4	.2	23.4
Pennsylvania	–	40	10	.7	24.0	.4	.8	11.6	110.4	122.0	231.0	4.9	.7	76.2
South Carolina	–	4	3	.1	4.3	.1	.1	2.1	17.1	23.0	39.6	(D)	.2	16.0
Tennessee	–	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	.3	28.3
Texas	–	38	15	.7	21.0	.4	.8	8.1	99.0	109.1	207.8	5.4	.7	66.3
Virginia	E3	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:39 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:28H_92.DAT;1 5/ 9/95 16:49:18 UTF:28H_93.DAT;2 5/10/95 13:36:49 META:TIPS96-13381756.DAT;1 5/10/95 13:38:50

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2891, ADHESIVES AND SEALANTS—Con.														
Washington	E1	14	5	.2	7.8	.1	.2	3.1	34.7	28.4	62.5	(D)	.2	15.7
West Virginia	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	19	5	.3	8.7	.2	.4	4.1	38.6	56.4	94.7	(D)	.4	42.8
INDUSTRY 2892, EXPLOSIVES														
United States	**–**	**123**	**50**	**11.4**	**338.6**	**7.5**	**13.4**	**198.7**	**851.7**	**402.1**	**1 252.0**	**31.7**	**13.8**	**758.4**
Alabama	E2	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	11	8	1.0	23.4	.7	1.2	14.7	46.4	38.6	87.2	(D)	G	(D)
Connecticut	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	7	2	.3	6.0	.2	.5	4.6	36.2	15.1	50.2	(D)	.3	37.9
Kansas	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	E1	12	4	.3	8.6	.2	.4	5.3	42.5	34.4	76.4	(D)	(NA)	(D)
Minnesota	E9	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	5	3	.4	12.0	.3	.6	7.0	27.8	22.7	50.2	1.9	F	(D)
Tennessee	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	14	4	.4	9.6	.2	.4	5.3	31.5	29.6	58.3	2.7	E	(D)
Utah	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	2	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 2893, PRINTING INK														
United States	**E1**	**519**	**214**	**12.3**	**407.4**	**6.5**	**13.1**	**185.0**	**1 114.0**	**1 973.0**	**3 075.1**	**46.0**	**11.1**	**985.1**
California	E1	50	27	1.3	44.1	.6	1.3	19.9	96.5	173.2	268.6	(D)	G	(D)
Connecticut	E2	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Florida	E1	19	2	.2	6.8	.1	.2	2.9	18.2	39.0	57.1	.6	(NA)	(D)
Georgia	E3	22	10	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	47	23	1.5	51.7	.8	1.5	24.1	144.5	235.1	377.9	(D)	1.7	144.3
Indiana	–	7	5	.3	10.7	.2	.4	5.6	3.9	205.0	208.2	(D)	.3	35.0
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	7	3	.1	5.0	.1	.2	2.5	21.2	40.9	62.8	(D)	(NA)	(NA)
Louisiana	E5	8	1	.1	3.0	.1	.1	1.4	8.4	13.8	22.2	.5	(NA)	(NA)
Maryland	–	12	4	.3	9.7	.2	.3	3.7	20.3	41.5	61.2	(D)	.2	16.1
Massachusetts	E1	15	5	.3	8.0	.2	.3	3.9	14.3	29.4	43.8	.6	.2	16.6
Michigan	–	11	5	.2	6.1	.1	.2	2.8	20.8	40.6	61.4	1.0	(NA)	(D)
Minnesota	E1	10	7	.4	16.1	.3	.5	8.4	38.7	56.9	95.1	1.4	.3	25.7
Missouri	–	19	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	33.3
New Jersey	E1	39	20	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	15	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	21	9	.6	21.3	.3	.7	8.5	56.6	65.5	120.8	1.8	F	(D)
Ohio	E2	42	13	.9	29.5	.5	.9	12.5	95.3	103.7	197.8	(D)	F	(D)
Oregon	E1	8	4	.2	6.4	.1	.2	2.7	16.7	20.7	37.0	.7	(NA)	(NA)
Pennsylvania	E1	21	7	.4	13.0	.2	.4	6.3	29.4	59.0	89.5	.9	F	(D)
South Carolina	–	7	4	.2	4.0	.1	.2	1.8	11.7	53.6	65.8	(D)	(NA)	(NA)
Tennessee	E2	21	4	.3	8.8	.2	.3	3.9	24.8	54.7	79.5	(D)	(NA)	(D)
Texas	E2	26	11	.4	15.1	.2	.5	6.4	50.3	77.0	126.1	2.1	E	(D)
Virginia	–	16	7	.4	13.9	.2	.3	3.9	40.7	70.4	110.9	2.0	E	(D)
Washington	E2	5	4	.1	3.7	.1	.1	1.9	9.7	13.0	22.7	(D)	(NA)	(NA)
Wisconsin	E1	24	10	.4	14.0	.3	.5	7.2	46.5	65.3	110.9	(D)	E	(D)
INDUSTRY 2895, CARBON BLACK														
United States	**–**	**23**	**20**	**1.9**	**73.7**	**1.2**	**2.7**	**46.1**	**320.4**	**286.8**	**606.8**	**28.7**	**1.8**	**272.6**
Louisiana	–	5	5	.7	26.6	.4	.9	16.5	106.4	98.9	206.1	(D)	.6	101.7
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	8	8	.8	28.1	.5	1.2	19.0	114.6	109.8	223.3	7.8	.7	86.6
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:39 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:28H_92.DAT;1 5/ 9/95 16:49:18 UTF:28H_93.DAT;2 5/10/95 13:36:49 META:TIPS96-13381756.DAT;1 5/10/95 13:38:50

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.														
United States	**E1**	**1 486**	**419**	**37.1**	**1 227.7**	**21.4**	**44.0**	**599.1**	**5 063.4**	**4 933.0**	**9 965.8**	**441.1**	**37.9**	**4 261.4**
Alabama	–	18	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	G	(D)
Arizona	E2	17	6	.2	8.6	.1	.2	2.3	38.6	17.4	56.0	1.0	.2	12.7
Arkansas	E7	8	2	.2	7.5	.1	.3	3.7	30.0	27.9	57.5	2.0	.2	24.0
California	E2	167	36	2.9	91.3	1.8	3.7	46.4	367.5	287.1	654.0	21.8	2.7	286.0
Colorado	E5	17	2	.2	7.4	.1	.2	3.7	7.4	7.1	14.5	.9	(NA)	(NA)
Connecticut	E3	21	7	.6	22.6	.2	.5	6.1	52.0	51.9	103.8	3.1	.6	62.8
Florida	E1	54	10	.8	22.6	.4	.8	8.8	77.0	83.9	161.0	4.2	.5	40.5
Georgia	–	42	10	1.0	31.8	.7	1.4	18.1	162.3	208.3	373.3	6.4	F	(D)
Illinois	–	97	37	2.7	102.6	1.4	2.9	46.9	624.0	587.1	1 209.1	35.9	2.7	568.9
Indiana	E3	41	7	.6	16.0	.3	.6	6.2	77.4	79.4	156.4	5.6	E	(D)
Iowa	E4	11	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	13	8	.7	20.9	.5	1.0	11.7	86.9	74.7	160.2	6.3	.8	67.0
Kentucky	E3	10	3	.3	6.0	.2	.3	3.0	21.9	20.5	42.5	.8	(NA)	(D)
Louisiana	–	22	6	.6	23.1	.4	.9	13.2	56.5	106.0	147.4	(D)	.5	51.6
Maryland	E2	18	7	.4	9.8	.3	.5	5.6	26.4	19.4	46.0	2.0	E	(D)
Massachusetts	E2	28	13	1.7	67.3	1.0	2.0	28.4	176.7	158.0	326.7	18.1	1.2	110.5
Michigan	E1	60	25	2.3	83.1	1.2	2.7	40.8	310.3	291.1	605.4	17.0	2.6	291.3
Minnesota	–	28	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	12	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E2	29	9	.6	18.2	.3	.6	7.4	108.9	61.0	169.6	3.8	F	(D)
New Hampshire	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(NA)	(NA)
New Jersey	E2	85	28	2.0	61.6	1.1	2.3	27.7	267.8	236.3	504.2	6.0	3.3	366.9
New Mexico	E1	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	5.2
New York	E2	67	24	1.9	61.8	1.1	2.3	32.9	180.0	188.0	369.7	15.8	2.4	278.2
North Carolina	E1	48	6	.6	19.0	.3	.5	6.4	68.5	78.7	146.5	5.4	1.0	66.5
Ohio	–	101	37	3.7	130.8	2.0	4.2	62.3	452.7	480.5	932.6	72.5	3.8	353.2
Oklahoma	E3	20	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	.2	11.7
Oregon	–	16	2	.1	4.5	.1	.2	2.7	23.7	26.4	49.8	1.0	.2	21.6
Pennsylvania	–	81	22	1.4	48.5	.8	1.7	23.8	142.7	222.6	365.2	16.9	2.1	173.1
Rhode Island	E2	13	3	.2	4.8	.1	.2	2.1	13.4	28.9	41.9	(D)	(NA)	(D)
South Carolina	–	19	7	1.0	37.3	.6	1.4	20.5	141.1	97.8	237.1	10.9	.9	75.3
Tennessee	–	24	8	1.3	35.3	.8	1.4	18.8	94.6	121.5	216.4	8.7	.8	43.6
Texas	–	157	36	3.3	93.9	1.9	4.1	49.2	648.7	496.9	1 149.3	24.7	3.3	352.6
Utah	E1	16	4	.3	8.9	.2	.5	5.2	28.9	26.2	59.2	3.7	.3	26.5
Virginia	–	16	5	.5	11.8	.3	.7	7.3	36.3	63.7	99.8	2.4	(NA)	(NA)
Washington	E1	23	7	.3	8.8	.1	.3	3.1	37.7	61.4	88.5	1.3	(NA)	(NA)
Wisconsin	–	35	11	.7	20.3	.3	.7	7.7	71.1	92.4	163.5	3.5	.9	73.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Adhesives and sealants (SIC 2891)	Explosives (SIC 2892)	Printing ink (SIC 2893)	Carbon black (SIC 2895)	Chemical preparations, n.e.c. (SIC 2899)
Companies	number	517	65	220	9	1 303
All establishments	number	685	123	519	23	1 486
With 1 to 19 employees	number	414	73	305	3	1 067
With 20 to 99 employees	number	230	31	204	13	338
With 100 employees or more	number	41	19	10	7	81
Employment and labor costs:						
Employees	1,000	21.1	11.4	12.3	1.9	37.1
Compensation, total	mil dol	851.8	452.6	507.8	93.6	1 557.8
Annual payroll	mil dol	677.8	338.6	407.4	73.7	1 227.7
Fringe benefits	mil dol	174.0	114.0	100.4	19.9	330.1
Social Security and other legally required payments	mil dol	67.6	35.7	38.2	6.6	152.9
Employer voluntary payments	mil dol	106.4	78.3	62.2	13.2	177.3
Production workers:						
Average for year	1,000	11.6	7.5	6.5	1.2	21.4
March	1,000	11.7	7.6	6.6	1.2	21.5
May	1,000	11.8	7.7	6.5	1.2	21.6
August	1,000	11.8	7.5	6.6	1.2	21.5
November	1,000	11.3	7.1	6.2	1.2	21.1
Hours	millions	24.5	13.4	13.1	2.7	44.0
Wages	mil dol	304.1	198.7	185.0	46.1	599.1

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/10/95 1:39 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:28H_92.DAT;1 5/ 9/95 16:49:18 UTF:28H_93.DAT;2 5/10/95 13:36:49 META:TIPS96-13381756.DAT;1 5/10/95 13:38:50

Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Adhesives and sealants (SIC 2891)	Explosives (SIC 2892)	Printing ink (SIC 2893)	Carbon black (SIC 2895)	Chemical preparations, n.e.c. (SIC 2899)
Cost of materials[1] ---- mil dol	3 016.9	402.1	1 973.0	286.8	4 933.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	2 715.8	303.2	1 901.5	244.4	4 379.5
Resales ---- mil dol	204.7	44.9	45.4	–	289.9
Fuels ---- mil dol	23.8	21.3	6.8	14.4	111.3
Purchased electricity ---- mil dol	46.0	15.0	18.8	22.5	102.6
Contract work ---- mil dol	26.6	17.8	.6	5.4	49.7
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	739.2	325.7	267.2	513.1	1 843.3
Generated less sold ---- mil kWh	(D)	(D)	5.4	68.3	161.2
Total value of shipments ---- mil dol	5 659.0	1 252.0	3 075.1	606.8	9 965.8
Value added ---- mil dol	2 643.0	851.7	1 114.0	320.4	5 063.4
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	539.9	114.1	334.6	65.2	1 169.1
Finished goods ---- mil dol	257.7	40.0	151.9	39.8	557.0
Work in process ---- mil dol	50.4	29.5	19.7	(Z)	192.2
Materials and supplies ---- mil dol	231.9	44.6	163.1	25.4	419.9
End of 1992 ---- mil dol	539.8	116.8	346.4	64.9	1 220.6
Finished goods ---- mil dol	263.7	44.1	166.3	40.1	576.9
Work in process ---- mil dol	45.3	27.3	17.1	(Z)	202.9
Materials and supplies ---- mil dol	230.8	45.5	162.9	24.8	440.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Adhesives and sealants (SIC 2891)	Explosives (SIC 2892)	Printing ink (SIC 2893)	Carbon black (SIC 2895)	Chemical preparations, n.e.c. (SIC 2899)
Gross book value of depreciable assets:					
Total:					
Beginning of year	1 529.6	340.1	491.3	607.8	3 836.2
New capital expenditures[1]	189.6	31.7	46.0	28.7	441.1
Used capital expenditures	8.9	5.4	2.2	–	29.9
Retirements	43.4	5.9	12.4	8.2	82.9
End of year	1 684.7	371.2	527.1	628.3	4 224.3
Buildings and other structures:					
Beginning of year	439.5	97.8	124.7	83.5	916.9
New capital expenditures	43.1	7.8	(D)	(D)	58.8
Used capital expenditures	2.4	2.7	.8	–	2.7
Retirements	5.7	.5	(D)	(D)	19.7
End of year	479.4	107.8	128.8	85.4	958.8
Machinery and equipment:					
Beginning of year	1 090.1	242.2	366.6	524.3	2 919.2
New capital expenditures[1]	146.5	23.9	(D)	(D)	382.4
Used capital expenditures	6.4	2.7	1.4	–	27.2
Retirements	37.7	5.4	(D)	(D)	63.3
End of year	1 205.3	263.4	398.3	542.8	3 265.5
Depreciation charges during 1992:					
Total	92.2	24.6	38.5	37.4	264.4
Buildings and other structures	21.1	4.6	6.0	2.2	44.2
Machinery and equipment	71.1	20.0	32.5	35.2	220.2
Rental payments:					
Total	30.6	6.1	22.5	2.2	50.8
Buildings and other structures	13.4	2.6	11.0	.4	21.2
Machinery and equipment	17.2	3.5	11.4	1.8	29.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Adhesives and sealants (SIC 2891)		Explosives (SIC 2892)		Printing ink (SIC 2893)		Carbon black (SIC 2895)		Chemical preparations, n.e.c. (SIC 2899)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	5.9	(X)	2.8	(X)	3.1	(X)	.9	(X)	14.2	(X)
Response coverage ratio (percent)[2]	74.0	(X)	88.1	(X)	90.9	(X)	75.3	(X)	65.8	(X)
Machinery	39.4	(X)	6.5	(X)	10.9	(X)	15.0	(X)	87.7	(X)
Response coverage ratio (percent)[2]	81.1	(X)	97.9	(X)	93.4	(X)	75.3	(X)	69.5	(X)
Other purchased services:										
Communications	12.2	(X)	2.9	(X)	6.4	(X)	.6	(X)	17.6	(X)
Response coverage ratio (percent)[2]	77.7	(X)	68.3	(X)	88.8	(X)	75.3	(X)	68.8	(X)
Legal	5.6	(X)	3.7	(X)	2.3	(X)	(Z)	(X)	9.9	(X)
Response coverage ratio (percent)[2]	76.7	(X)	88.1	(X)	91.7	(X)	75.3	(X)	66.9	(X)
Accounting and bookkeeping	3.9	(X)	17.7	(X)	2.1	(X)	–	(X)	4.9	(X)
Response coverage ratio (percent)[2]	74.7	(X)	97.9	(X)	92.3	(X)	75.3	(X)	69.7	(X)
Advertising	21.1	(X)	.5	(X)	2.8	(X)	(Z)	(X)	16.5	(X)
Response coverage ratio (percent)[2]	78.7	(X)	88.1	(X)	93.1	(X)	75.3	(X)	69.6	(X)
Software and other data processing	2.8	(X)	1.3	(X)	1.0	(X)	1.5	(X)	7.1	(X)
Response coverage ratio (percent)[2]	77.2	(X)	97.9	(X)	87.0	(X)	75.3	(X)	64.1	(X)
Refuse removal, including hazardous waste	18.8	(X)	2.1	(X)	7.7	(X)	1.0	(X)	35.0	(X)
Response coverage ratio (percent)[2]	81.1	(X)	88.1	(X)	91.4	(X)	75.3	(X)	66.6	(X)
New machinery and equipment expenditures	146.5	(X)	23.9	(X)	(D)	(X)	(D)	(X)	382.4	(X)
Automobiles, trucks, etc., for highway use	1.2	27	1.9	87	2.1	43	–	(X)	1.1	33
Computers and peripheral data processing equipment	5.5	5	1.0	48	5.1	48	.4	11	4.3	18
All other	112.0	1	21.0	10	30.8	7	25.9	1	229.8	1
Adjustment ratio[3]	1.1	(X)	.6	(X)	1.1	(X)	1.1	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	2 715.8	(X)	303.2	(X)	1 901.5	(X)	244.4	(X)	4 379.5	(X)
Materials purchased or transferred from foreign sources[4]	128.2	13	5.4	32	59.8	23	–	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	2 587.6	1	297.9	1	1 841.6	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.6	(X)	.9	(X)	2.0	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2891, ADHESIVES AND SEALANTS												
Total	**–**	**685**	**21.1**	**677.8**	**11.6**	**24.5**	**304.1**	**2 643.0**	**3 016.9**	**5 659.0**	**189.6**	**539.8**
Establishments with an average of–												
1 to 4 employees	E7	183	.4	10.1	.2	.4	4.3	36.9	47.9	84.7	1.5	9.0
5 to 9 employees	E2	122	.8	21.6	.5	1.0	10.2	76.0	112.0	187.7	2.5	16.9
10 to 19 employees	–	109	1.6	43.3	.9	1.8	18.0	165.9	223.0	388.8	37.9	36.2
20 to 49 employees	E1	162	5.3	166.1	2.9	6.1	74.4	712.8	846.9	1 556.9	28.3	146.5
50 to 99 employees	–	68	4.7	151.1	2.7	5.6	69.5	606.8	794.8	1 395.4	31.1	133.2
100 to 249 employees	–	33	5.0	170.0	3.0	6.5	87.9	755.3	673.4	1 431.4	42.0	137.7
250 to 499 employees	–	6	3.4	115.8	1.5	3.1	39.7	289.2	319.1	614.2	46.3	60.3
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	179	.4	9.1	.3	.5	3.9	31.4	39.9	71.4	1.7	7.5
INDUSTRY 2892, EXPLOSIVES												
Total	**–**	**123**	**11.4**	**338.6**	**7.5**	**13.4**	**198.7**	**851.7**	**402.1**	**1 252.0**	**31.7**	**116.8**
Establishments with an average of–												
1 to 4 employees	–	28	.1	1.7	(Z)	.1	1.1	12.5	13.7	26.2	.1	.9
5 to 9 employees	–	20	.1	3.2	.1	.2	2.1	23.5	25.2	48.6	.2	2.9
10 to 19 employees	E1	25	.4	9.0	.2	.4	4.8	44.8	50.3	94.6	3.1	11.2
20 to 49 employees	E5	18	.6	17.2	.4	.8	10.0	83.6	36.2	119.6	1.6	8.6
50 to 99 employees	–	13	.9	26.8	.6	1.2	14.6	78.3	28.9	106.6	1.8	11.8
100 to 249 employees	–	7	1.0	24.5	.7	1.5	16.7	73.6	44.4	113.8	2.6	22.0
250 to 499 employees	–	8	2.8	79.2	2.0	3.6	51.4	171.4	144.1	320.4	22.2	48.1
500 to 999 employees	–	3	5.5	177.0	3.4	5.7	98.1	364.1	59.3	422.3	(D)	11.3
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(D)
Covered by administrative records[2]	E9	17	.1	1.3	(Z)	.1	.8	2.4	.9	3.3	.1	.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2893, PRINTING INK												
Total	**E1**	**519**	**12.3**	**407.4**	**6.5**	**13.1**	**185.0**	**1 114.0**	**1 973.0**	**3 075.1**	**46.0**	**346.4**
Establishments with an average of—												
1 to 4 employees	E4	60	.1	4.3	.1	.1	1.8	5.6	39.6	45.4	.5	4.5
5 to 9 employees	E3	96	.6	19.0	.3	.6	8.0	69.1	102.0	170.2	1.8	18.4
10 to 19 employees	E1	149	2.1	65.2	1.1	2.2	29.3	190.8	297.4	486.3	6.9	49.9
20 to 49 employees	E1	155	4.7	156.3	2.4	5.0	67.9	444.2	867.8	1 304.9	17.3	154.7
50 to 99 employees	–	49	3.4	116.7	1.8	3.6	52.8	290.5	440.1	731.2	15.1	86.7
100 to 249 employees	–	10	1.3	46.0	.8	1.6	25.2	113.8	226.1	337.0	4.4	32.3
Covered by administrative records[2]	E9	41	.1	3.1	.1	.1	1.2	7.2	12.9	20.1	.3	2.5
INDUSTRY 2895, CARBON BLACK												
Total	**–**	**23**	**1.9**	**73.7**	**1.2**	**2.7**	**46.1**	**320.4**	**286.8**	**606.8**	**28.7**	**64.9**
Establishments with an average of—												
1 to 4 employees	E7	2	.1	4.2	.1	.2	1.7	19.9	16.9	36.7	.9	3.0
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	11	.8	30.5	.5	1.3	20.6	124.0	129.6	251.4	13.2	30.8
100 to 249 employees	–	7	1.1	39.0	.6	1.3	23.8	176.4	140.3	318.7	14.6	31.1
INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.												
Total	**E1**	**1 487**	**37.2**	**1 231.5**	**21.4**	**44.0**	**600.6**	**5 060.0**	**4 923.6**	**9 952.6**	**441.7**	**1 218.4**
Establishments with an average of—												
1 to 4 employees	E6	525	.8	22.3	.6	1.1	11.2	100.1	90.2	190.4	5.1	22.7
5 to 9 employees	E2	282	1.9	49.4	1.1	2.1	24.8	218.6	190.7	412.9	8.8	39.7
10 to 19 employees	–	260	3.6	107.5	1.9	3.9	47.3	477.7	460.2	934.9	17.8	108.1
20 to 49 employees	E1	237	7.1	226.7	3.7	7.5	90.9	862.4	934.8	1 788.4	49.1	214.4
50 to 99 employees	E1	103	7.2	228.6	4.1	8.2	102.9	1 007.3	1 012.2	2 017.7	46.1	231.3
100 to 249 employees	E1	66	10.1	355.8	6.0	12.6	183.2	1 524.3	1 430.4	2 930.9	190.2	349.3
250 to 499 employees	E1	10	3.2	105.4	2.0	4.1	60.1	364.5	397.6	767.5	124.7	113.3
500 to 999 employees	–	4	3.2	136.0	2.1	4.4	80.2	505.0	407.5	909.9	(D)	139.6
Covered by administrative records[2]	E9	488	1.1	20.9	.7	1.4	10.4	80.0	71.6	151.6	5.3	18.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2891	**Adhesives and sealants:**										
	All establishments in industry	685	21.1	677.8	11.6	24.5	304.1	2 643.0	3 016.9	5 659.0	189.6
	Establishments with this product class primary:										
28913	Natural base glues and adhesives	20	.5	17.1	.3	.6	6.7	54.0	64.7	117.7	1.3
28914	Synthetic resin and rubber adhesives, including all types of bonding and laminating adhesives	295	13.7	453.3	7.4	15.8	201.8	1 813.1	2 021.1	3 824.9	101.7
28916	Structural sealants (load bearing)	13	1.1	34.0	.7	1.5	17.5	140.7	260.5	407.2	19.2
28917	Nonstructural caulking compounds and sealants	70	3.6	112.2	2.0	4.1	51.0	367.3	384.3	757.1	29.0
2892	**Explosives:**										
	All establishments in industry	123	11.4	338.6	7.5	13.4	198.7	851.7	402.1	1 252.0	31.7
2893	**Printing ink:**										
	All establishments in industry	519	12.3	407.4	6.5	13.1	185.0	1 114.0	1 973.0	3 075.1	46.0
	Establishments with this product class primary:										
28931	Letterpress inks	13	.3	10.4	.1	.3	3.6	43.8	60.5	103.6	.7
28932	Lithographic and offset inks	239	6.3	213.8	3.5	7.2	105.7	563.1	1 003.3	1 559.8	20.4
28933	Gravure inks	35	1.1	40.5	.6	1.2	15.5	90.1	333.5	422.5	7.5
28934	Flexographic inks	88	2.2	69.2	1.2	2.3	32.2	215.2	309.7	520.8	9.2
28935	Printing inks, n.e.c.	27	1.0	32.2	.4	.9	11.7	99.9	97.7	199.0	3.6
2895	**Carbon black:**										
	All establishments in industry	23	1.9	73.7	1.2	2.7	46.1	320.4	286.8	606.8	28.7

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2899	**Chemical preparations, n.e.c.:**										
	All establishments in industry	1 486	37.1	1 227.7	21.4	44.0	599.1	5 063.4	4 933.0	9 965.8	441.1
	Establishments with this product class primary:										
28991	Evaporated salt	31	3.4	114.0	2.6	5.7	80.1	387.3	149.0	537.0	40.9
28992	Fatty acids (produced for sale as such)	7	1.6	65.2	.9	1.8	34.4	203.6	318.5	521.0	81.1
28994	Gelatin, except ready-to-eat desserts	9	1.4	53.0	1.0	2.0	34.7	167.0	143.2	297.1	25.9
28995	Chemical preparations, n.e.c., including essential oils, automotive chemicals, and water treating compounds	705	25.0	846.8	13.5	27.4	376.2	3 732.3	3 806.2	7 523.3	265.2

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2891, ADHESIVES AND SEALANTS			
Total value of shipments	5 659.0	4 678.1	2 857.9
Primary products value of shipments	4 828.2	3 982.1	2 450.0
Secondary products value of shipments	510.1	390.4	286.1
Total miscellaneous receipts	320.6	305.6	121.8
Value of resales	276.2	276.7	112.9
Contract receipts	17.8	19.9	4.1
Other miscellaneous receipts	26.5	9.1	4.8
Primary products specialization ratio	90	91	90
Value of primary products shipments made in all industries	5 399.1	4 550.4	2 903.0
Value of primary products shipments made in this industry	4 828.2	3 982.1	2 450.0
Value of primary products shipments made in other industries	570.9	568.3	453.0
Coverage ratio	89	88	84
INDUSTRY 2892, EXPLOSIVES			
Total value of shipments	1 252.0	1 117.8	922.7
Primary products value of shipments	855.7	694.8	564.5
Secondary products value of shipments	(D)	10.5	58.4
Total miscellaneous receipts	(D)	412.5	299.9
Value of resales	57.4	23.4	25.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	99	91
Value of primary products shipments made in all industries	892.6	742.8	587.6
Value of primary products shipments made in this industry	855.7	694.8	564.5
Value of primary products shipments made in other industries	36.8	48.0	23.1
Coverage ratio	96	94	96
INDUSTRY 2893, PRINTING INK			
Total value of shipments	3 075.1	2 391.7	1 572.6
Primary products value of shipments	2 950.3	2 290.1	1 476.0
Secondary products value of shipments	58.1	40.5	33.7
Total miscellaneous receipts	66.6	61.1	62.9
Value of resales	65.9	58.0	40.4
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	98	98	98
Value of primary products shipments made in all industries	3 064.6	2 359.1	1 518.7
Value of primary products shipments made in this industry	2 950.3	2 290.1	1 476.0
Value of primary products shipments made in other industries	114.3	69.0	42.8
Coverage ratio	96	97	97

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2895, CARBON BLACK			
Total value of shipments	606.8	569.6	632.9
Primary products value of shipments	606.8	569.6	(D)
Secondary products value of shipments	–	–	–
Total miscellaneous receipts	–	–	(D)
Value of resales	–	(D)	(D)
Contract receipts	–	(D)	–
Other miscellaneous receipts	–	(D)	–
Primary products specialization ratio	100	100	100
Value of primary products shipments made in all industries	606.8	569.6	652.7
Value of primary products shipments made in this industry	606.8	569.6	(D)
Value of primary products shipments made in other industries	–	–	(D)
Coverage ratio	100	100	95
INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.			
Total value of shipments	9 965.8	8 025.0	6 344.3
Primary products value of shipments	7 986.0	6 365.2	5 144.6
Secondary products value of shipments	1 416.5	1 275.0	922.6
Total miscellaneous receipts	563.4	384.8	277.1
Value of resales	414.9	307.4	171.3
Contract receipts	48.3	(D)	73.4
Other miscellaneous receipts	100.2	(D)	32.4
Sales of scrap and refuse	(D)	(NA)	.7
Receipts for research and development	5.0	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	28.5
Other miscellaneous receipts, n.s.k.	1.7	(NA)	(D)
Primary products specialization ratio	85	83	85
Value of primary products shipments made in all industries	9 505.6	7 447.5	6 101.0
Value of primary products shipments made in this industry	7 986.0	6 365.2	5 144.6
Value of primary products shipments made in other industries	1 519.6	1 082.3	956.4
Coverage ratio	84	85	84

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2891– —	**ADHESIVES AND SEALANTS**						
	Total	**(NA)**	**(X)**	**5 399.1**	**(NA)**	**(X)**	**4 550.4**
28913	Natural base glues and adhesives	(NA)	(X)	189.5	(NA)	(X)	154.2
	Animal glues:						
28913 11	Hide (dry forms) mil lb	4	17.6	16.0	7	*31.9	25.8
28913 26	Flexible, nonwarp, and liquid glue (not glue stock) mil lb	12	45.8	27.0	13	**38.2	20.1
28913 50	Protein adhesives, including casein, blood, fish, soybean, albumen, etc. mil lb	8	57.8	26.2	6	29.2	15.1
	Vegetable adhesives:						
28913 51	Dextrines mil lb	17	*151.1	56.3	17	*123.5	41.0
28913 55	Starches	13	(X)	33.2	13	(X)	31.6
28913 80	Other natural base glues and adhesives made from natural gums, shellac, silicates, lacquers, and oleoresinous varnishes	10	(X)	25.0	8	(X)	19.5
28913 00	Natural base glues and adhesives, n.s.k.	(NA)	(X)	5.8	(NA)	(X)	1.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2891– —	**ADHESIVES AND SEALANTS**—Con.						
28914	Synthetic resin and rubber adhesives, including all types of bonding and laminating adhesives	(NA)	(X)	3 555.4	(NA)	(X)	2 825.8
28914 11	Epoxy adhesives	62	(X)	249.3	48	(X)	161.9
28914 24	Phenolics and phenolic derivative adhesives, including resorcinol, mil lb	14	1 357.2	212.3	(NA)	1 248.1	219.3
28914 33	Urea and modified urea, mil lb	11	(D)	(D)	10	1 574.6	147.0
	Vinyl type adhesives:						
	Polyvinyl acetate:						
28914 41	Latex type, mil lb	71	*1 072.7	514.4	57	*741.5	406.6
28914 43	Solvent type, mil lb	14	(D)	(D)	9	(S)	21.5
28914 45	Polyvinyl chloride and copolymers, mil lb	18	53.1	45.2	18	**35.6	31.5
28914 47	Other vinyl polymer type adhesives, mil lb	19	56.1	37.0	11	*29.1	18.9
28914 53	Acrylic adhesives, mil lb	49	**262.1	188.9	37	(S)	122.8
28914 54	Cyanoacrylate adhesives, mil lb	11	58.0	103.2	8	(S)	38.2
28914 55	Polyester adhesives, mil lb	9	77.1	72.0	9	(S)	87.1
28914 57	Urethane adhesives, mil lb	29	44.9	68.2	19	(S)	92.6
28914 61	Styrenic adhesives, mil lb	14	237.3	130.4	(NA)	(NA)	(3)
28914 65	Hot melt adhesives, including polyamide, polyolefin, and other hot melts, mil lb	52	306.4	364.0	44	**338.5	390.6
28914 71	Adhesive films, all types, including pressure-sensitive structural and nonstructural adhesive films	19	(X)	268.9	19	(X)	163.3
28914 48	Rubber and synthetic resin combinations, mil lb	36	757.5	481.0	44	**645.7	355.1
	Rubber cement, for sale as such:						
28914 81	Latex type	25	(X)	99.2	20	(X)	54.6
28914 83	Solvent type	37	(X)	132.9	32	(X)	129.7
28914 99	Other synthetic resin and rubber adhesives, including cellulose, nitrocellulose, polyamide, anaerobic, etc.	43	(X)	214.3	26	(X)	3230.8
28914 00	Synthetic resin and rubber adhesives, including all types of bonding and laminating adhesives, n.s.k.	(NA)	(X)	215.7	(NA)	(X)	154.2
28916	Structural sealants (load bearing)	(NA)	(X)	343.5	(NA)	(X)	226.6
	Synthetic base:						
28916 10	General performance sealants (PVAC, butyl, vinyl, acrylic, neoprene, etc.)	8	(X)	50.7	10	(X)	38.2
28916 25	Special performance sealants, including polysulfide, silicone, epoxy, urethane, etc., mil lb	17	149.2	263.9	(NA)	**85.1	149.1
28916 50	Preformed tapes (butyl, polybutene, polyisobutylene, etc.)	2	(X)	(D)	9	(X)	33.3
28916 00	Structural sealants (load bearing), n.s.k.	(NA)	(X)	(D)	(NA)	(X)	6.0
28917	Nonstructural caulking compounds and sealants	(NA)	(X)	811.5	(NA)	(X)	637.2
	Natural base:						
28917 11	Caulks, modified and unmodified oil base	18	(X)	37.5	17	(X)	44.1
28917 21	Bituminous base (coal tar or asphalt)	14	(X)	29.8	16	(X)	67.0
	Synthetic base:						
28917 31	General performance sealants (PVAC, butyl, vinyl, acrylic, neoprene, etc.), mil lb	50	438.6	339.5	50	**366.2	247.2
28917 46	Special performance sealants, including polysulfide, silicone, epoxy, urethane, etc., mil lb	33	*182.6	283.0	(NA)	(S)	193.0
28917 71	Preformed tapes (butyl, polybutene, polyisobutylene, etc.)	16	(X)	121.7	20	(X)	73.6
28917 00	Nonstructural caulking compounds and sealants, n.s.k.	(NA)	(X)	–	(NA)	(X)	12.3
28910	Adhesives and sealants, n.s.k.	(NA)	(X)	499.4	(NA)	(X)	706.5
28910 00	Adhesives and sealants, n.s.k.[4]	(NA)	(X)	419.3	(NA)	(X)	530.4
28910 02	Adhesives and sealants, n.s.k.[5]	(NA)	(X)	80.1	(NA)	(X)	176.2
2892– —	**EXPLOSIVES**						
	Total	**(NA)**	**(X)**	**892.6**	**(NA)**	**(X)**	**742.8**
28920	Explosives, propellants, and blasting accessories, except those shipped by Government-owned, contractor-operated plants	(NA)	(X)	892.6	(NA)	(X)	742.8
	Industrial explosives:						
28920 17	Ammonium nitrate, fuel sensitized, except slurry, mil lb	10	*1 094.1	120.9	13	**931.3	91.1
28920 20	Water gel and slurries, cap and noncap sensitive, except permissible slurries, mil lb	6	194.4	50.0	(NA)	219.2	68.9
28920 24	Other industrial explosives, including permissibles, dynamites, black blasting powder, nitroglycerin, etc.	12	(X)	(D)	(NA)	(X)	(D)
28920 39	Propellants, including smokeless and black powder, mil lb	5	(D)	(D)	3	(D)	(D)
28920 54	Blasting accessories, including blasting caps, squibs, ignitors, detonating primers, fuses, detonating cord, etc.	12	(X)	285.0	(NA)	(X)	(D)
28920 71	Other explosives, including military detonators, jet starters, fuse and explosive assemblies, etc.	16	(X)	110.2	16	(X)	119.4
28920 00	Explosives, n.s.k.[6]	(NA)	(X)	122.6	(NA)	(X)	94.4
28920 02	Explosives, n.s.k.[7]	(NA)	(X)	7.2	(NA)	(X)	10.6
2893– —	**PRINTING INK**						
	Total	**(NA)**	**(X)**	**3 064.6**	**(NA)**	**(X)**	**2 359.1**
28931	Letterpress inks	(NA)	(X)	139.9	(NA)	(X)	164.1
28931 05	News inks, mil lb	9	112.6	57.8	9	**203.1	100.7
28931 15	Packaging inks, mil lb	14	38.6	71.6	9	12.1	27.4
28931 17	Other letterpress inks, including publication inks, mil lb	13	9.6	10.4	(NA)	(NA)	30.7
28931 00	Letterpress inks, n.s.k.	(NA)	(X)	–	(NA)	(X)	5.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2893– —	**PRINTING INK**—Con.						
28932	Lithographic and offset inks	(NA)	(X)	1 378.5	(NA)	(X)	987.3
28932 31	News and nonheat web offset inks—mil lb	30	398.4	341.1	13	*314.3	256.9
28932 32	Publication and commercial web inks—mil lb	33	286.7	485.8	(NA)	*219.2	384.0
	Sheet-fed inks:						
28932 35	Packaging inks—mil lb	27	*40.3	159.0	23	18.2	77.7
28932 44	General inks—mil lb	46	67.1	266.0	(NA)	**70.8	231.3
28932 46	Other lithographic and offset inks—mil lb	20	**31.6	89.3			
28932 00	Lithographic and offset inks, n.s.k.	(NA)	(X)	37.3	(NA)	(X)	37.4
28933	Gravure inks	(NA)	(X)	464.5	(NA)	(X)	414.5
	Packaging inks:						
28933 41	Solvent types—mil lb	17	74.8	122.2	23	*111.3	153.6
28933 42	Water types—mil lb	17	39.1	57.3			
	Publication inks:						
28933 44	Solvent types—mil lb	8	304.3	237.3	5	293.8	248.2
28933 46	Water types—mil lb	3	(D)	(D)			
28933 49	Other gravure inks—mil lb	6	5.1	9.2	4	**.9	1.4
28933 00	Gravure inks, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	11.2
28934	Flexographic inks	(NA)	(X)	588.9	(NA)	(X)	424.8
	Packaging inks:						
28934 82	Solvent types—mil lb	18	130.4	232.7	20	117.7	189.3
28934 83	Water types—mil lb	38	164.6	267.0	31	125.0	172.4
28934 87	News and commercial inks—mil lb	9	21.7	25.7	(NA)	25.0	39.9
28934 89	Other flexographic inks—mil lb	12	(S)	32.4			
28934 00	Flexographic inks, n.s.k.	(NA)	(X)	31.0	(NA)	(X)	23.1
28935	Printing inks, n.e.c.	(NA)	(X)	211.3	(NA)	(X)	140.4
28935 71	Textile printing inks—mil lb	11	37.6	56.5	7	*36.0	45.3
28935 85	Screen printing inks—mil lb	17	*26.3	87.6	14	(S)	59.6
28935 98	Other printing inks, including stencil inks—mil lb	22	(S)	67.2	17	(S)	34.0
28935 00	Printing inks, n.e.c., n.s.k.	(NA)	(X)	–	(NA)	(X)	1.4
28930	Printing ink, n.s.k.	(NA)	(X)	281.6	(NA)	(X)	228.1
28930 00	Printing ink, n.s.k.[6]	(NA)	(X)	261.8	(NA)	(X)	158.9
28930 02	Printing ink, n.s.k.[7]	(NA)	(X)	19.8	(NA)	(X)	69.2
2895– —	**CARBON BLACK**						
	Total	**(NA)**	**(X)**	**606.8**	**(NA)**	**(X)**	**569.6**
28950	Carbon black (channel and furnace process only)	(NA)	(X)	606.8	(NA)	(X)	569.6
28950 00	Carbon black (channel and furnace process only)—mil lb	9	*3 004.0	606.8	7	2 808.4	569.6
28950 02	Carbon black, n.s.k.[8]	(NA)	(X)	–	(NA)	(X)	–
2899– —	**CHEMICAL PREPARATIONS, N.E.C.**						
	Total	**(NA)**	**(X)**	**9 505.6**	**(NA)**	**(X)**	**7 447.5**
28991	Evaporated salt	(NA)	(X)	536.7	(NA)	(X)	413.5
28991 00	Evaporated salt (bulk, pressed blocks, and packaged)—1,000 s tons	14	6 534.1	536.7	19	*7 582.0	413.5
28992	Fatty acids (produced for sale as such)	(NA)	(X)	503.8	(NA)	(X)	426.5
	Saturated acids:						
28992 11	Stearic acid (40 to 50 percent stearic content)—mil lb	7	318.6	110.1	5	236.7	73.9
28992 24	Hydrogenated animal and vegetable acids—mil lb	4	176.8	47.5	(NA)	(D)	(D)
28992 59	Other saturated acids, including hydrogenated fish and marine mammal fatty acids—mil lb	7	497.3	172.2	(NA)	(D)	(D)
	Unsaturated acids:						
28992 61	Oleic acid, including white oleic acid and red oil—mil lb	5	139.4	59.4	4	133.7	42.6
28992 83	Other unsaturated fatty acids—mil lb	3	(D)	(D)	5	**214.5	54.9
	Tall oil fatty acids:						
28992 92	Containing less than 2 percent rosin acids and more than 95 percent fatty acids—mil lb	6	**333.4	60.4	6	282.9	46.2
28992 94	Containing 2 percent or more rosin acids—mil lb	4	(D)	(D)	4	205.2	39.1
28992 00	Fatty acids (produced for sale as such), n.s.k.	(NA)	(X)	6.8	(NA)	(X)	7.3
28994	Gelatin, except ready-to-eat desserts	(NA)	(X)	314.1	(NA)	(X)	224.4
28994 11	Food grade, excluding pharmaceutical and photographic—mil lb	7	51.5	87.9	7	(S)	60.1
28994 31	Pharmaceutical grade, except unfilled capsules—mil lb	6	29.3	54.1	4	(S)	25.3
28994 97	Other gelatin products (unfilled capsules, gelatin sheets for theatrical use, photographic or technical grade gelatin)—mil lb	5	(D)	(D)	5	(S)	137.8
28994 00	Gelatin, except ready-to-eat desserts, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	1.2
28995	Chemical preparations, n.e.c., including essential oils, automotive chemicals, and water treating compounds	(NA)	(X)	7 107.3	(NA)	(X)	5 004.0
	Essential oils, unblended (natural):						
28995 13	Citrus fruit essential oils, including orange, lemon, and lime—mil lb	16	**20.0	105.0	(NA)	(NA)	156.8
28995 16	Other essential oils, including spearmint, peppermint, cedar wood, clove, and nutmeg oils—mil lb	23	*27.5	149.9			
28995 25	Fireworks	20	(X)	22.9	9	(X)	15.3
28995 26	Pyrotechnics, including flares, jet fuel igniters, railroad torpedoes, toy pistol caps, etc.	13	(X)	121.7	10	(X)	75.1

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2899– ––	**CHEMICAL PREPARATIONS, N.E.C.**—Con.						
28995	Chemical preparations, n.e.c., including essential oils, automotive chemicals, and water treating compounds —Con.						
	Chemical preparations, n.e.c.:						
28995 31	Rubber processing preparations, including red lead and 2-mercaptoimidazoline rubber accelerator composition ---- mil lb	11	*50.5	49.0	5	17.9	18.1
	Automotive chemicals:						
28995 34	Antifreeze preparations ---- mil gal	42	(S)	370.5	(NA)	(D)	(D)
28995 43	Other automotive chemicals (antiknock compounds, additives for lubricating oils, battery acid, de-icing fluid, etc.) ----	47	(X)	411.4	(NA)	(X)	206.8
28995 39	Concrete curing and floor hardening materials ----	31	(X)	131.1	21	(X)	83.2
28995 41	Drilling mud materials, mud thinners, thickeners, and purifiers ---- mil lb	15	110.0	54.6	13	(S)	23.2
28995 49	Foundry supplies, chemical, including binders, core oils, core wash, etc. ----	20	(X)	240.5	21	(X)	205.4
28995 53	Household tints and dyes ---- mil lb	4	(D)	(D)	4	**5.1	20.6
28995 59	Metal-treating compounds (nonoil-base) for nitriding, pickling, drawing, and cutting ----	51	(X)	276.3	35	(X)	201.6
28995 61	Oil-treating compounds (nonoil-base) ----	16	(X)	69.7	10	(X)	42.7
28995 68	Sizes (textile, paper, and other) ---- mil lb	27	696.9	231.5	(NA)	(D)	(D)
28995 72	Inks, writing and stamp pad ink, including indelible ink and marking fluid; excluding drawing and printing inks ----	39	(X)	78.9	28	(X)	47.4
	Water treating compounds:						
28995 77	Boiler compounds ---- mil lb	79	204.7	213.1	31	(S)	170.1
28995 73	Swimming pool chemical preparations ----	25	(X)	324.5	18	(X)	240.1
28995 76	Cooling tower compounds ---- mil lb	65	330.1	334.7	34	(S)	197.8
28995 78	Other water treating compounds ---- mil lb	88	1 395.9	1 031.7	51	**672.3	471.8
28995 81	Waterproofing compounds (textile, paper, electrical, leather, masonry, etc.) ----	34	(X)	187.6	(NA)	(X)	10.8
28995 86	Vitrifiable enamels and glass frit ----	6	(X)	49.9	(NA)	(X)	(D)
28995 91	Plating compounds ---- mil lb	30	(S)	181.2	21	(S)	245.8
28995 93	Lighter fluids (cigarette, charcoal, etc.) ---- mil gal	12	46.9	61.1	10	(S)	58.9
28995 95	Waxes (animal, vegetable, mineral, including blends), except petroleum waxes and polishing preparations ----	18	(X)	(D)	(NA)	(X)	(D)
28995 98	Distilled water ---- mil gal	12	(S)	48.2	10	(S)	29.7
28995 97	Other industrial chemical specialties, including fluxes, plastics wood preparations, embalming prepartions, etc. ----	281	(X)	1 992.5	(NA)	(X)	1 451.4
28995 00	Chemical preparations, n.e.c., including essential oils, automotive chemicals, and water treating compounds, n.s.k. ----	(NA)	(X)	275.2	(NA)	(X)	399.5
28990	Chemical preparations, n.e.c., n.s.k. ----	(NA)	(X)	1 043.7	(NA)	(X)	1 379.1
28990 00	Chemical preparations, n.e.c., n.s.k.[4] ----	(NA)	(X)	838.5	(NA)	(X)	1 008.2
28990 02	Chemical preparations, n.e.c., n.s.k.[5] ----	(NA)	(X)	205.2	(NA)	(X)	370.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]In 1987, Data for this product code were included with code 28914 99.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]There were no administrative-record cases for this industry.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28913, NATURAL BASE GLUES AND ADHESIVES		
United States	**189.5**	**154.2**
California	16.1	12.8
Georgia	16.9	5.7
Illinois	34.0	13.6
Missouri	8.5	8.1
New Jersey	7.5	11.9
New York	25.8	25.2
North Carolina	23.5	12.9
Ohio	9.1	20.9
Tennessee	3.8	(NA)
Texas	5.4	4.1
28914, SYNTHETIC RESIN AND RUBBER ADHESIVES, INCLUDING ALL TYPES OF BONDING AND LAMINATING ADHESIVES		
United States	**3 555.4**	**2 825.8**
California	257.3	205.4
Connecticut	125.3	83.2
Florida	15.6	10.0
Georgia	181.7	162.5
Illinois	419.8	256.3
Indiana	41.8	46.1
Kansas	8.2	(NA)
Kentucky	134.9	(NA)
Maryland	61.1	59.1
Massachusetts	90.3	134.9
Michigan	154.7	100.7
Missouri	131.0	116.4
New Hampshire	26.8	(NA)
New Jersey	216.7	157.5
New York	113.3	115.5
North Carolina	120.3	56.4
Ohio	493.8	400.2
Oregon	84.9	(NA)
Pennsylvania	162.6	133.3
South Carolina	83.8	46.6
Tennessee	57.8	41.7
Texas	111.0	66.2
Virginia	29.0	15.2
Washington	33.7	19.7
Wisconsin	56.0	64.8
28916, STRUCTURAL SEALANTS (LOAD BEARING)		
United States	**343.5**	**226.6**
California	6.6	5.6
Illinois	12.3	(NA)
28917, NONSTRUCTURAL CAULKING COMPOUNDS AND SEALANTS		
United States	**811.5**	**637.2**
California	73.5	7.6
Georgia	42.0	22.6
Illinois	18.3	66.9
Indiana	20.1	17.6
Massachusetts	6.5	(NA)
Michigan	70.0	45.0
Minnesota	38.3	(NA)
Missouri	117.8	35.1
New Jersey	78.9	67.0
Ohio	106.5	93.0
Pennsylvania	54.7	38.2
Texas	39.1	28.1
28931, LETTERPRESS INKS		
United States	**139.9**	**164.1**
California	23.9	16.4
Illinois	8.8	25.0
New Jersey	10.1	14.7
Ohio	7.8	12.7
Pennsylvania	7.9	7.3
Texas	7.5	15.3
Wisconsin	2.6	(NA)
28932, LITHOGRAPHIC AND OFFSET INKS		
United States	**1 378.5**	**987.3**
Arizona	9.6	4.0
California	126.8	105.9
Colorado	6.4	5.4
Connecticut	17.7	10.1
Florida	39.1	19.2
Georgia	35.9	21.3
Illinois	214.9	128.7
Maryland	36.7	(NA)
Massachusetts	25.3	18.0
Michigan	36.9	15.7
Minnesota	66.4	44.2
Missouri	58.2	25.9
Nebraska	5.9	(NA)
New Jersey	62.9	58.9
New York	72.1	62.8
North Carolina	33.5	15.9
Ohio	87.8	71.6
Pennsylvania	34.6	28.1
Tennessee	41.6	21.6
Texas	86.2	56.0
Virginia	10.3	(NA)
Wisconsin	50.9	44.9
28933, GRAVURE INKS		
United States	**464.5**	**414.5**
California	5.8	(NA)
Illinois	64.9	111.7
Massachusetts	8.0	(NA)
New Jersey	27.0	21.1
North Carolina	38.0	27.5
Ohio	20.4	17.5
Pennsylvania	16.2	20.9
Tennessee	18.2	18.4
Virginia	63.9	49.4
Wisconsin	8.6	4.1
28934, FLEXOGRAPHIC INKS		
United States	**588.9**	**424.8**
Arkansas	2.6	(NA)
California	65.1	30.7
Georgia	25.3	21.4
Illinois	80.6	82.5
Louisiana	8.6	4.3
Maryland	13.9	2.9
Michigan	5.3	3.2
Minnesota	19.3	6.4
Missouri	30.8	26.4
New Jersey	78.5	67.4
North Carolina	30.2	31.1
Ohio	42.4	30.9
Pennsylvania	27.1	11.8
Tennessee	12.3	10.1
Texas	19.1	11.9
Wisconsin	38.7	19.3
28935, PRINTING INKS, N.E.C.		
United States	**211.3**	**140.4**
California	7.4	15.6
Illinois	14.3	(NA)
New Jersey	56.4	49.0
Ohio	26.9	6.8
28991, EVAPORATED SALT		
United States	**536.7**	**413.5**
New York	80.6	62.4
28992, FATTY ACIDS (PRODUCED FOR SALE AS SUCH)		
United States	**503.8**	**426.5**
Illinois	66.6	30.9
Ohio	170.1	174.2
28994, GELATIN, EXCEPT READY-TO-EAT DESSERTS		
United States	**314.1**	**224.4**
Iowa	82.0	59.2

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
28995, CHEMICAL PREPARATIONS, N.E.C., INCLUDING ESSENTIAL OILS, AUTOMOTIVE CHEMICALS, AND WATER TREATING COMPOUNDS			**28995, CHEMICAL PREPARATIONS, N.E.C., INCLUDING ESSENTIAL OILS, AUTOMOTIVE CHEMICALS, AND WATER TREATING COMPOUNDS**—Con.		
United States	**7 107.3**	**5 004.0**	Massachusetts	197.1	87.5
			Michigan	485.2	398.6
			Minnesota	160.7	(NA)
			Missouri	181.1	44.6
Alabama	253.3	295.8	New Hampshire	28.0	(NA)
Arizona	43.0	9.5			
Arkansas	39.8	28.6	New Jersey	365.6	467.6
California	555.5	272.7	New Mexico	6.3	(NA)
Colorado	11.8	(NA)	New York	288.3	252.4
			North Carolina	146.3	113.4
			Ohio	554.2	401.4
Connecticut	63.7	89.6			
Delaware	4.3	(NA)	Oklahoma	16.7	(NA)
Florida	103.9	68.7	Pennsylvania	357.7	282.3
Georgia	322.0	223.6	Rhode Island	25.4	(NA)
Illinois	757.1	799.4	South Carolina	100.0	13.0
			Tennessee	73.7	59.3
Indiana	102.2	62.3	Texas	979.4	387.6
Iowa	8.0	6.3	Utah	30.1	(NA)
Kansas	71.5	29.6	Virginia	56.7	21.4
Kentucky	11.8	5.6	Washington	80.5	20.5
Louisiana	142.8	106.2	West Virginia	20.5	14.3
Maryland	30.7	14.7	Wisconsin	140.2	123.3

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2891-	**Adhesives and sealants**	**5 399.1**	**5 381.6**	**5 402.6**	**5 134.1**	**4 844.7**	**4 550.4**	**2 903.0**	**1 873.1**
28913	Natural base glues and adhesives	189.5	220.4	233.8	235.6	172.8	154.2	177.5	166.4
28914	Synthetic resin and rubber adhesives, including all types of bonding and laminating adhesives	3 555.4	3 455.7	3 313.8	3 298.7	3 100.8	2 825.8	1 833.8	1 221.8
28916	Structural sealants (load bearing)	343.5	226.5	223.5	205.7	208.0	226.6	602.8	364.4
28917	Nonstructural caulking compounds and sealants	811.5	694.0	717.4	629.0	639.7	637.2		
28910	Adhesives and sealants, n.s.k.	499.4	785.1	914.1	765.1	723.5	706.5	288.9	120.5
2892-	**Explosives**	**892.6**	**1 061.8**	**867.9**	**722.7**	**710.4**	**742.8**	**587.6**	**435.5**
28920	Explosives, propellants, and blasting accessories, except those shipped by Government-owned, contractor-operated plants	892.6	1 061.8	867.9	722.7	710.4	742.8	587.6	435.5
2893-	**Printing ink**	**3 064.6**	**2 819.9**	**2 758.2**	**2 589.0**	**2 418.2**	**2 359.1**	**1 518.7**	**904.0**
28931	Letterpress inks	139.9	117.3	130.6	131.7	165.4	164.1	128.0	105.9
28932	Lithographic and offset inks	1 378.5	1 053.5	1 073.2	1 023.3	991.2	987.3	536.4	303.2
28933	Gravure inks	464.5	440.5	436.4	430.9	419.0	414.5	325.8	190.7
28934	Flexographic inks	588.9	530.4	485.1	488.9	444.5	424.8	241.7	157.1
28935	Printing inks, n.e.c.	211.3	298.4	271.5	233.2	161.5	140.4	143.8	60.6
28930	Printing ink, n.s.k.	281.6	379.8	361.5	281.0	236.6	228.1	143.1	86.5
2895-	**Carbon black**	**606.8**	**602.6**	**691.9**	**640.3**	**615.7**	**569.6**	**652.7**	**466.2**
28950	Carbon black (channel and furnace process only)	606.8	602.6	691.9	640.3	615.7	569.6	652.7	466.2
2899-	**Chemical preparations, n.e.c.**	**9 505.6**	**8 777.2**	**8 861.6**	**8 285.7**	**8 047.6**	**7 447.5**	**6 101.0**	**4 243.8**
28991	Evaporated salt	536.7	487.8	504.1	510.6	410.6	413.5	419.8	246.2
28992	Fatty acids (produced for sale as such)	503.8	648.7	544.4	436.3	437.8	426.5	350.8	353.2
28994	Gelatin, except ready-to-eat desserts	314.1	303.8	280.1	250.3	256.2	224.4	242.3	175.3
28995	Chemical preparations, n.e.c., including essential oils, automotive chemicals, and water treating compounds	7 107.3	5 834.6	5 933.4	5 534.8	5 522.4	5 004.0	4 437.4	3 109.0
28990	Chemical preparations, n.e.c., n.s.k.	1 043.7	1 502.3	1 599.7	1 553.7	1 420.7	1 379.1	650.7	360.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 2891, ADHESIVES AND SEALANTS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 715.8**	**(X)**	**2 417.2**
	Plastics resins, purchased from other establishments:				
282133	Polyvinyl acetate resins—mil lb	360.8	112.1	**409.6	114.4
282106	All other plastics resins—mil lb	569.6	251.3	*776.2	274.2
282202	Synthetic rubber—mil lb	202.6	171.3	(S)	99.0
204610	Starch and dextrin—mil lb	104.2	23.9	**108.6	23.2
286010	Industrial organic chemicals, n.e.c., including synthetic organic	(X)	653.0	(X)	536.2
281000	Industrial inorganic chemicals	(X)	115.0	(X)	140.4
291102	Refined petroleum products, including mineral oil, naphtha solvents, petroleum, waxes, etc.	(X)	226.6	(X)	171.5
140010	Nonmetallic minerals and earths, ground, or otherwise treated, used as extenders and fillers	(X)	204.7	(X)	83.3
	Containers:				
308015	Plastics, including bottles, jars, tubes, tubs, etc.	(X)	60.0	(X)	(2)
340001	Metal, including cans, drums, collapsible tubes, etc.	(X)	77.6	(X)	60.1
265020	Paper and paperboard boxes and fiber cans, tubes and drums	(X)	87.4	(X)	78.6
970099	All other materials and components, parts, containers, and supplies	(X)	359.6	(X)	2384.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	373.2	(X)	452.3
	INDUSTRY 2892, EXPLOSIVES				
	Materials, ingredients, containers, and supplies	**(X)**	**303.2**	**(X)**	**291.7**
287312	Ammonia, synthetic anhydrous (100 percent NH_3)—1,000 s tons	(D)	(D)	131.2	15.5
287314	Ammonium nitrate (100 percent NH_4NO_3)—1,000 s tons	394.0	44.2	(S)	58.2
287311	Nitric acid (100 percent HNO_3)—1,000 s tons	37.4	5.9	*84.4	9.3
281931	Sulfuric acid (100 percent H_2SO_4), except spent—1,000 s tons	*48.5	3.4	**95.1	6.7
289216	High explosives, including PETN, TNT, azides, and fulminates	(X)	14.0	(X)	8.8
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	14.0	(X)	8.6
970099	All other materials and components, parts, containers, and supplies	(X)	179.1	(X)	153.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	(D)	(X)	31.4
	INDUSTRY 2893, PRINTING INK				
	Materials, ingredients, containers, and supplies	**(X)**	**1 901.5**	**(X)**	**1 345.7**
280023	Pigments, organic and inorganic—mil lb	310.6	563.7	228.6	405.6
289501	Carbon black—mil lb	193.9	61.0	*283.0	66.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.—mil lb	135.8	119.4	*60.7	55.3
285110	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products—mil lb	530.8	318.2	*457.6	261.5
286104	Wood rosin, turpentine, and other wood chemicals—mil lb	38.7	28.1	85.1	44.2
290010	Hydrocarbon oils and solvents—mil gal	*102.4	102.2	**92.7	105.1
286905	Oxygenated solvents—mil gal	43.4	58.5	**24.9	27.8
340001	Metal containers	(X)	27.4	(X)	25.3
970099	All other materials and components, parts, containers, and supplies	(X)	168.7	(X)	107.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	454.3	(X)	246.7
	INDUSTRY 2895, CARBON BLACK				
	Materials, ingredients, containers, and supplies	**(X)**	**244.4**	**(X)**	**271.0**
291184	Carbon black feedstock—mil bbl	13.5	179.8	*11.7	188.2
131152	Natural gas used as a raw material—bil cu ft	16.4	34.2	*12.6	28.1
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	7.3	(X)	6.1
970099	All other materials and components, parts, containers, and supplies	(X)	23.1	(X)	48.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	–	(X)	–

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.		
	Materials, ingredients, containers, and supplies	**4 379.5**	**3 299.9**
140107	Crude nonmetallic minerals, including limestone, clay, gypsum, talc, etc.	80.9	66.3
207020	Fats, oils, greases, and tallow	323.3	188.8
281201	Alkalies and chlorine	168.4	113.2
281900	Industrial inorganic chemicals, except medicinals	528.8	323.0
286101	Wood rosin, turpentine, and other wood chemicals, including tall oil	71.5	65.0
286020	Synthetic organic chemicals, not elsewhere classified	868.9	379.8
290001	Refined petroleum products, including naphtha solvents, petrolatum, waxes, etc.	283.9	197.0
282103	Plastics and resin materials (synthetic)	89.4	90.4
	Containers:		
265001	Paperboard containers, boxes, and corrugated paperboard	106.9	94.2
308015	Plastics containers	59.4	(2)
340001	Metal containers	104.3	54.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 2899, CHEMICAL PREPARATIONS, N.E.C.—Con.		
970099	All other materials and components, parts, containers, and supplies	920.6	[2]777.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	773.2	949.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]In 1987, data for this material code were included with code 970099.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/ 10/ 95 1:39 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 17
TSF:28H_92.DAT;1 5/ 9/ 95 16:49:18 UTF:28H_93.DAT;2 5/ 10/ 95 13:36:49 META:TIPS96-13381756.DAT;1 5/ 10/ 95 13:38:50

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
28161 00	28161 11
28162 55	28161 21
28162 65	28162 13
28162 65	28162 30
28162 65	28162 40
28162 65	28162 50
28162 65	28162 60
28163 98	28163 41
28163 98	28163 45
28163 98	28163 89
28163 98	28163 95
28163 98	28163 97
28220 11	28220 00
28220 12	28220 00
28220 40	28220 00
28220 45	28220 00
28220 50	28220 00
28220 57	28220 00
28220 60	28220 00
28220 72	28220 00
28220 82	28220 00
28230 33	28230 34
28230 33	28230 38
28230 33	28230 39
28230 37	28230 34
28230 37	28230 38
28230 37	28230 39
28230 45	28230 41
28230 45	28230 71
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28241 15	28241 19
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28241 15	28241 23
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28244 29	28244 41
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28249 15	28247 15
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28249 17	28247 13
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28249 17	28247 16
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28249 19	28247 33
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28333 92	28333 94
28333 99	28333 82
28333 99	28333 98
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28352 12	28352 15
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28362 00	28362 20
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28411 78	28411 62
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28411 78	28411 79
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28412 04	28412 15
28412 05	28412 07
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28412 09	28412 12
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28412 11	28412 15
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28413 98	28413 22
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28796 85	28796 71
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28920 54	28920 51
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
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28162 13	28162 65
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28163 97	28163 98
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28230 38	28230 33
28230 38	28230 37
28230 39	28230 33
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28241 13	28241 15
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28247 15	28242 63
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28247 19	28242 63
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28612 98	28610 35
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28695 27	28692 19
28695 27	28692 29
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28695 37	28698 37
28695 53	28698 53
28695 55	28698 55
28695 98	28698 98
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28744 20	28744 21
28744 30	28744 31
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28744 60	28744 11
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28744 70	28744 31
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28750 70	28750 31
28795 20	28795 81
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28799 35	28799 40
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28992 23	28992 24
28992 25	28992 24
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28992 55	28992 59
28992 57	28992 59
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28995 14	28995 16
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28995 19	28995 13
28995 19	28995 16
28995 35	28995 34
28995 36	28995 34
28995 40	28995 43
28995 42	28995 43
28995 45	28995 43
28995 55	28995 97
28995 69	28995 68
28995 70	28995 68
28995 71	28995 68
28995 82	28995 81
28995 83	28995 81
28995 84	28995 81
28995 88	28995 86
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28995 94	28995 95
28995 96	28995 95
28995 99	28995 97

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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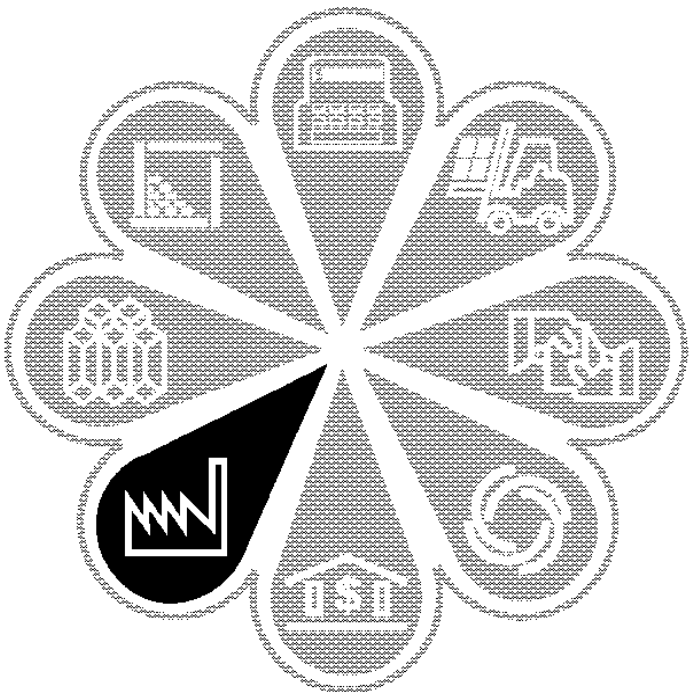
1992 Census of Manufactures

MC92-I-29A

INDUSTRY SERIES

Petroleum and Coal Products

Industries 2911, 2951, 2952, 2992, and 2999



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-29A

INDUSTRY SERIES

Petroleum and Coal Products

Industries 2911, 2951, 2952, 2992, and 2999

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Wood and Chemical Products Branch, assisted by **Ted McGrath**, Section Chief, with primary staff assistance by **Kim Ciurca.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
2911	Petroleum Refining
2951	Asphalt Paving Mixtures and Blocks
2952	Asphalt Felts and Coatings
2992	Lubricating Oils and Greases
2999	Petroleum and Coal Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2911, PETROLEUM REFINING

This industry is made up of establishments primarily engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants, through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, cracking, or other processes. Also included in this industry are establishments primarily engaged in producing aliphatic and aromatic chemicals as byproducts. Establishments primarily engaged in producing natural gasoline from natural gas are classified in mining industries. Establishments primarily engaged in manufacturing lubricating oils and greases by blending and compounding purchased materials are included in industry 2992. Establishments primarily re-refining used lubricating oils are classified in industry 2992. Establishments primarily engaged in manufacturing cyclic and acyclic organic chemicals are classified in major group 28.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2911, Petroleum Refining, had employment of 74.8 thousand. The employment figure was less than 1 percent above the 74.6 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, California, and Louisiana, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 56 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $136.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2911 shipped $131.3 billion of petroleum refining products considered primary to the industry, $737.6 million of secondary products, and had $4.2 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 2211, no matter in what industry they were produced, appear in table 6a and aggregate to $131.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the petroleum refining industry amounted to $116.9 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS

This industry is made up of establishments primarily engaged in manufacturing asphalt and tar paving mixtures. Also included in this industry are establishments primarily engaged in manufacturing paving blocks made of asphalt and various compositions of asphalt or tar with other materials. Establishments primarily engaged in manufacturing brick, concrete, granite, and stone paving blocks are classified in major group 32.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2951, Asphalt Paving Mixtures and Blocks, had employment of 13.2 thousand. The employment figure was 9 percent below the 14.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, California, and Ohio, accounting for approximately 27 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2951 shipped $3.4 billion of asphalt paving mixtures and blocks considered primary to the industry, $224.5 million of secondary products, and had $182.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 2951, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the asphalt paving mixtures and blocks industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

INDUSTRY 2952, ASPHALT FELTS AND COATINGS

This industry is made up of establishments primarily engaged in manufacturing, from purchased materials, asphalt and other saturated felts in roll or shingle form, either smooth or faced with grit, and in manufacturing roofing cements and coatings. Establishments primarily engaged in manufacturing paint are classified in industry 2851. Establishments primarily engaged in manufacturing linoleum and tile cement are classified in industry 2891.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2952, Asphalt Felts and Coatings, had employment of 12.4 thousand. The employment figure was 8 percent below the 13.5 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Ohio, and California, accounting for approximately 31 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2952 shipped $3.6 billion of asphalt felts and coatings considered primary to the industry, $158.7 million of secondary products, and had $189.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 2952, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the asphalt felts and coatings industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 2992, LUBRICATING OILS AND GREASES

This industry is made up of establishments primarily engaged in blending, compounding, and re-refining lubricating oils and greases from purchased mineral, animal, and vegetable materials. Petroleum refineries primarily engaged in the production of lubricating oils and greases are classified in industry 2911.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2992, Lubricating Oils and Greases, had employment of 11.8 thousand. The employment figure was 5 percent above the 11.2 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, and Pennsylvania, accounting for approximately 26 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2992 shipped $4.6 billion of lubricating oils and greases considered primary to the industry, $326.9 million of secondary products, and had $211.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2992, no matter in what industry they were produced, appear in table 6a and aggregate to $4.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lubricating oils and greases industry amounted to $3.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing packaged fuel, powdered fuel, and other products of petroleum and coal, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 2999, Petroleum and Coal Products, N.E.C., had employment of 2.1 thousand. The employment figure was 11 percent above the 1.9 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Texas, California, and Illinois, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when Texas, California, Illinois, and Louisiana accounted for approximately 53 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $849.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2999 shipped $735.4 million of petroleum and coal products, not elsewhere classified, considered primary to the industry, $24.3 million of secondary products, and had

$90.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 2999, no matter in what industry they were produced, appear in table 6a and aggregate to $809.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the petroleum and coal products, not elsewhere classified, industry amounted to $504.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 2911, PETROLEUM REFINING															
1992 Census ---	132	232	197	74.8	3 636.3	47.9	109.3	2 157.3	19 100.6	116 908.0	136 239.0	6 139.7	9 721.7	99	99
1991 ASM------	(NA)	(NA)	(NA)	73.9	3 448.4	47.6	106.5	2 072.4	19 795.7	123 916.8	145 391.5	5 600.8	9 897.7	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	71.9	3 195.6	47.3	105.8	1 963.6	22 822.0	138 537.0	159 411.1	3 818.7	11 867.5	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	72.4	2 984.1	47.9	104.6	1 858.6	21 580.1	110 521.6	131 192.3	2 986.9	9 218.1	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	73.2	2 928.9	49.5	102.8	1 831.2	20 687.6	97 320.7	118 829.4	2 326.7	8 009.3	(NA)	(NA)
1987 Census ---	200	308	221	74.6	2 845.0	50.0	103.3	1 796.7	14 218.9	104 800.9	118 186.2	2 035.0	8 792.9	99	99
INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS															
1992 Census ---	539	1 150	168	13.2	433.8	9.3	20.0	284.7	1 416.1	2 405.2	3 835.8	111.4	239.8	94	94
1991 ASM------	(NA)	(NA)	(NA)	13.9	461.0	10.0	21.0	282.1	1 306.1	2 524.5	3 794.4	105.8	269.8	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	14.3	466.9	10.4	22.9	305.4	1 449.8	2 784.0	4 213.8	128.0	230.0	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	13.7	430.4	9.7	21.1	264.4	1 469.2	2 535.9	4 001.1	178.6	222.8	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	15.5	475.2	10.6	21.7	288.6	1 771.3	2 730.1	4 509.2	108.5	214.8	(NA)	(NA)
1987 Census ---	542	1 101	200	14.6	430.8	10.0	20.9	266.7	1 602.9	2 758.2	4 346.2	123.4	203.9	94	94
1986 ASM------	(NA)	(NA)	(NA)	14.7	404.7	10.6	22.1	255.4	1 330.9	2 644.0	4 024.1	102.9	183.4	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	14.6	375.4	10.6	23.7	238.6	1 164.9	2 811.9	3 971.8	144.1	240.4	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	14.4	358.3	10.3	22.6	230.3	1 072.5	2 445.9	3 515.9	111.2	212.4	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	15.0	343.4	10.7	22.1	230.5	1 005.2	2 242.1	3 237.4	48.1	176.4	(NA)	(NA)
1982 Census ---	569	1 034	202	15.2	340.5	11.1	22.2	229.1	925.9	2 162.4	3 098.6	76.1	162.1	93	96
1981 ASM------	(NA)	(NA)	(NA)	12.0	248.1	8.7	17.3	161.3	705.7	1 515.8	2 222.8	44.7	103.0	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	12.6	249.7	9.2	18.9	162.9	727.8	1 523.7	2 244.7	55.3	103.1	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	12.9	236.5	9.7	20.3	165.2	660.8	1 372.0	2 026.6	62.1	87.1	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	13.5	251.0	10.5	22.4	180.1	750.8	1 333.6	2 070.4	69.6	110.9	(NA)	(NA)
1977 Census ---	590	1 023	165	12.9	190.6	9.7	20.2	134.3	507.8	1 072.1	1 578.3	57.3	62.8	95	93
INDUSTRY 2952, ASPHALT FELTS AND COATINGS															
1992 Census ---	151	245	123	12.4	412.5	9.0	20.3	267.1	1 550.6	2 358.7	3 913.0	69.1	307.1	96	98
1991 ASM------	(NA)	(NA)	(NA)	12.4	382.0	8.8	18.5	240.8	1 237.2	2 196.9	3 438.2	62.9	287.2	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	12.4	381.2	8.9	18.9	239.9	1 284.9	2 311.5	3 584.9	66.1	313.9	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	12.4	363.8	9.0	19.7	237.6	1 248.0	2 223.2	3 475.6	65.7	297.1	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	13.4	361.0	9.6	19.9	237.2	1 287.9	2 137.9	3 420.4	74.8	273.4	(NA)	(NA)
1987 Census ---	162	266	145	13.5	354.9	9.7	20.2	237.3	1 284.1	2 147.2	3 402.9	89.8	266.4	97	99
1986 ASM------	(NA)	(NA)	(NA)	13.1	340.1	9.3	19.4	220.8	1 164.5	2 279.4	3 474.9	89.0	251.1	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	14.4	331.7	10.1	20.6	223.1	1 015.7	2 506.7	3 515.5	101.4	312.0	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	14.5	329.7	10.5	21.6	221.3	1 083.6	2 402.8	3 487.7	69.4	292.2	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	14.5	312.9	10.6	22.7	212.5	892.6	2 373.6	3 256.6	56.0	297.1	(NA)	(NA)
1982 Census ---	147	273	155	14.2	288.7	10.4	21.0	195.1	816.9	1 993.7	2 849.5	57.1	256.9	95	98
1981 ASM------	(NA)	(NA)	(NA)	17.1	334.3	12.4	25.6	228.2	803.1	2 118.2	2 885.5	81.1	325.6	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	18.7	334.5	13.4	28.7	229.1	904.6	2 011.5	2 884.7	67.9	271.4	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	22.4	374.1	16.5	35.5	256.3	1 020.5	1 937.5	2 921.9	70.7	236.1	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	21.2	329.9	15.9	35.1	228.0	985.7	1 666.7	2 651.3	70.0	176.9	(NA)	(NA)
1977 Census ---	146	275	164	19.5	271.7	14.3	31.0	185.9	764.2	1 320.8	2 077.6	55.2	157.2	91	97
INDUSTRY 2992, LUBRICATING OILS AND GREASES															
1992 Census ---	332	419	173	11.8	413.9	6.0	12.5	170.2	1 388.2	3 691.8	5 103.5	197.2	561.3	93	93
1991 ASM------	(NA)	(NA)	(NA)	10.9	374.2	5.5	11.4	151.9	1 303.2	3 162.7	4 478.6	95.7	727.5	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	11.2	372.8	5.6	10.9	149.8	1 280.3	3 165.3	4 398.5	131.0	602.0	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	11.2	349.0	5.7	11.4	148.1	1 387.2	2 836.1	4 129.0	79.4	524.1	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	11.3	323.5	5.5	11.2	133.3	1 284.0	2 649.4	3 936.1	91.5	447.3	(NA)	(NA)
1987 Census ---	372	451	163	11.2	311.8	5.5	11.1	124.2	1 143.2	2 629.8	3 765.6	79.5	437.5	95	94
1986 ASM------	(NA)	(NA)	(NA)	10.4	283.0	5.3	10.7	119.4	991.4	2 339.0	3 355.6	101.1	350.3	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	10.9	298.8	5.4	10.5	115.2	1 046.0	2 433.9	3 483.3	79.6	383.9	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	11.7	309.8	6.1	12.1	130.6	1 072.8	2 561.9	3 595.1	71.1	404.5	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	11.1	261.6	5.5	11.1	101.1	1 116.9	1 744.2	2 821.2	44.6	579.0	(NA)	(NA)
1982 Census ---	401	473	153	11.9	266.2	5.6	11.3	102.3	902.6	1 949.5	2 875.3	67.8	364.1	94	95
1981 ASM------	(NA)	(NA)	(NA)	12.8	266.1	6.4	12.5	103.5	851.8	2 257.9	3 086.9	67.7	296.1	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	13.3	248.0	6.7	13.4	95.7	799.3	1 979.8	2 751.4	71.3	267.7	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	12.4	216.7	6.2	12.8	92.6	827.7	1 660.8	2 464.0	36.1	219.3	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	10.2	169.3	5.4	10.3	72.7	701.3	1 168.8	1 864.6	41.7	179.7	(NA)	(NA)
1977 Census ---	417	490	143	10.3	157.1	5.4	10.4	65.4	524.8	1 101.0	1 644.7	25.6	180.8	94	94
INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.															
1992 Census ---	71	82	27	2.1	69.3	1.4	3.3	43.1	344.1	504.3	849.7	21.6	115.6	97	91
1991 ASM------	(NA)	(NA)	(NA)	2.1	63.8	1.4	3.1	41.4	381.4	588.1	973.7	30.7	118.2	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	2.0	57.8	1.3	2.8	37.9	377.1	605.3	980.2	14.4	119.3	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	1.9	54.2	1.3	2.6	35.0	363.3	552.9	904.0	20.6	111.5	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	1.9	53.6	1.3	2.6	33.9	249.0	467.7	719.4	12.6	76.7	(NA)	(NA)
1987 Census ---	92	106	24	1.9	53.6	1.2	2.6	33.9	269.3	440.6	713.1	12.9	96.4	95	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2911, PETROLEUM REFINING								
1992 Census	48 614	64	2 282	19.74	86	88	255 356	19	174.75
1991 ASM	46 663	64	2 237	19.46	85	88	267 871	17	185.88
1990 ASM	44 445	66	2 237	18.56	87	89	317 413	14	215.71
1989 ASM	41 217	66	2 184	17.77	84	87	298 068	14	206.31
1988 ASM	40 012	68	2 077	17.81	82	84	282 618	14	201.24
1987 Census	38 137	67	2 066	17.39	89	91	190 602	20	137.65
	INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS								
1992 Census	32 864	70	2 151	14.24	63	74	107 280	31	70.81
1991 ASM	33 165	72	2 100	13.43	67	79	93 964	35	62.20
1990 ASM	32 650	73	2 202	13.34	66	77	101 385	32	63.31
1989 ASM	31 416	71	2 175	12.53	63	74	107 241	29	69.63
1988 ASM	30 658	68	2 047	13.30	61	71	114 277	27	81.63
1987 Census	29 507	68	2 090	12.76	63	73	109 788	27	76.69
1986 ASM	27 531	72	2 085	11.56	66	76	90 537	30	60.22
1985 ASM	25 712	73	2 236	10.07	71	80	79 788	32	49.15
1984 ASM	24 882	72	2 194	10.19	70	80	74 479	33	47.46
1983 ASM	22 893	71	2 065	10.43	69	80	67 013	34	45.48
1982 Census	22 401	73	2 000	10.32	70	81	60 914	37	41.71
1981 ASM	20 675	73	1 989	9.32	68	79	58 808	35	40.79
1980 ASM	19 817	73	2 054	8.62	68	79	57 762	34	38.51
1979 ASM	18 333	75	2 093	8.14	68	79	51 225	36	32.55
1978 ASM	18 593	78	2 133	8.04	64	77	55 615	33	33.52
1977 Census	14 775	75	2 082	6.65	68	80	39 364	38	25.14
	INDUSTRY 2952, ASPHALT FELTS AND COATINGS								
1992 Census	33 266	73	2 256	13.16	60	71	125 048	27	76.38
1991 ASM	30 806	71	2 102	13.02	64	75	99 774	31	66.88
1990 ASM	30 742	72	2 124	12.69	64	75	103 621	30	67.98
1989 ASM	29 339	73	2 189	12.06	64	74	100 645	29	63.35
1988 ASM	26 940	72	2 073	11.92	63	73	96 112	28	64.72
1987 Census	26 289	72	2 082	11.75	63	74	95 119	28	63.57
1986 ASM	25 962	71	2 086	11.38	66	75	88 893	29	60.03
1985 ASM	23 035	70	2 040	10.83	71	81	70 535	33	49.31
1984 ASM	22 738	72	2 057	10.25	69	78	74 731	30	50.17
1983 ASM	21 579	73	2 142	9.36	73	82	61 559	35	39.32
1982 Census	20 331	73	2 019	9.29	70	80	57 528	35	38.90
1981 ASM	19 550	73	2 065	8.91	73	85	46 965	42	31.37
1980 ASM	17 888	72	2 142	7.98	70	81	48 374	37	31.52
1979 ASM	16 701	74	2 152	7.22	66	79	45 558	37	28.75
1978 ASM	15 561	75	2 208	6.50	63	75	46 495	33	28.08
1977 Census	13 933	73	2 168	6.00	64	77	39 190	36	24.65
	INDUSTRY 2992, LUBRICATING OILS AND GREASES								
1992 Census	35 076	51	2 083	13.62	72	80	117 644	30	111.06
1991 ASM	34 330	50	2 073	13.32	71	79	119 560	29	114.32
1990 ASM	33 286	50	1 946	13.74	72	80	114 313	29	117.46
1989 ASM	31 161	51	2 000	12.99	69	77	123 857	25	121.68
1988 ASM	28 628	49	2 036	11.90	67	76	113 628	25	114.64
1987 Census	27 839	49	2 018	11.19	70	78	102 071	27	102.99
1986 ASM	27 212	51	2 019	11.16	70	78	95 327	29	92.65
1985 ASM	27 413	50	1 944	10.97	70	78	95 963	29	99.62
1984 ASM	26 479	52	1 984	10.79	71	80	91 692	29	88.66
1983 ASM	23 568	50	2 018	9.11	62	71	100 622	23	100.62
1982 Census	22 370	47	2 018	9.05	68	77	75 849	29	79.88
1981 ASM	20 789	50	1 953	8.28	73	82	66 547	31	68.14
1980 ASM	18 647	50	2 000	7.14	72	81	60 098	31	59.65
1979 ASM	17 476	50	2 065	7.23	67	76	66 750	26	64.66
1978 ASM	16 598	53	1 907	7.06	63	72	68 755	24	68.09
1977 Census	15 252	52	1 926	6.29	67	76	50 951	30	50.46
	INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.								
1992 Census	33 000	67	2 357	13.06	59	68	163 857	20	104.27
1991 ASM	30 381	67	2 214	13.35	60	67	181 619	17	123.03
1990 ASM	28 900	65	2 154	13.54	62	68	188 550	15	134.68
1989 ASM	28 526	68	2 000	13.46	61	67	191 211	15	139.73
1988 ASM	28 211	68	2 000	13.04	65	72	131 053	22	95.77
1987 Census	28 211	63	2 167	13.04	62	69	141 737	20	103.58

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2911, PETROLEUM REFINING														
United States	**–**	**232**	**197**	**74.8**	**3 636.3**	**47.9**	**109.3**	**2 157.3**	**19 100.6**	**116 908.0**	**136 239.0**	**6 139.7**	**74.6**	**14 218.9**
Alabama	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	63.0
Alaska	–	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	57.7
California	–	32	29	11.6	605.6	7.2	16.3	337.0	3 260.6	13 972.0	17 224.9	978.8	11.6	2 393.1
Colorado	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	30.9
Delaware	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Hawaii	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	7	7	4.6	227.8	3.0	6.4	134.1	999.9	7 259.1	8 265.3	399.3	4.3	357.7
Indiana	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	6	6	1.8	75.0	1.2	2.6	49.6	429.5	2 463.7	2 903.0	189.7	G	(D)
Kentucky	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	–	20	18	9.0	452.8	5.5	12.6	263.9	2 557.0	17 868.0	20 450.0	829.1	(NA)	(D)
Michigan	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	6	6	2.6	134.9	1.7	3.7	78.0	314.9	4 586.4	4 843.4	61.0	2.2	292.3
New Mexico	–	3	3	.6	25.3	.4	.8	14.1	153.2	720.3	880.4	(D)	.5	102.4
North Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	7	6	2.0	94.0	1.2	2.9	50.3	373.5	3 570.2	3 955.6	88.6	1.9	167.5
Oklahoma	–	7	6	2.0	83.1	1.4	3.1	55.2	367.5	3 120.2	3 504.8	64.9	2.0	226.9
Pennsylvania	E2	14	13	4.4	191.1	2.7	6.3	112.1	2 106.2	5 858.5	7 994.7	126.5	4.8	948.2
Tennessee	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	44	35	20.6	1 036.4	13.4	32.1	626.0	4 212.0	34 042.7	38 372.0	2 205.6	(NA)	(D)
Utah	–	8	6	.8	38.3	.5	1.2	22.8	333.3	1 124.8	1 458.2	74.7	F	(D)
Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	7	6	1.8	86.4	1.0	2.2	46.2	252.8	3 795.7	4 062.9	137.2	G	(D)
West Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wyoming	–	4	4	.7	28.7	.5	1.1	19.9	103.2	820.5	932.9	(D)	.9	53.3
INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS														
United States	**E1**	**1 150**	**168**	**13.2**	**433.8**	**9.3**	**20.0**	**284.7**	**1 416.1**	**2 405.2**	**3 835.8**	**111.4**	**14.6**	**1 602.9**
Alabama	–	19	4	.3	6.1	.2	.4	4.2	16.2	44.0	62.0	1.1	.4	67.6
Arkansas	E1	11	3	.2	4.2	.1	.3	2.8	11.3	21.8	33.1	(D)	(NA)	(D)
California	E1	115	11	1.0	39.4	.7	1.3	26.6	150.2	267.3	419.1	9.5	1.2	179.2
Colorado	E6	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	E2	27	5	.6	24.4	.5	.9	17.5	75.6	79.6	155.8	2.3	F	(D)
Florida	E1	27	8	.6	14.9	.3	.6	6.0	45.3	57.4	102.6	2.0	.7	43.8
Georgia	–	31	2	.3	9.8	.3	.6	6.5	26.5	63.4	89.4	2.7	E	(D)
Illinois	E2	29	5	.3	10.7	.2	.4	7.2	40.0	75.1	115.5	2.1	(NA)	(D)
Indiana	E1	28	1	.2	5.6	.1	.3	3.8	22.3	37.9	59.9	(D)	E	(D)
Kentucky	E2	28	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	E3	12	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	8	2	.2	7.1	.2	.5	6.3	13.2	19.9	32.5	1.0	E	(D)
Maryland	–	26	2	.2	4.9	.1	.2	3.2	19.8	44.2	63.9	1.2	.2	36.6
Massachusetts	E1	45	3	.5	18.8	.4	.8	14.0	65.0	79.8	143.7	(D)	F	(D)
Michigan	E3	27	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	13	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	E	(D)
Mississippi	–	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	29	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	E3	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E2	36	8	.5	15.6	.2	.4	6.8	43.4	83.9	127.5	2.2	.6	69.8
New York	–	130	17	1.5	54.9	1.1	2.3	36.4	176.2	234.7	408.4	15.9	G	(D)
North Carolina	–	21	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E3	127	16	1.1	36.5	.8	1.8	24.7	128.0	296.6	425.4	10.0	1.2	119.3
Oklahoma	E2	20	3	.3	6.9	.1	.3	3.6	16.9	22.8	39.7	(D)	E	(D)
Oregon	–	10	5	.3	10.1	.2	.4	5.6	16.2	21.5	37.3	(D)	.2	13.3
Pennsylvania	–	95	11	.8	24.7	.6	1.3	16.7	94.6	154.9	249.3	3.1	.9	90.2
Tennessee	–	35	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E2	57	11	1.0	29.3	.8	1.9	18.8	78.9	160.9	246.3	16.5	F	(D)
Virginia	E3	14	1	.1	3.3	.1	.2	1.8	10.8	22.1	33.1	(D)	(NA)	(D)
Washington	–	10	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2952, ASPHALT FELTS AND COATINGS														
United States	–	**245**	**123**	**12.4**	**412.5**	**9.0**	**20.3**	**267.1**	**1 550.6**	**2 358.7**	**3 913.0**	**69.1**	**13.5**	**1 284.1**
Alabama	–	8	6	.7	25.8	.5	1.3	16.9	92.7	131.8	227.3	3.5	.8	66.0
Arkansas	–	4	4	.2	6.5	.1	.3	3.3	20.4	43.2	63.6	(D)	.2	11.6
California	–	28	16	1.2	42.3	.8	1.9	29.3	179.1	261.2	436.4	11.6	1.1	121.8
Delaware	E5	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	16	4	.4	13.1	.3	.7	9.1	78.3	109.5	190.7	3.3	.4	48.6
Georgia	–	10	8	.6	21.4	.5	1.1	15.4	58.3	158.9	218.3	2.5	F	(D)
Illinois	–	16	6	.8	26.5	.6	1.3	15.8	85.6	147.8	237.3	5.6	F	(D)
Indiana	E3	8	3	.5	16.0	.4	.8	12.3	60.4	113.0	174.4	1.9	F	(D)
Kansas	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E8	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	5	3	.4	15.2	.3	.7	10.8	74.3	100.2	172.1	1.6	.5	82.3
Massachusetts	–	5	3	.3	11.7	.2	.5	6.4	42.0	45.6	85.0	(D)	E	(D)
Minnesota	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	E	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	9	6	.4	11.6	.2	.5	6.9	37.1	70.0	107.0	(D)	.5	55.7
New York	E1	8	1	.1	3.4	.1	.2	1.9	11.9	18.4	29.9	.4	(NA)	(D)
North Carolina	–	7	3	.4	11.6	.3	.7	8.0	26.1	56.3	82.2	(D)	E	(D)
Ohio	–	23	13	1.2	45.2	.8	1.6	21.7	160.1	184.3	348.8	4.4	G	(D)
Oklahoma	–	3	3	.2	6.4	.2	.4	5.2	13.1	44.2	57.6	(D)	(NA)	(D)
Oregon	–	4	3	.3	7.6	.2	.4	5.4	25.6	57.0	80.3	(D)	.3	26.1
Pennsylvania	–	12	6	.5	16.2	.3	.7	8.6	39.7	74.5	116.1	3.3	.6	39.7
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	24	13	1.4	48.1	1.0	2.4	31.0	198.4	298.3	493.2	6.4	G	(D)
Washington	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 2992, LUBRICATING OILS AND GREASES														
United States	**E1**	**419**	**173**	**11.8**	**413.9**	**6.0**	**12.5**	**170.2**	**1 388.2**	**3 691.8**	**5 103.5**	**197.2**	**11.2**	**1 143.2**
Arkansas	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	37	15	.9	35.2	.5	1.1	15.5	184.8	325.8	509.2	8.2	G	(D)
Georgia	E1	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	34	20	1.1	41.2	.5	1.1	17.4	147.3	409.4	558.5	14.5	1.2	129.9
Indiana	E3	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	8	6	.4	11.7	.2	.3	3.7	44.0	66.7	108.4	5.0	.4	27.5
Louisiana	–	18	9	.9	27.2	.6	1.1	16.0	64.1	536.4	604.2	(D)	.6	24.0
Maryland	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	10	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	E2	33	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	12	5	.3	12.8	.1	.2	3.3	33.8	113.2	147.3	.5	E	(D)
New Jersey	E3	17	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E4	10	7	.3	8.8	.2	.3	3.9	25.9	47.2	73.2	.2	E	(D)
North Carolina	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	(NA)	(NA)
Ohio	E3	34	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.1	F	(D)
Oklahoma	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	28	17	1.1	38.6	.7	1.4	19.2	128.5	423.0	549.2	6.9	1.2	116.5
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E5	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	48	11	.9	30.6	.3	.6	9.9	11.2	279.9	298.4	19.9	F	(D)
INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.														
United States	**E1**	**82**	**27**	**2.1**	**69.3**	**1.4**	**3.3**	**43.1**	**344.1**	**504.3**	**849.7**	**21.6**	**1.9**	**269.3**
California	–	10	4	.2	8.7	.1	.3	4.9	58.9	68.2	129.9	2.1	(NA)	(D)
Illinois	–	4	3	.2	5.2	.1	.2	2.2	22.3	42.1	64.7	1.1	.2	32.8
Louisiana	E1	5	4	.2	9.9	.2	.4	7.7	69.8	81.7	146.7	(D)	(NA)	(D)
Michigan	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Oklahoma	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E3	8	4	.3	7.4	.2	.4	5.7	31.2	51.1	82.4	1.3	(NA)	(NA)
Texas	–	8	2	.2	9.5	.2	.4	8.1	51.6	88.0	140.9	1.0	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Petroleum refining (SIC 2911)	Asphalt paving mixtures and blocks (SIC 2951)	Asphalt felts and coatings (SIC 2952)	Lubricating oils and greases (SIC 2992)	Petroleum and coal products, n.e.c. (SIC 2999)
Companies ---- number	132	539	151	332	71
All establishments ---- number	232	1 150	245	419	82
With 1 to 19 employees ---- number	35	982	122	246	55
With 20 to 99 employees ---- number	57	159	76	149	22
With 100 employees or more ---- number	140	9	47	24	5
Employment and labor costs:					
Employees ---- 1,000	74.8	13.2	12.4	11.8	2.1
Compensation, total ---- mil dol	4 570.8	555.5	507.8	498.6	87.4
Annual payroll ---- mil dol	3 636.3	433.8	412.5	413.9	69.3
Fringe benefits ---- mil dol	934.5	121.7	95.3	84.7	18.1
Social Security and other legally required payments ---- mil dol	317.2	56.7	43.6	40.8	7.2
Employer voluntary payments ---- mil dol	617.3	65.0	51.7	43.8	10.8
Production workers:					
Average for year ---- 1,000	47.9	9.3	9.0	6.0	1.4
March ---- 1,000	47.8	7.9	8.8	6.0	1.4
May ---- 1,000	48.1	9.9	9.0	6.1	1.5
August ---- 1,000	48.3	10.5	9.2	6.1	1.4
November ---- 1,000	47.4	9.1	8.9	5.9	1.3
Hours ---- millions	109.3	20.0	20.3	12.5	3.3
Wages ---- mil dol	2 157.3	284.7	267.1	170.2	43.1
Cost of materials[1] ---- mil dol	116 908.0	2 405.2	2 358.7	3 691.8	504.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	107 872.2	2 090.3	2 131.0	3 460.7	420.4
Resales ---- mil dol	3 967.6	33.6	139.2	143.9	43.0
Fuels ---- mil dol	2 113.4	153.2	44.6	27.4	17.7
Purchased electricity ---- mil dol	1 388.3	76.0	37.5	22.8	12.3
Contract work ---- mil dol	1 566.5	52.2	6.4	37.1	11.0
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	33 027.6	1 045.1	651.7	348.7	289.2
Generated less sold ---- mil kWh	11 591.4	(D)	(S)	2.7	86.6
Total value of shipments ---- mil dol	136 239.0	3 835.8	3 913.0	5 103.5	849.7
Value added ---- mil dol	19 100.6	1 416.1	1 550.6	1 388.2	344.1
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	9 830.9	257.6	295.4	792.6	107.8
Finished goods ---- mil dol	4 570.9	112.0	189.7	305.5	46.1
Work in process ---- mil dol	2 468.7	17.7	4.7	52.7	13.1
Materials and supplies ---- mil dol	2 791.3	127.9	101.0	434.5	48.6
End of 1992 ---- mil dol	9 721.7	239.8	307.1	561.3	115.6
Finished goods ---- mil dol	4 354.0	102.0	185.0	296.2	43.6
Work in process ---- mil dol	2 455.2	13.3	5.7	38.5	14.3
Materials and supplies ---- mil dol	2 912.5	124.6	116.4	226.6	57.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Petroleum refining (SIC 2911)	Asphalt paving mixtures and blocks (SIC 2951)	Asphalt felts and coatings (SIC 2952)	Lubricating oils and greases (SIC 2992)	Petroleum and coal products, n.e.c. (SIC 2999)
Gross book value of depreciable assets:					
Total:					
Beginning of year	48 961.0	1 765.5	1 129.0	1 088.6	593.5
New capital expenditures[1]	6 139.7	111.4	69.1	197.2	21.6
Used capital expenditures	117.4	22.3	9.9	5.4	3.4
Retirements	906.1	48.4	31.9	27.9	26.0
End of year	54 312.0	1 850.9	1 176.1	1 263.4	592.5
Buildings and other structures:					
Beginning of year	6 493.2	158.6	253.6	288.5	130.2
New capital expenditures	505.0	11.2	9.2	43.4	2.6
Used capital expenditures	34.1	2.7	1.8	(D)	(D)
Retirements	25.3	2.6	2.2	(D)	(D)
End of year	7 006.9	169.9	262.4	332.4	130.6
Machinery and equipment:					
Beginning of year	42 467.8	1 607.0	875.4	800.1	463.3
New capital expenditures[1]	5 634.7	100.2	59.9	153.8	19.0
Used capital expenditures	83.3	19.6	8.1	(D)	(D)
Retirements	880.8	45.8	29.7	(D)	(D)
End of year	47 305.1	1 681.0	913.7	931.0	461.9
Depreciation charges during 1992:					
Total	2 188.9	129.1	81.6	74.2	38.2
Buildings and other structures	425.3	11.6	12.2	22.9	7.7
Machinery and equipment	1 763.6	117.6	69.4	51.3	30.4
Rental payments:					
Total	236.4	36.1	15.8	17.1	4.0
Buildings and other structures	80.1	14.6	5.9	9.7	2.6
Machinery and equipment	156.4	21.5	9.9	7.5	1.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Petroleum refining (SIC 2911)		Asphalt paving mixtures and blocks (SIC 2951)		Asphalt felts and coatings (SIC 2952)		Lubricating oils and greases (SIC 2992)		Petroleum and coal products, n.e.c. (SIC 2999)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	284.8	(X)	8.6	(X)	4.1	(X)	4.0	(X)	4.6	(X)
Response coverage ratio (percent)[2]	94.8	(X)	76.0	(X)	89.0	(X)	74.0	(X)	82.0	(X)
Machinery	1 316.2	(X)	55.9	(X)	44.2	(X)	26.5	(X)	16.2	(X)
Response coverage ratio (percent)[2]	95.7	(X)	78.6	(X)	92.9	(X)	78.2	(X)	89.2	(X)
Other purchased services:										
Communications	33.4	(X)	5.2	(X)	6.1	(X)	6.7	(X)	.9	(X)
Response coverage ratio (percent)[2]	93.1	(X)	71.2	(X)	90.9	(X)	72.6	(X)	88.7	(X)
Legal	24.4	(X)	6.6	(X)	3.5	(X)	2.7	(X)	.8	(X)
Response coverage ratio (percent)[2]	91.7	(X)	74.3	(X)	90.6	(X)	77.3	(X)	85.1	(X)
Accounting and bookkeeping	19.2	(X)	3.7	(X)	1.2	(X)	1.8	(X)	.5	(X)
Response coverage ratio (percent)[2]	89.1	(X)	75.6	(X)	88.1	(X)	76.8	(X)	78.0	(X)
Advertising	15.5	(X)	2.4	(X)	6.6	(X)	12.5	(X)	.5	(X)
Response coverage ratio (percent)[2]	91.1	(X)	75.5	(X)	88.1	(X)	73.6	(X)	78.0	(X)
Software and other data processing	36.2	(X)	1.4	(X)	3.5	(X)	2.1	(X)	.5	(X)
Response coverage ratio (percent)[2]	95.6	(X)	73.7	(X)	89.1	(X)	75.0	(X)	89.2	(X)
Refuse removal, including hazardous waste	230.0	(X)	1.0	(X)	14.1	(X)	5.4	(X)	1.5	(X)
Response coverage ratio (percent)[2]	95.0	(X)	74.3	(X)	93.6	(X)	76.2	(X)	89.2	(X)
New machinery and equipment expenditures	5 634.7	(X)	100.2	(X)	59.9	(X)	153.8	(X)	19.0	(X)
Automobiles, trucks, etc., for highway use	19.6	1	17.1	14	1.1	37	2.2	13	1.1	52
Computers and peripheral data processing equipment	66.5	1	3.2	24	1.8	7	8.2	22	.9	8
All other	5 548.6	1	79.8	3	56.9	1	143.3	2	17.1	4
Adjustment ratio[3]	1.0	(X)	1.5	(X)	1.2	(X)	1.1	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	107 872.2	(X)	2 090.3	(X)	2 131.0	(X)	3 460.7	(X)	420.4	(X)
Materials purchased or transferred from foreign sources[4]	42 549.8	1	2.7	25	80.9	4	(S)	(X)	9.9	13
Materials purchased or transferred from domestic sources	65 322.4	1	2 087.6	1	2 050.2	1	(S)	(X)	410.5	1
Adjustment ratio[3]	1.0	(X)	1.7	(X)	1.3	(X)	(S)	(X)	1.2	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2911, PETROLEUM REFINING												
Total	**–**	**232**	**74.8**	**3 636.3**	**47.9**	**109.3**	**2 157.3**	**19 100.6**	**116 908.0**	**136 239.0**	**6 139.7**	**9 721.7**
Establishments with an average of–												
1 to 4 employees	E5	17	(Z)	1.0	(Z)	(Z)	.6	9.6	21.7	31.5	1.0	1.1
5 to 9 employees	–	7	(Z)	1.5	(Z)	.1	1.0	34.6	25.0	59.6	(D)	.8
10 to 19 employees	E2	11	.2	4.6	.1	.2	2.7	15.9	64.2	80.7	.5	8.7
20 to 49 employees	E1	35	1.2	39.4	.7	1.5	23.3	117.6	961.8	1 087.5	14.0	83.3
50 to 99 employees	–	22	1.7	64.6	1.1	2.5	40.0	240.1	1 630.6	1 878.4	32.1	133.4
100 to 249 employees	–	45	8.0	337.1	5.5	12.7	220.9	2 274.4	11 670.3	14 005.1	497.3	1 025.1
250 to 499 employees	–	49	16.9	793.5	11.1	24.8	485.9	4 429.5	30 100.9	34 518.7	1 346.4	2 627.7
500 to 999 employees	–	26	18.1	907.9	11.2	24.9	510.2	5 889.0	29 044.7	35 005.3	1 697.5	2 637.2
1,000 to 2,499 employees	–	20	28.9	1 486.6	18.1	42.7	872.6	6 089.9	43 389.1	49 572.3	2 550.9	3 204.4
INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS												
Total	**E1**	**1 150**	**13.2**	**433.8**	**9.3**	**20.0**	**284.7**	**1 416.1**	**2 405.2**	**3 835.8**	**111.4**	**239.8**
Establishments with an average of–												
1 to 4 employees	E1	502	1.3	44.3	1.0	2.3	32.7	260.9	511.7	776.0	16.5	32.2
5 to 9 employees	E1	325	2.1	68.7	1.6	3.4	47.7	300.2	622.9	925.1	17.1	44.9
10 to 19 employees	E2	155	2.1	68.6	1.5	3.2	44.8	254.0	422.6	678.7	16.1	41.0
20 to 49 employees	E1	130	4.0	131.8	2.6	5.4	78.8	356.0	580.7	937.6	28.4	66.9
50 to 99 employees	E3	29	1.9	61.1	1.3	2.7	37.6	137.7	168.0	306.2	11.9	27.6
100 to 249 employees	E2	7	1.8	59.3	1.3	3.0	43.0	107.4	99.2	212.2	21.4	27.2
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	95	.2	4.9	.2	.3	3.3	13.1	25.0	38.1	1.0	1.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2952, ASPHALT FELTS AND COATINGS												
Total	**–**	**245**	**12.4**	**412.5**	**9.0**	**20.3**	**267.1**	**1 550.6**	**2 358.7**	**3 913.0**	**69.1**	**307.1**
Establishments with an average of—												
1 to 4 employees	E6	51	.1	3.3	.1	.2	2.2	11.6	18.9	30.3	.6	2.8
5 to 9 employees	E2	33	.2	6.2	.2	.4	4.0	30.4	37.8	68.0	.9	5.8
10 to 19 employees	E1	38	.5	15.4	.4	.8	9.5	64.9	123.9	188.1	3.7	14.0
20 to 49 employees	E1	41	1.3	37.7	.9	1.9	22.5	146.7	247.3	395.7	5.6	31.6
50 to 99 employees	–	35	2.6	83.5	1.9	4.5	58.6	315.3	503.8	814.2	9.5	73.1
100 to 249 employees	–	44	6.6	230.9	4.8	10.9	148.9	866.8	1 273.8	2 151.8	48.8	155.3
250 to 499 employees	–	2	1.1	35.5	.8	1.7	21.4	115.1	153.2	264.9	(D)	24.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	36	.1	1.9	(Z)	.1	1.3	6.2	10.8	17.0	.3	1.5
INDUSTRY 2992, LUBRICATING OILS AND GREASES												
Total	**E1**	**419**	**11.8**	**413.9**	**6.0**	**12.5**	**170.2**	**1 388.2**	**3 691.8**	**5 103.5**	**197.2**	**561.3**
Establishments with an average of—												
1 to 4 employees	E7	105	.2	5.0	.1	.2	2.0	16.6	37.9	54.8	1.1	6.2
5 to 9 employees	E3	64	.4	11.6	.2	.4	4.5	34.2	70.4	104.6	1.7	11.5
10 to 19 employees	E2	77	1.1	34.7	.5	1.0	11.5	131.6	191.3	322.0	8.8	34.6
20 to 49 employees	E1	102	3.1	113.7	1.6	3.3	44.1	575.7	1 095.0	1 662.3	25.7	176.7
50 to 99 employees	E1	47	3.3	116.8	1.7	3.5	50.6	346.1	1 073.1	1 428.9	32.4	137.8
100 to 249 employees	E1	22	3.8	132.2	2.0	4.2	57.5	284.0	1 224.2	1 531.0	127.5	194.6
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	70	.2	2.8	.1	.1	1.1	8.4	20.1	28.4	.8	2.8
INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.												
Total	**E1**	**82**	**2.1**	**69.3**	**1.4**	**3.3**	**43.1**	**344.1**	**504.3**	**849.7**	**21.6**	**115.6**
Establishments with an average of—												
1 to 4 employees	E7	27	(Z)	1.3	(Z)	.1	.8	9.0	12.9	21.9	.3	2.1
5 to 9 employees	E3	15	.1	2.4	.1	.1	1.6	13.1	31.0	43.7	.4	5.9
10 to 19 employees	E2	13	.2	5.7	.1	.2	3.1	23.0	34.3	57.0	7.1	6.7
20 to 49 employees	E2	10	.3	11.0	.2	.5	7.1	47.5	54.3	101.5	(D)	7.7
50 to 99 employees	–	12	.9	30.2	.6	1.3	19.7	182.6	293.7	476.7	11.0	74.4
100 to 249 employees	–	5	.6	18.6	.4	1.0	10.8	69.0	78.1	149.0	2.9	18.7
Covered by administrative records[2]	E9	14	(Z)	.3	(Z)	(Z)	.2	2.0	2.9	4.9	.1	.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2911	**Petroleum refining:**										
	All establishments in industry	232	74.8	3 636.3	47.9	109.3	2 157.3	19 100.6	116 908.0	136 239.0	6 139.7
	Establishments with this product class primary:										
29111	Gasoline, including finished base stocks and blending agents	132	68.2	3 381.0	43.6	100.0	1 999.6	17 708.8	111 648.9	129 563.8	5 914.5
29112	Jet fuel	8	.7	34.0	.4	1.0	22.1	312.8	1 654.9	1 987.7	45.7
29114	Light fuel oils	20	1.1	37.7	.7	1.4	21.6	359.6	821.3	1 184.1	13.7
29115	Heavy fuel oils	7	.7	25.7	.4	.9	15.1	77.3	536.2	607.8	(D)
29117	Lubricating oils and greases, made in a refinery	8	1.4	47.0	.9	1.8	27.5	326.4	541.8	857.3	45.2
29118	Unfinished oils and lubricating oil base stock	10	1.5	61.8	1.0	2.2	41.9	192.9	919.3	1 121.3	45.0
29119	Asphalt	17	.7	29.8	.5	1.1	17.7	45.9	605.7	657.5	8.2
2911A	Liquefied refinery gases including other aliphatics (feed stock and other uses), made in a refinery	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2911D	Other finished petroleum products, including waxes	7	.3	12.1	.2	.6	7.7	46.1	74.5	121.4	(D)
2951	**Asphalt paving mixtures and blocks:**										
	All establishments in industry	1 150	13.2	433.8	9.3	20.0	284.7	1 416.1	2 405.2	3 835.8	111.4

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2952	**Asphalt felts and coatings:**										
	All establishments in industry	245	12.4	412.5	9.0	20.3	267.1	1 550.6	2 358.7	3 913.0	69.1
	Establishments with this product class primary:										
29522	Roofing asphalts and pitches, coatings, and cements	56	1.4	41.2	.9	1.8	22.2	180.8	262.8	443.7	6.6
29524	Prepared asphalt and tar roofing and siding products including saturated felts and boards for nonbuilding use	103	10.3	349.6	7.5	17.3	230.7	1 300.0	1 977.5	3 281.0	56.9
2992	**Lubricating oils and greases:**										
	All establishments in industry	419	11.8	413.9	6.0	12.5	170.2	1 388.2	3 691.8	5 103.5	197.2
2999	**Petroleum and coal products, n.e.c.:**										
	All establishments in industry	82	2.1	69.3	1.4	3.3	43.1	344.1	504.3	849.7	21.6

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2911, PETROLEUM REFINING			
Total value of shipments	136 239.0	118 186.2	(NA)
Primary products value of shipments	131 319.3	114 103.6	(NA)
Secondary products value of shipments	737.6	894.1	(NA)
Total miscellaneous receipts	4 182.1	3 188.5	(NA)
Value of resales	4 083.0	2 621.3	(NA)
Contract receipts	24.6	403.5	(NA)
Other miscellaneous receipts	74.5	164.7	(NA)
Sales of scrap and refuse	19.4	(NA)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	52.7	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	99	99	(NA)
Value of primary products shipments made in all industries	131 402.8	114 278.3	(NA)
Value of primary products shipments made in this industry	131 319.3	114 103.6	(NA)
Value of primary products shipments made in other industries	83.5	174.7	(NA)
Coverage ratio	99	99	(NA)
INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS			
Total value of shipments	3 835.8	4 346.2	3 098.6
Primary products value of shipments	3 429.1	3 846.1	2 757.1
Secondary products value of shipments	224.5	248.8	216.3
Total miscellaneous receipts	182.2	251.3	125.2
Value of resales	39.6	62.0	50.1
Contract receipts	35.1	30.7	12.0
Other miscellaneous receipts	107.5	158.6	63.1
Sales of scrap and refuse	.2	(NA)	(Z)
Receipts for research and development	(D)	(NA)	–
Receipts for construction work (paving, etc.)	78.9	(NA)	–
Other miscellaneous receipts	24.9	(NA)	61.8
Other miscellaneous receipts, n.s.k.	(D)	(NA)	1.2
Primary products specialization ratio	94	94	93
Value of primary products shipments made in all industries	3 642.7	4 087.0	2 881.0
Value of primary products shipments made in this industry	3 429.1	3 846.1	2 757.1
Value of primary products shipments made in other industries	213.6	240.9	123.8
Coverage ratio	94	94	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 2952, ASPHALT FELTS AND COATINGS			
Total value of shipments	3 913.0	3 402.9	2 849.5
Primary products value of shipments	3 565.3	3 135.0	2 580.5
Secondary products value of shipments	158.7	112.7	126.7
Total miscellaneous receipts	189.0	155.2	142.3
Value of resales	183.0	151.6	137.1
Contract receipts	3.9	(D)	(D)
Other miscellaneous receipts	2.1	(D)	(D)
Primary products specialization ratio	96	97	95
Value of primary products shipments made in all industries	3 625.2	3 175.7	2 633.2
Value of primary products shipments made in this industry	3 565.3	3 135.0	2 580.5
Value of primary products shipments made in other industries	59.9	40.7	52.7
Coverage ratio	98	99	98
INDUSTRY 2992, LUBRICATING OILS AND GREASES			
Total value of shipments	5 103.5	3 765.6	2 875.3
Primary products value of shipments	4 565.6	3 388.3	2 574.9
Secondary products value of shipments	326.9	172.4	156.6
Total miscellaneous receipts	211.0	204.8	143.8
Value of resales	193.6	170.5	107.8
Contract receipts	9.4	26.8	32.6
Other miscellaneous receipts	7.9	7.5	3.4
Primary products specialization ratio	93	95	94
Value of primary products shipments made in all industries	4 910.2	3 622.2	2 718.3
Value of primary products shipments made in this industry	4 565.6	3 388.3	2 574.9
Value of primary products shipments made in other industries	344.6	233.8	143.4
Coverage ratio	93	94	95
INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.			
Total value of shipments	849.7	713.1	(NA)
Primary products value of shipments	735.4	612.1	(NA)
Secondary products value of shipments	24.3	28.8	(NA)
Total miscellaneous receipts	90.0	72.2	(NA)
Value of resales	47.5	23.2	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	97	95	(NA)
Value of primary products shipments made in all industries	809.1	647.9	(NA)
Value of primary products shipments made in this industry	735.4	612.1	(NA)
Value of primary products shipments made in other industries	73.7	35.8	(NA)
Coverage ratio	91	94	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2911– —	**PETROLEUM REFINING**						
	Total	**(NA)**	**(X)**	**131 402.8**	**(NA)**	**(X)**	**114 278.3**
29111	Gasoline, including finished base stocks and blending agents	(NA)	(X)	70 140.4	(NA)	(X)	58 669.3
29111 11	Aviation gasoline, except jet fuel[3] mil bbl	18	30.5	871.4	17	15.1	457.5
29111 31	Motor gasoline[3] mil bbl	81	2 782.0	69 269.0	74	2 521.1	57 911.4
29111 00	Gasoline, including finished base stocks and blending agents, n.s.k.	(NA)	(X)	–	(NA)	(X)	300.3
29112	Jet fuel	(NA)	(X)	12 338.8	(NA)	(X)	10 506.0
29112 11	Naphtha type mil bbl	38	75.7	1 767.0	41	77.2	1 651.5
29112 13	Kerosene type mil bbl	44	456.8	10 571.8	52	406.6	8 838.2
29112 00	Jet fuel, n.s.k.	(NA)	(X)	–	(NA)	(X)	16.3
29113	Kerosene	(NA)	(X)	543.0	(NA)	(X)	521.9
29113 00	Kerosene, except jet fuel mil bbl	35	23.2	543.0	37	25.9	521.9
29114	Light fuel oils	(NA)	(X)	26 426.0	(NA)	(X)	21 171.5
29114 12	Distillate fuel oil, including grades No. 1, 2, light diesel-type, light gas-enrichment oils, etc. mil bbl	86	1 145.8	25 910.8	96	1 010.1	20 642.4
29114 14	No. 4 type fuel oil mil bbl	21	25.6	515.2	21	24.3	474.5
29114 00	Light fuel oils, n.s.k.	(NA)	(X)	–	(NA)	(X)	54.6
29115	Heavy fuel oils	(NA)	(X)	4 731.6	(NA)	(X)	5 465.3
29115 00	Heavy fuel oils, including grades No. 5, 6, heavy diesel-type, heavy gas-enrichment oils, etc. mil bbl	69	343.6	4 731.6	78	350.1	5 465.3
29117	Lubricating oils and greases, made in a refinery[4]	(NA)	(X)	1 839.9	(NA)	(X)	1 457.7
29117 21	Lubricating oils (hydraulic fluids, quenching and cutting oils, transformer oils, liquid rust preventives, etc.) mil bbl	22	47.3	1 768.1	(NA)	(S)	1 427.6
29117 31	Lubricating greases[5] mil bbl	10	2.4	71.8			
29117 00	Lubricating oils and greases, made in a refinery, n.s.k.	(NA)	(X)	–	(NA)	(X)	30.2
29118	Unfinished oils and lubricating oil base stock	(NA)	(X)	4 741.1	(NA)	(X)	4 177.1
29118 13	Unfinished oils, naphthenic and paraffinic[6] mil bbl	30	76.0	1 482.4	30	76.4	1 462.5
29118 16	Naphtha and other oils for use as petrochemical feedstocks, excluding carbon black mil bbl	29	51.9	1 184.9	25	85.0	1 423.2
29118 17	Carbon black feedstock mil bbl	17	19.0	224.3	17	11.9	174.6
	Lubricating oil petroleum-base stocks:						
29118 51	Bright stock[7] mil bbl	14	4.6	186.5	10	3.9	120.1
29118 52	Neutral stock[7] mil bbl	18	24.9	991.5	17	21.3	782.0
29118 56	Red and pale oils[7] mil bbl	9	2.0	83.9	5	2.0	88.4
29118 59	Other oils[7] mil bbl	15	22.6	587.0	6	3.1	104.0
29118 00	Unfinished oils and lubricating oil base stock, n.s.k.	(NA)	(X)	.6	(NA)	(X)	22.4
29119	Asphalt	(NA)	(X)	1 846.2	(NA)	(X)	2 521.2
29119 21	Paving grade asphalts[8] mil bbl	48	99.8	1 429.5	47	129.7	2 099.5
29119 31	Roofing grade asphalts[8] mil bbl	26	15.9	247.3	19	12.0	205.0
29119 41	Miscellaneous asphalts, n.e.c.[8] mil bbl	19	10.5	169.4	16	10.6	166.7
29119 00	Asphalt, n.s.k.	(NA)	(X)	–	(NA)	(X)	50.0
2911A	Liquefied refinery gases including other aliphatics (feed stock and other uses), made in a refinery[4]	(NA)	(X)	4 887.3	(NA)	(X)	4 064.4
2911A 21	Chemical raw material, including synthetic rubber components	39	(X)	2 924.4	40	(X)	2 213.5
2911A 22	Other uses mil lb	32	136.3	1 962.9	31	87.7	1 185.8
2911A 00	Liquefied refinery gases including other aliphatics (feed stock and other uses), made in a refinery, n.s.k.	(NA)	(X)	–	(NA)	(X)	r665.1
2911D	Other finished petroleum products, including waxes	(NA)	(X)	3 809.2	(NA)	(X)	4 045.6
2911D 11	Petrolatum mil bbl	10	4.8	183.7	10	4.6	168.2
2911D 23	Petroleum coke 1,000 s tons	18	299.6	256.0	27	(S)	488.6
2911D 25	Calcined petroleum coke, made in a refinery 1,000 s tons	12	3 378.5	150.9	5	(S)	151.8
2911D 31	Road oil[9] mil bbl	6	.8	14.9	6	.5	8.4
2911D 41	Still gas bil cu ft	8	50.6	88.4	8	30.6	54.6
2911D 51	Special naphthas[10] mil bbl	9	7.2	183.7	11	10.6	275.0
	Aromatics (benzene, toluene, xylenes, etc.), made in a refinery:						
2911D 55	Chemical raw material[11]	20	(X)	1 784.0	(NA)	(X)	2 134.6
2911D 57	Other uses[11] mil lb	8	3 635.9	407.5			
	Waxes, made in a refinery:						
2911D 62	Microcrystalline[11] mil bbl	10	20.0	91.2	8	(S)	47.2
	Crystalline:						
2911D 72	Fully refined[11] mil bbl	9	3.4	181.7	13	3.6	177.7
2911D 82	Other[11] mil bbl	7	.9	38.2	4	.7	34.2
2911D 99	Other finished petroleum products made in a refinery mil bbl	23	**17.7	428.9	23	(S)	415.5
2911D 00	Other finished petroleum products, including waxes, n.s.k.	(NA)	(X)	–	(NA)	(X)	89.8
29110	Petroleum refining, n.s.k.	(NA)	(X)	99.3	(NA)	(X)	1 678.3
29110 00	Petroleum refining, n.s.k.	(NA)	(X)	99.3	(NA)	(X)	1 678.3
29110 02	Petroleum refining, n.s.k.[12]	(NA)	(X)	–	(NA)	(X)	–

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
2951– —	**ASPHALT PAVING MIXTURES AND BLOCKS**				
	Total	**(NA)**	**3 642.7**	**(NA)**	**4 087.0**
29510	Paving mixtures and blocks	(NA)	3 642.7	(NA)	4 087.0
	Liquid asphalt and tar paving materials:				
29510 11	Emulsified asphalt, including liquid additives	71	486.8	62	476.4
29510 15	Other liquid asphalt and tar paving materials, including cut-backs	40	296.3	44	260.5
29510 51	Asphalt and tar paving mixtures, including bituminous or asphaltic concrete, and asphaltic paving cements	357	2 174.2	324	2 368.0
29510 98	Other paving mixtures, except brick, concrete, granite, or stone	19	47.7	18	53.4
29510 00	Asphalt paving mixtures and blocks, n.s.k.[13]	(NA)	598.0	(NA)	809.2
29510 02	Asphalt paving mixtures and blocks, n.s.k.[14]	(NA)	39.7	(NA)	119.4

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2952– —	**ASPHALT FELTS AND COATINGS**						
	Total	**(NA)**	**(X)**	**3 625.2**	**(NA)**	**(X)**	**3 175.7**
29522	Roofing asphalts and pitches, coatings, and cements	(NA)	(X)	531.2	(NA)	(X)	451.0
29522 12	Roofing asphalt, 1,000 s tons	12	**1 346.0	192.8	13	*916.1	126.4
	Asphaltic roofing coatings and cements:						
29522 51	Fibrated asphaltic coatings, mil gal	25	49.2	107.7	21	**43.9	99.6
29522 55	Nonfibrated asphaltic coatings, mil gal	19	115.6	92.1	14	(S)	76.8
29522 61	Asphaltic roofing cements	18	(X)	41.8	22	(X)	52.9
29522 98	Other roofing asphalts and pitches, coatings, and cements, including coal tar base coatings, cements, and roofing pitch	25	(X)	96.8	19	(X)	78.5
29522 00	Roofing asphalts and pitches, coatings, and cements, n.s.k.	(NA)	(X)	–	(NA)	(X)	16.8
29524	Prepared asphalt and tar roofing and siding products including saturated felts and boards for nonbuilding use	(NA)	(X)	2 912.7	(NA)	(X)	2 415.1
29524 19	Asphalt and tar saturated felts and boards for nonbuilding use	7	(X)	19.2	(NA)	(X)	31.7
	Smooth-surfaced roll roofing and cap sheets:						
29524 21	Organic base, mil sales sq	14	17.8	95.0	12	(S)	51.5
29524 22	Fiberglass base, mil sales sq	16	**48.9	256.2	13	(S)	238.2
	Mineral-surfaced roll roofing and cap sheets:						
29524 23	Organic base, mil sales sq	12	10.0	73.4	11	9.4	74.6
29524 24	Fiberglass base, mil sales sq	12	8.2	124.9	12	(S)	135.4
	Strip shingles:						
	Organic base, excluding laminated:						
29524 25	235 to 240 lb/ sq, mil sales sq	8	6.9	124.3	6	3.6	67.6
29524 26	All other weights, mil sales sq	5	7.1	138.7	5	9.2	162.6
	Inorganic base, excluding laminated:						
29524 27	215 to 235 lb/ sq, mil sales sq	15	105.0	468.2	10	*21.6	347.2
29524 28	All other weights, mil sales sq	12	48.1	741.9	11	47.2	743.4
29524 29	Organic and/ or inorganic base laminated or multilayered shingles, mil sales sq	10	17.2	498.5	11	*9.2	282.9
29524 31	Individual shingles, organic or inorganic base, all styles, mil sales sq	8	3.8	38.2	5	.6	15.4
	Saturated asphalt and tar felts:						
29524 60	Ply felts, organic base	9	(X)	77.3	14	(X)	57.3
29524 62	Ply felts, fiberglass base	8	(X)	50.5	8	(X)	46.3
29524 64	Other felts, organic base	9	(X)	72.1	10	(X)	79.4
29524 66	Other felts, fiberglass base	4	(X)	11.9	3	(X)	(D)
29524 97	Other prepared asphalt and tar products for roofing and siding	17	(X)	122.4	(NA)	(X)	(D)
29524 00	Prepared asphalt and tar roofing and siding products including saturated felts and boards for nonbuilding use, n.s.k.	(NA)	(X)	–	(NA)	(X)	28.6
29520	Asphalt felts and coatings, n.s.k.	(NA)	(X)	181.3	(NA)	(X)	309.6
29520 00	Asphalt felts and coatings, n.s.k.[15]	(NA)	(X)	158.6	(NA)	(X)	215.9
29520 02	Asphalt felts and coatings, n.s.k.[16]	(NA)	(X)	22.8	(NA)	(X)	93.7
2992– —	**LUBRICATING OILS AND GREASES**						
	Total	**(NA)**	**(X)**	**4 910.2**	**(NA)**	**(X)**	**3 622.2**
29920	Lubricating oils and greases, not made in a refinery[4]	(NA)	(X)	4 910.2	(NA)	(X)	3 622.2
29920 21	Lubricating oils (hydraulic fluids, quenching and cutting oils, transformer oils, liquid rust preventives, etc.), mil bbl	220	*41.7	4 082.9	169	(S)	2 574.4
29920 31	Lubricating greases[3], mil bbl	67	2.5	379.1	51	(S)	335.7
29920 00	Lubricating oils and greases, n.s.k.[13]	(NA)	(X)	415.4	(NA)	(X)	648.6
29920 02	Lubricating oils and greases, n.s.k.[14]	(NA)	(X)	32.8	(NA)	(X)	63.5

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2999– ––	**PETROLEUM AND COAL PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**809.1**	**(NA)**	**(X)**	**647.9**
29990	Petroleum and coal products, n.e.c.	(NA)	(X)	809.1	(NA)	(X)	647.9
	Waxes, not made in a refinery:						
29990 20	Microcrystalline[11] [17] mil bbl	13	50.1	100.9	(NA)	(S)	91.3
29990 30	Crystalline[11] [17] mil bbl	10	4.5	55.1			
29990 91	Calcined petroleum coke, not made in a refinery 1,000 s tons	10	4 072.3	443.5	12	(S)	362.3
29990 98	Other petroleum and coal products, n.e.c., including packaged fuel and fuel briquettes, and petroleum pitches 1,000 s tons	26	*3.1	152.5	(NA)	(S)	74.5
29990 00	Petroleum and coal products, n.e.c., n.s.k.[13]	(NA)	(X)	38.6	(NA)	(X)	56.4
29990 02	Petroleum and coal products, n.e.c., n.s.k.[14]	(NA)	(X)	18.3	(NA)	(X)	63.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Includes all finished gasolines, finished base stocks and blending agents, such as alkylate, polymers (dimer, codimer, etc.), hydropolymers (hydrodimer, hydrocodimer, etc.), cumene, isopentane, isohexane, neohexane, iso-octane, motor benzol (benzene), and other blending agents derived from petroleum. Excludes natural gasoline derived from natural gas.
[4]This product class is primary to more than one industry.
[5]Includes grease for aviation, automotive, industrial, and railroad uses; launching grease, cutting, drawing, and grinding compounds and paste. Also includes paste rust-preventive compounds and thread compounds.
[6]Includes such products as cracking stock, unfinished gasoline requiring further distillation, naptha stocks, slops, wax distillate, and other unfinished petroleum oils. Excludes lubricating oil base stocks, natural gasoline, and cycle condensates.
[7]Includes light, medium, heavy natural, and residual stocks.
[8]Includes asphalt and fluxes for paving, roofing, waterproofing, briqueting, mastic pipe coating, and molding composition; cutback asphalt, emulsified asphalt, and fluxes produced in petroleum refineries; and other asphaltic products, except road oil and fuel for heating purposes.
[9]Represents residual asphaltic oil used for surface treatment of roads and highways.
[10]Includes petroleum ether, rubber solvent, mineral spirits (petroleum spirits) varnish makers' and painters' naptha, high-solvency naptha, benzol diluent, lacquer diluent, cleaners' naptha, Stoddard solvent, extraction solvents, and other petroleum distillates shipped as solvents.
[11]This product code is primary to more than one industry.
[12]There were no administrative record cases for this industry.
[13]Typically for establishments with 5 employees or more.
[14]Typically for establishments with less than 5 employees.
[15]Typically for establishments with 10 employees or more.
[16]Typically for establishments with less than 10 employees.
[17]Represents amorphous paraffin of melting point not less than 145 degrees F.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Aromatics	(NA)	(X)	4 156.6	(NA)	(X)	3 258.6
28656	Not made in petroleum refineries	(NA)	(X)	1 965.1	(NA)	(X)	1 124.0
	Made in petroleum refineries	(NA)	(X)	2 191.5	(NA)	(X)	2 134.6
	Manufactured as a chemical raw material	(NA)	(X)	3 507.2	(NA)	(X)	2 936.5
28656 58	Not made in petroleum refineries	20	(X)	1 723.2	14	(X)	(D)
2911D 55	Made in petroleum refineries	20	(X)	1 784.0	19	(X)	(D)
	Manufactured for other uses mil lb	(NA)	5 520.8	649.4	(NA)	(NA)	318.7
28656 59	Not made in petroleum refineries mil lb	9	1 885.0	241.9	3	(D)	(D)
2911D 57	Made in petroleum refineries mil lb	8	3 635.9	407.5	4	(D)	(D)
28656 00	Aromatics not made in petroleum refineries, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.4
	Aliphatics	(NA)	(X)	13 197.6	(NA)	(X)	r8 989.8
28691	Not made in petroleum refineries	(NA)	(X)	8 310.2	(NA)	(X)	4 925.4
2911A	Made in petroleum refineries	(NA)	(X)	4 887.3	(NA)	(X)	r4 064.4
	Manufactured as a chemical raw material	(NA)	(X)	9 641.8	(NA)	(X)	6 853.4
28691 32	Not made in petroleum refineries	30	(X)	6 717.4	22	(X)	4 639.9
2911A 21	Made in petroleum refineries	39	(X)	2 924.4	40	(X)	2 213.5
	Manufactured for other uses mil lb	(NA)	(S)	3 555.7	(NA)	(NA)	1 456.5
28691 33	Not made in petroleum refineries mil lb	18	(S)	1 592.8	7	(NA)	270.7
2911A 22	Made in petroleum refineries mil lb	32	136.3	1 962.9	31	(NA)	1 185.8
	Aliphatics, n.s.k.	(NA)	(X)	–	(NA)	(X)	r679.9
28691 00	Not made in petroleum refineries	(NA)	(X)	–	(NA)	(X)	14.8
2911A 00	Made in petroleum refineries	(NA)	(X)	–	(NA)	(X)	r665.1

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Lubricating oils and greases	(NA)	(X)	6 750.1	(NA)	(X)	5 079.9
29117	Made in petroleum refineries	(NA)	(X)	1 839.9	(NA)	(X)	1 457.7
29920	Not made in petroleum refineries	(NA)	(X)	4 910.2	(NA)	(X)	3 622.2
	Lubricating and similar oils—mil bbl	(NA)	89.0	5 851.0	(NA)	(D)	(D)
29117 21	Made in petroleum refineries—mil bbl	22	47.3	1 768.1	(NA)	(S)	(D)
29920 21	Not made in petroleum refineries—mil bbl	220	*41.7	4 082.9	169	(S)	2 574.4
	Lubricating greases—mil bbl	(NA)	4.8	450.9	(NA)	(D)	(D)
29117 31	Made in petroleum refineries—mil bbl	10	2.4	71.8	(NA)	(D)	(D)
29920 31	Not made in petroleum refineries—mil bbl	67	2.5	379.1	51	(S)	335.7
	Lubricating oils and greases, n.s.k.	(NA)	(X)	448.2	(NA)	(X)	742.3
29117 00	Made in petroleum refineries	(NA)	(X)	–	(NA)	(X)	30.2
29920 00	Not made in petroleum refineries	(NA)	(X)	415.4	(NA)	(X)	648.6
29920 02	Not made in petroleum refineries	(NA)	(X)	32.8	(NA)	(X)	63.5
	Waxes	(NA)	(X)	467.2	(NA)	(X)	350.4
	Made in petroleum refineries	(NA)	(X)	311.2	(NA)	(X)	259.1
	Not made in petroleum refineries	(NA)	(X)	156.1	(NA)	(X)	91.3
	Microcrystalline—mil bbl	(NA)	70.0	192.2	(NA)	(D)	(D)
2911D 62	Made in petroleum refineries—mil bbl	10	20.0	91.2	8	(S)	47.2
29990 20	Not made in petroleum refineries—mil bbl	13	50.1	100.9	(NA)	(D)	(D)
	Crystalline—mil bbl	(NA)	8.9	275.1	(NA)	(D)	(D)
	Made in petroleum refineries—mil bbl	(NA)	4.3	219.9	(NA)	4.3	211.9
2911D 72	Fully refined—mil bbl	9	3.4	181.7	13	3.6	177.7
2911D 82	Other—mil bbl	7	.9	38.2	4	.7	34.2
29990 30	Not made in petroleum refineries—mil bbl	10	4.5	55.1	(NA)	(D)	(D)

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
29111, GASOLINE, INCLUDING FINISHED BASE STOCKS AND BLENDING AGENTS		
United States	**70 140.4**	**58 669.3**
California	9 614.1	7 959.4
Illinois	5 271.5	3 958.1
Kansas	1 646.5	1 531.4
Louisiana	9 558.1	8 561.9
Montana	654.8	537.2
New Jersey	2 499.9	1 615.3
New Mexico	579.1	329.5
Ohio	2 358.8	2 276.1
Oklahoma	1 887.1	1 582.5
Pennsylvania	4 186.3	2 975.6
Texas	18 795.3	16 834.9
Utah	776.2	575.4
Washington	2 032.4	1 656.7
29112, JET FUEL		
United States	**12 338.8**	**10 506.0**
California	2 079.9	1 809.8
Louisiana	2 097.0	1 881.4
Montana	83.3	70.1
New Mexico	82.0	(NA)
Oklahoma	390.2	290.6
Pennsylvania	530.6	459.3
Texas	3 335.5	2 646.4
Utah	145.1	121.4
Washington	620.9	534.1
29113, KEROSENE		
United States	**543.0**	**521.9**
Louisiana	101.2	131.2
Ohio	60.7	(NA)
Pennsylvania	83.1	80.0
Texas	58.9	(NA)
29114, LIGHT FUEL OILS		
United States	**26 426.0**	**21 171.5**
Alaska	311.7	148.8
California	2 247.6	2 233.5
Illinois	1 599.7	1 156.6
Kansas	879.9	741.9
Louisiana	4 436.6	3 233.0
Montana	295.5	221.4
New Jersey	1 193.3	681.1
Ohio	635.8	(NA)
Oklahoma	702.8	549.5
Pennsylvania	1 493.8	982.0
Texas	6 316.9	6 210.6
Utah	368.2	243.4
Washington	806.6	688.0
29115, HEAVY FUEL OILS		
United States	**4 731.6**	**5 465.3**
California	1 151.0	1 638.2
Colorado	32.2	8.4
Illinois	106.9	124.0
Louisiana	592.2	711.1
New Jersey	231.2	249.2
Ohio	15.1	43.5
Oklahoma	50.6	26.6
Pennsylvania	371.5	524.2

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
29115, HEAVY FUEL OILS—Con.		
Texas	1 073.3	1 119.0
Utah	18.6	7.7
Washington	305.9	311.0
29117, LUBRICATING OILS AND GREASES, MADE IN A REFINERY		
United States	**1 839.9**	**1 457.7**
Texas	498.6	534.6
29118, UNFINISHED OILS AND LUBRICATING OIL BASE STOCK		
United States	**4 741.1**	**4 177.1**
Arkansas	7.1	30.0
California	728.8	768.6
Illinois	98.4	62.8
Kansas	7.0	(NA)
Louisiana	1 086.4	954.1
Oklahoma	41.7	(NA)
Pennsylvania	263.9	252.0
Texas	1 558.6	1 282.7
29119, ASPHALT		
United States	**1 846.2**	**2 521.2**
California	210.8	313.4
Illinois	174.7	203.7
Kansas	42.2	43.8
Mississippi	33.6	100.9
Montana	50.7	47.1
Ohio	22.6	(NA)
Oklahoma	64.1	83.9
Texas	159.8	181.1
2911A, LIQUEFIED REFINERY GASES INCLUDING OTHER ALIPHATICS (FEED STOCK AND OTHER USES), MADE IN A REFINERY		
United States	**4 887.3**	**4 064.4**
California	264.4	155.5
Illinois	140.8	108.8
Kansas	46.3	24.7
Louisiana	1 246.1	741.0
New Jersey	109.8	(NA)
Oklahoma	61.0	12.5
Texas	2 137.1	1 992.9
Utah	14.7	10.6
2911A, LIQUEFIED REFINERY GASES INCLUDING OTHER ALIPHATICS (FEED STOCK AND OTHER USES), MADE IN A REFINERY—Con.		
Washington	81.7	28.4
2911D, OTHER FINISHED PETROLEUM PRODUCTS, INCLUDING WAXES		
United States	**3 809.2**	**4 045.6**
California	264.4	264.4
Illinois	129.8	191.4
Kansas	29.0	20.8
Louisiana	404.6	476.4
Montana	2.6	(NA)
Pennsylvania	192.0	266.5
Texas	1 886.7	1 933.1
29522, ROOFING ASPHALTS AND PITCHES, COATINGS, AND CEMENTS		
United States	**531.2**	**451.0**
California	58.5	56.1
Florida	40.7	38.0
Georgia	17.9	(NA)
Illinois	40.9	19.6
Michigan	17.8	11.5
New Jersey	39.2	45.5
Ohio	85.1	79.3
Pennsylvania	33.3	37.3
Texas	40.9	47.5
29524, PREPARED ASPHALT AND TAR ROOFING AND SIDING PRODUCTS INCLUDING SATURATED FELTS AND BOARDS FOR NONBUILDING USE		
United States	**2 912.7**	**2 415.1**
Alabama	200.3	(NA)
Arkansas	63.0	(NA)
California	290.5	(NA)
Georgia	190.2	(NA)
Illinois	164.0	(NA)
Indiana	183.1	(NA)
Maryland	146.1	(NA)
Massachusetts	76.3	(NA)
Minnesota	132.4	(NA)
Ohio	186.1	(NA)
Oregon	66.8	(NA)
Pennsylvania	53.4	(NA)
Texas	422.8	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2911-	**Petroleum refining**	**131 402.8**	**138 322.1**	**151 558.6**	**124 452.3**	**112 988.8**	**114 278.3**	**185 978.1**	**(NA)**
29111	Gasoline, including finished base stocks and blending agents	70 140.4	71 865.8	78 855.4	64 822.2	59 105.8	58 669.3	95 114.7	41 840.4
29112	Jet fuel	12 338.8	13 520.7	15 219.2	11 442.9	9 939.5	10 506.0	14 862.4	5 358.9
29113	Kerosene	543.0	530.9	636.3	576.5	515.4	521.9	1 886.6	892.9
29114	Light fuel oils	26 426.0	27 349.0	29 472.7	23 471.0	19 879.9	21 171.5	37 302.6	17 509.4
29115	Heavy fuel oils	4 731.6	5 006.9	6 323.2	5 580.4	4 975.0	5 465.3	11 390.6	6 793.9
29117	Lubricating oils and greases, made in a refinery	1 839.9	1 435.2	1 386.4	1 386.4	1 456.7	1 457.7	2 891.4	1 718.9
29118	Unfinished oils and lubricating oil base stock	4 741.1	4 641.6	4 605.5	4 052.4	4 255.2	4 177.1	8 065.9	2 887.8
29119	Asphalt	1 846.2	2 043.0	2 473.6	2 188.3	2 436.8	2 521.2	2 980.3	2 216.7
2911A	Liquefied refinery gases including other aliphatics (feed stock and other uses), made in a refinery	4 887.3	6 301.6	6 400.9	5 305.4	4 113.1	4 064.4	4 454.7	(NA)
2911D	Other finished petroleum products, including waxes	3 809.2	4 827.9	5 593.4	4 669.0	4 577.1	4 045.6	5 507.8	(NA)
29110	Petroleum refining, n.s.k.	99.3	799.5	592.0	957.7	1 734.3	1 678.3	1 521.2	(NA)
2951-	**Asphalt paving mixtures and blocks**	**3 642.7**	**3 579.3**	**3 861.0**	**3 634.8**	**4 156.1**	**4 087.0**	**2 881.0**	**1 518.6**
29510	Paving mixtures and blocks	3 642.7	3 579.3	3 861.0	3 634.8	4 156.1	4 087.0	2 881.0	1 518.6
2952-	**Asphalt felts and coatings**	**3 625.2**	**3 255.1**	**3 247.1**	**3 198.5**	**3 140.3**	**3 175.7**	**2 633.2**	**1 828.6**
29522	Roofing asphalts and pitches, coatings, and cements	531.2	528.7	489.6	467.9	465.9	451.0	466.8	263.4
29524	Prepared asphalt and tar roofing and siding products including saturated felts and boards for nonbuilding use	2 912.7	2 550.2	2 553.6	2 546.8	2 389.6	2 415.1	2 095.2	1 504.8
29520	Asphalt felts and coatings, n.s.k.	181.3	176.1	203.9	183.8	284.8	309.6	71.2	60.5
2992-	**Lubricating oils and greases**	**4 910.2**	**4 286.3**	**4 172.8**	**3 972.6**	**3 815.8**	**3 622.2**	**2 718.3**	**1 514.0**
29920	Lubricating oils and greases, not made in a refinery	4 910.2	4 286.3	4 172.8	3 972.6	3 815.8	3 622.2	2 718.3	1 514.0

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
2999-	**Petroleum and coal products, n.e.c.**	**809.1**	**962.8**	**943.1**	**846.0**	**639.9**	**647.9**	**801.8**	**(NA)**
29990	Petroleum and coal products, n.e.c.	809.1	962.8	943.1	846.0	639.9	647.9	801.8	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2911, PETROLEUM REFINING				
	Materials, ingredients, containers, and supplies	**(X)**	**107 872.2**	**(X)**	**98 490.6**
	Crude petroleum, including lease condensate:				
131111	Domestic, mil bbl	2 745.8	51 203.6	3 008.4	53 004.1
131112	Foreign, mil bbl	2 209.6	39 235.4	1 642.9	28 999.5
291181	Foreign unfinished oils (received from foreign countries for further processing), mil bbl	81.7	1 477.3	30.0	584.2
	Natural gas liquids:				
132128	Ethane (C_2), at least 80 percent purity, mil bbl	(D)	(D)	24.8	125.7
132129	Propane (C_3), at least 80 percent purity, mil bbl	24.2	285.1	32.8	306.1
132121	Butane (C_4), at least 80 percent purity, mil bbl	105.8	1 815.3	103.8	1 687.2
132124	Gas mixtures (C_2, C_3, C_4), mil bbl	41.7	773.2	30.1	369.4
132125	Isopentane and natural gasoline, mil bbl	63.1	1 212.2	69.9	1 118.6
132139	Other natural gas liquids, including plant condensate, mil bbl	30.6	564.3	(D)	(D)
291107	Benzol (benzene) (100 percent C_6H_6), mil bbl	3.8	141.6	1.6	71.9
286519	Toluene and xylene (100 percent basis), mil lb	3 010.4	312.9	1 759.0	129.6
	Additives, except animal and vegetable oils:				
280011	Antioxidants, antiknock compounds, and inhibitors, mil lb	447.4	348.9	231.9	188.1
280012	Other additives, including soaps and detergents, mil lb	*246.7	170.4	320.0	214.4
207001	Animal and vegetable oils, mil lb	(D)	(D)	(D)	(D)
281980	Chemical catalytic preparations	(X)	543.6	(X)	479.8
281238	Sodium hydroxide (caustic soda)(100 percent NaOH), 1,000 s tons	343.6	62.0	257.5	40.6
281931	Sulfuric acid (100 percent H_2SO_4), except spent, 1,000 s tons	1 725.0	115.6	1 443.8	94.8
	Containers:				
340001	Metal containers	(X)	16.5	(X)	24.9
308030	Plastics containers	(X)	31.9	(X)	41.8
260051	Paper and paperboard containers	(X)	7.3	(X)	(D)
265522	Fiber cans, bodies with combinations of fiber and other materials (foil, plastics, etc.) with metal ends	(X)	(D)	(X)	14.9
290004	Cost of materials received from petroleum refineries and lube manufacturers, mil bbl	263.5	4 692.8	(NA)	4 171.9
970099	All other materials and components, parts, containers, and supplies	(X)	4 374.6	(X)	4 349.2
971000	Materials, ingredients, containers, and supplies, n.s.k.	(X)	274.4	(X)	2 056.1
	INDUSTRY 2951, ASPHALT PAVING MIXTURES AND BLOCKS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 090.3**	**(X)**	**2 428.0**
	Asphalt:				
291192	Paving grade asphalts, mil bbl	48.1	737.0	**51.0	903.9
291193	Roofing grade asphalts, mil bbl	**.3	4.0	(S)	130.5
291194	Asphalts other than paving and roofing grade, mil bbl	3.0	54.4		
144201	Sand and gravel, 1,000 s tons	69 298.3	389.7	**70 846.0	366.2
970099	All other materials and components, parts, containers, and supplies	(X)	320.0	(X)	317.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	585.1	(X)	710.2
	INDUSTRY 2952, ASPHALT FELTS AND COATINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 131.0**	**(X)**	**1 932.0**
	Asphalt:				
291192	Paving grade asphalts, mil bbl	4.5	74.1	**3.8	71.1
291193	Roofing grade asphalts, mil bbl	29.4	514.6	**24.1	482.7
291194	Asphalts other than paving and roofing grade, mil bbl	136.2	39.7	(S)	40.2
2621B1	Roofing felts, unsaturated, 1,000 s tons	563.3	104.8	**426.8	87.5
322931	Glass fiber, roving, mats, etc., mil lb	322.3	347.3	*273.7	294.9
329501	Roofing granules, 1,000 s tons	5 530.2	358.6	4 034.3	286.6
144201	Sand and gravel, 1,000 s tons	2 394.5	48.5	**2 257.2	46.7
970099	All other materials and components, parts, containers, and supplies	(X)	511.5	(X)	390.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	132.0	(X)	231.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2992, LUBRICATING OILS AND GREASES				
	Materials, ingredients, containers, and supplies	**(X)**	**3 460.7**	**(X)**	**2 422.1**
	Additives, except animal and vegetable oils:				
280011	Antioxidants, antiknock compounds, and inhibitors—mil lb	170.1	114.2	*267.6	138.5
280012	Other additives, including soaps and detergents—mil lb	529.6	420.0	387.9	351.9
207001	Animal and vegetable oils—mil lb	208.9	80.3	(S)	31.0
281980	Chemical catalytic preparations	(X)	–	(X)	1.9
281238	Sodium hydroxide (caustic soda)(100 percent NaOH)—1,000 s tons	19.7	3.4	**5.6	1.0
281931	Sulfuric acid (100 percent H_2SO_4), except spent—1,000 s tons	25.0	2.8	(S)	.1
	Containers:				
340001	Metal containers	(X)	97.0	(X)	110.1
308030	Plastics containers	(X)	210.2	(X)	149.9
260051	Paper and paperboard containers	(X)	55.6	(X)	38.8
265522	Fiber cans, bodies with combinations of fiber and other materials (foil, plastics, etc.) with metal ends	(X)	16.5	(X)	18.9
290004	Cost of materials received from petroleum refineries and lube manufacturers—mil bbl	60.2	1 642.6	(NA)	785.8
970099	All other materials and components, parts, containers, and supplies	(X)	456.4	(X)	304.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	361.7	(X)	489.6
	INDUSTRY 2999, PETROLEUM AND COAL PRODUCTS, N.E.C.				
	(Material data were not collected for this industry.)				

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

Table 8. **Selected Fuels Produced and Consumed by Industry 2911, Petroleum Refining: 1992 and 1987**

[Includes quantity of fuels produced and then consumed in the production of other products by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Fuel code	Fuel	1992		1987	
		Quantity	Sales value, f.o.b. plant (million dollars)	Quantity	Sales value, f.o.b. plant (million dollars)
291004	Still gas—mil cu ft	838.2	1 745.3	964.2	2 240.3
291005	Mixed fuel gas—mil cu ft	399.8	811.8	295.2	710.4
291006	Mixed liquids—1,000 bbl	14.8	242.2	15.2	216.2
960015	Other (distillate oils, petroleum, coke, etc.)—1,000 bbl	45.1	534.3	(S)	(S)

Note: Manufacturers were instructed to estimate sales value, f.o.b. plant, for fuels produced and consumed in the same establishment.

Table 9. **Employees Engaged in Construction and Value of Work Done: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting construction employees[1]					Response coverage ratio (col C ÷ col A)
				Total		Engaged in construction[2]			
		Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Value of work done (millions)	
		A	B	C	D	E	F	G	H
2911	Petroleum refining	74.8	3 636.3	20.3	1 007.4	4.2	203.3	565.7	.27

[1]Data exclude government-owned, contractor-operated plants.

[2]Establishments in selected industries were instructed to report number of employees, included in total employment, that were engaged in construction, maintenance, or repair of the plant and utilized as a separate work force. Coverage ratio (col. H) indicates proportion of industry employment represented by establishments that reported construction employees. Coverage ratio excludes (a) construction workers not employed by establishment (working under contract or provided by another establishment of the company), (b) establishments that reported having no construction employees, (c) establishments that did not respond to inquiry, and (d) establishments that were not mailed a form or from which a form had not been received at the time data were tabulated.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
29524	29521	29524 21	29523 21	29524 28	29523 28	29524 97	29523 33
		29524 22	29523 22	29524 29	29523 29	29524 97	29523 99
29524	29523	29524 23	29523 23	29524 31	29523 31		
		29524 24	29523 24	29524 60	29523 60		
29524 19	29521 13	29524 25	29523 25	29524 62	29523 62	29990 98	29990 15
29524 19	29521 15	29524 26	29523 26	29524 64	29523 64	29990 98	29990 93
29524 19	29521 31	29524 27	29523 27	29524 66	29523 66	29990 98	29990 99

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
29521	29524	29523 21	29524 21	29523 27	29524 27	29523 62	29524 62
29521 13	29524 19					29523 64	29524 64
29521 15	29524 19	29523 22	29524 22	29523 28	29524 28	29523 66	29524 66
29521 31	29524 19	29523 23	29524 23	29523 29	29524 29	29523 99	29524 97
		29523 24	29524 24	29523 31	29524 31		
		29523 25	29524 25	29523 33	29524 97	29990 15	29990 98
						29990 93	29990 98
29523	29524	29523 26	29524 26	29523 60	29524 60	29990 99	29990 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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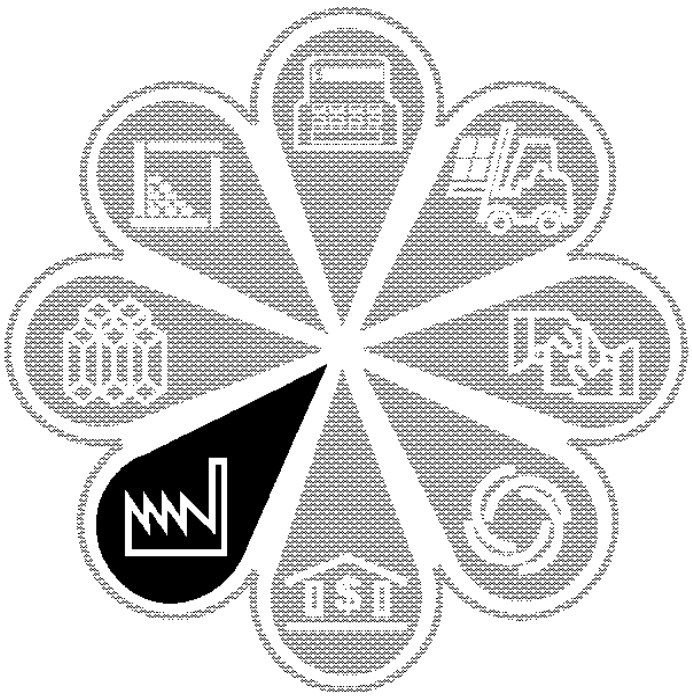
1992 Census of Manufactures

MC92-I-30A

INDUSTRY SERIES

Rubber Products

Industries 3011, 3021, 3052, 3053, 3061, and 3069



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-30A

INDUSTRY SERIES

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Ronald H. Brown, Secretary
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Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3011	Tires and Inner Tubes
3021	Rubber and Plastics Footwear
3052	Rubber and Plastics Hose and Belting
3053	Gaskets, Packing, and Sealing Devices
3061	Mechanical Rubber Goods
3069	Fabricated Rubber Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3011, TIRES AND INNER TUBES

This industry is made up of establishments primarily engaged in manufacturing pneumatic casings, inner tubes, and solid and cushion tires for all types of vehicles, airplanes, farm equipment, and children's vehicles; tiring; camelback; and tire repair and retreading materials. Establishments primarily engaged in retreading tires are classified in industry 7534.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3011, Tires and Inner Tubes, had employment of 64.6 thousand. The employment figure was 1 percent below the 65.4 thousand reported in 1987. Compared with 1991, employment decreased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama, North Carolina, Oklahoma, and Tennessee, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 43 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $11.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3011 shipped $11.2 billion of tires and inner tubes considered primary to the industry, $224.4 million of secondary products, and had $406.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3011, no matter in what industry they were produced, appear in table 6a and aggregate to $11.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the tires and inner tubes industry amounted to $5.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR

This industry is made up of establishments primarily engaged in manufacturing fabric upper footwear having rubber or plastics soles vulcanized, injection molded, or cemented to the uppers, and rubber and plastics protective footwear. Establishments primarily engaged in manufacturing rubber, composition, and fiber heels, soles, soling strips, and related shoe making and repairing materials are classified in industry 3069; those manufacturing plastics soles and soling strips are classified in industry 3089; and those manufacturing other footwear of rubber or plastics are classified in industry group 314. Products of this industry also are collected in the Current Industrial Report (CIR) MA-31A, Footwear. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3021, Rubber and Plastics Footwear, had employment of 13.6 thousand. The employment figure was 25 percent above the 10.9 thousand reported in 1987. Compared with 1991, employment increased 16 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Florida, California, North Carolina, and Wisconsin, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when California, Florida, North Carolina, and Pennsylvania accounted for approximately 51 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $867.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3021 shipped $793.2 million of rubber and plastics footwear products considered primary to the industry, $17.6 million of secondary products, and had $56.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3021, no matter in what industry they were produced, appear in table 6a and aggregate to $803.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the rubber and plastics footwear industry amounted to $410.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING

This industry is made up of establishments primarily engaged in manufacturing rubber and plastics hose and belting, including garden hose. Establishments primarily engaged in manufacturing rubber tubing are classified in industry group 306; those manufacturing plastics tubing are classified in industry 3082; and those manufacturing flexible metallic hose are classified in industry 3599.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3052, Rubber and Plastics Hose and Belting, had employment of 19.9 thousand. The employment figure was 14 percent below the 23.2 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Nebraska, Ohio, and North Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3052 shipped $2.4 billion of rubber and plastics hose and belting considered primary to the industry, $131.8 million of secondary products, and had $38.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3052, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the rubber and plastics hose and belting industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES

This industry is made up of establishments primarily engaged in manufacturing gaskets, gasketing materials, compression packings, mold packings, oil seals, and mechanical seals. It also includes establishments primarily engaged in manufacturing gaskets, packing, and sealing devices made of leather, rubber, metal, asbestos, and plastics.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3053, Gaskets, Packing, and Sealing Devices, had employment of 32.4 thousand. The employment figure was 14 percent above the 28.4 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, California, Texas, and Ohio, accounting for approximately 42 percent of the industry's employment. These same States were the leaders in 1987 when they also accounted for 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3053 shipped $2.9 billion of gaskets, packing, and sealing devices considered primary to the industry, $252.7 million of secondary products, and had $175.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3053, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the gaskets, packing, and sealing devices industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3061, MECHANICAL RUBBER GOODS

This industry is made up of establishments primarily engaged in manufacturing molded, extruded, and lathe-cut mechanical rubber goods. The products are generally parts for machinery and equipment. Establishments primarily engaged in manufacturing other industrial rubber goods, rubberized fabric, and miscellaneous rubber specialties and sundries are classified in industry 3069.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3061, Mechanical Rubber Goods, had employment of 48.5 thousand. The employment figure was 3 percent below the 49.8 thousand reported in 1987. Compared with 1991, employment increased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Indiana, Tennessee, and Michigan, accounting for approximately 47 percent of the industry's employment. This represents a shift from 1987 when California, Indiana, Michigan, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $4.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3061 shipped $4.1 billion of mechanical rubber goods considered primary to the industry, $353.8 million of secondary products, and had $119.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3061, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the mechanical rubber goods industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing industrial rubber goods, rubberized fabrics, and vulcanized rubber clothing, and miscellaneous rubber specialties and sundries, not elsewhere classified. It also includes establishments primarily engaged in reclaiming rubber and rubber articles. Establishments primarily engaged in the wholesale distribution of scrap rubber are classified in wholesale trade, industry 5093. Establishments primarily engaged in rebuilding and retreading tires are classified in services, industry 7534; those manufacturing rubberized clothing from purchased materials are classified in industry 2385; and those manufacturing gaskets and packing are classified in industry 3053.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3069, Fabricated Rubber Products, N.E.C., had employment of 57.3 thousand. The employment figure was 6 percent above the 54.0 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, North Carolina, and South Carolina, accounting for approximately 36 percent of the industry's employment. This represents a shift from 1987 when California, Indiana, Ohio, and South Carolina accounted for approximately 39 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3069 shipped $5.8 billion of fabricated rubber products, not elsewhere classified, considered primary to the industry, $834.1 million of secondary products, and had $343.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 84 percent.

The products primary to industry 3069, no matter in what industry they were produced, appear in table 6a and aggregate to $6.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated rubber products, not elsewhere classified, industry amounted to $3.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3011, TIRES AND INNER TUBES															
1992 Census	104	152	86	64.6	2 498.5	52.8	105.7	1 961.9	6 502.3	5 368.6	11 810.0	506.1	1 058.5	98	99
1991 ASM	(NA)	(NA)	(NA)	65.5	2 286.2	52.4	99.5	1 760.8	6 654.2	5 057.6	11 882.5	505.9	1 010.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	67.7	2 314.5	54.7	106.1	1 786.7	6 488.6	5 434.7	11 860.8	652.4	1 194.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	68.0	2 339.6	54.6	108.5	1 797.7	6 089.3	5 617.9	11 680.3	784.7	1 088.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	67.8	2 237.6	54.6	111.1	1 724.2	5 778.6	5 517.7	11 240.1	417.8	1 111.7	(NA)	(NA)
1987 Census	115	163	97	65.4	2 069.9	52.6	103.7	1 596.3	5 559.4	4 864.9	10 427.4	336.7	1 024.3	98	99
1986 ASM	(NA)	(NA)	(NA)	65.2	2 020.4	51.7	98.8	1 531.0	5 249.9	4 517.1	9 909.5	389.9	994.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	70.3	2 045.8	55.9	105.2	1 546.4	5 300.4	5 182.2	10 434.0	496.7	1 170.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	70.4	2 088.6	56.3	112.3	1 592.9	5 312.0	5 541.9	10 722.8	310.1	1 154.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	66.9	1 857.2	52.2	103.5	1 397.1	5 263.8	4 731.6	10 165.4	243.5	1 025.2	(NA)	(NA)
1982 Census	108	164	99	70.3	1 733.9	54.6	101.1	1 285.6	4 660.4	4 594.6	9 340.1	227.0	1 172.6	99	98
1981 ASM	(NA)	(NA)	(NA)	79.3	1 859.0	62.3	118.3	1 406.5	4 853.5	5 126.3	9 870.9	301.5	1 018.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	87.2	1 732.9	66.1	121.7	1 292.6	4 075.6	4 589.0	8 803.2	330.7	1 115.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	103.2	1 945.6	81.0	154.6	1 471.0	4 457.3	5 187.4	9 542.4	359.6	1 252.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	102.8	1 769.7	81.0	160.9	1 351.9	4 107.2	4 826.0	8 890.1	339.8	1 161.8	(NA)	(NA)
1977 Census	127	200	126	114.0	1 832.4	88.3	176.4	1 366.0	4 347.3	4 803.0	8 971.0	289.0	1 172.1	96	99
INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR															
1992 Census	53	67	39	13.6	215.5	11.2	22.3	150.4	463.7	410.8	867.5	12.9	172.8	98	99
1991 ASM	(NA)	(NA)	(NA)	11.7	181.9	9.7	21.1	132.3	384.0	373.3	756.9	12.3	146.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.5	158.9	8.8	18.1	111.8	338.7	323.2	650.0	6.4	133.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.9	151.7	9.2	18.9	110.2	288.6	305.0	604.6	9.0	118.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.7	160.2	9.9	18.7	115.6	315.8	278.7	582.7	11.7	129.6	(NA)	(NA)
1987 Census	55	65	38	10.9	153.3	9.1	16.6	103.5	315.8	252.4	557.2	9.4	116.2	96	98
1986 ASM	(NA)	(NA)	(NA)	9.2	136.8	7.5	13.9	89.1	286.5	283.8	573.3	6.3	114.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.0	161.1	9.7	18.3	115.2	318.0	322.6	647.2	8.4	118.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.0	181.8	12.4	22.5	128.3	340.9	330.8	681.3	23.0	131.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.3	200.0	14.9	27.1	148.7	425.9	339.2	728.0	12.7	153.7	(NA)	(NA)
1982 Census	53	65	40	17.6	196.5	15.0	27.8	149.1	360.1	333.8	706.2	12.4	114.0	96	94
1981 ASM	(NA)	(NA)	(NA)	18.6	191.1	16.0	31.2	147.5	360.1	354.0	707.3	14.9	114.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.0	174.3	15.6	29.2	132.8	307.7	289.4	590.8	12.5	114.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.5	153.9	15.2	28.6	120.0	304.4	236.2	536.2	11.3	111.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.2	164.0	17.8	33.1	128.6	283.9	250.7	530.0	23.4	97.9	(NA)	(NA)
1977 Census	67	84	50	19.8	159.1	16.4	30.0	115.9	272.3	256.2	517.0	11.3	140.7	93	99
INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING															
1992 Census	146	204	117	19.9	533.4	15.2	31.3	361.9	1 334.4	1 284.1	2 612.9	74.1	358.2	95	93
1991 ASM	(NA)	(NA)	(NA)	21.1	522.9	16.2	32.4	353.9	1 177.4	1 148.3	2 330.2	62.6	345.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.1	547.7	17.7	37.5	379.2	1 380.1	1 225.4	2 574.8	92.8	387.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.5	599.3	18.5	36.8	395.6	1 307.2	1 184.6	2 504.4	82.6	348.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.0	624.5	18.0	36.8	390.8	1 323.0	1 224.9	2 522.9	148.0	401.3	(NA)	(NA)
1987 Census	127	188	122	23.2	531.4	16.6	33.3	342.4	1 240.8	1 028.2	2 268.2	74.5	360.5	94	94
1986 ASM	(NA)	(NA)	(NA)	23.0	510.4	16.7	32.6	334.9	1 201.1	1 066.5	2 282.0	70.6	388.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	23.8	512.7	17.3	33.0	339.3	1 255.0	1 039.3	2 310.5	102.9	418.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	24.7	540.1	18.1	34.7	366.2	1 338.0	1 156.0	2 446.5	100.6	439.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.3	453.7	15.9	29.5	300.0	1 108.9	875.1	1 988.4	55.7	366.6	(NA)	(NA)
1982 Census	103	162	117	24.9	503.1	17.7	31.9	330.4	1 027.8	887.4	1 945.5	114.0	407.3	86	94
1981 ASM	(NA)	(NA)	(NA)	26.9	525.9	20.2	38.5	363.8	1 075.3	1 155.7	2 147.2	95.9	471.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.4	616.3	21.3	40.3	367.4	916.6	995.4	1 941.5	119.3	375.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.7	656.1	26.0	51.0	386.4	1 101.5	1 131.9	2 177.7	138.0	442.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	38.2	597.6	25.7	50.6	355.7	1 060.6	1 024.5	2 007.8	71.3	373.9	(NA)	(NA)
1977 Census	102	146	103	34.4	457.4	23.4	45.3	274.9	973.5	800.1	1 765.7	55.3	275.4	88	92
INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES															
1992 Census	473	550	281	32.4	879.3	22.8	47.2	483.4	1 962.0	1 365.8	3 344.5	90.3	442.4	92	93
1991 ASM	(NA)	(NA)	(NA)	32.3	809.3	23.2	46.8	478.8	1 665.8	1 246.3	2 911.1	72.0	441.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	33.2	826.9	23.9	47.9	481.7	1 763.3	1 237.9	2 995.4	93.9	464.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	33.2	779.2	23.5	46.2	458.3	1 619.1	1 212.8	2 843.1	144.4	433.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	32.2	732.1	23.1	47.7	455.6	1 633.5	1 140.2	2 745.1	97.0	456.5	(NA)	(NA)
1987 Census	439	496	258	28.4	627.1	19.9	40.7	375.5	1 416.2	980.8	2 379.3	83.4	414.7	95	93
1986 ASM	(NA)	(NA)	(NA)	28.6	574.9	20.5	41.0	342.3	1 260.4	916.1	2 187.1	62.0	364.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	30.3	576.2	21.5	41.7	337.0	1 293.9	932.5	2 210.5	93.0	379.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	30.3	559.8	22.2	43.6	345.1	1 202.8	892.2	2 082.9	63.7	363.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	29.4	497.8	21.8	42.6	312.0	1 070.9	753.6	1 814.0	43.8	343.4	(NA)	(NA)
1982 Census	409	473	241	30.3	495.4	21.8	41.5	307.9	997.6	661.6	1 666.0	53.0	339.0	93	89
1981 ASM	(NA)	(NA)	(NA)	30.0	464.2	21.9	41.4	290.2	1 052.6	757.2	1 781.2	60.8	327.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	446.7	22.3	41.9	276.6	933.4	674.5	1 610.4	62.0	295.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.9	462.6	26.6	51.1	294.0	1 015.9	703.2	1 675.4	47.1	300.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.3	417.8	26.1	49.5	266.7	907.1	592.5	1 481.0	49.2	240.5	(NA)	(NA)
1977 Census	384	433	217	33.0	371.3	25.0	47.5	237.3	748.3	524.9	1 267.1	46.5	208.6	93	89
INDUSTRY 3061, MECHANICAL RUBBER GOODS															
1992 Census	560	649	378	48.5	1 196.3	37.1	76.3	775.5	2 554.9	1 991.9	4 545.0	154.0	420.2	92	91
1991 ASM	(NA)	(NA)	(NA)	42.4	1 044.4	32.5	67.5	692.9	1 995.6	1 729.9	3 726.1	108.4	400.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	46.3	1 083.4	36.5	74.2	733.6	2 086.3	1 850.5	3 930.2	116.6	417.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	49.5	1 170.5	37.3	78.9	775.0	2 133.4	1 874.8	3 997.6	152.3	423.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	46.6	987.9	36.5	73.9	673.5	2 101.0	1 655.1	3 743.4	104.3	414.6	(NA)	(NA)
1987 Census	537	624	328	49.8	1 092.2	37.9	77.6	725.8	2 208.5	1 755.6	3 963.2	148.6	433.4	88	96

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.														
1992 Census	984	1 131	523	57.3	1 413.9	42.1	85.1	857.4	3 464.6	3 460.0	6 934.0	204.2	749.0	87	87
1991 ASM	(NA)	(NA)	(NA)	55.8	1 278.1	42.6	82.9	815.6	3 296.9	3 334.0	6 644.1	160.3	751.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	56.6	1 252.8	43.6	87.4	812.6	3 139.1	3 495.6	6 629.0	181.9	761.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	57.1	1 244.9	44.0	88.7	811.2	3 037.9	3 365.7	6 343.1	212.1	754.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	57.2	1 301.9	43.2	88.4	820.2	3 010.3	3 145.4	6 123.8	167.2	701.7	(NA)	(NA)
1987 Census	869	1 007	458	54.0	1 149.8	40.4	83.1	722.4	2 600.1	2 668.1	5 253.7	139.5	634.6	90	84

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3011, TIRES AND INNER TUBES								
1992 Census	38 676	82	2 002	18.56	45	67	100 655	38	61.52
1991 ASM	34 904	80	1 899	17.70	43	62	101 591	34	66.88
1990 ASM	34 188	81	1 940	16.84	46	65	95 843	36	61.16
1989 ASM	34 406	80	1 987	16.57	48	68	89 549	38	56.12
1988 ASM	33 003	81	2 035	15.52	49	69	85 230	39	52.01
1987 Census	31 650	80	1 971	15.39	47	67	85 006	37	53.61
1986 ASM	30 988	79	1 911	15.50	46	66	80 520	38	53.14
1985 ASM	29 101	80	1 882	14.70	50	69	75 397	39	50.38
1984 ASM	29 668	80	1 995	14.18	52	71	75 455	39	47.30
1983 ASM	27 761	78	1 983	13.50	47	65	78 682	35	50.86
1982 Census	24 664	78	1 852	12.72	49	68	66 293	37	46.10
1981 ASM	23 443	79	1 899	11.89	52	71	61 204	38	41.03
1980 ASM	19 873	76	1 841	10.62	52	72	46 739	43	33.49
1979 ASM	18 853	78	1 909	9.51	54	75	43 191	44	28.83
1978 ASM	17 215	79	1 986	8.40	54	74	39 953	43	25.53
1977 Census	16 074	77	1 998	7.74	54	74	38 134	42	24.64
	INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR								
1992 Census	15 846	82	1 991	6.74	47	72	34 096	46	20.79
1991 ASM	15 547	83	2 175	6.27	49	73	32 821	47	18.20
1990 ASM	15 133	84	2 057	6.18	50	74	32 257	47	18.71
1989 ASM	13 917	84	2 054	5.83	50	76	26 477	53	15.27
1988 ASM	13 692	85	1 889	6.18	48	75	26 991	51	16.89
1987 Census	14 064	83	1 824	6.23	45	73	28 972	49	19.02
1986 ASM	14 870	82	1 853	6.41	50	73	31 141	48	20.61
1985 ASM	13 425	81	1 887	6.30	50	75	26 500	51	17.38
1984 ASM	12 120	83	1 815	5.70	49	75	22 727	53	15.15
1983 ASM	11 561	86	1 819	5.49	47	74	24 618	47	15.72
1982 Census	11 165	85	1 853	5.36	47	75	20 460	55	12.95
1981 ASM	10 274	86	1 950	4.73	50	77	19 360	53	11.54
1980 ASM	9 683	87	1 872	4.55	49	78	17 094	57	10.54
1979 ASM	8 794	87	1 882	4.20	44	73	17 394	51	10.64
1978 ASM	8 119	88	1 860	3.89	47	78	14 054	58	8.58
1977 Census	8 035	83	1 829	3.86	50	80	13 753	58	9.08
	INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING								
1992 Census	26 804	76	2 059	11.56	49	70	67 055	40	42.63
1991 ASM	24 782	77	2 000	10.92	49	72	55 801	44	36.34
1990 ASM	23 710	77	2 119	10.11	48	69	59 745	40	36.80
1989 ASM	24 461	76	1 989	10.75	47	71	53 355	46	35.52
1988 ASM	24 980	72	2 044	10.62	49	73	52 920	47	35.95
1987 Census	22 905	72	2 006	10.28	45	69	53 483	43	37.26
1986 ASM	22 191	73	1 952	10.27	47	69	52 222	42	36.84
1985 ASM	21 542	73	1 908	10.28	45	67	52 731	41	38.03
1984 ASM	21 866	73	1 917	10.55	47	69	54 170	40	38.56
1983 ASM	20 345	71	1 855	10.17	44	67	49 726	41	37.59
1982 Census	20 205	71	1 802	10.36	46	71	41 277	49	32.22
1981 ASM	19 550	75	1 906	9.45	54	78	39 974	49	27.93
1980 ASM	19 022	66	1 892	9.12	51	83	28 290	67	22.74
1979 ASM	16 953	67	1 962	7.58	52	82	28 463	60	21.60
1978 ASM	15 644	67	1 969	7.03	51	81	27 764	56	20.96
1977 Census	13 297	68	1 936	6.07	45	71	28 299	47	21.49

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES								
1992 Census	27 139	70	2 070	10.24	41	67	60 556	45	41.57
1991 ASM	25 056	72	2 017	10.23	43	71	51 573	49	35.59
1990 ASM	24 907	72	2 004	10.06	41	69	53 111	47	36.81
1989 ASM	23 470	71	1 966	9.92	43	70	48 768	48	35.05
1988 ASM	22 736	72	2 065	9.55	42	68	50 730	45	34.25
1987 Census	22 081	70	2 045	9.23	41	68	49 866	44	34.80
1986 ASM	20 101	72	2 000	8.35	42	68	44 070	46	30.74
1985 ASM	19 017	71	1 940	8.08	42	68	42 703	45	31.03
1984 ASM	18 475	73	1 964	7.92	43	70	39 696	47	27.59
1983 ASM	16 932	74	1 954	7.32	42	69	36 425	46	25.14
1982 Census	16 350	72	1 904	7.42	40	69	32 924	50	24.04
1981 ASM	15 473	73	1 890	7.01	43	69	35 087	44	25.43
1980 ASM	14 410	72	1 879	6.60	42	70	30 110	48	22.28
1979 ASM	12 886	74	1 921	5.75	42	70	28 298	46	19.88
1978 ASM	12 181	76	1 897	5.39	40	68	26 446	46	18.33
1977 Census	11 252	76	1 900	5.00	41	71	22 676	50	15.75
	INDUSTRY 3061, MECHANICAL RUBBER GOODS								
1992 Census	24 666	76	2 057	10.16	44	70	52 678	47	33.48
1991 ASM	24 632	77	2 077	10.27	46	74	47 066	52	29.56
1990 ASM	23 400	79	2 033	9.89	47	75	45 060	52	28.12
1989 ASM	23 646	75	2 115	9.82	47	76	43 099	55	27.04
1988 ASM	21 200	78	2 025	9.11	44	71	45 086	47	28.43
1987 Census	21 932	76	2 047	9.35	44	72	44 347	49	28.46
	INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.								
1992 Census	24 675	73	2 021	10.08	50	70	60 464	41	40.71
1991 ASM	22 905	76	1 946	9.84	50	69	59 084	39	39.77
1990 ASM	22 134	77	2 005	9.30	53	72	55 461	40	35.92
1989 ASM	21 802	77	2 016	9.15	53	73	53 203	41	34.25
1988 ASM	22 760	76	2 046	9.28	51	73	52 628	43	34.05
1987 Census	21 293	75	2 057	8.69	51	73	48 150	44	31.29

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3011, TIRES AND INNER TUBES														
United States	–	**152**	**86**	**64.6**	**2 498.5**	**52.8**	**105.7**	**1 961.9**	**6 502.3**	**5 368.6**	**11 810.0**	**506.1**	**65.4**	**5 559.4**
Alabama	–	9	9	9.6	363.0	8.3	16.4	298.2	751.5	689.0	1 446.4	72.4	10.5	874.9
Arkansas	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	11	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	5	5	.8	23.0	.7	1.4	17.0	80.3	106.3	180.6	9.6	F	(D)
Illinois	–	8	4	5.0	198.6	4.1	8.3	156.1	516.6	540.1	1 043.2	(D)	5.0	476.9
Indiana	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	5	4	2.9	112.5	2.4	4.6	88.1	194.9	223.3	427.4	20.9	2.5	184.3
Kansas	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	5	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	9	7	7.3	295.8	6.1	12.1	242.4	796.8	622.8	1 405.7	39.1	6.6	650.2
Ohio	–	14	5	2.9	120.7	1.9	3.7	78.2	260.8	178.0	443.5	(D)	4.3	179.1
Oklahoma	–	5	4	6.1	208.9	5.3	10.6	176.0	876.9	475.2	1 356.0	86.2	5.4	693.0
Pennsylvania	–	9	6	1.1	30.3	.8	1.8	19.2	89.1	57.3	147.0	3.6	1.2	58.6
South Carolina	–	4	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	9	7	6.0	244.4	4.8	10.1	189.5	472.1	492.2	961.4	23.0	5.3	613.1
Texas	–	11	5	1.8	81.5	1.4	3.2	65.2	242.2	161.1	401.9	(D)	2.0	178.8
Virginia	–	5	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR														
United States	–	**67**	**39**	**13.6**	**215.5**	**11.2**	**22.3**	**150.4**	**463.7**	**410.8**	**867.5**	**12.9**	**10.9**	**315.8**
California	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	8	4	2.8	42.3	2.3	5.1	30.3	87.3	91.8	180.5	2.0	G	(D)
Georgia	E2	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E2	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	E	(D)
Wisconsin	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING														
United States	–	**204**	**117**	**19.9**	**533.4**	**15.2**	**31.3**	**361.9**	**1 334.4**	**1 284.1**	**2 612.9**	**74.1**	**23.2**	**1 240.8**
Alabama	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	E1	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E2	22	10	.6	14.5	.4	1.0	8.4	37.5	41.7	78.2	6.1	F	(D)
Connecticut	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	7	4	.5	12.1	.4	.9	8.2	28.8	34.9	64.8	(D)	E	(D)
Georgia	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	11	7	.9	25.1	.7	1.4	17.0	61.5	49.5	113.5	4.7	.7	46.3
Iowa	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	E	(D)
Kansas	–	8	7	.8	17.9	.6	1.3	12.5	50.9	42.6	100.2	1.1	F	(D)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	6	5	.7	15.0	.5	1.1	11.6	54.2	37.6	91.7	3.7	1.3	100.9
Nebraska	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	E2	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	57.4
New York	E3	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	19	13	2.4	63.5	1.9	3.7	42.9	131.4	134.2	265.9	6.0	(NA)	(D)
Ohio	–	16	10	2.4	68.0	1.8	3.4	43.6	176.2	212.6	384.4	7.1	2.4	140.0
Pennsylvania	E1	9	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	10	4	1.2	28.2	.9	1.8	19.6	68.0	60.8	126.6	(D)	G	(D)
Tennessee	–	6	4	1.2	23.9	1.0	1.9	17.7	53.7	87.4	141.5	1.7	F	(D)
Texas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Utah	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
Wisconsin	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES														
United States	–	**550**	**281**	**32.4**	**879.3**	**22.8**	**47.2**	**483.4**	**1 962.0**	**1 365.8**	**3 344.5**	**90.3**	**28.4**	**1 416.2**
Alabama	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	80	42	3.5	92.4	2.4	4.9	47.0	181.8	101.8	285.2	7.0	(NA)	(D)
Colorado	E1	11	1	.1	4.2	.1	.2	2.2	7.9	3.2	10.9	.3	(NA)	(NA)
Connecticut	E1	13	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	E	(D)
Georgia	–	10	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	50	34	5.9	189.1	3.9	8.0	95.1	275.7	329.6	616.6	14.8	5.5	264.6
Indiana	–	16	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	20	10	1.3	42.4	.6	1.3	16.7	118.8	56.8	175.4	4.0	1.5	104.1
Michigan	E1	28	23	1.2	31.4	.9	1.9	16.2	63.8	60.5	126.9	2.0	1.4	46.7
Minnesota	–	15	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	E1	10	3	.2	4.1	.2	.3	2.5	9.3	8.2	17.4	.3	.3	10.4
New Hampshire	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	26	11	.9	31.1	.6	1.1	16.7	63.4	44.5	109.4	2.7	F	(D)
New York	–	25	8	1.3	39.8	.9	1.8	21.3	99.2	49.4	148.8	(D)	G	(D)
North Carolina	E1	10	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	42	20	1.9	49.2	1.3	2.8	30.1	128.8	61.6	190.2	(D)	G	(D)
Oklahoma	–	9	3	.4	9.1	.3	.7	5.5	50.9	20.0	70.8	(D)	E	(D)
Pennsylvania	E2	25	10	.8	25.2	.6	1.1	11.7	39.7	30.3	69.5	1.8	.9	39.5
Rhode Island	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/13/95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:30A_92.DAT;5 4/13/95 15:14:38 UTF:30A_93.DAT;6 4/13/95 16:08:38 META:TIPS96-16100494.DAT;1 4/13/95 16:10:51

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES—Con.														
South Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	E	(D)
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	8	8	.9	23.3	.7	1.6	15.4	52.5	36.6	91.7	2.4	F	(D)
Texas	E1	50	20	2.3	60.1	1.7	3.4	31.6	134.2	64.9	200.3	4.0	G	(D)
Utah	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	7	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	14	8	1.2	29.2	.9	1.7	18.0	70.3	75.5	144.1	(D)	G	(D)
INDUSTRY 3061, MECHANICAL RUBBER GOODS														
United States	**E1**	**649**	**378**	**48.5**	**1 196.3**	**37.1**	**76.3**	**775.5**	**2 554.9**	**1 991.9**	**4 545.0**	**154.0**	**49.8**	**2 208.5**
Alabama	E2	14	6	.5	11.7	.4	.8	7.6	30.6	20.0	50.7	(D)	(NA)	(D)
Arizona	–	5	4	.2	5.0	.1	.3	2.5	9.5	3.4	12.7	.5	E	(D)
Arkansas	–	8	5	1.3	29.9	1.1	2.4	23.1	73.5	48.6	122.2	3.6	1.0	51.9
California	E4	62	24	2.7	62.3	2.0	3.8	37.4	117.6	86.2	204.2	6.7	3.6	148.1
Connecticut	E1	16	12	1.0	27.0	.8	1.5	15.8	53.5	30.2	83.1	2.7	1.1	50.9
Delaware	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	11	7	.6	11.7	.4	1.0	8.1	26.5	19.3	45.6	.3	.2	5.3
Georgia	E3	11	7	.7	12.4	.6	1.2	9.4	31.6	28.1	59.4	2.2	F	(D)
Illinois	E1	35	17	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.7	G	(D)
Indiana	–	52	39	7.3	176.1	5.8	12.1	120.7	390.5	277.9	670.8	34.1	7.8	327.2
Iowa	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	E	(D)
Maryland	–	6	4	.3	6.5	.2	.5	4.3	13.6	10.3	24.1	(D)	(NA)	(D)
Massachusetts	–	14	4	1.0	25.0	.8	1.6	16.0	42.3	43.9	85.9	3.5	G	(D)
Michigan	E1	41	26	2.7	59.9	2.1	4.2	37.3	164.2	145.8	309.9	8.2	(NA)	(D)
Minnesota	–	15	9	1.1	34.0	.7	1.5	18.6	56.6	36.3	92.4	3.6	F	(D)
Mississippi	–	8	6	.3	3.9	.2	.4	2.5	9.7	10.7	20.6	(D)	(NA)	(D)
Missouri	–	7	4	.1	2.9	.1	.2	1.7	7.4	3.9	11.3	.1	E	(D)
New Hampshire	E5	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E1	26	12	1.1	31.7	.8	1.6	16.1	61.2	35.8	97.2	2.8	1.1	44.0
New York	E1	17	10	.6	13.7	.5	.9	8.9	36.1	23.5	60.0	3.2	1.2	55.0
North Carolina	–	19	10	2.0	46.8	1.4	2.7	25.4	91.8	82.7	174.6	5.4	G	(D)
Ohio	E1	99	74	9.3	257.5	7.3	15.3	180.2	509.9	528.8	1 040.8	24.1	11.2	506.6
Oklahoma	–	10	4	.7	12.2	.5	.9	7.4	34.0	15.7	49.6	(D)	F	(D)
Oregon	E1	12	3	.3	6.9	.2	.5	3.9	16.5	8.0	24.7	.3	.3	14.8
Pennsylvania	–	28	13	1.8	57.9	1.2	2.1	32.6	110.9	50.3	163.7	5.1	1.8	91.9
South Carolina	–	8	3	.2	5.8	.2	.3	3.4	18.2	14.2	33.6	.6	.5	31.0
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	17	13	3.3	68.5	2.7	6.0	49.6	161.3	133.4	294.5	17.7	1.3	51.9
Texas	E1	46	25	1.7	38.9	1.3	2.7	24.5	70.2	68.1	134.9	4.6	G	(D)
Utah	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(D)
Virginia	–	7	6	1.2	24.8	1.0	1.8	17.2	48.0	41.3	88.7	2.4	F	(D)
Washington	E1	5	2	.1	2.4	.1	.2	1.6	4.4	3.1	7.4	.1	(NA)	(NA)
Wisconsin	–	13	11	1.4	32.8	1.0	2.3	19.3	73.2	29.9	101.7	4.0	1.1	89.8
INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.														
United States	**E1**	**1 131**	**523**	**57.3**	**1 413.9**	**42.1**	**85.1**	**857.4**	**3 464.6**	**3 460.0**	**6 934.0**	**204.2**	**54.0**	**2 600.1**
Alabama	–	10	7	1.6	32.2	1.3	2.5	21.2	68.9	62.7	131.7	(D)	G	(D)
Arizona	E2	14	5	.4	9.5	.3	.5	5.1	22.5	13.8	36.5	1.0	E	(D)
Arkansas	–	17	11	1.4	26.8	1.1	2.1	19.3	110.1	110.9	219.1	5.0	1.4	117.5
California	E3	134	52	5.6	115.6	4.0	7.7	69.4	268.9	221.4	492.3	15.4	4.6	187.2
Colorado	E6	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Connecticut	E2	16	9	.8	20.2	.6	1.2	11.2	48.4	37.0	85.4	2.2	.7	36.4
Delaware	E4	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	44	16	1.3	31.6	1.0	2.0	19.0	82.4	48.7	128.9	7.6	1.1	48.9
Georgia	E1	41	25	1.8	44.0	1.4	3.1	27.9	135.6	188.2	325.6	6.4	G	(D)
Illinois	E1	56	33	1.8	46.7	1.3	2.5	28.6	117.1	99.9	218.2	5.9	G	(D)
Indiana	E1	38	18	2.0	45.6	1.7	3.6	31.6	85.5	71.9	157.5	9.8	3.3	172.8
Iowa	E2	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	E6	7	4	.3	6.0	.2	.4	3.4	12.1	18.2	30.3	.6	(NA)	(NA)
Maine	–	6	3	.2	3.7	.1	.3	2.0	5.4	8.0	13.4	.2	.2	6.3
Maryland	E6	11	4	.5	10.3	.3	.7	6.0	23.3	14.8	37.7	1.1	F	(D)
Massachusetts	E1	40	24	1.7	52.3	1.2	2.6	33.0	119.4	122.5	240.2	4.8	(NA)	(D)
Michigan	E4	47	17	1.5	32.8	1.1	2.3	21.0	87.7	76.9	164.6	5.4	F	(D)
Minnesota	E1	22	10	1.1	30.1	.8	1.5	18.2	95.7	70.5	165.6	9.4	F	(D)
Mississippi	E1	20	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	25	12	1.9	37.6	1.4	2.7	23.3	81.4	99.0	179.2	2.4	G	(D)
Nebraska	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	10	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	52	23	2.0	54.6	1.5	2.7	29.8	165.5	81.1	240.8	5.6	2.3	133.3
New York	E1	37	17	1.2	26.6	.9	1.8	15.9	57.3	57.9	114.9	3.5	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/13/95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:30A_92.DAT;5 4/13/95 15:14:38 UTF:30A_93.DAT;6 4/13/95 16:08:38 META:TIPS96-16100494.DAT;1 4/13/95 16:10:51

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.—Con.														
North Carolina	–	40	21	3.4	71.3	2.8	5.5	50.5	237.4	232.2	467.7	17.9	G	(D)
Ohio	–	110	59	8.5	234.4	6.2	13.0	146.2	520.4	631.8	1 155.9	25.7	9.3	439.6
Oklahoma	–	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	E1	24	4	.3	7.5	.2	.5	4.5	17.1	12.3	29.4	1.0	.2	5.9
Pennsylvania	–	40	22	2.1	61.9	1.2	2.5	26.8	152.9	150.9	304.4	6.5	2.5	126.0
South Carolina	–	21	13	3.3	95.5	2.6	5.3	67.0	214.2	401.2	614.6	17.4	4.0	111.9
Tennessee	–	31	18	2.6	70.2	2.0	4.3	45.8	179.0	222.0	399.6	7.5	3.0	171.2
Texas	E1	74	24	3.1	82.0	1.6	2.7	25.3	112.3	74.6	208.8	12.0	G	(D)
Virginia	–	12	8	1.5	39.5	1.2	2.2	24.9	93.5	63.3	157.0	6.8	G	(D)
Washington	E1	21	7	.4	8.5	.3	.5	5.4	23.5	11.1	34.5	1.9	(NA)	(D)
West Virginia	E2	12	10	.6	11.7	.4	.9	7.3	36.3	39.3	75.0	(D)	F	(D)
Wisconsin	–	24	11	1.0	28.6	.7	1.5	16.3	64.5	52.0	116.1	5.3	.7	28.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Tires and inner tubes (SIC 3011)	Rubber and plastics footwear (SIC 3021)	Rubber and plastics hose and belting (SIC 3052)	Gaskets, packing, and sealing devices (SIC 3053)	Mechanical rubber goods (SIC 3061)	Fabricated rubber products, n.e.c. (SIC 3069)
Companies ---- number	104	53	146	473	560	984
All establishments ---- number	152	67	204	550	649	1 131
With 1 to 19 employees ---- number	66	28	87	269	271	608
With 20 to 99 employees ---- number	20	10	57	207	250	388
With 100 employees or more ---- number	66	29	60	74	128	135
Employment and labor costs:						
Employees ---- 1,000	64.6	13.6	19.9	32.4	48.5	57.3
Compensation, total ---- mil dol	3 436.5	260.8	704.3	1 109.1	1 576.6	1 818.2
Annual payroll ---- mil dol	2 498.5	215.5	533.4	879.3	1 196.3	1 413.9
Fringe benefits ---- mil dol	938.0	45.4	170.8	229.8	380.3	404.2
Social Security and other legally required payments ---- mil dol	289.0	25.6	56.7	88.9	147.3	159.7
Employer voluntary payments ---- mil dol	649.0	19.8	114.1	140.9	233.0	244.5
Production workers:						
Average for year ---- 1,000	52.8	11.2	15.2	22.8	37.1	42.1
March ---- 1,000	51.7	11.8	14.9	23.0	37.1	42.0
May ---- 1,000	52.3	11.6	15.2	23.1	37.5	42.2
August ---- 1,000	53.2	10.5	15.3	22.7	37.0	42.4
November ---- 1,000	54.0	10.9	15.2	22.6	37.0	41.8
Hours ---- millions	105.7	22.3	31.3	47.2	76.3	85.1
Wages ---- mil dol	1 961.9	150.4	361.9	483.4	775.5	857.4
Cost of materials[1] ---- mil dol	5 368.6	410.8	1 284.1	1 365.8	1 991.9	3 460.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 784.3	355.5	1 202.3	1 166.3	1 775.7	3 060.5
Resales ---- mil dol	294.8	35.7	24.6	113.8	76.1	209.1
Fuels ---- mil dol	69.2	3.3	15.2	11.3	28.7	48.9
Purchased electricity ---- mil dol	184.0	9.4	35.8	46.0	80.1	113.3
Contract work ---- mil dol	36.2	6.9	6.2	28.4	31.3	28.2
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	4 257.1	129.6	666.9	703.0	1 313.4	1 915.7
Generated less sold ---- mil kWh	(D)	–	(D)	(D)	–	–
Total value of shipments ---- mil dol	11 810.0	867.5	2 612.9	3 344.5	4 545.0	6 934.0
Value added ---- mil dol	6 502.3	463.7	1 334.4	1 962.0	2 554.9	3 464.6
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	995.2	161.0	342.4	469.3	415.9	760.8
Finished goods ---- mil dol	595.8	87.6	202.8	212.6	157.8	332.4
Work in process ---- mil dol	120.2	26.9	59.5	94.8	96.7	144.3
Materials and supplies ---- mil dol	279.2	46.5	80.1	161.9	161.4	284.1
End of 1992 ---- mil dol	1 058.5	172.8	358.2	442.4	420.2	749.0
Finished goods ---- mil dol	655.2	95.2	210.7	205.8	155.2	314.8
Work in process ---- mil dol	121.7	26.3	57.1	84.9	101.0	152.7
Materials and supplies ---- mil dol	281.7	51.3	90.4	151.7	164.0	281.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Tires and inner tubes (SIC 3011)	Rubber and plastics footwear (SIC 3021)	Rubber and plastics hose and belting (SIC 3052)	Gaskets, packing, and sealing devices (SIC 3053)	Mechanical rubber goods (SIC 3061)	Fabricated rubber products, n.e.c. (SIC 3069)
Gross book value of depreciable assets:						
Total:						
Beginning of year	6 823.8	234.9	1 019.4	1 216.4	1 808.9	2 564.7
New capital expenditures[1]	506.1	12.9	74.1	90.3	154.0	204.2
Used capital expenditures	30.5	2.2	6.9	17.3	12.3	19.3
Retirements	103.6	5.1	12.2	44.2	61.1	52.9
End of year	7 256.8	244.8	1 088.1	1 279.9	1 914.1	2 735.3
Buildings and other structures:						
Beginning of year	1 268.3	58.6	227.8	255.3	388.3	618.4
New capital expenditures	52.2	2.3	8.4	15.1	22.6	29.3
Used capital expenditures	.1	.1	(D)	1.3	(D)	3.6
Retirements	6.3	.1	(D)	3.3	(D)	3.1
End of year	1 314.3	60.8	236.6	268.4	409.9	648.2
Machinery and equipment:						
Beginning of year	5 555.4	176.3	791.5	961.1	1 420.6	1 946.3
New capital expenditures[1]	453.9	10.6	65.6	75.2	131.4	175.0
Used capital expenditures	30.4	2.2	(D)	16.1	(D)	15.7
Retirements	97.2	5.0	(D)	40.9	(D)	49.8
End of year	5 942.5	184.0	851.6	1 011.5	1 504.2	2 087.1
Depreciation charges during 1992:						
Total	409.9	21.2	64.9	92.6	134.9	184.0
Buildings and other structures	45.7	3.4	9.7	14.1	20.7	27.8
Machinery and equipment	364.2	17.8	55.1	78.6	114.1	156.1
Rental payments:						
Total	45.3	7.3	15.2	32.7	36.2	59.6
Buildings and other structures	8.9	5.2	7.4	19.1	21.0	30.8
Machinery and equipment	36.4	2.1	7.8	13.5	15.2	28.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Tires and inner tubes (SIC 3011)		Rubber and plastics footwear (SIC 3021)		Rubber and plastics hose and belting (SIC 3052)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	27.9	(X)	.7	(X)	9.7	(X)
Response coverage ratio (percent)[2]	96.5	(X)	68.7	(X)	86.5	(X)
Machinery	211.2	(X)	5.2	(X)	30.1	(X)
Response coverage ratio (percent)[2]	97.7	(X)	68.7	(X)	90.0	(X)
Other purchased services:						
Communications	7.6	(X)	1.0	(X)	5.1	(X)
Response coverage ratio (percent)[2]	97.7	(X)	70.0	(X)	86.6	(X)
Legal	3.6	(X)	2.6	(X)	2.5	(X)
Response coverage ratio (percent)[2]	94.1	(X)	71.4	(X)	90.0	(X)
Accounting and bookkeeping	1.7	(X)	.5	(X)	2.1	(X)
Response coverage ratio (percent)[2]	94.2	(X)	70.0	(X)	90.0	(X)
Advertising	19.4	(X)	8.5	(X)	8.2	(X)
Response coverage ratio (percent)[2]	94.2	(X)	70.0	(X)	88.2	(X)
Software and other data processing	10.5	(X)	.2	(X)	3.6	(X)
Response coverage ratio (percent)[2]	92.0	(X)	63.2	(X)	89.9	(X)
Refuse removal, including hazardous waste	15.3	(X)	.7	(X)	4.5	(X)
Response coverage ratio (percent)[2]	97.7	(X)	70.0	(X)	88.7	(X)
New machinery and equipment expenditures	453.9	(X)	10.6	(X)	65.6	(X)
Automobiles, trucks, etc., for highway use	.5	24	.2	10	.1	8
Computers and peripheral data processing equipment	15.7	1	1.3	9	2.1	8
All other	437.7	1	9.0	2	63.5	1
Adjustment ratio[3]	1.0	(X)	1.4	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	4 784.3	(X)	355.5	(X)	1 202.3	(X)
Materials purchased or transferred from foreign sources[4]	1 009.5	1	70.5	6	66.8	9
Materials purchased or transferred from domestic sources	3 774.8	1	284.9	2	1 135.5	1
Adjustment ratio[3]	1.7	(X)	1.6	(X)	1.2	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gaskets, packing, and sealing devices (SIC 3053)		Mechanical rubber goods (SIC 3061)		Fabricated rubber products, n.e.c. (SIC 3069)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	3.7	(X)	9.3	(X)	13.0	(X)
Response coverage ratio (percent)[2]	88.3	(X)	84.4	(X)	79.6	(X)
Machinery	15.5	(X)	37.3	(X)	49.3	(X)
Response coverage ratio (percent)[2]	90.5	(X)	82.3	(X)	82.8	(X)
Other purchased services:						
Communications	8.9	(X)	9.0	(X)	11.1	(X)
Response coverage ratio (percent)[2]	89.8	(X)	79.3	(X)	79.2	(X)
Legal	4.0	(X)	6.4	(X)	8.9	(X)
Response coverage ratio (percent)[2]	89.5	(X)	84.3	(X)	81.6	(X)
Accounting and bookkeeping	3.5	(X)	4.7	(X)	4.2	(X)
Response coverage ratio (percent)[2]	88.3	(X)	83.4	(X)	79.1	(X)
Advertising	8.8	(X)	8.8	(X)	17.5	(X)
Response coverage ratio (percent)[2]	89.5	(X)	83.4	(X)	80.3	(X)
Software and other data processing	5.4	(X)	7.1	(X)	5.0	(X)
Response coverage ratio (percent)[2]	89.5	(X)	82.3	(X)	77.5	(X)
Refuse removal, including hazardous waste	4.0	(X)	7.9	(X)	10.9	(X)
Response coverage ratio (percent)[2]	90.1	(X)	80.6	(X)	81.3	(X)
New machinery and equipment expenditures	75.2	(X)	131.4	(X)	175.0	(X)
Automobiles, trucks, etc., for highway use	2.3	27	3.5	61	5.7	21
Computers and peripheral data processing equipment	5.1	9	10.3	18	5.6	18
All other	67.9	2	117.6	4	163.7	2
Adjustment ratio[3]	1.5	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 166.3	(X)	1 775.7	(X)	3 060.5	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	59.8	8	166.6	16
Materials purchased or transferred from domestic sources	(S)	(X)	1 715.9	1	2 893.9	1
Adjustment ratio[3]	(S)	(X)	1.7	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3011, TIRES AND INNER TUBES												
Total	**–**	**152**	**64.6**	**2 498.5**	**52.8**	**105.7**	**1 961.9**	**6 502.3**	**5 368.6**	**11 810.0**	**506.1**	**1 058.5**
Establishments with an average of–												
1 to 4 employees	E9	32	.1	1.7	.1	.1	1.4	4.9	4.2	9.4	.5	.9
5 to 9 employees	E5	19	.1	3.5	.1	.2	2.7	8.9	7.5	16.4	.8	1.6
10 to 19 employees	E2	15	.2	5.7	.2	.3	3.2	12.8	11.4	24.2	.8	2.4
20 to 49 employees	E2	10	.3	8.6	.2	.5	5.7	28.7	34.4	63.4	24.5	4.8
50 to 99 employees	E1	10	.6	15.6	.4	.9	9.4	117.2	56.8	173.3	(D)	17.4
100 to 249 employees	–	19	3.4	93.3	2.8	5.6	69.2	336.2	296.7	622.8	20.5	70.7
250 to 499 employees	E1	11	3.6	103.4	3.0	5.7	78.3	246.8	203.7	463.3	9.3	91.1
500 to 999 employees	–	9	6.3	215.5	5.0	9.8	160.1	500.5	527.1	1 032.3	49.7	146.9
1,000 to 2,499 employees	–	25	49.9	2 051.1	41.1	82.4	1 632.0	5 246.2	4 226.9	9 405.0	400.1	722.8
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	40	.1	2.9	.1	.2	2.3	8.1	6.7	14.8	.8	1.5
INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR												
Total	**–**	**67**	**13.6**	**215.5**	**11.2**	**22.3**	**150.4**	**463.7**	**410.8**	**867.5**	**12.9**	**172.8**
Establishments with an average of–												
1 to 4 employees	E2	14	(Z)	.4	(Z)	(Z)	.3	.8	.7	1.4	(Z)	.3
5 to 9 employees	E1	8	(Z)	.6	(Z)	.1	.4	1.1	1.0	2.1	(Z)	.3
10 to 19 employees	–	6	.1	1.0	.1	.1	.7	2.2	2.5	4.8	(Z)	.5
20 to 49 employees	–	5	.2	2.0	.1	.2	1.4	4.5	3.0	7.8	(Z)	1.3
50 to 99 employees	E1	5	.4	6.1	.4	.7	4.9	14.8	11.1	26.2	.3	4.6
100 to 249 employees	–	13	2.2	35.3	1.9	3.9	23.7	80.9	92.3	171.9	2.0	42.3
250 to 499 employees	–	8	2.6	39.9	2.1	3.5	24.4	87.1	71.1	157.5	2.4	38.1
500 to 999 employees	–	6	8.0	130.2	6.5	13.7	94.6	272.3	229.1	495.9	8.1	85.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	27	.2	1.9	.1	.3	1.3	4.0	3.3	7.3	.1	1.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING												
Total	**–**	**204**	**19.9**	**533.4**	**15.2**	**31.3**	**361.9**	**1 334.4**	**1 284.1**	**2 612.9**	**74.1**	**358.2**
Establishments with an average of—												
1 to 4 employees	E8	31	.1	1.4	(Z)	.1	.9	3.4	3.1	6.6	.1	1.0
5 to 9 employees	E4	26	.2	4.9	.1	.3	2.7	14.5	12.0	26.6	.3	4.1
10 to 19 employees	E1	30	.4	11.0	.3	.6	5.7	34.6	27.2	61.3	1.8	9.5
20 to 49 employees	E2	31	1.1	26.3	.7	1.5	15.4	62.9	62.8	126.4	2.8	17.8
50 to 99 employees	E1	26	1.7	46.0	1.2	2.7	25.1	118.7	127.3	245.8	9.9	30.7
100 to 249 employees	–	33	4.9	122.6	3.7	7.6	80.2	309.8	326.1	629.5	18.1	100.6
250 to 499 employees	–	22	7.1	181.1	5.5	10.9	121.9	443.9	480.8	932.1	23.8	132.8
500 to 999 employees	–	4	4.4	140.1	3.6	7.7	110.0	346.5	244.9	584.8	17.3	61.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	38	.1	2.8	.1	.2	1.9	6.5	6.0	12.5	.2	1.8
INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES												
Total	**–**	**550**	**32.4**	**879.3**	**22.8**	**47.2**	**483.4**	**1 962.0**	**1 365.8**	**3 344.5**	**90.3**	**442.4**
Establishments with an average of—												
1 to 4 employees	E8	82	.1	3.7	.1	.2	2.2	7.9	5.7	13.7	.5	2.2
5 to 9 employees	E5	84	.6	15.0	.4	.8	8.5	32.2	26.3	58.4	1.9	9.7
10 to 19 employees	E1	103	1.5	40.1	1.0	1.9	18.8	90.4	64.6	155.0	3.4	18.4
20 to 49 employees	E1	146	4.5	118.1	3.1	6.4	59.1	257.7	181.9	440.0	10.2	55.9
50 to 99 employees	E1	61	4.5	108.8	3.2	6.5	59.0	238.3	215.6	452.9	12.3	56.4
100 to 249 employees	–	43	7.2	190.3	5.0	10.9	111.2	478.1	323.0	805.1	27.0	121.6
250 to 499 employees	–	25	7.9	204.3	5.7	11.4	115.1	504.3	280.1	783.5	19.7	103.9
500 to 999 employees	–	4	6.2	199.1	4.3	9.1	109.5	353.0	268.8	636.0	15.4	74.2
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	141	.7	14.7	.5	1.0	8.7	29.9	22.4	52.3	1.8	8.1
INDUSTRY 3061, MECHANICAL RUBBER GOODS												
Total	**E1**	**649**	**48.5**	**1 196.3**	**37.1**	**76.3**	**775.5**	**2 554.9**	**1 991.9**	**4 545.0**	**154.0**	**420.2**
Establishments with an average of—												
1 to 4 employees	E9	92	.2	4.0	.1	.3	2.7	8.0	6.3	14.4	.4	1.4
5 to 9 employees	E7	90	.6	13.3	.4	.9	8.5	26.6	22.8	49.3	2.4	5.9
10 to 19 employees	E3	89	1.3	26.4	1.0	2.0	16.3	55.2	35.4	90.3	1.4	8.1
20 to 49 employees	–	132	4.2	95.4	3.2	6.5	57.6	199.4	145.3	342.6	9.1	37.2
50 to 99 employees	E1	118	8.5	198.1	6.6	13.2	126.3	443.5	297.8	740.1	25.9	81.2
100 to 249 employees	E1	79	12.0	273.1	9.4	19.4	183.1	589.4	455.6	1 045.2	37.8	92.1
250 to 499 employees	E1	34	11.7	298.3	8.9	18.2	192.5	668.5	554.9	1 222.5	42.8	97.6
500 to 999 employees	–	14	10.1	287.7	7.5	16.0	188.6	564.4	473.8	1 040.6	34.2	96.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	194	1.0	19.7	.8	1.7	13.3	36.2	28.8	65.0	1.9	6.2
INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.												
Total	**E1**	**1 131**	**57.3**	**1 413.9**	**42.1**	**85.1**	**857.4**	**3 464.6**	**3 460.0**	**6 934.0**	**204.2**	**749.0**
Establishments with an average of—												
1 to 4 employees	E6	253	.5	10.4	.4	.7	6.4	25.2	32.9	58.2	1.4	5.9
5 to 9 employees	E6	171	1.2	25.3	.9	1.8	15.5	56.1	54.6	111.0	3.2	11.3
10 to 19 employees	E3	184	2.6	55.7	1.8	3.5	31.7	137.1	114.0	250.8	6.8	24.3
20 to 49 employees	E1	262	8.3	204.5	6.0	12.5	115.9	504.8	473.5	977.4	34.5	92.7
50 to 99 employees	E1	126	8.6	202.9	6.4	13.2	123.7	510.5	500.9	1 007.2	36.4	97.8
100 to 249 employees	–	90	13.5	333.2	10.0	20.2	203.7	823.7	787.2	1 605.5	47.8	200.1
250 to 499 employees	–	32	10.8	250.5	8.4	16.8	168.5	726.1	628.9	1 347.9	33.7	134.0
500 to 999 employees	–	9	6.3	168.0	4.7	9.6	105.7	390.6	402.0	798.6	17.1	75.2
1,000 to 2,499 employees	–	4	5.5	163.5	3.6	6.8	86.3	290.5	465.9	777.4	23.2	107.8
Covered by administrative records[2]	E9	361	1.7	26.2	1.3	2.4	16.9	51.8	56.8	108.6	3.3	10.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3011	**Tires and inner tubes:**										
	All establishments in industry	152	64.6	2 498.5	52.8	105.7	1 961.9	6 502.3	5 368.6	11 810.0	506.1
	Establishments with this product class primary:										
30111	Passenger car pneumatic tires (casings)	25	37.5	1 504.0	31.5	63.5	1 217.1	3 949.2	3 074.7	6 982.4	316.8
30112	Truck and bus (including off-the-highway pneumatic tires)	14	15.2	617.8	11.6	22.2	459.4	1 547.9	1 395.7	2 912.6	119.7
30117	Tractor and implement pneumatic tires	3	4.0	168.5	3.4	7.1	136.7	312.1	349.4	674.1	(D)
30118	Industrial and utility pneumatic tires	4	1.1	36.8	.9	1.9	24.5	99.0	68.3	168.7	(D)
30119	Other pneumatic tires	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3011A	Solid and semipneumatic tires	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3011C	Inner tubes	6	1.2	33.2	1.0	1.9	24.5	65.3	66.4	130.4	3.9
3011D	Tread rubber, tire sundries, and repair materials	27	3.0	77.9	2.4	4.8	55.1	385.5	261.2	647.7	34.4
3021	**Rubber and plastics footwear:**										
	All establishments in industry	67	13.6	215.5	11.2	22.3	150.4	463.7	410.8	867.5	12.9
	Establishments with this product class primary:										
30214	Protective footwear	13	3.3	58.0	2.7	4.8	35.9	151.0	116.3	264.5	3.6
30215	Shoes with soles vulcanized, molded, or cemented to fabrics uppers	25	9.8	151.2	8.2	16.9	110.5	299.2	283.7	578.8	9.0
3052	**Rubber and plastics hose and belting:**										
	All establishments in industry	204	19.9	533.4	15.2	31.3	361.9	1 334.4	1 284.1	2 612.9	74.1
	Establishments with this product class primary:										
30521	Rubber and plastics belts and belting, flat	34	3.2	89.6	2.1	4.3	49.0	212.2	251.0	460.6	13.4
30522	Rubber and plastics transmission belts and belting other than flat	20	4.5	143.8	3.6	7.7	106.9	365.9	266.9	628.9	20.7
3052A	Hose for on- and off-highway motor vehicles (made of rubber and other materials; e.g., plastics, nylon)	16	4.2	107.0	3.2	6.3	71.6	284.1	218.8	501.1	16.4
3052B	Industrial hose without fittings	17	1.7	44.3	1.3	2.8	29.3	114.3	125.5	237.5	3.6
3052C	Water hose without fittings	17	1.1	23.3	.8	1.7	14.7	55.3	71.7	127.0	2.7
3052D	Rubber and plastics garden hose (with or without fittings)	6	1.1	27.0	.9	1.8	19.0	77.4	77.7	151.4	4.4
3052F	Air hose (other than pneumatic power transfer)	7	.6	12.9	.5	.9	9.1	38.2	42.1	82.1	1.3
3052G	Pneumatic and hydraulic hose, n.e.c., without fittings (made of rubber and other materials; e.g., plastics, nylon)	18	2.7	66.5	2.2	4.5	49.5	144.3	189.1	340.3	10.0
3053	**Gaskets, packing, and sealing devices:**										
	All establishments in industry	550	32.4	879.3	22.8	47.2	483.4	1 962.0	1 365.8	3 344.5	90.3
	Establishments with this product class primary:										
30534	Compression packings	8	.6	16.7	.4	.8	9.0	37.2	28.3	64.6	1.0
30535	Nonmetallic gaskets and gasketing	131	9.5	283.6	6.7	14.2	147.2	577.9	573.5	1 161.5	22.7
30536	Molded packings and seals	90	7.9	194.0	5.8	12.0	113.0	420.1	224.9	648.5	20.1
30537	Metallic gaskets and machined seals	42	4.1	121.6	2.6	5.4	61.2	272.8	169.7	445.2	17.7
30538	Axial mechanical face seals	26	3.0	90.7	1.7	2.9	38.9	152.0	76.7	234.4	8.6
30539	Rotary oil seals	16	4.4	103.1	3.5	7.5	74.5	352.7	183.3	532.2	12.5
3061	**Mechanical rubber goods:**										
	All establishments in industry	649	48.5	1 196.3	37.1	76.3	775.5	2 554.9	1 991.9	4 545.0	154.0
	Establishments with this product class primary:										
30611	Molded rubber mechanical goods, automotive	104	17.9	445.0	14.0	29.3	305.5	938.9	907.8	1 849.7	64.5
30612	Molded rubber mechanical goods, transportation, except automotive (including off-highway)	26	2.6	76.8	1.6	3.0	39.0	144.8	94.6	241.0	8.0
30613	Other molded rubber mechanical goods	171	11.5	283.8	8.4	17.0	166.9	625.2	352.4	970.7	33.5
30614	Extruded rubber mechanical goods, automotive (except tubing)	25	7.6	180.8	6.2	13.0	127.8	435.3	312.8	749.6	27.9
30615	Other extruded rubber mechanical goods, except automotive	54	3.6	92.4	2.7	5.6	56.2	184.5	158.3	343.2	8.3
30616	Lathe-cut rubber mechanical goods, automotive	6	1.4	33.1	1.1	2.4	23.3	57.2	35.5	92.6	2.8
30617	Other lathe-cut rubber mechanical goods, except automotive	8	.4	10.4	.3	.6	7.5	17.3	9.5	26.8	.6
3069	**Fabricated rubber products, n.e.c.:**										
	All establishments in industry	1 131	57.3	1 413.9	42.1	85.1	857.4	3 464.6	3 460.0	6 934.0	204.2
	Establishments with this product class primary:										
30693	Sponge, expanded and foam rubber products	118	9.4	216.8	7.2	15.0	137.7	483.4	510.2	997.9	34.2
30694	Rubber floor and wall coverings	37	3.6	85.0	2.7	5.7	54.8	229.2	255.4	486.2	10.0
30695	Prophylactics	6	1.1	25.5	.9	1.7	17.3	136.4	66.8	203.4	(D)
30696	Shoe products, rubber, elastomer resin	14	2.3	43.2	1.8	3.2	26.2	92.7	88.7	180.2	3.0
30698	Rubber druggist and medical sundries, including household gloves	27	5.5	152.5	3.7	7.4	75.9	263.3	182.4	463.4	23.7
30699	Compounds or mixtures for sale or interplant transfer	48	6.7	197.3	4.9	10.1	126.2	436.0	790.1	1 222.7	29.0
3069C	Industrial rubber products, n.e.c.	178	9.8	261.9	6.9	14.1	151.9	759.6	631.5	1 383.5	42.9
3069D	Rubber coated fabrics and rubber clothing	42	3.2	72.6	2.5	5.1	47.0	181.2	161.3	344.5	10.1
3069E	Other rubber goods	130	8.8	220.3	6.6	13.0	134.7	573.3	448.9	1 020.2	28.3

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3011, TIRES AND INNER TUBES			
Total value of shipments	11 810.0	10 427.4	9 340.1
Primary products value of shipments	11 181.4	9 949.9	8 911.3
Secondary products value of shipments	222.4	164.9	78.6
Total miscellaneous receipts	406.1	312.6	350.2
Value of resales	399.3	305.6	344.5
Contract receipts	(D)	–	3.1
Other miscellaneous receipts	(D)	7.0	2.6
Primary products specialization ratio	98	98	99
Value of primary products shipments made in all industries	11 311.8	10 032.7	9 047.3
Value of primary products shipments made in this industry	11 181.4	9 949.9	8 911.3
Value of primary products shipments made in other industries	130.4	82.9	135.9
Coverage ratio	99	99	98
INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR			
Total value of shipments	867.5	557.2	706.2
Primary products value of shipments	793.2	509.4	621.8
Secondary products value of shipments	17.6	23.8	28.5
Total miscellaneous receipts	56.7	24.0	56.0
Value of resales	49.5	23.7	53.7
Contract receipts	(D)	–	(D)
Other miscellaneous receipts	(D)	.3	(D)
Primary products specialization ratio	98	96	96
Value of primary products shipments made in all industries	803.4	519.6	662.6
Value of primary products shipments made in this industry	793.2	509.4	621.8
Value of primary products shipments made in other industries	10.2	10.2	40.8
Coverage ratio	99	98	94
INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING			
Total value of shipments	2 612.9	2 268.2	1 945.5
Primary products value of shipments	2 442.3	2 087.7	1 596.1
Secondary products value of shipments	131.8	136.3	265.0
Total miscellaneous receipts	38.8	44.2	84.4
Value of resales	35.1	39.7	(D)
Contract receipts	(D)	.4	(D)
Other miscellaneous receipts	(D)	4.1	(D)
Primary products specialization ratio	95	94	86
Value of primary products shipments made in all industries	2 635.0	2 213.6	1 699.3
Value of primary products shipments made in this industry	2 442.3	2 087.7	1 596.1
Value of primary products shipments made in other industries	192.7	125.9	103.2
Coverage ratio	93	94	94
INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES			
Total value of shipments	3 344.5	2 379.3	1 666.0
Primary products value of shipments	2 916.5	2 156.6	1 485.8
Secondary products value of shipments	252.7	123.7	105.4
Total miscellaneous receipts	175.4	99.0	74.9
Value of resales	151.1	78.7	(D)
Contract receipts	8.0	7.6	(D)
Other miscellaneous receipts	16.3	12.7	(D)
Primary products specialization ratio	92	95	93
Value of primary products shipments made in all industries	3 147.0	2 309.4	1 663.7
Value of primary products shipments made in this industry	2 916.5	2 156.6	1 485.8
Value of primary products shipments made in other industries	230.5	152.8	177.9
Coverage ratio	93	93	89
INDUSTRY 3061, MECHANICAL RUBBER GOODS			
Total value of shipments	4 545.0	3 963.2	(NA)
Primary products value of shipments	4 072.1	3 412.8	(NA)
Secondary products value of shipments	353.8	475.4	(NA)
Total miscellaneous receipts	119.1	74.9	(NA)
Value of resales	103.6	68.8	(NA)
Contract receipts	(D)	1.4	(NA)
Other miscellaneous receipts	(D)	4.7	(NA)
Primary products specialization ratio	92	88	(NA)
Value of primary products shipments made in all industries	4 474.9	3 553.9	(NA)
Value of primary products shipments made in this industry	4 072.1	3 412.8	(NA)
Value of primary products shipments made in other industries	402.8	141.1	(NA)
Coverage ratio	91	96	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.			
Total value of shipments	6 934.0	5 253.7	(NA)
Primary products value of shipments	5 756.5	4 417.1	(NA)
Secondary products value of shipments	834.1	470.0	(NA)
Total miscellaneous receipts	343.3	366.7	(NA)
Value of resales	298.8	257.4	(NA)
Contract receipts	7.3	65.2	(NA)
Other miscellaneous receipts	37.2	44.1	(NA)
Primary products specialization ratio	87	90	(NA)
Value of primary products shipments made in all industries	6 617.9	5 235.1	(NA)
Value of primary products shipments made in this industry	5 756.5	4 417.1	(NA)
Value of primary products shipments made in other industries	861.4	818.0	(NA)
Coverage ratio	87	84	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3011– —	**TIRES AND INNER TUBES**						
	Total	**(NA)**	**(X)**	**11 311.8**	**(NA)**	**(X)**	**10 032.7**
30111	Passenger car pneumatic tires (casings)	(NA)	(X)	5 926.9	(NA)	(X)	5 821.2
30111 12	Radial mil tires	12	237.2	5 852.1	10	(S)	5 271.6
30111 15	Other mil tires	10	(S)	74.8	12	*21.7	549.6
30111 00	Passenger car pneumatic tires (casings), n.s.k.	(NA)	(X)	–	(NA)	(X)	–
30112	Truck and bus (including off-the-highway pneumatic tires)	(NA)	(X)	3 607.0	(NA)	(X)	2 727.3
	Light truck:						
30112 11	Radial mil tires	11	27.0	2 114.7	9	*13.0	798.2
30112 12	Other mil tires	10	5.3	323.1	11	10.1	540.7
	Large off-the-highway (sizes 16.00 inches and larger):						
30112 21	Radial mil tires	7	(S)	275.8	4	(S)	161.7
30112 22	Other mil tires	9	(D)	(D)	6	(S)	348.7
	Other truck and bus tires, pneumatic tires:						
30112 31	Radial mil tires	3	(D)	(D)	4	(S)	576.2
30112 32	Other mil tires	4	(D)	(D)	9	(S)	301.8
30112 00	Truck and bus (including off-the-highway pneumatic tires), n.s.k.	(NA)	(X)	–	(NA)	(X)	–
30117	Tractor and implement pneumatic tires	(NA)	(X)	433.2	(NA)	(X)	347.5
30117 00	Tractor and implement (farm and industrial) pneumatic mil tires	9	3.2	433.2	7	(S)	347.5
30118	Industrial and utility pneumatic tires	(NA)	(X)	179.3	(NA)	(X)	165.5
30118 00	Industrial and utility pneumatic (including garden) mil tires	7	*4.0	179.3	6	2.9	165.5
30119	Other pneumatic tires	(NA)	(X)	157.1	(NA)	(X)	158.5
30119 21	Motorcycle, motorbike, and moped pneumatic tires (casings)	2	(X)	(D)	2	(X)	(D)
30119 22	Aircraft	3	(X)	(D)	3	(X)	(D)
30119 25	Other pneumatic tires and casings (including bicycle and mobile home)	5	(X)	32.1	(NA)	(X)	(D)
30119 00	Other pneumatic tires, n.s.k.	(NA)	(X)	12.0	(NA)	(X)	.3
3011A	Solid and semipneumatic tires	(NA)	(X)	110.6	(NA)	(X)	117.9
3011A 39	Solid tires (including industrial, highway, bogie, idler, and support rollers) mil tires	6	1.9	46.4	9	*5.8	54.7
3011A 52	Other solid and semipneumatic tires (including hand lawnmower, baby carriage, tricycle, juvenile, etc.)	7	(X)	64.2	(NA)	(X)	63.1
3011A 00	Solid and semipneumatic tires, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
3011C	Inner tubes	(NA)	(X)	116.1	(NA)	(X)	139.9
3011C 21	Passenger car and motorcycle mil tubes	4	4.4	23.1	6	*4.9	18.4
3011C 23	Truck and bus inner tubes (including off-the-highway) mil tubes	4	8.2	53.4	6	**12.5	78.5
3011C 25	Tractor and implement (farm and industrial) mil tubes	4					
3011C 29	All other inner tubes (including aircraft, industrial, utility, garden, and bicycle)	2	(X)	39.6	(NA)	(X)	41.3
3011C 00	Inner tubes, n.s.k.	(NA)	(X)	–	(NA)	(X)	1.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3011– —	**TIRES AND INNER TUBES**—Con.						
3011D	Tread rubber, tire sundries, and repair materials	(NA)	(X)	721.9	(NA)	(X)	483.8
3011D 11	Tread rubber (camelback) (including slab rubber for use in automatic tread rubber extruding machines) mil lb	14	7 879.1	601.7	15	(S)	349.9
3011D 31	Tire flaps	5	(X)	19.1	6	(X)	(3)
3011D 39	Other tire sundries, repair materials, and tiring	16	(X)	82.4	16	(X)	3118.2
3011D 00	Tread rubber, tire sundries, and repair materials, n.s.k.	(NA)	(X)	18.7	(NA)	(X)	15.7
30110	Tires and inner tubes, n.s.k.	(NA)	(X)	59.8	(NA)	(X)	71.1
30110 00	Tires and inner tubes, n.s.k.[4]	(NA)	(X)	45.0	(NA)	(X)	42.4
30110 02	Tires and inner tubes, n.s.k.[5]	(NA)	(X)	14.8	(NA)	(X)	28.8

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3021– —	**RUBBER AND PLASTICS FOOTWEAR**				
	Total	**(NA)**	**803.4**	**(NA)**	**519.6**
30214	Protective footwear	(NA)	234.9	(NA)	114.0
30214 00	Protective footwear[6]	12	234.9	10	114.0
30215	Shoes with soles vulcanized, molded, or cemented to fabrics uppers	(NA)	544.0	(NA)	387.5
30215 00	Shoes with soles vulcanized, molded, or cemented to fabrics uppers, excluding sandals and slippers[6]	20	544.0	22	387.5
30210	Rubber and plastics footwear, n.s.k.	(NA)	24.6	(NA)	18.1
30210 00	Rubber and plastics footwear, n.s.k.[4]	(NA)	17.6	(NA)	12.6
30210 02	Rubber and plastics footwear, n.s.k.[5]	(NA)	6.9	(NA)	5.5
3052– —	**RUBBER AND PLASTICS HOSE AND BELTING**				
	Total	**(NA)**	**2 635.0**	**(NA)**	**2 213.6**
30521	Rubber and plastics belts and belting, flat	(NA)	440.1	(NA)	267.4
30521 41	Lightweight	20	157.5		
30521 43	Heavy-duty	8	175.8		
30521 45	Transmission, flat	6	14.1	35	267.4
30521 49	Other flat rubber and plastics belts and belting	20	74.6		
30521 00	Rubber and plastics belts and belting, flat, n.s.k.	(NA)	18.0		
30522	Rubber and plastics transmission belts and belting other than flat	(NA)	555.5	(NA)	480.5
30522 25	Motor vehicle	6	277.6		
30522 31	Industrial, except fractional horsepower	14	196.6		
30522 41	Agricultural, except fractional horsepower	5	15.7		
30522 51	Fractional horsepower	4	(D)	10	480.5
30522 89	All other rubber and plastics belts and belting, other than flat	10	(D)		
30522 00	Rubber and plastics transmission belts and belting other than flat, n.s.k.	(NA)	7.6		
3052A	Hose for on- and off-highway motor vehicles (made of rubber and other materials; e.g., plastics, nylon)	(NA)	570.4	(NA)	(NA)
3052A 01	High pressure hose (greater than 300 p.s.i. working pressure) including air-conditioning, brake line, etc.	10	155.7	(NA)	(NA)
3052A 02	Low pressure hose (less than 300 p.s.i. working pressure) including value of pre-positioned sleeves, clamps, etc.)	12	414.7	(NA)	(NA)
3052A 00	Hose for on- and off-highway motor vehicles (made of rubber and other materials), n.s.k.	(NA)	–	(NA)	(NA)
3052B	Industrial hose without fittings	(NA)	201.3	(NA)	(NA)
3052B 00	Industrial hose without fittings (chemical handling, food and beverage, petroleum curb pump, dock, transfer, etc.)	28	201.3	(NA)	(NA)
3052C	Water hose without fittings	(NA)	129.8	(NA)	(NA)
3052C 00	Water hose without fittings (e.g., fire, irrigation, water suction/ discharge, and other water hose, n.e.c.)	21	129.8	(NA)	(NA)
3052D	Rubber and plastics garden hose (with or without fittings)	(NA)	209.9	(NA)	195.7
3052D 01	Plastics, including perforated sprinkler	5	182.0		
3052D 02	Rubber	4	27.9	15	195.7
3052D 00	Rubber and plastics garden hose (with or without fittings), n.s.k.	(NA)	–		
3052F	Air hose (other than pneumatic power transfer)	(NA)	119.0	(NA)	(NA)
	Rubber inner tube type (including rubber and plastics combination):				
3052F 10	Wire reinforced (including wire/ textile reinforced combination)	5	28.3	(NA)	(NA)
3052F 20	Textile reinforced	3	20.4	(NA)	(NA)
	Nonrubber inner tube type:				
3052F 30	Wire reinforced (including wire/ textile combination)	6	48.0	(NA)	(NA)
3052F 40	Textile reinforced	7	16.5	(NA)	(NA)
3052F 00	Air hose (other than pneumatic power transfer), n.s.k.	(NA)	5.8	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/ 13/ 95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 13
TSF:30A_92.DAT;5 4/ 13/ 95 15:14:38 UTF:30A_93.DAT;6 4/ 13/ 95 16:08:38 META:TIPS96-16100494.DAT;1 4/ 13/ 95 16:10:51

Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3052– —	**RUBBER AND PLASTICS HOSE AND BELTING**—Con.				
3052G	Pneumatic and hydraulic hose, n.e.c., without fittings (made of rubber and other materials; e.g., plastics, nylon)	(NA)	324.0	(NA)	(NA)
	Rubber inner tube type (including rubber and plastics combination):				
3052G 10	Wire reinforced (including wire/ textile combination)	11	230.5	(NA)	(NA)
3052G 20	Textile reinforced	9	70.2	(NA)	(NA)
	Nonrubber inner tube type:				
3052G 30	Wire reinforced (including wire/ textile combination)	3	1.4	(NA)	(NA)
3052G 40	Textile reinforced	4	18.8	(NA)	(NA)
3052G 00	Pneumatic and hydraulic hose, n.e.c., without fittings (made of rubber and other materials), n.s.k.	(NA)	3.0	(NA)	(NA)
30520	Rubber and plastics hose and belting, n.s.k.	(NA)	85.1	(NA)	58.5
30520 00	Rubber and plastics hose and belting, n.s.k.[4]	(NA)	72.6	(NA)	36.3
30520 02	Rubber and plastics hose and belting, n.s.k.[5]	(NA)	12.5	(NA)	22.2
3053– —	**GASKETS, PACKING, AND SEALING DEVICES**				
	Total	**(NA)**	**3 147.0**	**(NA)**	**2 309.4**
30534	Compression packings	(NA)	102.6	(NA)	79.5
30534 11	Plant fiber	5	5.9	6	(7)
30534 15	Synthetic fiber, plastics composition	19	29.4	12	31.9
30534 18	All other compression packings, n.e.c.	17	67.3	(NA)	747.6
30534 00	Compression packings, n.s.k.	(NA)	–	(NA)	–
30535	Nonmetallic gaskets and gasketing	(NA)	880.3	(NA)	636.7
30535 11	Asbestos, compressed	13	12.1	31	39.0
30535 13	Asbestos, beater saturated	4	2.6	18	16.8
30535 15	Elastomeric, all materials	106	196.0	77	247.0
30535 17	Paper, felt base, and plant fiber	43	76.7	25	62.6
30535 19	Cork and cork composition	39	81.0	31	100.6
30535 21	Fluorocarbon (including envelope-type)	17	8.9	13	14.9
30535 31	Other nonmetallic gaskets and gasketing, n.e.c.	99	497.5	(NA)	150.7
30535 00	Nonmetallic gaskets and gasketing, n.s.k.	(NA)	5.5	(NA)	5.2
30536	Molded packings and seals	(NA)	685.1	(NA)	573.4
30536 21	O-rings (including spliced; excluding metal)	62	207.4	33	144.1
30536 22	Squeeze-type, solid section ring seals (including rectangular, quad, Delta, D, Tee; excluding O-rings)	12	25.1	14	113.1
30536 25	Flexible seals, dual component-cushioned rings, backed, constrained, or loaded by an elastomeric ring	14	29.4	6	13.5
30536 26	Flexible seals, single and multiple component lip type, both symmetrical and nonsymmetrical, V-rings, V-ring sets, U-cup	30	54.5	30	91.7
30536 30	Diaphragm seal: flat, rolling	19	23.8	18	23.5
30536 35	All other molded packings and seals including nonmetallic exclusion devices and nonmetallic piston rings	83	337.3	60	181.3
30536 00	Molded packings and seals, n.s.k.	(NA)	7.7	(NA)	6.2
30537	Metallic gaskets and machined seals	(NA)	514.5	(NA)	296.0
30537 29	Spiral wound filler type	19	46.9	12	39.8
30537 48	Other metal gaskets and machined seals (exclusion devices; heavy cross-section, API type; nonautomotive piston rings)	59	464.9	(NA)	252.7
30537 00	Metallic gaskets and machined seals, n.s.k.	(NA)	2.8	(NA)	3.5
30538	Axial mechanical face seals	(NA)	214.9	(NA)	169.7
30538 10	Complete mechanical seals with single coil springs	10	66.0	8	47.1
30538 13	Complete mechanical seals with multiple coil springs	9	42.2	6	26.7
30538 15	Complete mechanical seals with bellows	5	30.9	2	(D)
30538 17	Parts for all axial mechanical face seals	8	47.4	4	(D)
30538 19	Clearance, labyrinth, and other face seals, n.e.c.	7	26.7	6	32.7
30538 00	Axial mechanical face seals, n.s.k.	(NA)	1.7	(NA)	–
30539	Rotary oil seals	(NA)	493.5	(NA)	325.3
30539 70	Bonded, sprung (spring-loaded)	8	255.0	8	184.9
30539 73	Bonded, unsprung (nonspring-loaded)	7	(D)	10	57.5
30539 75	Unitized	4	(D)	8	42.4
30539 77	Nonmetallic	10	9.5	6	14.0
30539 79	Nonbonded assembled	2	(D)	2	(8)
30539 81	Other (labyrinth, proximity, all metallic, inflatable, displacement, or boundary lubrication seals)	8	38.4	3	826.4
30539 00	Rotary oil seals, n.s.k.	(NA)	.4	(NA)	(Z)
30530	Gaskets, packing, and sealing devices, n.s.k.	(NA)	256.0	(NA)	228.6
30530 00	Gaskets, packing, and sealing devices, n.s.k.[9]	(NA)	202.8	(NA)	108.1
30530 02	Gaskets, packing, and sealing devices, n.s.k.[10]	(NA)	53.1	(NA)	120.5
3061– —	**MECHANICAL RUBBER GOODS**				
	Total	**(NA)**	**4 474.9**	**(NA)**	**3 553.9**
30611	Molded rubber mechanical goods, automotive	(NA)	1 684.9	(NA)	1 254.5
30611 00	Automotive	140	1 684.9	116	1 254.5
30612	Molded rubber mechanical goods, transportation, except automotive (including off-highway)	(NA)	282.6	(NA)	394.0
30612 00	Transportation (except automotive) and off-highway machinery and equipment	89	282.6	65	394.0
30613	Other molded rubber mechanical goods	(NA)	972.3	(NA)	826.1
30613 00	Other molded rubber mechanical goods	278	972.3	184	826.1
30614	Extruded rubber mechanical goods, automotive (except tubing)	(NA)	721.7	(NA)	370.3
30614 00	Automotive, except tubing	39	721.7	33	370.3

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/ 13/ 95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 14
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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3061– —	**MECHANICAL RUBBER GOODS**—Con.				
30615	Other extruded rubber mechanical goods, except automotive	(NA)	429.3	(NA)	353.4
30615 00	Other extruded rubber mechanical goods	96	429.3	68	353.4
30616	Lathe-cut rubber mechanical goods, automotive	(NA)	67.6	(NA)	44.7
30616 00	Automotive (transportation, including on- and off-the-road; gasoline and diesel equipment)	13	67.6	9	44.7
30617	Other lathe-cut rubber mechanical goods, except automotive	(NA)	50.0	(NA)	53.2
30617 00	Other lathe-cut rubber mechanical goods	30	50.0	28	53.2
30610	Mechanical rubber goods, n.s.k.	(NA)	266.4	(NA)	257.8
30610 00	Mechanical rubber goods, n.s.k.[9]	(NA)	197.9	(NA)	128.1
30610 02	Mechanical rubber goods, n.s.k.[10]	(NA)	68.6	(NA)	129.6

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3069– —	**FABRICATED RUBBER PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**6 617.9**	**(NA)**	**(X)**	**5 235.1**
30693	Sponge, expanded and foam rubber products	(NA)	(X)	983.6	(NA)	(X)	737.0
	Latex foam:						
30693 17	Automotive applications	10	(X)	66.7	5	(X)	132.0
30693 23	Upholstery (sheet and slab stock)	15	(X)	34.7	7	(X)	14.3
30693 51	Carpet and rug cushions	7	(X)	62.9	5	(X)	35.4
30693 68	Other latex foam products (including clothing, insulation and padding, hospital padding, and topper pads)	31	(X)	174.6	8	(X)	160.9
	Chemically blown products:						
	Open cell sponge:						
30693 73	Carpet and rug cushions	8	(X)	60.9	9	(X)	82.5
30693 74	Automotive	9	(X)	32.2	3	(X)	2.8
30693 75	Other	30	(X)	165.3	23	(X)	98.3
	Closed cell sponge:						
30693 77	Automotive	16	(X)	131.1	15	(X)	47.1
30693 82	Appliances, air-conditioning and refrigeration	10	(X)	64.7	6	(X)	29.1
30693 83	Construction	9	(X)	20.3	7	(X)	26.3
30693 84	Other	39	(X)	119.1	21	(X)	99.9
30693 00	Sponge, expanded and foam rubber products, n.s.k.	(NA)	(X)	51.2	(NA)	(X)	8.6
30694	Rubber floor and wall coverings	(NA)	(X)	438.7	(NA)	(X)	365.2
	Mats, matting, and stair treads:						
30694 21	Rolls	17	(X)	61.1	6	(X)	23.5
	Individual mats:						
30694 23	Automotive	10	(X)	312.2	(NA)	(X)	282.1
30694 25	All other (including stair treads)	25					
30694 26	Other floor and wall coverings (including cove base, wainscotting, etc.)	11	(X)	65.3	10	(X)	57.1
30694 00	Rubber floor and wall coverings, n.s.k.	(NA)	(X)	–	(NA)	(X)	2.5
30695	Prophylactics	(NA)	(X)	206.8	(NA)	(X)	103.3
30695 00	Prophylactics 1,000 dozen	6	(S)	206.8	6	151 231.0	103.3
30696	Shoe products, rubber, elastomer resin	(NA)	(X)	140.0	(NA)	(X)	138.3
30696 15	Heels and soles	11	(X)	51.5	(NA)	(X)	40.0
30696 51	Soling slabs and top lift sheets	8	(X)	51.4	6	(X)	42.5
30696 61	Unit sole (sole and heel combination)	7	(X)	36.2	8	(X)	54.0
30696 00	Shoe products, rubber, elastomer resin, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	1.8
30698	Rubber druggist and medical sundries, including household gloves	(NA)	(X)	525.6	(NA)	(X)	499.0
30698 31	Nipples and pacifiers	8	(X)	(D)	4	(X)	31.9
	Gloves (including rubberized):						
30698 51	Household	6	(X)	(D)	6	(X)	69.3
30698 61	Surgical 1,000 dozen pairs	11	52 724.1	231.2	8	97 398.9	234.5
30698 71	Other (including diaphragms, ice bags, caps, water bottles, fountain syringes, and combinations)	27	(X)	192.1	(NA)	(X)	146.5
30698 00	Rubber druggist and medical sundries, including household gloves, n.s.k.	(NA)	(X)	23.1	(NA)	(X)	16.7
30699	Compounds or mixtures for sale or interplant transfer	(NA)	(X)	1 209.8	(NA)	(X)	969.2
30699 00	Rubber compounds or mixtures for sale or interplant transfer	69	(X)	1 209.8	65	(X)	969.2

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/13/95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 15
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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3069– –	**FABRICATED RUBBER PRODUCTS, N.E.C.—** Con.						
3069C	Industrial rubber products, n.e.c.	(NA)	(X)	1 230.4	(NA)	(X)	950.6
	Roll coverings:						
3069C 12	Graphics arts, rubber and plastics (printing trade)	37	(X)	109.2	40	(X)	110.5
3069C 15	Paper mill, rubber	10	(X)	132.6	6	(X)	62.7
3069C 16	Industrial, rubber (excluding steel mills and plastics)	36	(X)	52.2	24	(X)	35.3
3069C 17	Other roll coverings (including steel mills and plastics)	36	(X)	71.8	19	(X)	31.7
3069C 11	Pressure-sensitive tape, rubber-backed (including friction)	17	(X)	52.2	11	(X)	53.0
3069C 14	Single-ply membrane roofing (1,000 sq feet)	7	(S)	309.0	10	(S)	271.8
	Sheet rubber, linings, and rubber film:						
3069C 23	Film and sheet rubber, vulcanized	38	(X)	202.1	(NA)	(X)	(D)
3069C 24	Vulcanizable elastomeric linings	16	(X)	26.1	13	(X)	20.5
3069C 30	Printers' blankets	13	(X)	133.7	10	(X)	57.3
3069C 44	Other (including jar rings and fuel cells)	37	(X)	94.2	(NA)	(X)	(D)
3069C 00	Industrial rubber products, n.e.c., n.s.k.	(NA)	(X)	47.4	(NA)	(X)	35.9
3069D	Rubber coated fabrics and rubber clothing	(NA)	(X)	365.4	(NA)	(X)	333.7
	Rubber coated fabrics:						
3069D 15	Garment and footwear fabrics	7	(X)	24.8	(NA)	(X)	[11]11.5
3069D 18	Inflatable fabrics	6	(X)	23.0	4	(X)	18.8
3069D 20	Other coated fabrics (automotive and furniture upholstery, hospital and crib sheeting, and protective covering fabrics)	16	(X)	97.8	11	(X)	95.1
	Rubber clothing:						
3069D 41	Industrial rubber gloves (1,000 dozen pairs)	15	*4 038.3	90.8	13	**6 398.6	106.9
3069D 42	Other rubber clothing (including wet suits, rainwear, aprons, dress shields, baby pants, bathing and shower caps)	20	(X)	66.7	16	(X)	[11]90.4
3069D 00	Rubber coated fabrics and rubber clothing, n.s.k.	(NA)	(X)	62.3	(NA)	(X)	11.0
3069E	Other rubber goods	(NA)	(X)	902.9	(NA)	(X)	497.8
	Hard rubber mechanical goods:						
3069E 13	Battery jars, boxes, and parts	4	(X)	5.2	(NA)	(X)	(D)
3069E 19	Other	21	(X)	39.7	7	(X)	22.3
3069E 20	Reclaimed rubber	9	(X)	26.4	16	(X)	39.0
3069E 21	Thread, bare	3	(X)	(D)	1	(X)	(D)
3069E 22	Boats, pontoons, and life rafts	17	(X)	56.4	7	(X)	36.5
3069E 23	Balloons (toy, advertising, meteorological, etc.)	20	(X)	147.3	11	(X)	101.4
3069E 28	Stationers' sundries (including bands, finger cots, and erasers, but excluding pencil plugs)	6	(X)	22.6	(NA)	(X)	28.5
3069E 26	Toys (including balls, except balloons and dolls)	11	(X)	42.1	4	(X)	(D)
3069E 27	Tank blocks, treads, and band tracks	3	(X)	(D)	1	(X)	(D)
3069E 29	Other rubber goods	108	(X)	312.0	64	(X)	158.5
3069E 00	Other rubber goods, n.s.k.	(NA)	(X)	12.6	(NA)	(X)	38.8
30690	Fabricated rubber products, n.e.c., n.s.k.	(NA)	(X)	614.8	(NA)	(X)	641.0
30690 00	Fabricated rubber products, n.e.c., n.s.k.[9]	(NA)	(X)	506.2	(NA)	(X)	463.7
30690 02	Fabricated rubber products, n.e.c., n.s.k.[10]	(NA)	(X)	108.6	(NA)	(X)	177.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, product codes 3011D 31 and 3011D 39 were combined to avoid disclosing data for individual companies.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C. part 3.
[7]For 1987, product codes 30534 11 and 30534 18 were combined to avoid disclosing data for individual companies.
[8]For 1987, product codes 30539 79 and 30539 81 were combined to avoid disclosing data for individual companies.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]For 1987, data for footwear fabrics were included in product code 3069D 42.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/13/95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 16
TSF:30A_92.DAT;5 4/13/95 15:14:38 UTF:30A_93.DAT;6 4/13/95 16:08:38 META:TIPS96-16100494.DAT;1 4/13/95 16:10:51

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30111, PASSENGER CAR PNEUMATIC TIRES (CASINGS)		
United States	**5 926.9**	**5 821.2**
Alabama	913.1	972.9
North Carolina	1 016.8	887.6
Oklahoma	1 274.7	993.1
Tennessee	485.5	(NA)
30112, TRUCK AND BUS (INCLUDING OFF-THE-HIGHWAY PNEUMATIC TIRES)		
United States	**3 607.0**	**2 727.3**
Illinois	442.0	427.6
Ohio	271.4	191.5
30117, TRACTOR AND IMPLEMENT PNEUMATIC TIRES		
United States	**433.2**	**347.5**
30118, INDUSTRIAL AND UTILITY PNEUMATIC TIRES		
United States	**179.3**	**165.5**
30119, OTHER PNEUMATIC TIRES		
United States	**157.1**	**158.5**
3011A, SOLID AND SEMIPNEUMATIC TIRES		
United States	**110.6**	**117.9**
3011C, INNER TUBES		
United States	**116.1**	**139.9**
3011D, TREAD RUBBER, TIRE SUNDRIES, AND REPAIR MATERIALS		
United States	**721.9**	**483.8**
Alabama	38.9	(NA)
North Carolina	130.5	85.1
Ohio	25.6	33.9
30214, PROTECTIVE FOOTWEAR		
United States	**234.9**	**114.0**
30215, SHOES WITH SOLES VULCANIZED, MOLDED, OR CEMENTED TO FABRICS UPPERS		
United States	**544.0**	**387.5**
Florida	173.8	(NA)
Missouri	35.5	16.9
30521, RUBBER AND PLASTICS BELTS AND BELTING, FLAT		
United States	**440.1**	**267.4**
Illinois	5.1	9.5
Kansas	15.8	(NA)
Michigan	21.1	11.4
North Carolina	43.6	(NA)
30522, RUBBER AND PLASTICS TRANSMISSION BELTS AND BELTING OTHER THAN FLAT		
United States	**555.5**	**480.5**
South Carolina	92.3	(NA)
3052A, HOSE FOR ON- AND OFF-HIGHWAY MOTOR VEHICLES (MADE OF RUBBER AND OTHER MATERIALS; E.G., PLASTICS, NYLON)		
United States	**570.4**	**(NA)**
North Carolina	93.0	(NA)
Ohio	82.7	(NA)
Tennessee	46.6	(NA)
3052B, INDUSTRIAL HOSE WITHOUT FITTINGS		
United States	**201.3**	**(NA)**
California	8.1	(NA)
Ohio	37.2	(NA)
Tennessee	21.1	(NA)
3052C, WATER HOSE WITHOUT FITTINGS		
United States	**129.8**	**(NA)**
California	33.1	(NA)
North Carolina	26.4	(NA)
3052D, RUBBER AND PLASTICS GARDEN HOSE (WITH OR WITHOUT FITTINGS)		
United States	**209.9**	**195.7**
3052F, AIR HOSE (OTHER THAN PNEUMATIC POWER TRANSFER)		
United States	**119.0**	**(NA)**
Illinois	8.2	(NA)
Ohio	22.0	(NA)
3052G, PNEUMATIC AND HYDRAULIC HOSE, N.E.C., WITHOUT FITTINGS (MADE OF RUBBER AND OTHER MATERIALS; E.G., PLASTICS, NYLON)		
United States	**324.0**	**(NA)**
30534, COMPRESSION PACKINGS		
United States	**102.6**	**79.5**
Illinois	16.2	(NA)
Ohio	3.1	4.2
Texas	6.6	(NA)
30535, NONMETALLIC GASKETS AND GASKETING		
United States	**880.3**	**636.7**
California	39.6	39.6
Connecticut	3.6	2.0
Illinois	201.2	154.8
Indiana	29.4	11.2
Massachusetts	20.9	17.0
Michigan	43.6	21.8
Minnesota	52.8	20.6
Missouri	14.0	12.0
New Jersey	8.5	(NA)
New York	108.1	57.4
Ohio	41.3	42.6
Pennsylvania	17.3	14.1
South Carolina	11.9	(NA)
Tennessee	21.3	(NA)
Texas	11.2	13.0
Virginia	54.5	70.5
Wisconsin	89.1	57.2
30536, MOLDED PACKINGS AND SEALS		
United States	**685.1**	**573.4**
California	111.2	51.0
Illinois	45.4	95.8
Indiana	38.3	(NA)
Iowa	5.1	(NA)
Massachusetts	53.1	25.2
Michigan	15.1	21.4
Minnesota	23.9	22.4
Ohio	33.3	40.6
Texas	34.1	47.8
Utah	29.0	23.0
Wisconsin	7.9	24.7
30537, METALLIC GASKETS AND MACHINED SEALS		
United States	**514.5**	**296.0**
California	9.2	7.3
New Jersey	12.2	21.6
Ohio	18.4	8.9
Pennsylvania	5.5	6.5
Texas	80.0	25.6

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30538, AXIAL MECHANICAL FACE SEALS		
United States	**214.9**	**169.7**
Illinois	89.9	111.6
Texas	15.4	(NA)
30539, ROTARY OIL SEALS		
United States	**493.5**	**325.3**
California	5.9	3.8
Illinois	19.6	42.4
30611, MOLDED RUBBER MECHANICAL GOODS, AUTOMOTIVE		
United States	**1 684.9**	**1 254.5**
California	3.2	(NA)
Connecticut	21.2	14.8
Illinois	49.8	32.2
Indiana	358.7	302.0
Kentucky	19.9	(NA)
Massachusetts	32.7	(NA)
Michigan	210.3	200.1
Missouri	5.5	(NA)
Ohio	540.2	392.8
Pennsylvania	7.4	(NA)
Tennessee	81.2	(NA)
Virginia	41.4	(NA)
30612, MOLDED RUBBER MECHANICAL GOODS, TRANSPORTATION, EXCEPT AUTOMOTIVE (INCLUDING OFF-HIGHWAY)		
United States	**282.6**	**394.0**
Alabama	4.7	(NA)
California	13.3	62.4
Connecticut	29.1	20.4
Illinois	7.2	(NA)
Indiana	8.1	(NA)
Michigan	18.3	2.1
New Jersey	2.6	(NA)
Ohio	21.0	97.5
Oregon	7.0	(NA)
Virginia	11.8	(NA)
Wisconsin	8.7	(NA)
30613, OTHER MOLDED RUBBER MECHANICAL GOODS		
United States	**972.3**	**826.1**
California	120.8	114.8
Connecticut	20.3	21.0
Florida	12.1	(NA)
Georgia	6.3	2.4
Illinois	25.7	28.5
Indiana	98.7	72.1
Maryland	9.1	(NA)
Massachusetts	42.3	32.5
Michigan	32.2	30.3
Minnesota	41.4	20.5
Mississippi	4.7	(NA)
New Jersey	73.6	51.9
New York	12.5	18.9
North Carolina	12.9	(NA)
Ohio	109.9	93.9
Oregon	8.5	4.2
Pennsylvania	50.2	39.1
Tennessee	18.8	(NA)
Texas	38.7	50.7
Virginia	21.1	24.1
Wisconsin	59.2	65.3
30614, EXTRUDED RUBBER MECHANICAL GOODS, AUTOMOTIVE (EXCEPT TUBING)		
United States	**721.7**	**370.3**
Ohio	124.2	67.4
Tennessee	170.3	(NA)
30615, OTHER EXTRUDED RUBBER MECHANICAL GOODS, EXCEPT AUTOMOTIVE		
United States	**429.3**	**353.4**
California	27.9	33.2
Indiana	21.0	20.0
Michigan	24.9	(NA)
New Jersey	6.2	5.4
Ohio	129.1	128.5
Oregon	6.5	(NA)
Tennessee	35.2	(NA)
Texas	36.6	(NA)
30616, LATHE-CUT RUBBER MECHANICAL GOODS, AUTOMOTIVE		
United States	**67.6**	**44.7**
Indiana	29.2	21.5
30617, OTHER LATHE-CUT RUBBER MECHANICAL GOODS, EXCEPT AUTOMOTIVE		
United States	**50.0**	**53.2**
California	2.2	(NA)
Indiana	8.4	11.1
North Carolina	3.9	(NA)
Ohio	11.2	12.6
30693, SPONGE, EXPANDED AND FOAM RUBBER PRODUCTS		
United States	**983.6**	**737.0**
Arkansas	43.4	(NA)
California	48.7	28.6
Connecticut	36.5	26.8
Florida	14.6	(NA)
Georgia	55.8	(NA)
Illinois	36.9	22.8
Indiana	98.7	106.9
Massachusetts	36.5	(NA)
Michigan	27.9	(NA)
Mississippi	19.8	(NA)
Missouri	67.8	27.1
New Jersey	37.0	27.3
New York	17.2	(NA)
North Carolina	77.3	70.1
Ohio	109.2	136.8
Pennsylvania	31.3	13.7
Texas	24.0	(NA)
Washington	4.4	(NA)
30694, RUBBER FLOOR AND WALL COVERINGS		
United States	**438.7**	**365.2**
California	70.4	(NA)
Georgia	40.3	(NA)
Ohio	213.7	202.9
Oregon	3.4	(NA)
Tennessee	31.1	78.8
Wisconsin	5.2	(NA)
30695, PROPHYLACTICS		
United States	**206.8**	**103.3**
30696, SHOE PRODUCTS, RUBBER, ELASTOMER RESIN		
United States	**140.0**	**138.3**
New York	5.4	(NA)
30698, RUBBER DRUGGIST AND MEDICAL SUNDRIES, INCLUDING HOUSEHOLD GLOVES		
United States	**525.6**	**499.0**
Massachusetts	9.4	(NA)
New Jersey	17.0	(NA)
Ohio	80.5	97.8
South Carolina	54.7	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/13/95 4:11 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 18
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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30699, COMPOUNDS OR MIXTURES FOR SALE OR INTERPLANT TRANSFER		
United States	**1 209.8**	**969.2**
California	62.5	50.6
Georgia	73.9	51.4
Illinois	79.2	(NA)
Indiana	36.9	29.1
Massachusetts	31.7	21.5
Ohio	188.9	164.9
Pennsylvania	14.8	15.8
Tennessee	249.3	(NA)
3069C, INDUSTRIAL RUBBER PRODUCTS, N.E.C.		
United States	**1 230.4**	**950.6**
Arkansas	121.5	103.3
California	72.6	61.9
Florida	24.1	8.6
Georgia	28.2	21.5
Illinois	92.4	72.4
Indiana	16.2	54.7
Maryland	21.9	20.3
Massachusetts	62.3	118.6
Michigan	37.5	13.3
Minnesota	31.9	30.9
New Hampshire	11.0	(NA)
New Jersey	22.7	14.6
New York	17.6	9.1
North Carolina	143.6	11.0
Ohio	69.3	46.4
Oregon	6.0	(NA)
Pennsylvania	92.7	71.2
South Carolina	67.6	50.3
Tennessee	40.7	44.7
Texas	37.6	19.1
Virginia	15.1	(NA)
3069C, INDUSTRIAL RUBBER PRODUCTS, N.E.C.—Con.		
Washington	12.7	10.6
West Virginia	15.9	(NA)
Wisconsin	45.7	34.3
3069D, RUBBER COATED FABRICS AND RUBBER CLOTHING		
United States	**365.4**	**333.7**
California	46.0	37.7
Florida	7.8	(NA)
Ohio	63.4	49.9
Washington	6.9	(NA)
3069E, OTHER RUBBER GOODS		
United States	**902.9**	**497.8**
Arkansas	18.3	(NA)
California	44.1	31.8
Colorado	3.9	(NA)
Connecticut	8.3	(NA)
Florida	25.5	(NA)
Georgia	16.9	(NA)
Illinois	37.3	53.8
Indiana	14.3	41.1
Maryland	7.8	(NA)
Michigan	6.5	(NA)
New Jersey	38.8	29.9
New York	20.6	13.5
North Carolina	107.6	(NA)
Ohio	230.5	136.0
Oklahoma	7.2	(NA)
Oregon	3.2	(NA)
Pennsylvania	28.0	(NA)
Tennessee	30.7	26.7
Texas	26.1	17.2
Washington	3.6	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3011-	**Tires and inner tubes**	**11 311.8**	**11 302.7**	**11 339.8**	**11 255.8**	**10 841.2**	**10 032.7**	**9 047.3**	**8 127.6**
30111	Passenger car pneumatic tires (casings)	5 926.9	5 776.2	5 828.4	5 774.0	5 820.7	5 821.2	5 068.4	4 571.1
30112	Truck and bus (including off-the-highway pneumatic tires)	3 607.0	3 825.2	3 773.4	3 807.4	3 422.8	2 727.3	2 592.7	2 276.6
30117	Tractor and implement pneumatic tires	433.2	458.4	469.7	458.0	414.5	347.5	243.1	(NA)
30118	Industrial and utility pneumatic tires	179.3	157.2	179.0	170.4	133.7	165.5	186.3	(NA)
30119	Other pneumatic tires	157.1	161.3	156.6	162.8	181.7	158.5	123.3	(NA)
3011A	Solid and semipneumatic tires	110.6	100.3	132.3	126.9	124.3	117.9	127.6	(NA)
3011C	Inner tubes	116.1	122.3	125.5	111.3	128.0	139.9	185.2	(NA)
3011D	Tread rubber, tire sundries, and repair materials	721.9	605.8	607.5	583.5	540.8	483.8	501.4	(NA)
30110	Tires and inner tubes, n.s.k.	59.8	96.0	67.5	61.4	74.7	71.1	19.3	20.2
3021-	**Rubber and plastics footwear**	**803.4**	**750.5**	**617.8**	**547.3**	**562.8**	**519.6**	**662.6**	**404.8**
30214	Protective footwear	234.9	180.1	158.3	126.1	133.4	114.0	121.8	(NA)
30215	Shoes with soles vulcanized, molded, or cemented to fabrics uppers	544.0	553.0	441.0	403.0	410.7	387.5	536.1	(NA)
30210	Rubber and plastics footwear, n.s.k.	24.6	17.4	18.5	18.3	18.7	18.1	4.7	404.8
3052-	**Rubber and plastics hose and belting**	**2 635.0**	**2 426.1**	**2 591.2**	**2 506.4**	**2 429.5**	**2 213.6**	**1 699.3**	**1 541.4**
30521	Rubber and plastics belts and belting, flat	440.1	334.8	325.6	307.7	301.5	267.4	291.2	260.9
30522	Rubber and plastics transmission belts and belting other than flat	555.5	533.2	594.6	563.2	534.2	480.5	391.7	348.4
3052A	Hose for on- and off-highway motor vehicles (made of rubber and other materials; e.g., plastics, nylon)	570.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3052B	Industrial hose without fittings	201.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3052C	Water hose without fittings	129.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3052D	Rubber and plastics garden hose (with or without fittings)	209.9	151.8	154.5	159.5	214.5	195.7	(NA)	(NA)
3052F	Air hose (other than pneumatic power transfer)	119.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3052G	Pneumatic and hydraulic hose, n.e.c., without fittings (made of rubber and other materials; e.g., plastics, nylon)	324.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
30520	Rubber and plastics hose and belting, n.s.k.	85.1	78.8	79.9	72.6	45.7	58.5	15.9	13.1
3053-	**Gaskets, packing, and sealing devices**	**3 147.0**	**2 744.2**	**2 783.6**	**2 614.0**	**2 659.2**	**2 309.4**	**1 663.7**	**1 254.8**
30534	Compression packings	102.6	92.4	92.5	97.6	80.1	79.5	99.8	42.0
30535	Nonmetallic gaskets and gasketing	880.3	698.1	717.4	703.5	728.2	636.7	469.4	380.4
30536	Molded packings and seals	685.1	677.1	700.2	626.4	712.7	573.4	403.5	375.8
30537	Metallic gaskets and machined seals	514.5	451.9	442.6	404.5	403.7	296.0	225.5	120.7
30538	Axial mechanical face seals	214.9	151.0	158.5	143.7	141.4	169.7	89.8	100.0
30539	Rotary oil seals	493.5	368.3	381.0	348.4	338.0	325.3	275.8	177.3
30530	Gaskets, packing, and sealing devices, n.s.k.	256.0	305.3	291.5	289.9	255.1	228.6	100.0	58.7

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3061-	**Mechanical rubber goods**	**4 474.9**	**3 567.4**	**3 752.6**	**3 695.6**	**3 617.4**	**3 553.9**	**(NA)**	**(NA)**
30611	Molded rubber mechanical goods, automotive	1 684.9	1 187.1	1 254.2	1 280.7	1 332.8	1 254.5	(NA)	(NA)
30612	Molded rubber mechanical goods, transportation, except automotive (including off-highway)	282.6	333.7	353.8	352.7	219.7	394.0	(NA)	(NA)
30613	Other molded rubber mechanical goods	972.3	897.9	946.9	951.2	990.0	826.1	(NA)	(NA)
30614	Extruded rubber mechanical goods, automotive (except tubing)	721.7	496.1	525.4	463.7	377.1	370.3	(NA)	(NA)
30615	Other extruded rubber mechanical goods, except automotive	429.3	399.6	389.7	375.5	352.6	353.4	(NA)	(NA)
30616	Lathe-cut rubber mechanical goods, automotive	67.6	40.0	37.5	35.8	23.9	44.7	(NA)	(NA)
30617	Other lathe-cut rubber mechanical goods, except automotive	50.0	(S)	27.6	42.9	66.4	53.2	(NA)	(NA)
30610	Mechanical rubber goods, n.s.k.	266.4	235.4	217.4	193.0	254.9	257.8	(NA)	(NA)
3069-	**Fabricated rubber products, n.e.c.**	**6 617.9**	**6 490.4**	**6 462.2**	**6 193.4**	**5 838.9**	**5 235.1**	**(NA)**	**(NA)**
30693	Sponge, expanded and foam rubber products	983.6	903.5	885.7	862.2	771.4	737.0	449.8	584.3
30694	Rubber floor and wall coverings	438.7	461.2	499.0	476.6	464.0	365.2	236.4	170.6
30695	Prophylactics	206.8	[2]175.7	[2]160.7	[2]156.2	110.9	103.3	(NA)	(NA)
30696	Shoe products, rubber, elastomer resin	140.0	168.4	176.3	173.2	184.7	138.3	265.0	225.1
30698	Rubber druggist and medical sundries, including household gloves	525.6	461.9	472.3	597.5	617.6	499.0	(NA)	(NA)
30699	Compounds or mixtures for sale or interplant transfer	1 209.8	1 243.4	1 230.1	1 205.3	1 169.2	969.2	594.1	246.1
3069C	Industrial rubber products, n.e.c.	1 230.4	1 253.3	1 316.9	1 144.3	986.1	950.6	(NA)	(NA)
3069D	Rubber coated fabrics and rubber clothing	365.4	414.7	361.9	351.4	346.5	333.7	362.0	178.6
3069E	Other rubber goods	902.9	649.3	665.7	660.0	518.8	497.8	641.4	517.4
30690	Fabricated rubber products, n.e.c., n.s.k.	614.8	759.0	693.6	566.8	670.0	641.0	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]Revised.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3011, TIRES AND INNER TUBES				
	Materials, ingredients, containers, and supplies	**(X)**	**4 784.3**	**(X)**	**4 336.2**
	Natural rubber:				
083113	Latex (dry solids content) mil lb	317.4	166.4	218.7	109.3
083111	Dry mil lb	1 395.6	494.2	981.0	436.5
	Chemical and allied products:				
281600	Inorganic pigments mil lb	172.1	80.0	188.1	81.0
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. mil lb	63.5	31.8	**17.9	11.9
282200	Synthetic rubber, including vulcanizable elastomers	(X)	1 142.8	(X)	(2)
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, pepitizers, etc.)	(X)	319.4	(X)	489.3
286935	Plasticizers mil lb	111.3	28.1	187.2	50.3
289501	Carbon black mil lb	1 765.2	401.7	1 324.7	330.6
280095	All other chemical and allied products	(X)	272.9	(X)	(2)
	Rubber products:				
306903	Reclaimed rubber, excluding "mud" and crumb or ground scrap mil lb	*36.3	12.4	*60.0	16.8
306991	Rubber compounds and mixtures purchased (dry rubber solids content) mil lb	*133.7	90.3	471.3	255.3
306999	All other fabricated rubber products	(X)	18.7	(X)	(2)
	Tire cord and tire fabrics:				
229603	Nylon cord mil lb	87.8	203.4	122.0	252.8
229605	Polyester cord mil lb	149.0	322.3	*170.2	305.8
229607	Metallic cord mil lb	570.4	621.0	160.9	178.0
229690	All tire fabrics and rayon, fiberglass, chafer and other tire cord	(X)	121.7	(X)	44.9
340091	Fabricated metal products, except forgings	(X)	36.0	(X)	(2)
330091	Castings (rough and semifinished)	(X)	(D)	(X)	(2)
346000	Forgings	(X)	–	(X)	(2)
	Shapes and forms (except castings, forgings, and fabricated metal products): Steel:				
331014	Steel wire 1,000 s tons	*71.7	63.8	**241.3	315.4
331003	All other steel shapes and forms	(X)	10.0	(X)	(2)
336002	Nonferrous shapes and forms	(X)	(D)	(X)	(2)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	(D)	(X)	24.9
970099	All other materials and components, parts, containers, and supplies	(X)	253.3	(X)	[2]1 295.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	81.3	(X)	138.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3021, RUBBER AND PLASTICS FOOTWEAR		
	Materials, ingredients, containers, and supplies	**355.5**	**216.9**
083100	Natural rubber	18.7	1.9
	Chemical and allied products:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	19.0	6.3
282200	Synthetic rubber, including vulcanizable elastomers	20.0	3.3
	Industrial organic chemicals n.e.c.:		
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, and pepitizers)	13.4	11.6
286935	Plasticizers	6.7	(D)
286999	All other industrial organic chemicals	4.1	(4)
289101	Glues and adhesives	2.3	(4)
280090	All other chemical and allied products	(D)	(4)
306991	Rubber compounds and mixtures purchased (dry rubber solids content)	(D)	(D)
220100	Textile fabrics	81.7	(D)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	15.1	6.9
970099	All other materials and components, parts, containers, and supplies	110.6	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	61.6	62.1
	INDUSTRY 3052, RUBBER AND PLASTICS HOSE AND BELTING		
	Materials, ingredients, containers, and supplies	**1 202.3**	**939.4**
	Natural rubber:		
083113	Latex (dry solids content)	(D)	3.5
083111	Dry	1.7	12.1
	Chemicals and allied products:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	87.2	33.7
282200	Synthetic rubber, including vulcanizable elastomers	155.5	138.5
	Industrial organic chemicals not elsewhere classified:		
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, and pepitizers)	17.3	33.0
286935	Plasticizers	21.9	12.5
286999	All other industrial organic chemicals	(D)	(5)
289501	Carbon black	35.7	26.5
280080	All other chemicals and allied products	36.0	(5)
306991	Rubber compounds and mixtures purchased (dry rubber solids content)	143.2	118.1
	Fabricated metal products (including forgings):		
342986	Hose fittings and couplings	55.1	25.3
340045	Other fabricated metal products	4.1	(5)
	Shapes and forms (including castings):		
331014	Steel wire	70.0	41.0
330020	Other shapes and forms	5.6	(5)
220100	Textile fabrics	256.7	(D)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	43.9	21.9
970099	All other materials and components, parts, containers, and supplies	172.7	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	78.1	93.5
	INDUSTRY 3053, GASKETS, PACKING, AND SEALING DEVICES		
	Materials, ingredients, containers, and supplies	**1 166.3**	**857.4**
149971	Asbestos, crude including fiber	5.2	15.4
249941	Cork products	53.9	11.6
262190	Building paper and board	59.7	7.1
	Plastics materials and synthetic resins, rubber, and other manmade fibers:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	53.2	43.1
282202	Synthetic rubber	140.9	105.4
282090	Other plastics materials and synthetic resins	93.7	(6)
083100	Natural rubber	10.7	19.6
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	47.0	17.9
	Fabricated metal products (including forgings):		
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	25.0	12.2
340054	All other fabricated metal products	116.9	(6)
	Shapes and forms (except forgings and fabricated metal products):		
	Steel:		
331018	Tinplate, terneplate, and blackplate	13.8	10.5
331078	All other steel shapes and forms	118.4	(6)
335002	Nonferrous metal shapes and forms	4.9	33.2
970099	All other materials and components, parts, containers, and supplies	300.0	[6]352.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	122.9	228.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3061, MECHANICAL RUBBER GOODS		
	Materials, ingredients, containers, and supplies	**1 775.7**	**1 550.7**
	Natural rubber:		
083113	Latex (dry solids content)	11.1	16.8
083111	Dry	23.1	45.2
	Plastics materials and synthetic resins, rubber, and other manmade fibers:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	17.4	8.0
282107	Polyurethane elastomers and plastics (except thermoplastics)	4.4	4.8
282203	Thermoplastic polyurethane elastomers	13.6	
282201	SBR-type synthetic rubber	48.7	72.3
282205	Polychloroprene type	12.3	13.8
282206	Nitrile type (butadiene-acrylonitrile)	11.4	12.8
282215	Ethylene-propylene type	25.1	42.1
282099	Other plastics materials and synthetic resins, synthetic rubber, cellulosic and other manmade fibers, except glass	75.6	40.6
	Fabricated rubber products not elsewhere classified:		
306903	Reclaimed rubber, excluding "mud" and crumb or ground scrap	4.3	1.3
306991	Rubber compounds and mixtures purchased (dry rubber solids content)	240.2	144.4
306999	All other fabricated rubber products	80.5	(7)
	Industrial organic chemicals, n.e.c.:		
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, and pepitizers)	45.8	46.5
286935	Plasticizers	6.1	29.6
286999	All other industrial organic chemicals	13.4	(7)
289501	Carbon black	34.0	58.4
281600	Inorganic pigments	3.0	15.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	56.2	27.1
340091	Fabricated metal products, except forgings	179.6	(7)
332002	Iron and steel castings	18.0	(D)
346000	Forgings	6.8	(7)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331014	Steel wire	23.2	(D)
331003	All other steel shapes and forms	67.2	58.7
336002	Nonferrous shapes and forms	6.4	(7)
220190	Fabrics, except tire fabrics (including cotton, nylon, polyester, and rayon)	17.8	(D)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	22.6	15.0
970099	All other materials and components, parts, containers, and supplies	383.3	7427.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	324.7	366.0
	INDUSTRY 3069, FABRICATED RUBBER PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**3 060.5**	**2 305.6**
	Natural rubber:		
083113	Latex (dry solids content)	135.6	142.1
083111	Dry	89.9	97.9
	Plastics materials and synthetic resins, rubber, and other manmade fibers:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	82.7	57.0
282107	Polyurethane elastomers and plastics (except thermoplastics)	66.0	(D)
282203	Thermoplastic polyurethane elastomers	23.5	
282201	SBR-type synthetic rubber	85.3	168.0
282205	Polychloroprene type	49.3	34.3
282206	Nitrile type (butadiene-acrylonitrile)	62.7	36.4
282215	Ethylene-propylene type	125.9	57.4
282099	Other plastics materials and synthetic resins, synthetic rubber, cellulosic and other manmade fibers, except glass	256.4	47.6
	Fabricated rubber products not elsewhere classified:		
306903	Reclaimed rubber, excluding "mud" and crumb or ground scrap	15.4	13.2
306991	Rubber compounds and mixtures purchased (dry rubber solids content)	135.6	42.4
306999	All other fabricated rubber products	59.1	(7)
	Industrial organic chemicals, n.e.c.:		
286933	Rubber processing chemicals (accelerators, antioxidants, blowing agents, inhibitors, and pepitizers)	172.0	140.0
286935	Plasticizers	46.4	44.3
286999	All other industrial organic chemicals	123.2	(7)
289501	Carbon black	85.7	80.2
281600	Inorganic pigments	20.3	19.2
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	28.0	20.4
340091	Fabricated metal products, except forgings	123.9	(7)
332002	Iron and steel castings	(D)	(D)
346000	Forgings	(D)	(7)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331014	Steel wire	1.2	(D)
331003	All other steel shapes and forms	(D)	3.5
336002	Nonferrous shapes and forms	.9	(7)
220190	Fabrics, except tire fabrics (including cotton, nylon, polyester, and rayon)	163.9	100.5
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	51.3	42.3
970099	All other materials and components, parts, containers, and supplies	499.5	7671.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	524.2	421.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data for material codes 282200, 280095, 306999, 340091, 330091, 346000, 331003, and 336002 were included with material code 970099.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, data for material codes 286999, 289101, and 280090 were included in material code 970099.
[5]For 1987, data for material codes 286999, 280080, 340045, and 330020 were included in material code 970099.
[6]For 1987, data for material codes 282090, 340054, and 331078 were included in material code 970099.
[7]For 1987, data for material codes 306999, 286999, 340091, 346000, and 336002 were included in material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
30119 25	30119 23
30119 25	30119 24
3011A 52	3011A 41
3011A 52	3011A 51
3011C	3011B
3011C 23	3011B 00
30521 41	30521 00
30521 43	30521 00
30521 45	30521 00
30521 49	30521 00
30522 25	30522 00
30522 31	30522 00
30522 41	30522 00
30522 51	30522 00
30522 89	30522 00
3052A	30523
3052A	30524
3052A	30526
3052A 01	30523 00
3052A 01	30524 00
3052A 01	30526 00
3052A 02	30523 00
3052A 02	30524 00
3052A 02	30526 00
3052B	30523
3052B	30524
3052B	30526
3052B 00	30523 00
3052B 00	30524 00
3052B 00	30526 00
3052C	30523
3052C	30524
3052C	30526
3052C 00	30523 00
3052C 00	30524 00
3052C 00	30526 00
3052D	30525
3052D 01	30525 00
3052D 02	30525 00
3052F	30523
3052F	30524
3052F	30526
3052F 10	30523 00
3052F 10	30524 00
3052F 10	30526 00
3052F 20	30523 00
3052F 20	30524 00
3052F 20	30526 00
3052F 30	30526 00
3052F 40	30526 00
3052G	30523
3052G	30524
3052G	30526
3052G 10	30523 00
3052G 10	30524 00
3052G 10	30526 00
3052G 20	30523 00
3052G 20	30524 00
3052G 20	30526 00
3052G 30	30526 00
3052G 40	30526 00
30534 18	30534 13
30534 18	30534 17
30535 31	30535 23
30535 31	30535 29
30537 48	30537 39
30537 48	30537 41
30537 48	30537 43
30537 48	30537 49
30696 15	30696 11
30696 15	30696 31
30698 71	30698 76
30698 71	30698 77
3069C 23	3069C 21
3069C 23	3069C 22
3069C 44	3069C 13
3069C 44	3069C 41
3069D 15	3069D 14
3069D 15	3069D 16
3069E 13	3069E 11
3069E 13	3069E 12
3069E 28	3069E 24
3069E 28	3069E 25
30894 08	30894 09
30894 10	30894 04
30894 20	30894 04
30894 30	30894 04
30894 40	30894 04
30894 90	30894 09

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
30119 23	30119 25
30119 24	30119 25
3011A 41	3011A 52
3011A 51	3011A 52
3011B	3011C
3011B 00	3011C 23
30521 00	30521 41
30521 00	30521 43
30521 00	30521 45
30521 00	30521 49
30522 00	30522 25
30522 00	30522 31
30522 00	30522 41
30522 00	30522 51
30522 00	30522 89
30523	3052A
30523	3052B
30523	3052C
30523	3052F
30523	3052G
30523 00	3052A 01
30523 00	3052A 02
30523 00	3052B 00
30523 00	3052C 00
30523 00	3052F 10
30523 00	3052F 20
30523 00	3052G 10
30523 00	3052G 20
30524	3052A
30524	3052B
30524	3052C
30524	3052F
30524	3052G
30524 00	3052A 01
30524 00	3052A 02
30524 00	3052B 00
30524 00	3052C 00
30524 00	3052F 10
30524 00	3052F 20
30524 00	3052G 10
30524 00	3052G 20
30525	3052D
30525 00	3052D 01
30525 00	3052D 02
30526	3052A
30526	3052B
30526	3052C
30526	3052F
30526	3052G
30526 00	3052A 01
30526 00	3052A 02
30526 00	3052B 00
30526 00	3052C 00
30526 00	3052F 10
30526 00	3052F 20
30526 00	3052F 30
30526 00	3052F 40
30526 00	3052G 10
30526 00	3052G 20
30526 00	3052G 30
30526 00	3052G 40
30534 13	30534 18
30534 17	30534 18
30535 23	30535 31
30535 29	30535 31
30537 39	30537 48
30537 41	30537 48
30537 43	30537 48
30537 49	30537 48
30696 11	30696 15
30696 31	30696 15
30698 76	30698 71
30698 77	30698 71
3069C 13	3069C 44
3069C 21	3069C 23
3069C 22	3069C 23
3069C 41	3069C 44
3069D 14	3069D 15
3069D 16	3069D 15
3069E 11	3069E 13
3069E 12	3069E 13
3069E 24	3069E 28
3069E 25	3069E 28
30894 04	30894 10
30894 04	30894 20
30894 04	30894 30
30894 04	30894 40
30894 09	30894 08
30894 09	30894 90

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3021400	MA31A, Footwear
3021500	MA31A, Footwear
3088000	MQ34E, Plumbing Fixtures

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:30 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08293210.DAT;1 1/ 6/ 95 08:29:39 UTF:TIPS93-08293210.DAT;1 1/ 6/ 95 08:29:40 META:TIPS96-08293210.DAT;1 1/ 6/ 95 08:30:14

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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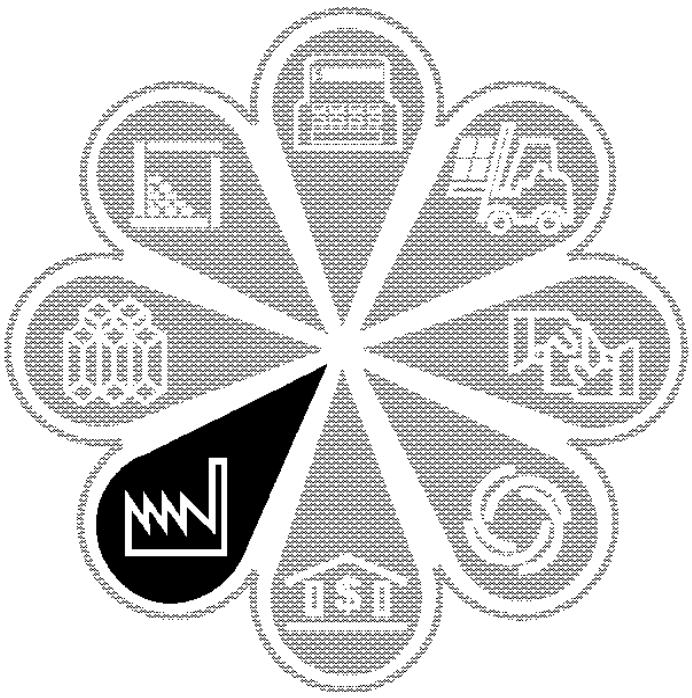
1992 Census of Manufactures

MC92-I-30B

INDUSTRY SERIES

Miscellaneous Plastics Products, Not Elsewhere Classified

Industries 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, and 3089



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Mon May 22 12:49:48 1995 / pssw02/ disk2/ economic/ mc92i/ 30b/ 01cvr

1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3081	Unsupported Plastics Film and Sheet
3082	Unsupported Plastics Profile Shapes
3083	Laminated Plastics Plate, Sheet, and Profile Shapes
3084	Plastics Pipe
3085	Plastics Bottles
3086	Plastics Foam Products
3087	Custom Compounding of Purchased Plastics Resins
3088	Plastics Plumbing Fixtures
3089	Plastics Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET

This industry is made up of establishments primarily engaged in manufacturing unsupported plastics film and sheet from purchased resins or from resins produced in the same plant. Establishments primarily engaged in manufacturing plastics film and sheet for blister and bubble formed packaging are classified in industry 3089.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3081, Unsupported Plastics Film and Sheet, had employment of 54.9 thousand. The employment figure was 13 percent above the 48.4 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts, California, Texas, and New Jersey, accounting for approximately 26 percent of the industry's employment. This represents a shift from 1987 when Massachusetts, Ohio, New Jersey, and California accounted for approximately 29 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $10.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3081 shipped $9.3 billion of unsupported plastics film and sheet considered primary to the industry, $1.1 billion of secondary products, and had $270.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 81 percent.

The products primary to industry 3081, no matter in what industry they were produced, appear in table 6a and aggregate to $11.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the unsupported plastics film and sheet industry amounted to $5.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES

This industry is made up of establishments primarily engaged in manufacturing unsupported plastics profiles, rods, tubes, and other shapes. Establishments primarily engaged in manufacturing plastics hose are classified in industry 3052.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3082, Unsupported Plastics Profile Shapes, had employment of 27.0 thousand. The employment figure was 7 percent above the 25.2 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Illinois, California, and Pennsylvania, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Illinois, Ohio, Indiana, and California accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3082 shipped $2.8 billion of supported plastics profile shapes considered primary to the industry, $408.4 million of secondary products, and had $78.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 82 percent.

The products primary to industry 3082, no matter in what industry they were produced, appear in table 6a and aggregate to $3.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the unsupported plastics profile shapes industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES

This industry is made up of establishments primarily engaged in manufacturing laminated plastics plate, sheet, profiles, rods, and tubes. Establishments primarily engaged in manufacturing laminated flexible packaging are classified in industry group 267.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3083, Laminated Plastics Plates, Sheet, and Profile Shapes, had employment of 15.6 thousand. The employment figure was 10 percent below the 17.3 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Texas, California, and South Carolina, accounting for approximately 44 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Texas, and North Carolina accounted for approximately 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3083 shipped $2.0 billion of laminated plastics plate, sheet, and profile sheets considered primary to the industry, $197.3 million of secondary products, and had $32.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3083, no matter in what industry they were produced, appear in table 6a and aggregate to $2.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the laminated plastics plate, sheet, and profile shapes industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3084, PLASTICS PIPE

This industry is made up of establishments primarily engaged in manufacturing plastics pipe. Establishments primarily engaged in manufacturing plastics pipe fittings are classified in industry 3089.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3084, Plastics Pipe, had employment of 12.6 thousand. The employment figure was 1 percent above the 12.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Texas, North Carolina, and Florida, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when Texas, California, North Carolina, and Indiana were the leading States.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3084 shipped $2.3 billion of plastics pipe considered primary to the industry, $111.4 million of secondary products, and had $77.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3084, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics pipe industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3085, PLASTICS BOTTLES

This industry is made up of establishments primarily engaged in manufacturing plastics bottles.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3085, Plastics Bottles, had employment of 32.7 thousand. The employment figure was 30 percent above the 25.1 thousand reported in 1987. Compared with 1991, employment increased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, New Jersey, and Illinois, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when California, New Jersey, Illinois, and Indiana accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3085 shipped $4.3 billion of plastics bottles considered

primary to the industry, $114.8 million of secondary products, and had $40.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3085, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics bottles industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3086, PLASTICS FOAM PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing plastics foam products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3086, Plastics Foam Products, had employment of 66.9 thousand. The employment figure was 9 percent above the 61.3 thousand reported in 1987.

The leading States in employment in 1992 were California, North Carolina, Texas, and Pennsylvania, accounting for approximately 29 percent of the industry's employment. This represents a shift from 1987 when California, North Carolina, Michigan, and Illinois accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3086 shipped $8.6 billion of plastics foam products considered primary to the industry, $596.6 million of secondary products, and had $249.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3086, no matter in what industry they were produced, appear in table 6a and aggregate to $9.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics foam products industry amounted to $5.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS

This industry is made up of establishments primarily engaged in custom compounding of purchased plastics resins.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3087, Custom Compounding of Purchased Plastics Resins, had employment of 23.6 thousand. The employment figure was 36 percent above the 17.3 thousand reported in 1987. Compared with 1991, employment increased 30 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, California, New Jersey, and Texas, accounting for approximately 37 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3087 shipped $4.1 billion of custom compounded resins considered primary to the industry, $268.9 million of secondary products, and had $180.4 million of miscellaneous

receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 3087, no matter in what industry they were produced, appear in table 6a and aggregate to $4.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the custom compounding of purchased plastics resins industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3088, PLASTICS PLUMBING FIXTURES

This industry is made up of establishments primarily engaged in manufacturing plastics plumbing fixtures. Establishments primarily engaged in assembling plastics plumbing fixture fittings are classified in industry 3432. Establishments primarily engaged in manufacturing plastics plumbing fixture components are classified in industry 3089. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-34E, Plumbing Fixtures. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3088, Plastics Plumbing Fixtures, had employment of 10.7 thousand. The employment figure was 43 percent above the 7.5 thousand reported in 1987. Compared with 1991, employment increased 39 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Tennessee, Georgia, and Texas, accounting for approximately 44 percent of the industry's employment. This represents a shift from 1987 when California, Colorado, Texas, and Georgia accounted for approximately 47 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3088 shipped $1.0 billion of plastics plumbing fixtures considered primary to the industry, $31.6 million of secondary products, and had $36.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3088, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics plumbing fixtures industry amounted to $456.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing plastics products, not elsewhere classified. Establishments primarily engaged in manufacturing artificial leather are classified in industry 2295.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3089, Plastics Products, N.E.C., had employment of 426.4 thousand. The employment figure was 11 percent above the 384.7 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Michigan, and Illinois, accounting for approximately 37 percent of the industry's employment. These same States were the leaders in 1987 when they also accounted for 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $45.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3089 shipped $40.4 billion of plastics products, not elsewhere classified, considered primary to the industry, $3.2 billion of secondary products, and had $1.8 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3089, no matter in what industry they were produced, appear in table 6a and aggregate to $42.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plastics products, not elsewhere classified, industry amounted to $21.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET															
1992 Census	634	756	456	54.9	1 680.9	39.1	84.0	1 014.2	5 263.2	5 358.2	10 613.4	592.3	1 273.0	90	84
1991 ASM	(NA)	(NA)	(NA)	50.5	1 488.8	36.0	77.0	906.3	4 245.9	4 901.6	9 169.2	520.4	1 160.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	51.4	1 431.1	36.8	77.9	876.7	4 294.3	4 954.0	9 284.7	514.0	1 160.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	51.3	1 407.4	37.0	78.2	863.3	4 067.4	5 152.4	9 196.6	435.8	1 183.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	49.6	1 344.1	36.6	77.8	836.3	4 097.7	4 937.3	8 946.2	482.5	1 159.3	(NA)	(NA)
1987 Census	474	594	385	48.4	1 256.0	35.2	74.3	791.8	4 041.6	4 137.3	8 139.9	418.7	1 018.3	89	81
INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES															
1992 Census	632	673	327	27.0	706.3	20.1	41.3	413.3	1 775.5	1 571.4	3 332.8	198.4	348.1	87	82
1991 ASM	(NA)	(NA)	(NA)	26.4	646.0	20.1	41.1	400.3	1 343.2	1 460.3	2 801.9	120.6	346.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.7	637.0	20.3	41.4	398.5	1 285.7	1 392.8	2 688.8	135.9	351.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	28.1	601.9	21.3	44.3	370.6	1 322.0	1 462.9	2 775.8	137.1	366.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	28.1	587.1	21.2	43.3	360.3	1 288.3	1 459.1	2 726.8	146.6	372.4	(NA)	(NA)
1987 Census	551	581	298	25.2	512.2	19.1	37.8	314.0	1 192.1	1 116.3	2 280.8	133.7	299.9	88	82
INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES															
1992 Census	283	302	112	15.6	435.2	11.4	25.2	283.4	1 093.6	1 072.9	2 183.7	57.7	278.0	91	91
1991 ASM	(NA)	(NA)	(NA)	16.9	455.0	12.6	26.1	303.2	1 093.3	1 046.7	2 157.3	77.5	285.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.6	448.5	13.4	28.1	308.3	1 159.6	1 139.3	2 293.0	83.3	302.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.7	460.3	14.1	30.3	307.6	1 238.8	1 147.9	2 389.4	77.3	316.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.6	438.8	14.0	28.3	289.6	1 208.7	1 145.7	2 352.0	81.9	304.7	(NA)	(NA)
1987 Census	214	234	104	17.3	412.9	12.9	27.6	275.4	1 122.6	1 025.7	2 143.9	53.8	293.6	92	93
INDUSTRY 3084, PLASTICS PIPE															
1992 Census	198	280	192	12.6	314.1	9.7	20.3	208.6	859.6	1 599.9	2 446.1	105.2	405.8	95	96
1991 ASM	(NA)	(NA)	(NA)	11.8	291.8	8.8	18.4	188.4	717.3	1 522.3	2 285.6	76.0	359.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.9	295.3	9.8	20.1	195.7	807.7	1 849.6	2 616.0	100.3	427.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.1	287.6	10.0	19.6	185.7	801.9	1 848.7	2 696.5	79.2	364.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.3	276.0	9.4	18.5	175.3	951.5	1 781.5	2 657.1	68.9	412.1	(NA)	(NA)
1987 Census	184	251	177	12.5	263.1	9.5	19.1	174.5	980.7	1 476.7	2 455.8	56.4	304.6	94	95
INDUSTRY 3085, PLASTICS BOTTLES															
1992 Census	224	410	306	32.7	781.4	27.8	58.6	587.2	2 173.9	2 305.7	4 458.2	263.2	387.8	97	95
1991 ASM	(NA)	(NA)	(NA)	28.6	646.7	25.0	51.8	503.7	1 953.1	2 028.8	3 992.6	190.2	323.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.8	645.1	25.2	52.1	512.0	1 626.4	2 088.1	3 728.9	200.2	344.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	28.0	610.2	24.5	51.0	482.5	1 524.6	2 142.4	3 674.9	190.1	334.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.0	536.2	22.0	45.5	412.6	1 451.6	1 855.2	3 296.5	142.2	294.2	(NA)	(NA)
1987 Census	155	286	227	25.1	501.6	21.5	44.0	384.5	1 351.9	1 480.6	2 835.3	172.1	248.3	96	94
INDUSTRY 3086, PLASTICS FOAM PRODUCTS															
1992 Census	850	1 217	678	66.9	1 587.9	52.3	100.5	1 053.9	4 335.8	5 179.1	9 488.4	368.6	887.4	94	92
1991 ASM	(NA)	(NA)	(NA)	62.0	1 431.6	47.8	92.1	924.1	3 790.5	4 766.6	8 578.0	335.9	909.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	63.7	1 395.7	49.6	95.6	932.3	3 788.3	5 153.9	8 988.2	353.2	910.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	64.3	1 308.3	48.8	92.4	858.0	3 271.0	4 832.8	8 108.9	322.0	901.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	63.9	1 271.1	50.0	97.5	854.6	3 290.3	4 243.3	7 506.5	328.1	735.2	(NA)	(NA)
1987 Census	656	946	587	61.3	1 184.0	47.7	91.8	782.9	3 045.6	3 874.4	6 912.8	334.8	654.7	94	90
INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS															
1992 Census	576	662	314	23.6	684.3	15.7	33.5	367.1	1 870.2	2 723.6	4 581.7	146.8	524.8	94	94
1991 ASM	(NA)	(NA)	(NA)	18.1	508.0	12.4	26.2	275.6	1 314.9	2 045.0	3 365.3	78.7	403.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.2	473.6	13.0	27.3	267.3	1 297.8	1 954.3	3 246.9	94.8	381.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.1	460.6	12.7	26.7	254.5	1 229.8	1 947.0	3 179.4	101.1	366.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.3	406.5	12.1	25.0	229.5	1 195.6	1 768.6	2 948.7	53.5	342.9	(NA)	(NA)
1987 Census	357	405	201	17.3	398.3	12.1	25.1	223.8	1 011.1	1 509.5	2 503.1	94.2	311.3	92	94
INDUSTRY 3088, PLASTICS PLUMBING FIXTURES															
1992 Census	322	340	117	10.7	228.2	8.1	15.9	142.3	626.2	456.7	1 081.8	30.9	78.8	97	88
1991 ASM	(NA)	(NA)	(NA)	7.7	167.5	5.9	11.4	102.4	542.5	346.1	879.3	91.1	90.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.1	189.8	6.8	12.9	110.1	577.2	385.6	965.2	109.9	92.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.3	185.9	7.0	13.4	109.4	614.3	414.5	1 022.5	68.5	100.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.4	184.4	7.1	14.6	119.0	542.3	389.9	926.6	18.9	90.3	(NA)	(NA)
1987 Census	162	176	81	7.5	138.0	5.6	10.8	84.5	411.8	302.1	708.8	14.5	68.9	93	86
INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.															
1992 Census	7 600	8 455	4 047	426.4	9 965.4	331.1	665.0	6 318.2	24 378.5	21 026.6	45 311.3	1 985.3	5 056.6	93	94
1991 ASM	(NA)	(NA)	(NA)	388.9	8 540.0	301.9	607.0	5 470.7	20 120.6	19 075.9	39 187.9	1 803.2	4 351.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	404.2	8 535.7	313.8	625.6	5 463.7	19 855.8	19 094.2	38 946.3	1 609.2	4 444.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	403.0	8 052.7	316.0	628.7	5 200.9	19 220.3	18 341.0	37 399.6	1 776.9	4 254.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	394.3	7 661.9	308.6	610.8	4 965.4	18 396.7	17 666.6	35 881.9	1 290.0	4 217.5	(NA)	(NA)
1987 Census	7 770	8 571	3 939	384.7	7 285.5	303.0	597.5	4 796.4	17 919.8	16 031.9	33 773.8	1 339.7	3 795.6	93	93

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET								
1992 Census	30 617	71	2 148	12.07	50	66	95 869	32	62.66
1991 ASM	29 481	71	2 139	11.77	53	70	84 077	35	55.14
1990 ASM	27 842	72	2 117	11.25	53	69	83 547	33	55.13
1989 ASM	27 435	72	2 114	11.04	56	71	79 287	35	52.01
1988 ASM	27 099	74	2 126	10.75	55	70	82 615	33	52.67
1987 Census	25 950	73	2 111	10.66	51	66	83 504	31	54.40
	INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES								
1992 Census	26 159	74	2 055	10.01	47	68	65 759	40	42.99
1991 ASM	24 470	76	2 045	9.74	52	75	50 879	48	32.68
1990 ASM	23 858	76	2 039	9.63	52	75	48 154	50	31.06
1989 ASM	21 420	76	2 080	8.37	53	74	47 046	46	29.84
1988 ASM	20 893	75	2 042	8.32	54	75	45 847	46	29.75
1987 Census	20 325	76	1 979	8.31	49	71	47 306	43	31.54
	INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES								
1992 Census	27 897	73	2 211	11.25	49	69	70 103	40	43.40
1991 ASM	26 923	75	2 071	11.62	49	70	64 692	42	41.89
1990 ASM	25 483	76	2 097	10.97	50	69	65 886	39	41.27
1989 ASM	24 615	75	2 149	10.15	48	67	66 246	37	40.88
1988 ASM	23 591	75	2 021	10.23	49	67	64 984	36	42.71
1987 Census	23 867	75	2 140	9.98	48	67	64 890	37	40.67
	INDUSTRY 3084, PLASTICS PIPE								
1992 Census	24 929	77	2 093	10.28	65	78	68 222	37	42.34
1991 ASM	24 729	75	2 091	10.24	67	79	60 788	41	38.98
1990 ASM	22 891	76	2 051	9.74	71	82	62 612	37	40.18
1989 ASM	21 954	76	1 960	9.47	69	79	61 214	36	40.91
1988 ASM	22 439	76	1 968	9.48	67	77	77 358	29	51.43
1987 Census	21 048	76	2 011	9.14	60	71	78 456	27	51.35
	INDUSTRY 3085, PLASTICS BOTTLES								
1992 Census	23 896	85	2 108	10.02	52	69	66 480	36	37.10
1991 ASM	22 612	87	2 072	9.72	51	67	68 290	33	37.70
1990 ASM	22 399	88	2 067	9.83	56	73	56 472	40	31.22
1989 ASM	21 793	88	2 082	9.46	58	75	54 450	40	29.89
1988 ASM	20 623	85	2 068	9.07	56	73	55 831	37	31.90
1987 Census	19 984	86	2 047	8.74	52	70	53 861	37	30.73
	INDUSTRY 3086, PLASTICS FOAM PRODUCTS								
1992 Census	23 735	78	1 922	10.49	55	71	64 810	37	43.14
1991 ASM	23 090	77	1 927	10.03	56	72	61 137	38	41.16
1990 ASM	21 911	78	1 927	9.75	57	73	59 471	37	39.63
1989 ASM	20 347	76	1 893	9.29	60	76	50 871	40	35.40
1988 ASM	19 892	78	1 950	8.77	57	73	51 491	39	33.75
1987 Census	19 315	78	1 925	8.53	56	73	49 684	39	33.18
	INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS								
1992 Census	28 996	67	2 134	10.96	59	74	79 246	37	55.83
1991 ASM	28 066	69	2 113	10.52	61	76	72 646	39	50.19
1990 ASM	26 022	71	2 100	9.79	60	75	71 308	36	47.54
1989 ASM	25 448	70	2 102	9.53	61	76	67 945	37	46.06
1988 ASM	23 497	70	2 066	9.18	60	74	69 110	34	47.82
1987 Census	23 023	70	2 074	8.92	60	76	58 445	39	40.28
	INDUSTRY 3088, PLASTICS PLUMBING FIXTURES								
1992 Census	21 327	76	1 963	8.95	42	63	58 523	36	39.38
1991 ASM	21 753	77	1 932	8.98	39	58	70 455	31	47.59
1990 ASM	20 857	75	1 897	8.53	40	60	63 429	33	44.74
1989 ASM	19 989	75	1 914	8.16	41	59	66 054	30	45.84
1988 ASM	19 617	76	2 056	8.15	42	62	57 691	34	37.14
1987 Census	18 400	75	1 929	7.82	43	62	54 907	34	38.13
	INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.								
1992 Census	23 371	78	2 008	9.50	46	68	57 173	41	36.66
1991 ASM	21 959	78	2 011	9.01	49	70	51 737	42	33.15
1990 ASM	21 118	78	1 994	8.73	49	71	49 124	43	31.74
1989 ASM	19 982	78	1 990	8.27	49	71	47 693	42	30.57
1988 ASM	19 432	78	1 979	8.13	49	71	46 657	42	30.12
1987 Census	18 938	79	1 972	8.03	47	69	46 581	41	29.99

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET														
United States	–	**756**	**456**	**54.9**	**1 680.9**	**39.1**	**84.0**	**1 014.2**	**5 263.2**	**5 358.2**	**10 613.4**	**592.3**	**48.4**	**4 041.6**
Alabama	–	6	4	.7	24.9	.5	1.1	14.3	139.3	73.0	211.4	(D)	1.6	74.0
Arizona	E8	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	5	4	.7	15.6	.6	1.2	11.2	38.7	45.4	83.9	2.2	E	(D)
California	E1	98	53	3.9	108.5	2.5	5.8	58.0	283.9	285.2	571.5	25.1	3.3	232.8
Colorado	E1	9	6	.3	7.4	.2	.3	3.1	16.3	35.8	49.8	.5	.2	9.7
Connecticut	–	20	8	1.1	37.4	.7	1.7	21.6	95.5	110.2	206.2	7.3	1.4	71.8
Delaware	–	8	5	.9	30.0	.7	1.7	18.0	120.6	118.7	238.0	6.5	F	(D)
Florida	–	16	2	.2	4.4	.1	.3	2.6	10.9	12.7	23.9	1.2	(NA)	(NA)
Georgia	–	26	20	1.9	50.8	1.4	3.2	31.2	166.5	215.6	379.4	9.7	1.2	104.7
Illinois	–	46	31	3.1	98.7	1.8	3.9	47.3	278.7	234.5	517.7	26.0	3.1	303.0
Indiana	–	21	17	2.5	72.1	1.9	4.2	50.4	274.5	220.9	495.0	13.5	1.6	148.7
Iowa	–	8	3	.8	23.5	.6	1.2	16.5	82.5	59.4	142.6	(D)	.9	79.4
Kansas	E2	6	5	1.2	25.3	.9	1.8	14.9	39.2	54.2	94.1	(D)	.8	31.0
Kentucky	–	11	8	.9	24.4	.6	1.4	16.3	102.6	120.1	221.6	9.1	.6	65.1
Louisiana	–	5	4	.6	13.6	.5	1.1	9.1	41.9	69.1	110.1	3.1	.4	31.1
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	4	3	.3	8.6	.2	.3	3.0	17.0	32.6	50.4	3.4	.6	32.1
Massachusetts	–	37	22	3.9	147.1	2.7	5.7	86.9	350.5	474.5	822.4	38.3	3.8	290.6
Michigan	–	31	16	1.5	47.6	1.0	2.1	27.5	94.7	190.9	281.2	21.8	1.0	69.1
Minnesota	E2	24	12	1.4	35.0	1.0	2.1	19.9	80.5	111.5	191.5	(D)	1.1	70.7
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	14	8	1.1	35.3	.8	1.8	23.1	162.9	126.9	287.0	20.2	1.0	155.6
Nevada	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
New Jersey	E1	64	41	3.3	103.9	2.4	5.2	60.6	245.1	335.2	578.7	11.2	3.5	207.9
New York	E1	39	26	2.2	64.5	1.5	3.2	34.1	164.7	209.1	378.7	11.1	2.0	176.9
North Carolina	E1	23	15	1.9	55.2	1.4	3.0	36.3	201.7	214.9	425.6	18.6	G	(D)
Ohio	–	41	27	3.3	108.6	2.4	5.0	62.7	358.6	294.9	647.7	61.1	3.6	284.6
Oklahoma	–	11	8	1.0	31.5	.7	1.7	19.2	145.4	130.6	276.1	(D)	.7	79.4
Oregon	–	9	4	.5	11.4	.4	.8	9.1	31.1	28.6	60.8	3.0	.2	9.9
Pennsylvania	E1	43	24	2.5	69.2	1.8	3.9	45.2	178.7	237.2	419.5	17.0	2.6	176.2
Rhode Island	–	6	4	.5	18.6	.3	.6	8.3	51.2	65.6	112.0	(D)	.3	14.1
South Carolina	–	8	6	3.3	124.0	2.6	5.4	81.3	436.7	284.8	716.3	(D)	3.3	349.7
Tennessee	–	8	7	.6	16.6	.4	.8	11.9	53.7	45.1	97.3	4.2	.8	67.8
Texas	–	33	21	3.4	100.2	2.4	5.0	63.4	396.5	387.3	784.3	163.4	2.2	258.5
Virginia	–	14	11	2.6	84.8	1.8	3.5	52.3	371.5	214.2	586.4	16.1	2.0	227.9
Washington	–	9	5	.5	15.7	.4	.8	11.3	40.6	45.7	88.9	2.7	E	(D)
Wisconsin	–	24	14	1.0	25.0	.7	1.5	16.2	71.8	108.4	179.4	9.1	.7	49.7
INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES														
United States	–	**673**	**327**	**27.0**	**706.3**	**20.1**	**41.3**	**413.3**	**1 775.5**	**1 571.4**	**3 332.8**	**198.4**	**25.2**	**1 192.1**
Arkansas	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	84	33	2.3	54.9	1.7	3.5	32.5	123.6	96.0	218.6	9.9	1.9	88.1
Connecticut	–	12	5	.3	13.2	.2	.5	5.2	31.2	11.0	42.0	(D)	(NA)	(D)
Delaware	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	29	7	.6	14.7	.4	.9	8.3	24.9	33.9	61.4	2.6	.7	21.1
Georgia	E1	17	12	.9	21.8	.6	1.4	12.4	54.3	40.8	94.1	4.6	.7	37.4
Illinois	–	39	17	2.3	67.9	1.7	3.4	40.4	227.4	85.8	312.8	13.8	2.5	105.8
Indiana	–	28	19	1.5	35.4	1.2	2.3	22.2	80.5	64.8	142.5	4.3	1.9	90.0
Kansas	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	21	11	1.1	30.0	.9	1.9	19.6	82.5	49.3	131.6	5.4	G	(D)
Michigan	–	27	16	1.1	29.5	.8	1.5	13.6	55.9	40.7	96.9	3.1	1.3	72.9
Minnesota	–	13	8	.7	18.3	.5	.9	11.2	36.7	28.7	65.6	2.1	.7	39.5
Mississippi	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	16.3
Missouri	–	12	9	.6	15.8	.4	.9	7.9	51.2	43.6	94.4	2.7	.5	32.7
New Hampshire	–	7	5	.5	13.1	.3	.7	6.4	34.7	29.7	63.9	1.3	.6	25.9
New Jersey	–	45	24	1.8	52.6	1.3	3.0	32.6	115.4	110.3	224.9	8.7	1.8	77.4
New York	–	45	19	1.6	50.4	1.1	2.4	29.0	214.2	89.7	303.2	14.4	1.2	54.5
North Carolina	–	14	4	.2	5.1	.1	.3	3.0	6.9	17.0	24.5	(D)	E	(D)
Ohio	–	60	33	2.3	59.7	1.8	3.6	39.0	121.5	118.9	239.1	11.8	2.1	110.1
Oregon	E4	10	2	.1	2.4	.1	.2	1.5	5.1	3.5	8.7	.3	.2	7.6
Pennsylvania	–	41	21	1.9	49.4	1.3	2.5	25.2	100.7	102.0	203.0	6.9	1.3	57.0
Rhode Island	E3	3	3	.1	2.4	.1	.2	1.6	5.1	4.8	9.9	(D)	(NA)	(NA)
South Carolina	–	11	8	1.0	19.9	.8	1.7	14.3	40.0	77.9	117.0	2.6	(NA)	(D)
Tennessee	–	13	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	F	(D)
Texas	E1	39	17	1.1	25.8	.7	1.5	13.9	60.2	49.6	109.6	4.1	1.0	50.9
Vermont	E4	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E6	8	5	1.1	23.3	1.0	2.0	16.6	48.2	70.8	118.2	2.8	1.0	38.7
Washington	–	11	6	.6	14.7	.5	.9	11.0	34.2	26.3	59.2	5.0	(NA)	(NA)
Wisconsin	–	10	6	.5	10.8	.4	.8	6.8	22.3	14.7	36.9	1.5	.6	18.8
Wyoming	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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TSF:30B_92.DAT;2 6/12/95 13:40:37 UTF:30B_93.DAT;2 6/12/95 13:40:37 META:TIPS96-13402363.DAT;1 6/12/95 13:41:43

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES														
United States	**E1**	**302**	**112**	**15.6**	**435.2**	**11.4**	**25.2**	**283.4**	**1 093.6**	**1 072.9**	**2 183.7**	**57.7**	**17.3**	**1 122.6**
California	E1	44	16	1.6	41.0	1.1	2.6	24.0	108.0	105.7	223.9	4.0	2.6	193.2
Connecticut	E2	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Florida	E2	7	3	.2	5.3	.2	.3	2.8	11.6	10.3	20.9	(D)	(NA)	(NA)
Illinois	E2	20	8	1.1	30.8	.8	1.8	19.3	70.7	77.1	150.1	6.0	.4	26.9
Indiana	–	9	5	.4	8.5	.2	.5	3.7	18.9	16.2	34.8	.3	E	(D)
Kansas	E9	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Maine	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E1	12	3	.4	13.2	.2	.5	5.9	37.4	40.0	77.6	.8	.7	35.8
Michigan	–	7	2	.1	2.5	.1	.2	2.0	11.0	15.9	26.9	(D)	(NA)	(NA)
Minnesota	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E2	11	3	.3	7.5	.2	.4	5.2	14.7	8.8	23.5	(D)	.6	39.6
New York	E1	15	4	.4	6.2	.3	.5	4.7	12.5	10.7	26.7	.2	.6	35.0
North Carolina	–	10	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.0	G	(D)
Ohio	–	28	14	2.2	68.2	1.5	3.3	44.2	152.4	153.6	307.5	6.1	2.4	152.8
Pennsylvania	–	17	10	.9	25.2	.7	1.4	18.2	54.5	46.6	102.3	4.1	.9	39.6
South Carolina	E4	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	15	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	E1	10	3	.1	2.9	.1	.1	1.3	4.4	4.1	8.6	(D)	(NA)	(NA)
Wisconsin	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	58.3
INDUSTRY 3084, PLASTICS PIPE														
United States	**–**	**280**	**192**	**12.6**	**314.1**	**9.7**	**20.3**	**208.6**	**859.6**	**1 599.9**	**2 446.1**	**105.2**	**12.5**	**980.7**
Alabama	E1	9	7	.2	5.2	.2	.3	3.1	19.1	21.7	40.7	1.5	.2	13.4
Arizona	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	E1	4	2	.2	4.3	.1	.3	2.6	13.7	31.5	44.9	(D)	E	(D)
California	–	37	24	1.5	38.1	1.1	2.4	24.7	92.5	192.2	282.9	11.6	1.3	88.9
Florida	–	14	9	.7	14.5	.5	1.2	10.3	41.9	87.3	128.5	(D)	.4	29.4
Georgia	–	12	9	.5	12.0	.4	.8	8.5	37.4	85.0	121.7	4.9	.5	37.6
Illinois	–	8	4	.2	4.5	.1	.3	3.0	11.8	28.4	38.9	(D)	(NA)	(NA)
Indiana	–	12	9	.7	14.8	.5	1.1	10.0	46.5	87.1	132.3	1.4	.7	56.7
Iowa	E1	10	6	.3	8.5	.2	.5	5.8	26.8	44.5	72.6	1.1	E	(D)
Kansas	E1	6	5	.3	7.3	.2	.4	4.4	20.3	43.6	63.4	1.2	E	(D)
Kentucky	–	5	5	.4	13.6	.3	.8	9.2	32.1	62.8	93.3	1.7	E	(D)
Louisiana	E2	6	4	.2	2.7	.1	.2	1.8	11.8	7.7	18.2	(D)	(NA)	(NA)
Michigan	E2	9	5	.3	6.9	.2	.3	3.9	18.3	19.0	37.1	(D)	.2	10.0
Minnesota	–	5	3	.2	4.0	.1	.3	2.3	18.8	27.9	43.4	(D)	(NA)	(D)
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	16.8
Nebraska	–	5	4	.3	7.0	.2	.4	4.1	15.4	40.5	57.4	.7	.3	15.0
Nevada	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	4	2	.2	5.0	.1	.2	2.6	8.0	10.5	18.8	(D)	.3	13.8
New York	E2	7	5	.6	10.8	.5	1.2	7.7	30.1	31.2	59.7	4.8	.4	24.3
North Carolina	E1	11	9	1.1	27.4	.9	1.8	20.0	55.5	139.2	193.9	14.2	G	(D)
Ohio	E3	19	8	.7	18.1	.5	1.1	12.1	51.4	47.7	98.4	4.0	.5	29.4
Oklahoma	–	6	6	.7	19.4	.6	1.1	14.7	41.0	63.3	105.1	(D)	.5	40.0
Oregon	–	6	4	.2	7.1	.2	.3	4.7	27.9	46.2	72.9	1.4	.3	25.5
Pennsylvania	–	8	7	.4	10.4	.3	.6	6.9	32.5	64.5	96.4	2.4	E	(D)
South Carolina	–	3	3	.1	4.1	.1	.2	2.4	9.2	32.3	40.4	(D)	.2	5.9
Tennessee	–	4	3	.2	4.9	.1	.3	3.1	19.2	25.7	45.4	(D)	.3	25.5
Texas	–	28	21	1.3	30.3	1.0	2.1	19.3	90.5	176.2	271.4	20.3	1.5	101.8
Washington	–	7	5	.2	5.1	.1	.3	3.1	18.5	21.6	39.6	.2	.4	24.4
West Virginia	E4	4	3	.2	3.0	.1	.3	2.1	11.7	20.5	30.9	1.5	(NA)	(NA)
Wisconsin	–	4	3	.2	5.2	.1	.3	2.7	14.1	17.6	31.5	1.3	.2	11.4
INDUSTRY 3085, PLASTICS BOTTLES														
United States	**–**	**410**	**306**	**32.7**	**781.4**	**27.8**	**58.6**	**587.2**	**2 173.9**	**2 305.7**	**4 458.2**	**263.2**	**25.1**	**1 351.9**
Alabama	–	7	7	.5	11.3	.5	.9	8.8	35.3	41.4	75.7	1.9	.2	10.9
Arizona	–	7	4	.3	5.1	.2	.4	3.7	9.8	16.1	25.9	.3	(NA)	(D)
California	–	56	42	4.1	102.0	3.4	7.6	72.9	249.2	260.7	505.7	37.3	3.0	156.6
Connecticut	–	6	4	.3	8.0	.3	.5	5.8	18.8	11.5	30.4	.9	.5	16.2
Florida	–	17	9	.9	22.1	.7	1.6	15.8	57.6	86.4	144.5	2.2	.7	36.0
Georgia	–	12	10	1.0	25.1	.9	2.0	19.5	65.6	62.0	124.2	6.6	.6	32.7
Illinois	–	33	28	2.9	73.0	2.5	5.1	55.8	232.6	206.5	439.3	26.5	2.1	105.0
Indiana	–	9	7	.9	21.6	.8	1.5	16.9	66.0	52.9	118.9	5.0	1.1	69.9
Iowa	–	5	4	.3	4.9	.2	.4	3.6	13.1	17.8	30.9	(D)	(NA)	(D)
Kansas	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	11	8	1.1	22.7	1.0	1.9	18.0	83.6	76.7	157.8	13.5	.8	31.5
Louisiana	–	6	6	.9	16.8	.9	2.1	14.3	39.1	48.8	87.7	2.5	E	(D)
Maryland	–	6	4	.8	19.5	.7	1.6	16.4	47.7	57.4	105.4	5.5	.9	71.5
Massachusetts	E1	11	4	.5	12.7	.4	1.1	10.3	39.7	53.3	93.7	1.2	E	(D)
Michigan	–	8	4	.7	14.2	.6	1.1	9.7	46.0	69.3	115.4	3.5	.5	19.1

See footnotes at end of table.

TIPS UPF [MCD_SRB,BA_TAYLOR] 6/12/95 13:41:58 EPCV21 TLP:30B.BTI;41 6/12/95 13:40:14 DATA:NONE UPF:DIR:30BDAT.UPF PAGE: 4
TSF:30B_92.DAT;2 6/12/95 13:40:37 UTF:30B_93.DAT;2 6/12/95 13:40:37 META:TIPS96-13402363.DAT;1 6/12/95 13:41:43

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3085, PLASTICS BOTTLES—Con.														
Minnesota	E1	5	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Mississippi	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E1	16	14	1.5	33.1	1.3	2.8	24.9	82.0	66.8	147.5	11.8	.8	41.0
New Hampshire	–	7	5	.6	15.3	.5	1.0	11.2	29.5	35.2	64.0	2.6	(NA)	(NA)
New Jersey	–	26	22	2.9	81.7	2.3	4.7	54.8	173.9	191.5	365.3	18.1	2.7	131.7
New York	–	7	5	.4	9.5	.3	.7	6.2	17.4	24.9	41.9	3.2	F	(D)
North Carolina	–	7	6	.7	17.2	.6	1.3	12.2	53.5	86.4	139.8	(D)	F	(D)
Ohio	–	32	25	3.8	86.1	3.3	6.6	68.7	282.3	241.2	518.7	18.8	3.2	170.1
Pennsylvania	E1	28	22	1.9	41.0	1.6	3.1	30.3	105.6	106.9	213.0	8.9	.7	43.1
South Carolina	–	5	5	.4	9.9	.3	.7	8.1	33.8	50.4	84.1	11.3	.4	25.3
Tennessee	–	6	6	.5	12.9	.5	1.2	10.7	45.2	40.8	85.8	3.9	E	(D)
Texas	–	27	20	2.0	45.0	1.7	3.6	34.4	118.7	180.5	296.6	19.8	1.5	92.6
Virginia	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	9	7	.4	8.5	.3	.6	6.8	26.6	33.6	60.0	(D)	(NA)	(NA)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3086, PLASTICS FOAM PRODUCTS														
United States	**E1**	**1 217**	**678**	**66.9**	**1 587.9**	**52.3**	**100.5**	**1 053.9**	**4 335.8**	**5 179.1**	**9 488.4**	**368.6**	**61.3**	**3 045.6**
Alabama	–	13	6	.4	7.7	.3	.6	4.9	23.3	21.5	44.7	1.0	.2	4.7
Arizona	E1	12	3	.1	3.0	.1	.2	1.7	6.8	6.6	13.2	.1	(NA)	(NA)
Arkansas	E2	20	7	.6	13.1	.5	1.0	9.7	50.1	58.4	108.5	1.2	.7	31.8
California	E1	171	87	7.1	167.5	5.5	10.6	106.2	466.7	532.5	996.8	30.1	7.0	410.7
Colorado	E1	21	9	.5	12.1	.4	.8	6.9	32.7	36.5	68.8	3.8	.4	20.1
Connecticut	E5	12	7	.5	12.1	.4	.8	7.7	36.7	39.7	74.0	3.1	.6	30.4
Florida	E2	52	23	1.3	27.1	1.0	2.0	17.7	69.3	95.4	164.0	4.2	.9	32.3
Georgia	–	39	28	3.2	81.3	2.5	5.0	50.6	223.7	228.1	449.2	26.4	1.7	76.4
Illinois	E2	47	34	3.0	75.9	2.3	4.5	53.0	247.2	278.0	525.2	11.6	4.2	245.9
Indiana	–	41	32	3.5	76.8	2.7	5.1	50.5	210.3	268.4	477.3	10.8	2.8	169.1
Iowa	E1	14	8	1.2	26.3	1.0	1.6	19.6	60.8	65.8	128.3	.5	G	(D)
Kansas	E9	12	6	1.3	29.6	1.1	2.2	21.4	112.9	66.7	179.5	(D)	G	(D)
Kentucky	–	23	18	2.5	56.2	2.1	3.7	41.2	218.6	198.6	415.6	32.1	2.1	130.6
Louisiana	E8	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	12	9	.8	20.3	.7	1.3	13.7	47.8	84.9	133.2	(D)	E	(D)
Massachusetts	–	27	14	1.6	40.4	1.0	1.9	21.9	88.9	87.6	177.7	5.0	F	(D)
Michigan	E1	59	37	3.8	95.1	2.8	5.5	58.7	188.9	284.1	473.9	41.4	4.5	153.1
Minnesota	E2	24	11	.6	15.7	.5	.9	9.1	40.2	45.9	85.1	2.2	F	(D)
Mississippi	E1	30	22	2.2	39.2	2.0	3.4	30.9	119.2	188.2	306.9	6.6	2.3	65.0
Missouri	–	29	14	1.5	39.5	1.2	2.3	26.9	128.0	153.6	281.6	7.1	.7	55.3
Nebraska	–	5	3	.2	2.7	.1	.2	1.9	5.8	6.8	12.6	.3	E	(D)
Nevada	E2	4	3	.2	4.7	.2	.3	3.7	13.1	12.6	25.3	.7	.2	12.7
New Hampshire	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	39	24	1.8	48.7	1.4	2.8	32.1	128.1	146.0	274.0	5.8	1.9	98.4
New Mexico	–	6	3	.1	2.2	.1	.2	1.5	16.7	21.0	37.4	(D)	(NA)	(NA)
New York	–	38	20	2.4	65.8	1.9	3.8	42.7	159.4	134.2	290.2	14.4	2.4	115.6
North Carolina	–	70	52	4.2	92.5	3.3	6.2	61.7	255.9	331.3	585.0	17.8	4.6	151.1
Ohio	–	62	34	3.4	80.9	2.6	5.1	53.1	201.9	317.7	516.7	9.6	3.1	208.6
Oklahoma	E4	10	3	.1	3.0	.1	.2	1.8	8.4	8.9	17.4	.5	(NA)	(NA)
Oregon	–	17	6	.3	5.9	.2	.4	3.4	16.3	21.3	37.0	.6	.3	9.2
Pennsylvania	–	60	32	3.8	92.5	3.1	6.0	66.0	239.4	374.5	610.5	53.2	3.8	202.5
Rhode Island	–	7	3	.1	3.7	.1	.2	1.8	7.7	6.2	13.8	.2	(NA)	(NA)
South Carolina	E5	15	7	.9	20.6	.7	1.4	14.6	51.7	61.4	113.0	6.8	.9	62.3
Tennessee	–	48	26	3.5	78.4	2.8	5.1	52.9	192.9	275.6	464.8	9.3	2.9	134.5
Texas	E1	83	43	4.1	94.5	3.2	6.3	61.4	315.3	339.0	652.8	23.4	2.0	90.0
Utah	E1	11	2	.2	3.2	.1	.2	2.1	10.4	14.2	24.6	.5	(NA)	(NA)
Virginia	E1	15	9	1.0	24.8	.8	1.4	19.0	92.4	68.4	161.7	3.4	G	(D)
Washington	E4	18	6	.5	11.3	.4	.7	8.1	29.5	30.2	59.6	1.8	.4	20.8
Wisconsin	–	23	14	1.7	42.9	1.4	2.9	27.5	91.7	114.5	207.3	6.8	2.0	100.3
INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS														
United States	**E1**	**662**	**314**	**23.6**	**684.3**	**15.7**	**33.5**	**367.1**	**1 870.2**	**2 723.6**	**4 581.7**	**146.8**	**17.3**	**1 011.1**
Alabama	E4	6	3	.1	2.5	.1	.2	1.6	8.4	7.5	15.7	.8	(NA)	(NA)
Arizona	E4	10	3	.2	3.4	.1	.2	2.0	13.2	23.6	37.0	2.7	(NA)	(NA)
California	–	81	34	2.0	57.6	1.3	2.8	29.8	146.5	172.9	313.4	6.9	1.6	94.2
Colorado	E2	7	3	.1	2.7	.1	.2	1.7	5.9	6.2	12.1	.3	(NA)	(NA)
Connecticut	–	12	4	.3	10.1	.2	.3	4.1	54.7	49.4	104.4	2.9	(NA)	(D)
Delaware	–	4	3	.3	9.3	.2	.5	6.1	22.2	55.5	77.5	.2	.2	17.7
Florida	E1	21	6	.3	8.8	.2	.4	4.2	19.2	22.6	41.2	1.4	.2	13.7
Georgia	–	11	8	.4	13.2	.3	.7	8.7	33.2	76.6	110.5	3.5	.2	11.8
Illinois	–	36	20	1.4	34.6	1.0	1.9	19.3	80.8	97.7	178.2	5.6	1.1	54.4
Indiana	E1	22	12	1.0	29.2	.6	1.3	14.7	115.5	199.7	318.1	7.2	.6	40.9

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS—Con.														
Kansas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	7	3	.2	5.6	.1	.3	2.8	14.4	13.1	27.4	(D)	(NA)	(D)
Louisiana	–	6	2	.2	7.2	.2	.3	4.4	32.9	42.3	75.1	1.6	(NA)	(D)
Maryland	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	41	20	1.5	47.6	1.0	2.1	23.3	127.1	184.2	309.9	8.8	1.0	58.3
Michigan	–	29	13	.9	23.8	.5	.9	10.7	62.7	92.5	151.6	3.8	1.1	50.1
Minnesota	–	13	4	.5	18.6	.3	.7	7.9	41.1	44.8	85.6	4.3	E	(D)
Mississippi	–	6	5	.2	6.0	.2	.3	3.2	33.7	77.3	110.3	(D)	(NA)	(NA)
Missouri	–	9	6	.4	10.7	.3	.6	5.9	27.4	40.4	67.6	.6	.4	20.5
New Jersey	E3	44	28	2.0	62.9	1.3	2.7	31.4	165.4	269.8	434.4	16.1	1.5	78.9
New York	–	17	9	.7	23.8	.4	.8	8.4	65.0	68.5	134.0	2.6	.6	33.0
North Carolina	E1	15	8	.7	16.8	.5	1.1	12.5	41.6	64.4	106.1	3.8	.2	15.2
Ohio	–	48	33	3.1	92.4	2.1	4.3	50.8	230.2	381.8	610.2	19.8	2.4	152.5
Pennsylvania	E2	36	18	1.2	32.2	.8	1.7	19.2	99.1	142.4	240.0	11.6	1.3	100.1
Rhode Island	–	10	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	F	(D)
South Carolina	E2	6	2	.2	5.0	.1	.2	2.0	17.2	18.9	36.0	.6	(NA)	(NA)
Tennessee	–	21	14	1.5	38.1	1.1	2.5	24.6	109.2	193.7	303.2	15.3	.5	15.0
Texas	–	52	27	1.7	50.6	1.3	2.7	33.2	139.2	213.6	356.2	12.1	1.7	95.4
Virginia	E1	9	4	.3	7.5	.2	.4	4.5	25.2	15.5	40.2	1.6	(NA)	(NA)
Washington	E4	15	2	.1	3.1	.1	.2	1.9	6.7	6.1	12.5	.7	(NA)	(NA)
West Virginia	–	4	4	.3	6.6	.2	.6	4.6	14.1	7.6	21.5	(D)	(NA)	(NA)
Wisconsin	–	19	5	.3	7.3	.2	.3	2.7	16.7	32.5	49.9	1.2	(NA)	(NA)
INDUSTRY 3088, PLASTICS PLUMBING FIXTURES														
United States	**E1**	**340**	**117**	**10.7**	**228.2**	**8.1**	**15.9**	**142.3**	**626.2**	**456.7**	**1 081.8**	**30.9**	**7.5**	**411.8**
Alabama	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	E	(D)
Arizona	–	8	3	.3	7.7	.2	.4	3.0	14.8	9.3	24.2	2.1	.2	9.7
California	E1	43	15	2.1	43.1	1.6	3.2	24.5	126.5	113.4	239.0	4.9	1.7	118.3
Florida	E1	31	6	.5	9.5	.4	.8	5.8	23.4	16.5	39.8	1.5	.4	12.9
Georgia	E1	17	14	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	22.6
Illinois	–	14	6	.3	8.6	.3	.6	5.9	16.9	9.9	26.8	(D)	.3	13.9
Indiana	E1	16	9	.4	7.8	.4	.6	5.3	18.2	10.7	28.6	1.7	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	9	3	.3	5.9	.3	.5	4.4	13.7	11.3	24.9	1.8	(NA)	(NA)
Michigan	–	13	6	.5	13.5	.4	.7	8.7	46.8	29.2	75.7	1.6	.4	26.2
Minnesota	–	9	1	.2	4.4	.1	.2	1.7	6.0	11.2	17.1	.8	(NA)	(NA)
Mississippi	E2	4	3	.1	1.5	.1	.2	1.0	3.0	1.9	4.9	.3	(NA)	(NA)
North Carolina	E1	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Ohio	–	15	6	.4	10.2	.3	.5	5.4	32.7	35.2	69.1	.9	.2	6.4
Oregon	–	5	2	.1	3.2	.1	.1	1.8	4.4	5.5	9.8	.5	(NA)	(NA)
Pennsylvania	–	11	4	.4	9.8	.4	.7	7.7	26.7	17.7	44.7	1.0	E	(D)
South Carolina	E2	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)
Tennessee	–	9	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	29	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	7	5	.5	10.5	.4	.9	8.3	20.1	14.2	34.1	.8	.2	5.1
Washington	–	11	4	.3	7.2	.3	.5	5.4	19.6	11.7	31.6	.9	.3	14.1
West Virginia	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Wisconsin	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.														
United States	**E1**	**8 455**	**4 047**	**426.4**	**9 965.4**	**331.1**	**665.0**	**6 318.2**	**24 378.5**	**21 026.6**	**45 311.3**	**1 985.3**	**384.7**	**17 919.8**
Alabama	–	71	36	4.7	98.6	3.7	6.8	63.1	193.1	234.5	427.5	20.1	3.1	108.8
Arizona	E1	109	40	3.7	80.3	3.0	5.8	54.8	252.8	173.9	423.8	26.2	3.3	157.1
Arkansas	E1	64	33	3.4	65.8	2.8	5.3	43.7	176.1	156.0	329.9	15.3	2.1	97.5
California	E1	1 141	457	45.5	1 179.4	33.4	65.8	682.0	2 699.5	1 849.9	4 551.7	179.1	43.9	2 270.4
Colorado	E2	118	46	4.3	104.4	3.1	6.2	56.3	274.9	185.3	460.2	17.5	2.4	113.6
Connecticut	E2	159	64	6.2	167.5	4.9	10.6	111.6	355.9	271.0	626.3	26.5	6.5	311.5
Delaware	E2	27	12	.9	21.1	.6	1.5	12.9	57.1	44.5	101.4	7.5	.6	26.0
Florida	E4	369	108	8.9	187.9	7.0	14.1	122.3	445.3	413.4	859.9	31.4	10.2	404.8
Georgia	E1	149	67	5.9	135.8	4.6	9.3	89.9	340.5	381.6	719.3	53.5	6.2	299.6
Idaho	E2	23	6	.5	9.6	.4	.7	5.8	26.0	17.8	43.6	1.6	F	(D)
Illinois	E1	512	286	31.9	791.3	24.8	49.9	497.7	1 864.0	1 651.8	3 512.1	160.0	26.0	1 244.8
Indiana	–	326	199	23.0	523.7	18.0	36.9	334.4	1 213.0	1 211.1	2 421.2	106.0	19.6	817.0
Iowa	–	98	56	6.0	127.0	4.7	9.6	86.0	350.5	297.4	640.6	29.6	3.1	169.2
Kansas	–	82	39	5.2	116.3	4.1	8.1	84.6	344.9	293.7	630.0	24.5	(NA)	(D)
Kentucky	–	87	55	7.6	160.4	6.3	12.1	114.3	352.5	406.5	757.0	29.4	5.8	243.7
Louisiana	E5	38	13	1.1	23.4	.9	1.7	16.6	54.4	49.8	104.4	3.7	1.0	35.5
Maine	E2	25	12	1.5	26.7	1.2	2.7	20.2	95.4	60.1	155.5	12.2	1.3	52.5
Maryland	–	73	37	4.1	97.5	3.3	6.4	64.9	247.8	172.5	418.8	16.1	3.5	169.0
Massachusetts	E2	270	134	11.3	304.3	8.6	17.8	184.4	729.3	574.9	1 302.0	55.7	14.7	664.6
Michigan	E1	609	344	39.7	950.3	30.8	63.4	609.9	2 477.4	2 365.3	4 835.4	156.5	33.3	1 547.1
Minnesota	–	215	92	9.5	238.3	7.2	14.5	146.0	556.8	425.1	984.5	54.1	8.5	396.9
Mississippi	E1	63	34	3.2	63.9	2.6	5.2	45.0	206.4	240.6	443.5	19.5	2.4	86.1
Missouri	–	154	77	8.2	182.0	6.3	12.6	102.4	409.9	397.9	810.7	45.9	7.2	295.1
Nebraska	–	33	18	2.0	41.6	1.7	3.5	29.9	84.0	86.1	168.9	12.2	1.4	46.2
Nevada	–	40	14	1.4	30.5	1.0	2.4	19.4	76.6	60.1	140.3	6.0	.8	27.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.—Con.														
New Hampshire	E1	54	22	2.3	55.2	1.7	3.4	33.2	113.6	92.6	204.1	6.1	4.1	185.7
New Jersey	E2	334	177	15.5	378.3	11.7	24.2	229.1	835.4	682.2	1 511.3	66.7	17.7	765.3
New Mexico	E3	16	4	.3	6.2	.2	.4	3.2	14.0	12.4	26.5	.6	.2	7.1
New York	E1	447	216	20.3	472.6	15.8	31.4	288.9	982.7	858.8	1 843.6	85.2	22.3	936.1
North Carolina	E1	196	111	11.8	251.6	9.3	18.4	164.3	650.0	585.8	1 231.6	50.3	9.4	408.1
North Dakota	–	11	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E1	615	353	41.0	927.1	31.9	63.6	597.0	2 294.2	2 056.3	4 346.0	210.5	39.7	1 936.1
Oklahoma	–	79	25	2.6	50.5	2.0	3.9	33.3	139.9	157.0	292.5	7.5	2.4	94.2
Oregon	E1	104	29	2.9	69.5	2.2	4.5	43.0	156.9	147.2	302.7	10.7	2.1	90.9
Pennsylvania	E1	385	210	21.9	517.5	17.3	34.0	338.7	1 273.6	1 075.8	2 359.5	112.1	21.6	1 037.0
Rhode Island	E1	64	27	3.0	69.3	2.3	4.6	43.4	142.0	95.1	236.4	6.1	3.5	134.4
South Carolina	–	90	49	6.1	129.5	5.0	9.7	86.0	406.8	274.0	676.1	37.4	4.7	281.9
South Dakota	E2	16	9	.6	11.6	.5	1.0	8.6	21.9	14.8	37.4	1.5	(NA)	(D)
Tennessee	–	149	74	9.3	190.7	7.7	15.8	129.4	608.2	543.1	1 144.7	44.6	6.3	343.2
Texas	E1	451	184	18.9	397.1	14.9	29.5	256.0	1 162.7	942.4	2 077.0	96.5	14.9	732.1
Utah	E2	60	17	1.0	23.7	.8	1.6	15.3	55.0	39.0	92.2	2.9	.7	25.9
Vermont	E3	21	14	1.3	35.3	1.0	1.9	21.4	75.8	57.5	133.6	6.6	G	(D)
Virginia	–	71	36	5.6	126.0	4.5	9.5	83.6	295.2	344.1	639.3	20.2	5.0	270.5
Washington	E2	126	58	5.2	130.3	3.9	8.0	78.1	271.5	204.3	476.6	19.5	3.4	148.7
West Virginia	E6	13	8	1.2	19.9	.9	1.7	14.5	60.3	48.9	108.9	3.6	F	(D)
Wisconsin	–	270	138	15.5	366.4	12.4	24.3	246.6	910.5	755.3	1 660.0	85.2	13.3	623.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Unsupported plastics film and sheet (SIC 3081)	Unsupported plastics profile shapes (SIC 3082)	Laminated plastics plate, sheet, and profile shapes (SIC 3083)	Plastics pipe (SIC 3084)	Plastics bottles (SIC 3085)	Plastics foam products (SIC 3086)	Custom compounding of purchased plastics resins (SIC 3087)	Plastics plumbing fixtures (SIC 3088)	Plastics products, n.e.c. (SIC 3089)
Companies ---- number	634	632	283	198	224	850	576	322	7 600
All establishments ---- number	756	673	302	280	410	1 217	662	340	8 455
With 1 to 19 employees ---- number	300	346	190	88	104	539	348	223	4 408
With 20 to 99 employees ---- number	302	268	73	169	204	510	265	91	2 863
With 100 employees or more ---- number	154	59	39	23	102	168	49	26	1 184
Employment and labor costs:									
Employees ---- 1,000	54.9	27.0	15.6	12.6	32.7	66.9	23.6	10.7	426.4
Compensation, total ---- mil dol	2 135.1	878.6	565.6	394.9	995.3	2 024.8	849.2	287.6	12 502.2
Annual payroll ---- mil dol	1 680.9	706.3	435.2	314.1	781.4	1 587.9	684.3	228.2	9 965.4
Fringe benefits ---- mil dol	454.3	172.3	130.4	80.7	213.9	437.0	164.9	59.4	2 536.8
Social Security and other legally required payments ---- mil dol	168.3	71.8	43.5	34.9	89.0	191.4	68.6	24.1	1 135.4
Employer voluntary payments ---- mil dol	286.0	100.5	86.8	45.8	124.9	245.5	96.4	35.3	1 401.4
Production workers:									
Average for year ---- 1,000	39.1	20.1	11.4	9.7	27.8	52.3	15.7	8.1	331.1
March ---- 1,000	38.7	19.9	11.4	9.5	27.5	51.8	15.7	7.7	325.5
May ---- 1,000	38.8	20.2	11.5	9.7	27.9	52.8	15.8	8.3	330.7
August ---- 1,000	39.5	20.3	11.6	10.1	28.2	52.6	15.9	8.3	335.2
November ---- 1,000	39.6	19.9	11.1	9.6	27.5	52.0	15.6	8.2	333.7
Hours ---- millions	84.0	41.3	25.2	20.3	58.6	100.5	33.5	15.9	665.0
Wages ---- mil dol	1 014.2	413.3	283.4	208.6	587.2	1 053.9	367.1	142.3	6 318.2
Cost of materials[1] ---- mil dol	5 358.2	1 571.4	1 072.9	1 599.9	2 305.7	5 179.1	2 723.6	456.7	21 026.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 825.6	1 426.6	993.6	1 469.1	2 084.1	4 780.3	2 531.1	411.8	18 300.4
Resales ---- mil dol	173.6	39.7	20.3	58.1	29.5	148.3	79.2	27.2	1 055.4
Fuels ---- mil dol	66.7	12.0	18.0	4.1	8.2	61.2	18.6	3.7	149.1
Purchased electricity ---- mil dol	241.4	68.9	29.4	62.6	165.5	146.6	78.8	10.3	921.5
Contract work ---- mil dol	50.8	24.3	11.5	6.0	18.4	42.7	15.9	3.7	600.1
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	4 587.4	1 107.9	518.1	1 122.5	2 608.2	2 475.7	1 219.8	161.6	15 108.5
Generated less sold ---- mil kWh	(D)	–	–	–	(D)	(D)	–	–	(D)
Total value of shipments ---- mil dol	10 613.4	3 332.8	2 183.7	2 446.1	4 458.2	9 488.4	4 581.7	1 081.8	45 311.3
Value added ---- mil dol	5 263.2	1 775.5	1 093.6	859.6	2 173.9	4 335.8	1 870.2	626.2	24 378.5

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Unsupported plastics film and sheet (SIC 3081)	Unsupported plastics profile shapes (SIC 3082)	Laminated plastics plate, sheet, and profile shapes (SIC 3083)	Plastics pipe (SIC 3084)	Plastics bottles (SIC 3085)	Plastics foam products (SIC 3086)	Custom compounding of purchased plastics resins (SIC 3087)	Plastics plumbing fixtures (SIC 3088)	Plastics products, n.e.c. (SIC 3089)
Inventories by stage of fabrication:									
Beginning of 1992 ---mil dol--	1 239.3	327.1	297.3	381.3	342.1	853.7	502.1	77.0	4 876.2
Finished goods ---mil dol--	504.9	138.0	117.7	244.1	175.4	326.7	234.2	29.8	2 134.4
Work in process ---mil dol--	248.6	48.9	51.2	16.2	23.2	98.2	25.8	9.0	721.3
Materials and supplies ---mil dol--	485.8	140.2	128.4	121.0	143.6	428.8	242.2	38.1	2 020.5
End of 1992 ---mil dol--	1 273.0	348.1	278.0	405.8	387.8	887.4	524.8	78.8	5 056.6
Finished goods ---mil dol--	519.5	148.5	106.6	260.0	192.9	345.9	243.5	32.3	2 223.1
Work in process ---mil dol--	241.9	52.5	45.0	13.7	27.0	105.4	28.5	7.6	726.4
Materials and supplies ---mil dol--	511.5	147.1	126.3	132.1	167.9	436.1	252.8	38.8	2 107.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Unsupported plastics film and sheet (SIC 3081)	Unsupported plastics profile shapes (SIC 3082)	Laminated plastics plate, sheet, and profile shapes (SIC 3083)	Plastics pipe (SIC 3084)	Plastics bottles (SIC 3085)	Plastics foam products (SIC 3086)	Custom compounding of purchased plastics resins (SIC 3087)	Plastics plumbing fixtures (SIC 3088)	Plastics products, n.e.c. (SIC 3089)
Gross book value of depreciable assets:									
Total:									
Beginning of year	5 792.1	1 357.3	883.1	819.5	2 134.6	3 305.0	1 283.2	262.8	17 655.3
New capital expenditures[1]	592.3	198.4	57.7	105.2	263.2	368.6	146.8	30.9	1 985.3
Used capital expenditures	26.8	8.3	4.3	3.3	20.9	17.2	9.7	1.4	212.6
Retirements	121.2	26.9	47.3	23.7	58.3	86.3	25.4	9.6	534.9
End of year	6 289.9	1 537.1	897.8	904.4	2 360.5	3 604.4	1 414.3	285.4	19 318.3
Buildings and other structures:									
Beginning of year	987.9	234.7	188.3	141.7	267.2	769.5	277.8	79.4	3 804.1
New capital expenditures	60.2	26.5	7.0	13.0	11.8	83.2	24.4	4.2	301.1
Used capital expenditures	5.0	4.3	(Z)	.3	1.3	4.7	(D)	(D)	30.1
Retirements	15.5	1.9	8.9	.9	.9	9.3	(D)	(D)	83.1
End of year	1 037.6	263.5	186.4	154.1	279.3	848.1	305.2	81.9	4 052.2
Machinery and equipment:									
Beginning of year	4 804.2	1 122.6	694.8	677.8	1 867.5	2 535.5	1 005.4	183.3	13 851.1
New capital expenditures[1]	532.0	171.9	50.8	92.2	251.4	285.4	122.3	26.7	1 684.2
Used capital expenditures	21.8	4.0	4.3	3.0	19.6	12.5	(D)	(D)	182.5
Retirements	105.7	24.9	38.4	22.8	57.3	77.0	(D)	(D)	451.8
End of year	5 252.3	1 273.6	711.4	750.2	2 081.1	2 756.4	1 109.2	203.5	15 266.1
Depreciation charges during 1992:									
Total	396.2	116.4	57.2	60.4	169.6	228.7	93.9	16.9	1 328.5
Buildings and other structures	42.7	11.3	7.9	6.5	12.1	37.2	13.8	2.8	168.4
Machinery and equipment	353.5	105.1	49.3	54.0	157.5	191.4	80.2	14.1	1 160.1
Rental payments:									
Total	110.6	54.9	19.9	16.7	95.4	121.3	43.1	13.6	600.6
Buildings and other structures	59.3	32.8	11.9	9.4	57.6	63.0	25.2	7.9	361.2
Machinery and equipment	51.4	22.1	8.0	7.3	37.8	58.3	17.9	5.6	239.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Unsupported plastics film and sheet (SIC 3081)		Unsupported plastics profile shapes (SIC 3082)		Laminated plastics plate, sheet, and profile shapes (SIC 3083)		Plastics pipe (SIC 3084)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	19.1	(X)	7.6	(X)	1.6	(X)	2.7	(X)
Response coverage ratio (percent)[2]	82.8	(X)	81.2	(X)	79.1	(X)	81.3	(X)
Machinery	126.9	(X)	37.2	(X)	14.8	(X)	24.1	(X)
Response coverage ratio (percent)[2]	86.1	(X)	89.6	(X)	87.0	(X)	83.5	(X)
Other purchased services:								
Communications	18.9	(X)	9.4	(X)	4.3	(X)	4.0	(X)
Response coverage ratio (percent)[2]	82.1	(X)	84.8	(X)	80.6	(X)	72.6	(X)
Legal	10.1	(X)	10.4	(X)	3.2	(X)	1.9	(X)
Response coverage ratio (percent)[2]	86.3	(X)	80.3	(X)	87.0	(X)	78.2	(X)
Accounting and bookkeeping	7.8	(X)	6.5	(X)	1.2	(X)	1.2	(X)
Response coverage ratio (percent)[2]	83.7	(X)	83.3	(X)	87.0	(X)	78.7	(X)
Advertising	11.4	(X)	11.0	(X)	7.1	(X)	2.3	(X)
Response coverage ratio (percent)[2]	84.5	(X)	86.2	(X)	87.0	(X)	77.9	(X)
Software and other data processing	12.0	(X)	4.9	(X)	2.1	(X)	1.0	(X)
Response coverage ratio (percent)[2]	83.6	(X)	85.0	(X)	87.0	(X)	77.2	(X)
Refuse removal, including hazardous waste	19.4	(X)	6.0	(X)	5.8	(X)	1.7	(X)
Response coverage ratio (percent)[2]	85.7	(X)	82.5	(X)	87.0	(X)	79.6	(X)
New machinery and equipment expenditures	532.0	(X)	171.9	(X)	50.8	(X)	92.2	(X)
Automobiles, trucks, etc., for highway use	3.8	9	3.0	20	1.7	11	2.1	31
Computers and peripheral data processing equipment	16.5	8	10.4	15	1.8	5	1.6	19
All other	511.7	1	158.5	2	47.3	1	88.6	1
Adjustment ratio[3]	1.2	(X)	1.9	(X)	1.2	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	4 825.6	(X)	1 426.6	(X)	993.6	(X)	1 469.1	(X)
Materials purchased or transferred from foreign sources[4]	122.3	11	18.3	26	93.7	7	36.9	47
Materials purchased or transferred from domestic sources	4 703.3	1	1 408.3	1	900.0	1	1 432.2	2
Adjustment ratio[3]	1.8	(X)	1.5	(X)	1.5	(X)	1.4	(X)

Item	Plastics bottles (SIC 3085)		Plastics foam products (SIC 3086)		Custom compounding of purchased plastics resins (SIC 3087)		Plastics plumbing fixtures (SIC 3088)		Plastics products, n.e.c. (SIC 3089)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	9.7	(X)	14.7	(X)	4.1	(X)	5.3	(X)	72.4	(X)
Response coverage ratio (percent)[2]	84.1	(X)	81.3	(X)	65.9	(X)	84.2	(X)	74.8	(X)
Machinery	179.2	(X)	70.2	(X)	36.0	(X)	4.0	(X)	374.1	(X)
Response coverage ratio (percent)[2]	85.8	(X)	81.4	(X)	65.1	(X)	84.0	(X)	77.1	(X)
Other purchased services:										
Communications	6.5	(X)	20.9	(X)	7.8	(X)	2.8	(X)	96.0	(X)
Response coverage ratio (percent)[2]	81.1	(X)	71.9	(X)	63.0	(X)	80.8	(X)	76.0	(X)
Legal	2.1	(X)	9.4	(X)	3.9	(X)	.9	(X)	76.5	(X)
Response coverage ratio (percent)[2]	82.2	(X)	80.3	(X)	66.4	(X)	84.3	(X)	77.2	(X)
Accounting and bookkeeping	2.0	(X)	3.4	(X)	3.0	(X)	.5	(X)	56.0	(X)
Response coverage ratio (percent)[2]	84.2	(X)	79.5	(X)	66.0	(X)	73.6	(X)	75.3	(X)
Advertising	1.0	(X)	11.6	(X)	7.2	(X)	7.7	(X)	172.7	(X)
Response coverage ratio (percent)[2]	82.7	(X)	80.0	(X)	64.3	(X)	84.4	(X)	76.2	(X)
Software and other data processing	1.8	(X)	6.3	(X)	1.8	(X)	.8	(X)	33.5	(X)
Response coverage ratio (percent)[2]	81.7	(X)	80.5	(X)	63.0	(X)	84.1	(X)	76.0	(X)
Refuse removal, including hazardous waste	4.0	(X)	12.7	(X)	6.8	(X)	1.3	(X)	56.6	(X)
Response coverage ratio (percent)[2]	81.3	(X)	79.8	(X)	67.8	(X)	73.5	(X)	77.2	(X)
New machinery and equipment expenditures	251.4	(X)	285.4	(X)	122.3	(X)	26.7	(X)	1 684.2	(X)
Automobiles, trucks, etc., for highway use	1.0	16	6.5	18	1.3	58	(S)	(X)	45.9	11
Computers and peripheral data processing equipment	3.5	6	7.3	11	2.8	17	(S)	(X)	91.5	4
All other	247.0	1	271.5	1	52.7	6	(S)	(X)	1 546.8	1
Adjustment ratio[3]	1.2	(X)	1.3	(X)	1.6	(X)	(S)	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	2 084.1	(X)	4 780.3	(X)	2 531.1	(X)	411.8	(X)	18 300.4	(X)
Materials purchased or transferred from foreign sources[4]	11.9	76	130.0	12	87.8	14	(S)	(X)	505.9	7
Materials purchased or transferred from domestic sources	2 072.1	1	4 650.3	1	2 443.3	1	(S)	(X)	17 794.5	1
Adjustment ratio[3]	1.3	(X)	1.5	(X)	1.7	(X)	(S)	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET												
Total	**–**	**756**	**54.9**	**1 680.9**	**39.1**	**84.0**	**1 014.2**	**5 263.2**	**5 358.2**	**10 613.4**	**592.3**	**1 273.0**
Establishments with an average of—												
1 to 4 employees	E8	112	.2	5.6	.1	.3	3.4	15.5	17.5	33.9	1.9	4.0
5 to 9 employees	E5	72	.5	12.6	.4	.8	7.6	31.7	34.0	65.3	3.7	9.2
10 to 19 employees	E2	116	1.6	43.4	1.1	2.4	24.1	126.5	126.5	252.2	8.6	30.0
20 to 49 employees	–	164	5.5	153.4	4.0	8.3	87.9	424.0	504.1	926.7	32.3	103.5
50 to 99 employees	–	138	9.6	268.0	7.1	14.9	165.7	830.0	995.3	1 822.0	54.8	192.0
100 to 249 employees	–	110	16.6	490.9	11.9	26.0	292.9	1 360.5	1 694.9	3 063.7	247.7	340.3
250 to 499 employees	–	32	11.5	352.6	8.1	17.4	217.2	1 149.8	1 129.4	2 275.7	119.2	296.5
500 to 999 employees	–	10	9.2	354.5	6.4	13.9	215.5	1 325.2	856.3	2 174.0	124.0	297.5
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	145	.6	12.4	.4	.9	7.5	26.7	29.2	55.9	3.5	7.0
INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES												
Total	**–**	**673**	**27.0**	**706.3**	**20.1**	**41.3**	**413.3**	**1 775.5**	**1 571.4**	**3 332.8**	**198.4**	**348.1**
Establishments with an average of—												
1 to 4 employees	E9	123	.2	5.1	.2	.4	3.2	11.4	11.3	22.8	1.1	2.6
5 to 9 employees	E5	111	.7	15.8	.6	1.1	9.8	39.5	33.1	72.6	3.0	7.8
10 to 19 employees	E2	112	1.5	36.4	1.1	2.3	21.2	88.5	82.1	169.7	7.9	20.4
20 to 49 employees	–	181	6.0	142.8	4.4	9.1	81.3	312.5	278.0	590.0	23.2	58.5
50 to 99 employees	–	87	6.2	155.8	4.7	9.7	93.8	351.1	449.1	797.4	24.0	78.3
100 to 249 employees	–	46	6.7	170.9	5.1	10.6	99.7	429.4	312.8	740.0	31.0	79.0
250 to 499 employees	–	9	2.9	94.6	1.9	3.8	49.5	178.2	254.9	426.2	89.5	53.2
500 to 999 employees	E1	4	2.7	85.0	2.0	4.3	54.7	364.8	150.2	514.2	18.6	48.3
Covered by administrative records[2]	E9	215	1.0	16.1	.8	1.4	10.2	35.3	34.0	69.3	3.6	8.1
INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES												
Total	**E1**	**302**	**15.6**	**435.2**	**11.4**	**25.2**	**283.4**	**1 093.6**	**1 072.9**	**2 183.7**	**57.7**	**278.0**
Establishments with an average of—												
1 to 4 employees	E9	79	.2	3.2	.1	.2	2.3	7.6	7.9	15.6	.5	2.0
5 to 9 employees	E7	51	.4	7.3	.3	.6	5.0	15.0	16.6	31.7	1.3	3.9
10 to 19 employees	E3	60	.8	18.3	.6	1.3	10.8	40.6	41.2	82.0	1.6	8.2
20 to 49 employees	E1	57	1.8	42.7	1.3	2.6	24.1	92.5	76.1	167.7	3.4	18.9
50 to 99 employees	–	16	1.1	25.0	.8	1.6	15.7	54.8	58.6	113.5	2.0	15.5
100 to 249 employees	E2	25	4.0	110.5	2.6	5.5	56.0	255.7	346.2	616.5	26.1	66.6
250 to 499 employees	E1	6	2.0	63.9	1.5	3.2	45.3	152.8	152.5	304.3	5.1	40.3
500 to 999 employees	–	8	5.4	164.2	4.2	10.2	124.2	474.8	373.8	852.5	17.7	122.6
Covered by administrative records[2]	E9	132	.7	11.6	.5	1.1	8.3	24.1	23.7	47.8	1.6	6.2
INDUSTRY 3084, PLASTICS PIPE												
Total	**–**	**280**	**12.6**	**314.1**	**9.7**	**20.3**	**208.6**	**859.6**	**1 599.9**	**2 446.1**	**105.2**	**405.8**
Establishments with an average of—												
1 to 4 employees	E9	16	(Z)	.7	(Z)	(Z)	.5	1.6	2.8	4.4	.1	.7
5 to 9 employees	E7	31	.2	4.9	.2	.3	2.9	9.7	17.9	28.6	.7	5.2
10 to 19 employees	E2	41	.6	13.3	.4	.8	8.0	40.3	45.4	86.3	1.7	10.4
20 to 49 employees	E1	86	2.6	65.8	2.0	4.2	42.1	224.2	366.0	583.4	19.2	95.8
50 to 99 employees	–	83	5.5	139.5	4.2	8.8	92.9	387.6	874.1	1 251.8	53.5	199.9
100 to 249 employees	–	21	3.7	90.1	2.9	6.0	62.3	196.1	293.7	491.7	30.0	93.8
250 to 499 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	33	.2	3.5	.1	.3	2.3	4.8	10.1	14.9	.5	2.4
INDUSTRY 3085, PLASTICS BOTTLES												
Total	**–**	**410**	**32.7**	**781.4**	**27.8**	**58.6**	**587.2**	**2 173.9**	**2 305.7**	**4 458.2**	**263.2**	**387.8**
Establishments with an average of—												
1 to 4 employees	E7	30	.1	1.7	.1	.1	1.3	5.9	5.7	11.6	.5	1.2
5 to 9 employees	E3	25	.2	3.5	.1	.3	2.4	11.7	9.9	21.9	1.6	2.0
10 to 19 employees	E2	49	.7	14.4	.5	1.1	9.6	53.3	51.8	104.8	3.1	6.8
20 to 49 employees	E1	94	3.2	74.1	2.6	5.4	52.3	244.1	245.1	488.7	25.7	31.4
50 to 99 employees	–	110	7.6	186.8	6.4	13.3	141.1	547.8	679.8	1 217.5	88.0	104.7
100 to 249 employees	–	82	13.3	334.9	11.5	25.0	260.0	900.5	976.9	1 866.4	97.8	169.1
250 to 499 employees	–	17	6.2	131.4	5.3	10.9	98.6	315.4	281.0	596.7	38.8	51.1
500 to 999 employees	–	3	1.6	34.8	1.2	2.5	21.8	95.0	55.4	150.7	7.8	21.5
Covered by administrative records[2]	E9	51	.3	5.1	.3	.6	3.9	10.5	12.1	22.5	1.3	2.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3086, PLASTICS FOAM PRODUCTS												
Total	**E1**	**1 217**	**66.9**	**1 587.9**	**52.3**	**100.5**	**1 053.9**	**4 335.8**	**5 179.1**	**9 488.4**	**368.6**	**887.4**
Establishments with an average of—												
1 to 4 employees	E8	193	.4	7.9	.3	.5	5.1	21.4	29.6	51.2	1.5	5.2
5 to 9 employees	E5	123	.8	17.1	.6	1.0	10.4	43.3	60.0	103.6	3.4	9.6
10 to 19 employees	E2	223	3.3	73.1	2.5	4.6	44.8	202.2	247.8	449.1	15.3	41.0
20 to 49 employees	E1	331	10.5	233.3	7.8	14.8	139.2	603.9	815.7	1 411.4	38.3	126.4
50 to 99 employees	E1	179	12.5	276.3	9.8	18.9	172.6	786.3	968.9	1 753.6	88.4	154.6
100 to 249 employees	E1	122	18.7	447.8	14.6	28.6	301.1	1 202.8	1 505.1	2 706.4	74.4	253.4
250 to 499 employees	–	35	11.8	299.4	9.6	18.2	215.4	902.2	879.0	1 767.6	69.2	160.0
500 to 999 employees	–	9	8.9	233.0	7.0	13.8	165.3	573.7	673.0	1 245.5	78.0	137.1
1,000 to 2,499 employees	E6	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	270	1.1	19.9	.8	1.4	13.1	42.1	54.4	96.5	3.6	9.6
INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS												
Total	**E1**	**662**	**23.6**	**684.3**	**15.7**	**33.5**	**367.1**	**1 870.2**	**2 723.6**	**4 581.7**	**146.8**	**524.8**
Establishments with an average of—												
1 to 4 employees	E8	150	.3	7.4	.2	.4	4.1	26.4	46.5	73.1	4.2	8.0
5 to 9 employees	E5	88	.6	15.1	.4	.8	8.0	44.7	56.0	96.3	3.4	19.4
10 to 19 employees	E2	110	1.5	37.6	1.0	2.1	20.2	96.9	141.1	238.2	10.9	24.0
20 to 49 employees	–	157	5.0	133.1	3.3	7.0	69.5	383.7	471.5	854.6	24.4	90.8
50 to 99 employees	–	108	7.4	209.6	4.9	10.2	109.2	571.2	997.0	1 569.4	57.5	167.9
100 to 249 employees	–	42	6.1	189.5	4.0	8.5	107.0	523.3	765.4	1 285.4	39.2	145.9
250 to 499 employees	–	4	2.8	92.1	2.0	4.4	49.1	223.9	246.0	464.8	7.1	68.7
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	191	.7	13.6	.5	1.1	7.6	29.8	49.4	79.2	3.6	9.3
INDUSTRY 3088, PLASTICS PLUMBING FIXTURES												
Total	**E1**	**340**	**10.7**	**228.2**	**8.1**	**15.9**	**142.3**	**626.2**	**456.7**	**1 081.8**	**30.9**	**78.8**
Establishments with an average of—												
1 to 4 employees	E8	74	.2	3.1	.1	.2	1.9	9.4	6.1	15.5	2.0	1.5
5 to 9 employees	E6	72	.5	9.4	.4	.7	5.6	23.8	15.1	39.0	4.2	3.2
10 to 19 employees	E2	77	1.1	20.1	.7	1.4	11.3	43.7	23.3	67.2	4.1	5.4
20 to 49 employees	E1	67	2.0	43.4	1.5	3.0	25.9	96.4	65.6	162.0	6.4	15.5
50 to 99 employees	–	24	1.9	44.1	1.4	2.8	26.1	129.0	103.3	232.3	3.3	21.7
100 to 249 employees	E1	22	3.2	71.7	2.6	5.3	51.8	195.2	126.9	321.2	10.8	20.8
250 to 499 employees	–	3	1.9	36.5	1.4	2.6	19.7	128.7	116.4	244.7	(D)	10.7
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	129	.7	10.9	.5	.9	6.6	29.2	18.1	47.3	6.8	4.3
INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.												
Total	**E1**	**8 455**	**426.4**	**9 965.4**	**331.1**	**665.0**	**6 318.2**	**24 378.5**	**21 026.6**	**45 311.3**	**1 985.3**	**5 056.6**
Establishments with an average of—												
1 to 4 employees	E8	1 926	3.3	76.2	2.6	5.2	48.2	187.6	177.8	365.0	27.5	41.1
5 to 9 employees	E5	1 154	7.8	174.6	6.0	11.9	110.3	398.2	353.1	748.9	29.3	93.4
10 to 19 employees	E2	1 328	18.6	416.1	13.9	26.7	256.6	940.6	746.7	1 683.6	68.2	214.3
20 to 49 employees	E1	1 763	56.7	1 277.1	42.9	84.8	760.5	3 008.4	2 361.3	5 362.1	200.6	608.2
50 to 99 employees	E1	1 100	77.1	1 780.8	59.7	121.0	1 097.5	4 306.8	3 626.7	7 915.2	343.3	849.6
100 to 249 employees	E1	870	131.7	3 009.3	103.8	212.5	1 942.8	7 382.6	6 813.2	14 195.3	610.0	1 545.8
250 to 499 employees	E1	254	84.8	1 985.6	66.6	131.4	1 311.1	4 912.6	4 367.4	9 249.9	421.2	1 007.4
500 to 999 employees	–	51	32.0	775.6	26.4	53.7	544.6	2 130.9	1 645.3	3 757.1	166.5	382.8
1,000 to 2,499 employees	E2	8	14.5	469.9	9.3	17.7	246.7	1 110.7	935.2	2 034.1	118.7	314.2
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2 406	9.3	174.5	7.3	13.8	112.7	378.1	360.5	738.6	35.4	85.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3081	**Unsupported plastics film and sheet:**										
	All establishments in industry	756	54.9	1 680.9	39.1	84.0	1 014.2	5 263.2	5 358.2	10 613.4	592.3
3082	**Unsupported plastics profile shapes:**										
	All establishments in industry	673	27.0	706.3	20.1	41.3	413.3	1 775.5	1 571.4	3 332.8	198.4
3083	**Laminated plastics plate, sheet, and profile shapes:**										
	All establishments in industry	302	15.6	435.2	11.4	25.2	283.4	1 093.6	1 072.9	2 183.7	57.7
3084	**Plastics pipe:**										
	All establishments in industry	280	12.6	314.1	9.7	20.3	208.6	859.6	1 599.9	2 446.1	105.2
3085	**Plastics bottles:**										
	All establishments in industry	410	32.7	781.4	27.8	58.6	587.2	2 173.9	2 305.7	4 458.2	263.2
3086	**Plastics foam products:**										
	All establishments in industry	1 217	66.9	1 587.9	52.3	100.5	1 053.9	4 335.8	5 179.1	9 488.4	368.6
	Establishments with this product class primary:										
30861	Transportation plastics foam products	65	10.7	268.1	8.4	16.2	184.7	559.1	888.7	1 449.8	30.8
30862	Packaging	207	13.3	338.7	10.2	20.8	214.9	921.3	759.9	1 673.8	73.6
30863	Building and construction	133	5.6	147.7	3.9	7.9	82.7	444.5	647.9	1 089.1	21.2
30864	Furniture and furnishings	195	15.4	323.7	12.7	22.7	234.4	913.3	1 397.4	2 304.7	39.5
30865	Consumer and institutional	73	11.0	262.0	9.1	18.0	190.2	826.5	789.4	1 609.8	156.8
30866	Other	81	4.6	118.4	3.1	6.4	64.3	312.6	273.0	582.9	16.0
3087	**Custom compounding of purchased plastics resins:**										
	All establishments in industry	662	23.6	684.3	15.7	33.5	367.1	1 870.2	2 723.6	4 581.7	146.8
3088	**Plastics plumbing fixtures:**										
	All establishments in industry	340	10.7	228.2	8.1	15.9	142.3	626.2	456.7	1 081.8	30.9
3089	**Plastics products, n.e.c.:**										
	All establishments in industry	8 455	426.4	9 965.4	331.1	665.0	6 318.2	24 378.5	21 026.6	45 311.3	1 985.3
	Establishments with this product class primary:										
30891	Transportation fabricated plastics products (except foam and reinforced plastics)	651	77.4	1 742.7	61.3	125.2	1 155.6	4 213.7	4 241.1	8 439.4	303.4
30892	Electrical and electronic fabricated plastics (except foam and reinforced plastics)	476	41.6	1 049.5	31.8	63.2	641.3	2 099.2	1 690.8	3 796.5	175.6
30893	Industrial machinery plastics products, except foam	217	9.7	235.2	7.3	15.4	146.2	559.8	343.0	900.9	38.9
30894	Plastics packaging (except film and sheet, foam, and bottles)	525	52.6	1 291.1	42.1	89.2	850.8	3 438.5	2 795.7	6 207.0	360.0
30895	Plastics dinnerware, tableware, kitchenware, and oven/ microwave ware (except foam and cups)	71	11.2	237.8	9.3	17.7	170.8	720.4	585.4	1 304.0	44.8
30896	Consumer, institutional, and commercial fabricated plastics products (except foam and wire coated), n.e.c.	1 255	92.1	2 199.2	71.0	140.6	1 352.6	5 740.8	4 371.2	10 055.2	503.8
30897	Plastics furniture components and furnishings (excluding foam and reinforced plastics)	113	7.4	163.1	5.7	11.7	100.5	368.9	344.4	708.6	36.5
30898	Building and construction fabricated plastics products, except foam, plumbing fixtures, hardware, or reinforced plastics	491	32.6	760.8	24.2	47.8	453.8	2 105.2	1 982.7	4 094.5	126.0
30899	Plastics shoe products, including taps, soling slabs, and quarterlinings	22	1.2	21.7	1.0	2.1	15.9	59.9	50.3	110.2	2.2
3089A	Reinforced and fiberglass plastics products, n.e.c.	521	35.2	844.3	26.8	52.5	526.4	1 909.7	1 816.0	3 726.0	121.2

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET			
Total value of shipments	10 613.4	8 139.9	(NA)
Primary products value of shipments	9 280.5	7 095.5	(NA)
Secondary products value of shipments	1 062.1	897.1	(NA)
Total miscellaneous receipts	270.8	147.3	(NA)
Value of resales	214.7	128.6	(NA)
Contract receipts	32.4	3.7	(NA)
Other miscellaneous receipts	23.7	15.0	(NA)
Sales of scrap and refuse	16.2	(NA)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	2.9	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	90	89	(NA)
Value of primary products shipments made in all industries	11 074.8	8 766.7	(NA)
Value of primary products shipments made in this industry	9 280.5	7 095.5	(NA)
Value of primary products shipments made in other industries	1 794.3	1 671.2	(NA)
Coverage ratio	84	81	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES			
Total value of shipments	3 332.8	2 280.8	(NA)
Primary products value of shipments	2 845.5	1 933.4	(NA)
Secondary products value of shipments	408.4	258.1	(NA)
Total miscellaneous receipts	78.9	89.4	(NA)
Value of resales	53.9	74.9	(NA)
Contract receipts	20.2	7.0	(NA)
Other miscellaneous receipts	4.7	7.4	(NA)
Sales of scrap and refuse	1.3	(NA)	(NA)
Receipts for research and development	.4	(NA)	(NA)
Other miscellaneous receipts	3.0	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(Z)	(NA)	(NA)
Primary products specialization ratio	87	88	(NA)
Value of primary products shipments made in all industries	3 449.6	2 369.8	(NA)
Value of primary products shipments made in this industry	2 845.5	1 933.4	(NA)
Value of primary products shipments made in other industries	604.1	436.4	(NA)
Coverage ratio	82	82	(NA)
INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES			
Total value of shipments	2 183.7	2 143.9	(NA)
Primary products value of shipments	1 953.8	1 947.1	(NA)
Secondary products value of shipments	197.3	159.2	(NA)
Total miscellaneous receipts	32.7	37.6	(NA)
Value of resales	27.8	34.2	(NA)
Contract receipts	(D)	1.1	(NA)
Other miscellaneous receipts	(D)	2.3	(NA)
Primary products specialization ratio	91	92	(NA)
Value of primary products shipments made in all industries	2 153.4	2 093.9	(NA)
Value of primary products shipments made in this industry	1 953.8	1 947.1	(NA)
Value of primary products shipments made in other industries	199.6	146.9	(NA)
Coverage ratio	91	93	(NA)
INDUSTRY 3084, PLASTICS PIPE			
Total value of shipments	2 446.1	2 455.8	(NA)
Primary products value of shipments	2 257.4	2 268.8	(NA)
Secondary products value of shipments	111.4	152.7	(NA)
Total miscellaneous receipts	77.3	34.3	(NA)
Value of resales	74.3	32.0	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	95	94	(NA)
Value of primary products shipments made in all industries	2 358.8	2 384.4	(NA)
Value of primary products shipments made in this industry	2 257.4	2 268.8	(NA)
Value of primary products shipments made in other industries	101.4	115.5	(NA)
Coverage ratio	96	95	(NA)
INDUSTRY 3085, PLASTICS BOTTLES			
Total value of shipments	4 458.2	2 835.3	(NA)
Primary products value of shipments	4 303.0	2 684.9	(NA)
Secondary products value of shipments	114.8	103.0	(NA)
Total miscellaneous receipts	40.3	47.3	(NA)
Value of resales	33.4	41.5	(NA)
Contract receipts	(D)	2.1	(NA)
Other miscellaneous receipts	(D)	3.7	(NA)
Sales of scrap and refuse	1.6	(NA)	(NA)
Receipts for research and development	(D)	(NA)	(NA)
Other miscellaneous receipts	1.6	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	.3	(NA)	(NA)
Primary products specialization ratio	97	96	(NA)
Value of primary products shipments made in all industries	4 533.4	2 849.6	(NA)
Value of primary products shipments made in this industry	4 303.0	2 684.9	(NA)
Value of primary products shipments made in other industries	230.4	164.6	(NA)
Coverage ratio	95	94	(NA)
INDUSTRY 3086, PLASTICS FOAM PRODUCTS			
Total value of shipments	9 488.4	6 912.8	(NA)
Primary products value of shipments	8 642.7	6 352.4	(NA)
Secondary products value of shipments	596.6	423.0	(NA)
Total miscellaneous receipts	249.0	137.5	(NA)
Value of resales	185.0	104.8	(NA)
Contract receipts	5.0	1.4	(NA)
Other miscellaneous receipts	59.1	31.3	(NA)
Sales of scrap and refuse	21.2	(NA)	(NA)
Receipts for research and development	.3	(NA)	(NA)
Other miscellaneous receipts	21.5	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	16.1	(NA)	(NA)
Primary products specialization ratio	94	94	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3086, PLASTICS FOAM PRODUCTS—Con.			
Value of primary products shipments made in all industries	9 358.0	7 026.3	(NA)
Value of primary products shipments made in this industry	8 642.7	6 352.4	(NA)
Value of primary products shipments made in other industries	715.3	673.9	(NA)
Coverage ratio	92	90	(NA)
INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS			
Total value of shipments	4 581.7	2 503.1	(NA)
Primary products value of shipments	4 132.5	2 227.5	(NA)
Secondary products value of shipments	268.9	204.3	(NA)
Total miscellaneous receipts	180.4	71.3	(NA)
Value of resales	96.1	28.6	(NA)
Contract receipts	73.2	38.0	(NA)
Other miscellaneous receipts	11.1	4.7	(NA)
Primary products specialization ratio	94	92	(NA)
Value of primary products shipments made in all industries	4 386.9	2 370.4	(NA)
Value of primary products shipments made in this industry	4 132.5	2 227.5	(NA)
Value of primary products shipments made in other industries	254.4	142.9	(NA)
Coverage ratio	94	94	(NA)
INDUSTRY 3088, PLASTICS PLUMBING FIXTURES			
Total value of shipments	1 081.8	708.8	(NA)
Primary products value of shipments	1 013.6	649.5	(NA)
Secondary products value of shipments	31.6	49.9	(NA)
Total miscellaneous receipts	36.6	9.4	(NA)
Value of resales	34.1	7.2	(NA)
Contract receipts	(D)	.3	(NA)
Other miscellaneous receipts	(D)	1.9	(NA)
Primary products specialization ratio	97	93	(NA)
Value of primary products shipments made in all industries	1 146.7	751.2	(NA)
Value of primary products shipments made in this industry	1 013.6	649.5	(NA)
Value of primary products shipments made in other industries	133.1	101.6	(NA)
Coverage ratio	88	86	(NA)
INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.			
Total value of shipments	45 311.3	33 773.8	(NA)
Primary products value of shipments	40 362.0	30 630.4	(NA)
Secondary products value of shipments	3 192.5	2 140.7	(NA)
Total miscellaneous receipts	1 756.8	1 002.7	(NA)
Value of resales	1 448.3	701.7	(NA)
Contract receipts	194.9	146.2	(NA)
Other miscellaneous receipts	113.6	154.8	(NA)
Sales of scrap and refuse	24.3	(NA)	(NA)
Receipts for research and development	7.0	(NA)	(NA)
Other miscellaneous receipts	74.6	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	7.6	(NA)	(NA)
Primary products specialization ratio	93	93	(NA)
Value of primary products shipments made in all industries	42 786.2	32 927.6	(NA)
Value of primary products shipments made in this industry	40 362.0	30 630.4	(NA)
Value of primary products shipments made in other industries	2 424.2	2 297.2	(NA)
Coverage ratio	94	93	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3081– —	**UNSUPPORTED PLASTICS FILM AND SHEET**				
	Total	**(NA)**	**11 074.8**	**(NA)**	**8 766.7**
30810	Plastics film and sheet, unsupported	(NA)	11 074.8	(NA)	8 766.7
30810 10	Cellulosic	27	216.2	30	610.1
30810 20	Polyethylene	262	3 218.0	212	2 525.0
30810 30	Polypropylene	113	1 010.6	66	595.1
30810 40	Vinyl and vinyl copolymer	129	2 089.2	107	1 442.5
30810 50	Other	173	3 570.0	164	2 986.1
30810 00	Unsupported plastics film and sheet, n.s.k.[2]	(NA)	912.7	(NA)	547.6
30810 02	Unsupported plastics film and sheet, n.s.k.[3]	(NA)	58.1	(NA)	60.2
3082– —	**UNSUPPORTED PLASTICS PROFILE SHAPES**				
	Total	**(NA)**	**3 449.6**	**(NA)**	**2 369.8**
30820	Plastics unsupported rods, tubes, profiles, and other shapes	(NA)	3 449.6	(NA)	2 369.8
30820 10	Acrylate and methacrylate	35	218.8	23	84.6
30820 20	Cellulosic	27	(D)	21	18.2
30820 30	Polyamide (nylon)	51	173.9	38	104.3
30820 40	Polyethylene	150	596.6	130	365.8
30820 50	Polypropylene	109	271.2	117	271.3
30820 60	Polystyrene	127	409.3	110	242.7
30820 70	Styrene copolymer	32	(D)	28	28.7
30820 80	Vinyl and vinyl copolymer	165	612.1	126	382.2
30820 90	Other	181	612.9	173	711.4
30820 00	Unsupported plastics profile shapes, n.s.k.[4]	(NA)	251.4	(NA)	74.0
30820 02	Unsupported plastics profile shapes, n.s.k.[5]	(NA)	69.3	(NA)	86.6
3083– —	**LAMINATED PLASTICS PLATE AND SHEET**				
	Total	**(NA)**	**2 153.4**	**(NA)**	**2 093.9**
30830	Plastics laminates (excluding flexible packaging)	(NA)	2 153.4	(NA)	2 093.9
30830 11	Thermosetting laminates	75	923.1	52	794.6
30830 13	Thermoplastic laminates	54	279.1	47	614.9
30830 19	Other laminates	66	784.5	49	594.1
30830 00	Laminated plastics plate and sheet, n.s.k.[2]	(NA)	118.8	(NA)	53.4
30830 02	Laminated plastics plate and sheet, n.s.k.[3]	(NA)	47.8	(NA)	37.0
3084– —	**PLASTICS PIPE**				
	Total	**(NA)**	**2 358.8**	**(NA)**	**2 384.4**
30840	Plastics pipe	(NA)	2 358.8	(NA)	2 384.4
30840 11	Drain, waste, and vent	62	503.0	64	544.1
30840 12	Sewer	49	273.7	55	383.0
30840 13	Oil and gas	25	276.8	30	186.1
30840 14	Water	67	672.9	78	789.3
30840 15	Industrial and mining (including chemical processing, food processing)	29	153.0	35	126.2
30840 19	Other	73	297.6	63	233.9
30840 00	Plastics pipe, n.s.k.[2]	(NA)	166.9	(NA)	103.6
30840 02	Plastics pipe, n.s.k.[3]	(NA)	14.9	(NA)	18.1
3085– —	**PLASTICS BOTTLES**				
	Total	**(NA)**	**4 533.4**	**(NA)**	**2 849.6**
30850	Plastics bottles	(NA)	4 533.4	(NA)	2 849.6
30850 00	Plastics bottles	221	4 510.1	154	2 825.5
30850 02	Plastics bottles, n.s.k.[3]	(NA)	23.3	(NA)	24.1
3086– —	**PLASTICS FOAM PRODUCTS**				
	Total	**(NA)**	**9 358.0**	**(NA)**	**7 026.3**
30861	Transportation plastics foam products	(NA)	1 541.3	(NA)	1 043.1
30861 00	Transportation (including seating, dash, and other interior/exterior components)	73	1 541.3	60	1 043.1
30862	Packaging	(NA)	1 632.4	(NA)	1 097.1
30862 10	Protective shipping pads and shaped cushioning (peanuts, disks, etc.)	130	588.9	111	389.5
30862 20	Food containers	37	714.8	29	492.3
30862 90	Other	65	306.3	54	215.3
30862 00	Packaging, n.s.k.	(NA)	22.4	(NA)	–
30863	Building and construction	(NA)	1 183.2	(NA)	940.7
30863 10	Insulation (including pipe and block)	96	918.5	83	690.4
30863 90	Other	57	184.5	48	250.3
30863 00	Building and construction, n.s.k.	(NA)	80.2	(NA)	–

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3086– —	**PLASTICS FOAM PRODUCTS**—Con.				
30864	Furniture and furnishings	(NA)	1 963.8	(NA)	1 763.7
30864 10	Carpet underlay, carpet and rug cushions	27	645.4	30	498.5
30864 20	Formed and slab stock for pillows, seating, and cushioning	61	1 030.9	70	968.0
30864 30	Mattress cores (uncovered only)	21	87.5	23	141.1
30864 90	Other	31	175.1	28	156.2
30864 00	Furniture and furnishings, n.s.k.	(NA)	24.9	(NA)	–
30865	Consumer and institutional	(NA)	1 613.7	(NA)	1 310.4
30865 10	Cups	19	739.4	14	564.3
30865 20	Plates and bowls	17	396.8	12	317.0
30865 30	Cooler chests	11	83.5	15	75.9
30865 40	Trays	17	44.2	13	77.2
30865 90	Other	71	287.7	52	276.0
30865 00	Consumer and institutional, n.s.k.	(NA)	62.1	(NA)	–
30866	Other	(NA)	646.2	(NA)	399.4
30866 10	Electrical and electronic	34	65.0	39	60.2
30866 90	Other	89	566.1	100	339.2
30866 00	Other, n.s.k.	(NA)	15.1	(NA)	–
30860	Plastics foam products, n.s.k.	(NA)	777.4	(NA)	471.8
30860 00	Plastics foam products, n.s.k.[2]	(NA)	672.8	(NA)	372.2
30860 02	Plastics foam products, n.s.k.[3]	(NA)	104.6	(NA)	99.6
3087– —	**CUSTOM COMPOUND PURCHASED RESINS**				
	Total	**(NA)**	**4 386.9**	**(NA)**	**2 370.4**
30870	Custom compounding of purchased resins and color concentrates	(NA)	4 386.9	(NA)	2 370.4
30870 12	Custom compounding of purchased resins	304	3 186.8	199	1 635.4
30870 13	Color concentrates	77	801.6	61	600.0
30870 00	Custom compound purchased resins, n.s.k.[6]	(NA)	319.0	(NA)	72.6
30870 02	Custom compound purchased resins, n.s.k.[7]	(NA)	79.6	(NA)	62.4
3088– —	**PLASTICS PLUMBING FIXTURES**				
	Total	**(NA)**	**1 146.7**	**(NA)**	**751.2**
30880	Plastics plumbing fixtures	(NA)	1 146.7	(NA)	751.2
30880 00	Plastics plumbing fixtures[8]	214	1 099.4	150	722.2
30880 02	Plastics plumbing fixtures, n.s.k.[5]	(NA)	47.3	(NA)	28.9
3089– —	**PLASTICS PRODUCTS, N.E.C.**				
	Total	**(NA)**	**42 786.2**	**(NA)**	**32 927.6**
30891	Transportation fabricated plastics products (except foam and reinforced plastics)	(NA)	7 883.0	(NA)	4 429.4
	Components, housings, accessories, and parts for transportation equipment:				
30891 01	Motor vehicles	656	6 970.1	435	4 075.1
30891 03	Aircraft, space and missile	118	436.4	88	178.4
30891 09	Other	183	251.5	98	154.6
30891 00	Transportation fabricated plastics products (except foam and reinforced plastics), n.s.k.	(NA)	225.0	(NA)	21.3
30892	Electrical and electronic fabricated plastics (except foam and reinforced plastics)	(NA)	3 161.1	(NA)	2 466.0
30892 10	Office, computing, and accounting machines, cash registers, and data processing machines	254	770.1	240	619.5
30892 20	Household and commercial appliances	236	814.3	225	670.0
30892 30	Communications equipment	144	335.2	116	199.4
30892 90	Other electrical and electronic (including wiring devices and parts)	389	1 034.9	294	946.4
30892 00	Electrical and electronic fabricated plastics (except foam and reinforced plastics), n.s.k.	(NA)	206.5	(NA)	30.7
30893	Industrial machinery plastics products, except foam	(NA)	915.2	(NA)	748.1
30893 00	Industrial machinery plastics products (except foam, including gears, bearings, bushings, cams, other components, etc.)	440	915.2	300	748.1
30894	Plastics packaging (except film and sheet, foam, and bottles)	(NA)	5 983.7	(NA)	4 005.9
30894 01	Pails and drums, more than 3 gallons	49	618.8	34	405.3
30894 02	Tubs (for food products)	46	689.1	40	364.1
30894 03	Jars (for toilet goods, cosmetics, and food products)	55	383.1	50	381.9
30894 05	Blister and bubble formed packaging	71	268.0	51	150.3
30894 06	Shipping boxes and cases	79	270.8	52	231.9
30894 07	Food trays (baskets, shipping boxes, and cases)	59	404.3	47	197.4
30894 08	Pallets[9]	23	38.7	(NA)	([10])
	Plastics closures, nonpressure:				
	Child resistant:				
30894 10	Prescription[9]	9	63.9	118	978.0
30894 20	All other, including nonprescription[9]	30	96.9		
30894 30	Non-child resistant including dispensing and nondispensing[9]	76	874.6		
30894 40	Plastics closures for glass, metal, or plastics pressure containers[9]	63	549.9		
30894 90	Other plastics packaging[9]	232	1 575.7	189	[10]1 228.9
30894 00	Plastics packaging (except film and sheet, foam, and bottles), n.s.k.	(NA)	149.8	(NA)	68.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3089– —	**PLASTICS PRODUCTS, N.E.C.**—Con.				
30895	Plastics dinnerware, tableware, kitchenware, and oven/ microwave ware (except foam and cups)	(NA)	1 283.4	(NA)	1 075.2
30895 01	Dinnerware and tableware	68	653.4	85	510.4
30895 02	Kitchenware	55	473.5	29	370.8
30895 03	Oven/ microwave ware (for use in conventional and microwave ovens)	27	132.9	28	185.0
30895 00	Plastics dinnerware, tableware, kitchenware, and oven/ microwave ware (except foam and cups), n.s.k.	(NA)	23.5	(NA)	9.0
30896	Consumer, institutional, and commercial fabricated plastics products (except foam and wire coated), n.e.c.	(NA)	9 006.4	(NA)	5 204.3
30896 11	Cups (except foam, including vending machines, over-the-counter, carryout, etc.)	57	482.8	34	323.4
30896 12	Sinkware (flatware or dish drainers, drainer trays and mats, sink mats, sink strainers, dustpans, soapdishes, etc.)	20	78.9	23	112.2
30896 13	Bathware (shower and bath caddies, shower and bath mats, tissue holders, toothbrush holders, toilet bowl brush, etc.)	54	156.5	39	72.1
30896 14	Utility containers (including buckets, pails, laundry baskets, vegetable bins, dishpans, etc.)	78	324.6	59	250.5
30896 15	Organizers and holders for closets, drawers, and shelves including paper towel holders, dust mop and broom holders, etc.	66	272.2	46	80.9
30896 16	Wastebaskets	24	80.9	14	99.8
30896 17	Garbage and trash containers (excluding trash bags)	44	268.9	27	250.7
30896 18	Grower flowerpots and accessories	37	131.0	22	91.0
30896 19	Decorative flowerpots, flower boxes, planters, and accessories	47	130.8	35	107.2
30896 21	Picnic jugs, cooler chests, and ice buckets	20	302.3	19	156.1
30896 22	Hardware (including clamps, handles, hinges, locks, casters, knobs, nails, etc.)	117	215.4	92	197.0
30896 23	Hospitalware (including pitchers, wash basins, trays, bedpans, etc.)	102	295.0	60	219.1
30896 24	Laboratory ware (including petri dishes, flasks, funnels, etc.)	66	340.3	62	205.9
30896 25	Individual packing boxes and cases for consumer products	84	414.9	62	332.5
30896 26	Sponges and scrubbing pads	26	110.6	11	63.7
30896 27	Other consumer, institutional, and commercial products	1 332	4 993.1	788	2 535.5
30896 00	Consumer, institutional, and commercial fabricated plastics products (except foam and wire coated), n.e.c., n.s.k.	(NA)	408.1	(NA)	106.8
30897	Plastics furniture components and furnishings (excluding foam and reinforced plastics)	(NA)	736.9	(NA)	553.7
30897 01	Furniture components, accessories, and parts	164	449.3	193	362.2
30897 09	Other (including fixtures, lamp shades, mirror and picture frames, etc.)	88	217.7	57	191.6
30897 00	Plastics furniture components and furnishings (excluding foam and reinforced plastics), n.s.k.	(NA)	70.0	(NA)	–
30898	Building and construction fabricated plastics products, except foam, plumbing fixtures, hardware, or reinforced plastics	(NA)	4 176.8	(NA)	2 223.1
30898 01	Corrugated and flat panels	25	173.4	14	58.9
30898 02	Glazing panels	7	9.7	(NA)	([11])
30898 03	Doors, partitions, moldings, windows and frames, and decorative trim	275	1 377.1	176	712.5
30898 04	Siding and accessories (including soffit, fascia, and skirts)	36	1 001.5	28	665.4
30898 05	Fittings and unions	107	531.0	39	246.7
30898 06	Supported wall and counter coverings	11	21.4	12	52.5
30898 07	Unsupported wall and counter coverings (including wall and ceiling tile)	15	51.7	15	48.7
30898 08	Swimming pool liners and covers	26	58.0	21	55.9
30898 09	Other building and construction plastics products	244	867.8	153	[11]361.8
30898 00	Building and construction fabricated plastics products, n.s.k.	(NA)	85.2	(NA)	20.6
30899	Plastics shoe products, including taps, soling slabs, and quarterlinings	(NA)	115.7	(NA)	68.4
30899 00	Plastics shoe products (including taps, soling slabs, and quarterlinings)	33	115.7	20	68.4
3089A	Reinforced and fiberglass plastics products, n.e.c.	(NA)	3 743.0	(NA)	2 616.8
3089A 11	Transportation	147	1 409.8	117	987.1
3089A 12	Electrical and electronic	97	571.7	91	472.0
3089A 14	Building and construction	124	672.1	89	319.9
3089A 18	Other fabricated fiberglass and reinforced products (except furniture)	287	1 019.2	266	837.8
3089A 00	Reinforced and fiberglass plastics products, n.e.c., n.s.k.	(NA)	70.1	(NA)	–
30890	Plastics products, n.e.c., n.s.k.	(NA)	5 781.0	(NA)	9 536.6
30890 00	Plastics products, n.e.c., n.s.k.[6]	(NA)	5 030.7	(NA)	8 255.3
30890 02	Plastics products, n.e.c., n.s.k.[7]	(NA)	750.3	(NA)	1 281.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Typically for establishments with 15 employees or more.
[3]Typically for establishments with less than 15 employees.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[9]For 1992, product code is revised. See appendix C, parts 1 and 2, for comparability to 1987.
[10]For 1987, data for product code 3089408 were included in product code 3089490.
[11]For 1987, data for product code 3089802 were included in product code 3089809.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30861, TRANSPORTATION PLASTICS FOAM PRODUCTS		
United States	**1 541.3**	**1 043.1**
California	4.4	(NA)
Illinois	61.8	(NA)
Indiana	61.7	34.1
Michigan	189.6	150.5
North Carolina	22.3	(NA)
Ohio	300.2	251.3
Tennessee	225.2	42.1
Texas	17.3	(NA)
Wisconsin	98.8	68.3
30862, PACKAGING		
United States	**1 632.4**	**1 097.1**
Arizona	4.1	(NA)
California	215.2	149.1
Colorado	12.3	7.1
Delaware	21.0	(NA)
Florida	25.3	20.2
Georgia	93.9	72.0
Illinois	101.2	117.8
Indiana	104.3	54.2
Iowa	7.7	(NA)
Kentucky	103.5	(NA)
Massachusetts	39.1	41.4
Michigan	26.5	36.4
Minnesota	4.6	7.5
Missouri	21.1	24.2
New Jersey	50.9	13.2
New York	107.9	67.9
North Carolina	91.2	33.4
Ohio	115.9	44.2
Pennsylvania	136.5	79.2
Tennessee	21.6	7.7
Texas	117.7	76.2
Virginia	9.1	(NA)
Washington	23.7	20.1
Wisconsin	15.6	5.1
30863, BUILDING AND CONSTRUCTION		
United States	**1 183.2**	**940.7**
Arkansas	38.0	(NA)
California	53.5	71.7
Colorado	16.6	4.8
Connecticut	29.6	18.5
Florida	15.0	8.7
Georgia	72.1	14.6
Illinois	171.5	114.6
Indiana	77.0	41.1
Kentucky	33.1	33.0
Michigan	40.2	38.1
Minnesota	26.1	(NA)
New Jersey	62.9	60.6
New York	36.0	43.0
North Carolina	23.8	(NA)
Ohio	92.1	79.2
Pennsylvania	95.2	63.6
Tennessee	8.1	(NA)
Texas	68.7	49.0
Wisconsin	19.1	45.2
30864, FURNITURE AND FURNISHINGS		
United States	**1 963.8**	**1 763.7**
Alabama	6.0	5.1
California	298.1	263.4
Florida	37.1	24.4
Georgia	71.5	58.8
Illinois	66.3	66.6
Indiana	143.4	125.3
Iowa	20.1	(NA)
Maryland	9.4	(NA)
Minnesota	21.5	11.6
Mississippi	196.8	157.1
New Jersey	19.3	(NA)
New York	8.2	14.7
North Carolina	306.2	298.5
Ohio	30.1	15.4
Oregon	16.8	10.4
Pennsylvania	165.3	139.1
Tennessee	119.1	161.8
Texas	136.2	80.0
Wisconsin	20.1	(NA)
30865, CONSUMER AND INSTITUTIONAL		
United States	**1 613.7**	**1 310.4**
California	181.1	132.7
Colorado	6.7	(NA)
Florida	20.1	11.2
Georgia	148.9	127.8
Illinois	113.3	137.1
Indiana	27.9	30.5
Kentucky	123.6	84.0
Maryland	13.9	(NA)
Minnesota	8.9	(NA)
Missouri	50.6	32.7
New Jersey	81.2	86.4
New York	48.8	(NA)
North Carolina	3.7	(NA)
Ohio	22.9	(NA)
Tennessee	86.7	(NA)
Texas	163.0	38.3
30866, OTHER		
United States	**646.2**	**399.4**
California	70.7	103.9
Florida	12.3	(NA)
Illinois	59.6	41.0
Indiana	53.8	45.3
Massachusetts	21.7	(NA)
Michigan	67.8	26.3
Missouri	16.2	(NA)
New Jersey	20.8	11.4
New York	37.5	9.4
North Carolina	76.4	43.1
Ohio	33.5	20.7
Texas	22.9	(NA)
Virginia	3.8	(NA)
Wisconsin	4.3	8.0
30891, TRANSPORTATION FABRICATED PLASTICS PRODUCTS (EXCEPT FOAM AND REINFORCED PLASTICS)		
United States	**7 883.0**	**4 429.4**
Alabama	17.0	(NA)
California	373.1	112.3
Colorado	10.6	(NA)
Connecticut	21.8	19.0
Florida	88.5	41.9
Georgia	78.1	59.5
Illinois	358.1	212.5
Indiana	523.2	308.0
Iowa	36.8	7.2
Kansas	6.9	4.0
Kentucky	236.6	122.1
Massachusetts	15.3	10.3
Michigan	3 017.0	1 707.8
Minnesota	46.9	30.7
Mississippi	83.8	(NA)
Missouri	59.1	27.0
Nebraska	17.4	(NA)
New Jersey	17.0	29.9
New York	190.2	177.1
North Carolina	92.6	73.9
Ohio	1 200.1	899.7
Oregon	21.8	(NA)
Pennsylvania	113.9	71.6
Rhode Island	10.3	9.1
Tennessee	227.1	32.5
Texas	137.4	46.2
Washington	97.4	39.6
Wisconsin	200.7	153.8
30892, ELECTRICAL AND ELECTRONIC FABRICATED PLASTICS (EXCEPT FOAM AND REINFORCED PLASTICS)		
United States	**3 161.1**	**2 466.0**
Alabama	12.0	(NA)
Arizona	37.0	12.4
Arkansas	69.4	52.3
California	382.8	562.7
Colorado	59.8	27.6
Connecticut	52.3	49.0
Florida	65.0	20.9
Georgia	50.9	53.1
Illinois	281.4	169.4
Indiana	226.8	199.0

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30892, ELECTRICAL AND ELECTRONIC FABRICATED PLASTICS (EXCEPT FOAM AND REINFORCED PLASTICS)—Con.		
Iowa	26.9	23.3
Kentucky	141.5	23.0
Maryland	5.4	(NA)
Massachusetts	74.1	74.1
Michigan	130.0	124.8
Minnesota	103.6	77.8
Mississippi	7.7	2.9
Missouri	25.9	21.8
Nebraska	18.4	17.5
New Hampshire	9.6	20.2
New Jersey	124.5	95.0
New York	105.7	56.7
North Carolina	145.9	65.4
Ohio	254.0	246.5
Oklahoma	10.9	(NA)
Oregon	53.3	(NA)
Pennsylvania	197.0	150.8
Rhode Island	30.3	8.9
South Carolina	66.7	56.7
Tennessee	77.2	31.1
Texas	109.3	37.5
Vermont	8.4	(NA)
Virginia	22.9	(NA)
Washington	9.2	8.3
Wisconsin	140.4	101.1
30893, INDUSTRIAL MACHINERY PLASTICS PRODUCTS, EXCEPT FOAM		
United States	**915.2**	**748.1**
Arkansas	8.4	(NA)
California	76.2	141.4
Colorado	5.8	3.3
Connecticut	28.0	38.6
Florida	47.7	11.0
Illinois	73.1	57.5
Indiana	18.6	7.6
Iowa	65.9	18.4
Kansas	5.8	(NA)
Kentucky	13.1	(NA)
Massachusetts	31.0	28.8
Michigan	18.2	15.9
Minnesota	37.4	22.9
Missouri	11.2	15.0
New Hampshire	4.3	7.0
New Jersey	23.9	21.3
New York	38.1	19.5
North Carolina	23.3	18.1
Ohio	118.4	106.2
Oklahoma	16.4	6.0
Oregon	8.7	(NA)
Pennsylvania	40.6	34.3
South Carolina	40.2	21.4
Tennessee	11.4	(NA)
Texas	53.6	10.7
Virginia	4.0	(NA)
Washington	4.7	17.6
Wisconsin	51.5	63.8
30894, PLASTICS PACKAGING (EXCEPT FILM AND SHEET, FOAM, AND BOTTLES)		
United States	**5 983.7**	**4 005.9**
Arkansas	12.2	(NA)
California	495.3	362.3
Colorado	19.6	11.6
Connecticut	154.5	43.0
Florida	75.0	30.3
Georgia	145.6	81.6
Illinois	753.6	531.4
Indiana	335.6	168.5
Iowa	107.7	56.6
Kansas	32.7	30.6
Kentucky	141.1	108.5
Maryland	85.6	117.6
Massachusetts	122.8	203.1
Michigan	174.4	114.8
Minnesota	156.7	51.5
Missouri	198.1	102.7
Nevada	60.4	(NA)
New Jersey	429.2	334.2
New York	269.6	220.9
North Carolina	191.4	102.1
30894, PLASTICS PACKAGING (EXCEPT FILM AND SHEET, FOAM, AND BOTTLES)—Con.		
Ohio	389.6	367.9
Oklahoma	36.4	(NA)
Oregon	28.2	9.0
Pennsylvania	541.6	291.4
Rhode Island	117.5	67.1
South Carolina	78.7	52.6
Tennessee	145.3	52.3
Texas	139.0	89.4
Virginia	44.2	84.9
Washington	32.2	(NA)
Wisconsin	223.3	107.8
30895, PLASTICS DINNERWARE, TABLEWARE, KITCHENWARE, AND OVEN/MICROWAVE WARE (EXCEPT FOAM AND CUPS)		
United States	**1 283.4**	**1 075.2**
Alabama	14.5	18.9
California	89.6	70.3
Connecticut	11.5	5.7
Georgia	30.1	(NA)
Illinois	172.9	90.4
Indiana	10.8	(NA)
Massachusetts	109.3	53.7
Mississippi	18.2	30.1
New Jersey	38.9	40.2
New York	42.8	51.4
Ohio	43.7	20.1
Pennsylvania	49.2	42.6
Texas	59.9	48.3
Wisconsin	32.3	28.6
30896, CONSUMER, INSTITUTIONAL, AND COMMERCIAL FABRICATED PLASTICS PRODUCTS (EXCEPT FOAM AND WIRE COATED), N.E.C.		
United States	**9 006.4**	**5 204.3**
Alabama	86.9	41.7
Arizona	183.6	45.7
Arkansas	63.5	29.6
California	1 002.6	583.4
Colorado	161.0	36.2
Connecticut	130.7	31.8
Delaware	29.7	(NA)
Florida	185.1	113.5
Georgia	149.2	105.5
Idaho	6.9	(NA)
Illinois	805.1	388.2
Indiana	262.2	122.9
Iowa	76.7	56.9
Kansas	207.4	107.6
Kentucky	43.7	61.8
Louisiana	13.4	(NA)
Maryland	100.1	109.2
Massachusetts	545.9	247.2
Michigan	267.8	206.8
Minnesota	206.3	126.2
Mississippi	72.2	59.7
Missouri	257.7	165.1
Nebraska	36.7	10.4
Nevada	31.8	11.8
New Hampshire	31.6	16.9
New Jersey	392.3	234.3
New York	552.6	336.6
North Carolina	342.6	170.9
Ohio	769.1	456.6
Oklahoma	93.8	61.1
Oregon	37.4	15.4
Pennsylvania	436.2	347.7
Rhode Island	32.3	17.4
South Carolina	104.9	85.2
South Dakota	14.3	(NA)
Tennessee	89.3	66.7
Texas	595.3	382.6
Utah	19.0	4.6
Vermont	45.0	28.1
Virginia	35.4	20.8
Washington	22.5	17.6
Wisconsin	394.4	208.0

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
30897, PLASTICS FURNITURE COMPONENTS AND FURNISHINGS (EXCLUDING FOAM AND REINFORCED PLASTICS)		
United States	**736.9**	**553.7**
Alabama	21.3	(NA)
California	85.1	103.8
Connecticut	10.1	(NA)
Illinois	26.1	18.0
Indiana	45.9	22.9
Maryland	21.0	8.1
Massachusetts	29.9	6.1
Michigan	103.0	67.1
Mississippi	13.3	3.7
Missouri	7.3	12.2
New Jersey	38.2	14.5
New York	60.9	(NA)
North Carolina	27.2	27.1
Ohio	22.2	17.5
Pennsylvania	11.6	32.1
Tennessee	39.2	22.0
Texas	24.1	39.4
Washington	5.0	(NA)
Wisconsin	66.8	41.1
30898, BUILDING AND CONSTRUCTION FABRICATED PLASTICS PRODUCTS, EXCEPT FOAM, PLUMBING FIXTURES, HARDWARE, OR REINFORCED PLASTICS		
United States	**4 176.8**	**2 223.1**
Alabama	19.0	(NA)
Arizona	31.6	12.4
Arkansas	11.3	19.3
California	342.4	187.0
Colorado	17.2	8.5
Connecticut	51.4	28.6
Delaware	16.7	(NA)
Florida	105.4	56.8
Georgia	52.6	11.7
Illinois	134.3	108.1
Indiana	179.5	83.9
Iowa	150.4	53.8
Kansas	91.1	36.3
Kentucky	79.5	62.7
Maryland	141.0	99.8
Massachusetts	34.4	27.7
Michigan	317.0	168.5
Minnesota	108.3	60.4
Mississippi	147.3	6.8
Missouri	123.6	16.0
Nebraska	6.5	3.2
Nevada	2.5	(NA)
New Jersey	174.5	66.8
New York	55.9	43.2
North Carolina	104.5	6.7
Ohio	426.4	281.1
Oklahoma	13.9	27.2
Oregon	18.7	19.6
Pennsylvania	293.1	152.4
South Carolina	59.4	30.8
Tennessee	124.6	76.4
Texas	278.2	178.6
Utah	16.1	(NA)
Virginia	119.5	122.9
Washington	88.1	6.6
Wisconsin	117.6	71.4
30899, PLASTICS SHOE PRODUCTS, INCLUDING TAPS, SOLING SLABS, AND QUARTERLININGS		
United States	**115.7**	**68.4**
Maine	22.7	(NA)
Massachusetts	18.0	8.3
Missouri	20.1	(NA)
Tennessee	4.8	5.1
3089A, REINFORCED AND FIBERGLASS PLASTICS PRODUCTS, N.E.C.		
United States	**3 743.0**	**2 616.8**
Alabama	170.8	15.7
Arkansas	103.3	2.6
California	396.5	274.5
Colorado	15.0	9.0
Connecticut	42.0	28.6
Florida	26.7	42.7
Georgia	40.9	(NA)
Idaho	5.9	(NA)
Illinois	200.2	119.7
Indiana	456.3	278.1
Iowa	32.7	(NA)
Kansas	26.8	23.0
Kentucky	10.6	(NA)
Louisiana	15.4	(NA)
Maine	4.5	(NA)
Massachusetts	33.6	24.6
Michigan	229.8	132.8
Minnesota	141.8	104.1
Mississippi	16.8	(NA)
Missouri	35.4	36.0
Nebraska	9.1	(NA)
New Jersey	24.7	30.6
New York	75.3	51.0
North Carolina	144.2	96.6
Ohio	441.3	434.9
Oklahoma	9.4	(NA)
Oregon	16.5	24.8
Pennsylvania	295.2	223.7
Rhode Island	8.1	4.9
South Carolina	30.3	(NA)
Tennessee	78.6	95.6
Texas	255.2	162.6
Utah	6.7	(NA)
Vermont	9.7	(NA)
Washington	43.8	21.2
Wisconsin	123.7	67.2

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3081-	**Unsupported plastics film and sheet**	**11 074.8**	**9 972.8**	**10 255.4**	**9 958.5**	**9 610.0**	**8 766.7**	**6 026.8**	**(NA)**
30810	Plastics film and sheet, unsupported	11 074.8	9 972.8	10 255.4	9 958.5	9 610.0	8 766.7	6 026.8	(NA)
3082-	**Unsupported plastics profile shapes**	**3 449.6**	**3 015.2**	**2 877.1**	**2 889.8**	**2 814.2**	**2 369.8**	**1 257.9**	**(NA)**
30820	Plastics unsupported rods, tubes, profiles, and other shapes	3 449.6	3 015.2	2 877.1	2 889.8	2 814.2	2 369.8	1 257.9	(NA)
3083-	**Laminated plastics plate and sheet**	**2 153.4**	**2 049.3**	**2 188.7**	**2 333.3**	**2 319.6**	**2 093.9**	**1 854.2**	**(NA)**
30830	Plastics laminates (excluding flexible packaging)	2 153.4	2 049.3	2 188.7	2 333.3	2 319.6	2 093.9	1 854.2	(NA)
3084-	**Plastics pipe**	**2 358.8**	**2 190.7**	**2 542.0**	**2 639.9**	**2 554.4**	**2 384.4**	**1 406.7**	**(NA)**
30840	Plastics pipe	2 358.8	2 190.7	2 542.0	2 639.9	2 554.4	2 384.4	1 406.7	(NA)
3085-	**Plastics bottles**	**4 533.4**	**4 169.6**	**3 888.9**	**3 730.9**	**3 322.4**	**2 849.6**	**1 921.4**	**(NA)**
30850	Plastics bottles	4 533.4	4 169.6	3 888.9	3 730.9	3 322.4	2 849.6	1 921.4	(NA)
3086-	**Plastics foam products**	**9 358.0**	**8 577.0**	**9 109.7**	**8 373.1**	**7 786.6**	**7 026.3**	**4 357.9**	**(NA)**
30861	Transportation plastics foam products	1 541.3	1 307.9	1 512.3	1 555.7	1 329.7	1 043.1	826.3	(NA)
30862	Packaging	1 632.4	1 345.3	1 388.2	1 346.6	1 331.9	1 097.1	889.9	(NA)
30863	Building and construction	1 183.2	1 080.5	1 373.9	1 317.9	1 098.0	940.7	516.8	(NA)
30864	Furniture and furnishings	1 963.8	1 975.7	1 958.3	1 816.0	1 756.4	1 763.7	902.5	(NA)
30865	Consumer and institutional	1 613.7	2 028.0	2 029.2	1 491.7	1 459.5	1 310.4	838.2	(NA)
30866	Other	646.2	357.4	432.2	476.4	484.6	399.4	384.2	(NA)
30860	Plastics foam products, n.s.k.	777.4	482.2	415.6	368.9	326.6	471.8	(NA)	(NA)
3087-	**Custom compound purchased resins**	**4 386.9**	**3 215.6**	**3 136.3**	**3 149.6**	**2 937.6**	**2 370.4**	**(NA)**	**(NA)**
30870	Custom compounding of purchased resins and color concentrates	4 386.9	3 215.6	3 136.3	3 149.6	2 937.6	2 370.4	(NA)	(NA)
3088-	**Plastics plumbing fixtures**	**1 146.7**	**888.4**	**938.6**	**989.3**	**1 301.7**	**751.2**	**(NA)**	**(NA)**
30880	Plastics plumbing fixtures	1 146.7	888.4	938.6	989.3	1 301.7	751.2	(NA)	(NA)
3089-	**Plastics products, n.e.c.**	**42 786.2**	**37 648.1**	**37 300.9**	**35 875.2**	**34 237.2**	**32 927.6**	**(NA)**	**(NA)**
30891	Transportation fabricated plastics products (except foam and reinforced plastics)	7 883.0	5 789.0	5 950.3	5 643.6	4 895.1	4 429.4	(NA)	(NA)
30892	Electrical and electronic fabricated plastics (except foam and reinforced plastics)	3 161.1	2 739.5	2 953.0	2 908.2	2 667.0	2 466.0	(NA)	(NA)
30893	Industrial machinery plastics products, except foam	915.2	1 182.8	1 153.2	1 056.8	820.1	748.1	(NA)	(NA)
30894	Plastics packaging (except film and sheet, foam, and bottles)	5 983.7	5 467.6	5 196.9	5 004.2	4 302.0	4 005.9	(NA)	(NA)
30895	Plastics dinnerware, tableware, kitchenware, and oven/ microwave ware (except foam and cups)	1 283.4	1 135.7	1 162.1	1 257.4	1 085.6	1 075.2	(NA)	(NA)
30896	Consumer, institutional, and commercial fabricated plastics products (except foam and wire coated), n.e.c.	9 006.4	7 956.2	6 968.5	6 354.3	6 139.9	5 204.3	(NA)	(NA)
30897	Plastics furniture components and furnishings (excluding foam and reinforced plastics)	736.9	501.7	521.3	507.0	658.3	553.7	(NA)	(NA)
30898	Building and construction fabricated plastics products, except foam, plumbing fixtures, hardware, or reinforced plastics	4 176.8	2 628.4	2 664.8	2 497.1	2 384.1	2 223.1	(NA)	(NA)
30899	Plastics shoe products, including taps, soling slabs, and quarterlinings	115.7	87.4	106.0	105.5	88.4	68.4	106.0	(NA)
3089A	Reinforced and fiberglass plastics products, n.e.c.	3 743.0	3 526.0	3 291.3	3 091.9	2 857.8	2 616.8	(NA)	(NA)
30890	Plastics products, n.e.c., n.s.k.	5 781.0	6 633.8	7 333.5	7 449.2	8 338.9	9 536.6	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3081, UNSUPPORTED PLASTICS FILM AND SHEET		
	Materials, ingredients, containers, and supplies	**4 825.6**	**3 734.2**
249340	Hardboard - wood fiberboard	11.1	28.4
	Chemical and allied products:		
281000	Industrial inorganic chemicals	160.1	23.9
281600	Inorganic pigments	49.8	34.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	2 450.3	1 700.8
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	378.0	330.4
286503	Synthetic dyes, pigments, lakes, and toners	44.1	28.4
280070	All other chemical and allied products	113.2	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	303.7	404.2
308700	Custom compounded resins (purchased)	44.3	61.2
322939	Textile-type glass fiber	(2)	73.6
220110	Broadwoven fabrics	9.7	11.1
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	149.0	101.6
265001	Paperboard containers, boxes, and corrugated paperboard	106.2	111.6
355931	Parts and attachments specially designed for plastics working machinery	24.6	18.1
970099	All other materials and components, parts, containers, and supplies	[2]480.2	[1]538.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	501.2	267.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3082, UNSUPPORTED PLASTICS PROFILE SHAPES		
	Materials, ingredients, containers, and supplies	**1 426.5**	**977.6**
249340	Hardboard - wood fiberboard	2.3	5.2
	Chemical and allied products:		
281000	Industrial inorganic chemicals	(2)	(D)
281600	Inorganic pigments	33.3	3.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	802.5	498.0
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	58.6	19.0
286503	Synthetic dyes, pigments, lakes, and toners	15.9	3.4
280070	All other chemical and allied products	20.2	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	56.3	68.0
308700	Custom compounded resins (purchased)	23.6	58.5
322939	Textile-type glass fiber	1.6	9.3
220110	Broadwoven fabrics	(2)	(D)
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	14.7	7.0
265001	Paperboard containers, boxes, and corrugated paperboard	43.3	22.1
355931	Parts and attachments specially designed for plastics working machinery	7.2	5.6
970099	All other materials and components, parts, containers, and supplies	2183.3	1146.8
971000	Materials, ingredients, containers, and supplies, n.s.k.3	163.8	105.6
	INDUSTRY 3083, LAMINATED PLASTICS PLATE, SHEET, AND PROFILE SHAPES		
	Materials, ingredients, containers, and supplies	**993.6**	**936.1**
249340	Hardboard - wood fiberboard	4.0	2.5
	Chemical and allied products:		
281000	Industrial inorganic chemicals	6.8	5.1
281600	Inorganic pigments	5.0	3.2
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	131.3	148.2
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	23.4	56.8
286503	Synthetic dyes, pigments, lakes, and toners	1.9	(1)
280070	All other chemical and allied products	9.8	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	138.7	101.3
308700	Custom compounded resins (purchased)	18.1	19.4
322939	Textile-type glass fiber	61.5	90.4
220110	Broadwoven fabrics	11.8	11.0
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	233.4	235.3
265001	Paperboard containers, boxes, and corrugated paperboard	11.2	8.7
355931	Parts and attachments specially designed for plastics working machinery	1.5	3.8
970099	All other materials and components, parts, containers, and supplies	166.8	1188.0
971000	Materials, ingredients, containers, and supplies, n.s.k.3	168.5	62.4
	INDUSTRY 3084, PLASTICS PIPE		
	Materials, ingredients, containers, and supplies	**1 469.1**	**1 383.2**
249340	Hardboard - wood fiberboard	1.8	1.9
	Chemical and allied products:		
281000	Industrial inorganic chemicals	7.6	5.0
281600	Inorganic pigments	5.3	4.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1 111.5	940.8
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	25.8	20.7
286503	Synthetic dyes, pigments, lakes, and toners	3.2	(D)
280070	All other chemical and allied products	16.0	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	19.3	10.9
308700	Custom compounded resins (purchased)	31.9	(D)
322939	Textile-type glass fiber	5.4	14.5
220110	Broadwoven fabrics	.2	(D)
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	1.1	.9
265001	Paperboard containers, boxes, and corrugated paperboard	3.7	18.0
355931	Parts and attachments specially designed for plastics working machinery	2.8	3.0
970099	All other materials and components, parts, containers, and supplies	90.6	1127.8
971000	Materials, ingredients, containers, and supplies, n.s.k.3	143.1	68.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3085, PLASTICS BOTTLES		
	Materials, ingredients, containers, and supplies	**2 084.1**	**1 333.3**
249340	Hardboard - wood fiberboard	(D)	(D)
	Chemical and allied products:		
281000	Industrial inorganic chemicals	(D)	(D)
281600	Inorganic pigments	3.4	9.2
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1 348.1	657.7
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	(D)	(D)
286503	Synthetic dyes, pigments, lakes, and toners	10.7	3.3
280070	All other chemical and allied products	.3	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	157.5	87.0
308700	Custom compounded resins (purchased)	29.0	17.1
322939	Textile-type glass fiber	(D)	(D)
220110	Broadwoven fabrics	(D)	(D)
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	13.7	5.7
265001	Paperboard containers, boxes, and corrugated paperboard	174.3	150.1
355931	Parts and attachments specially designed for plastics working machinery	23.7	9.9
970099	All other materials and components, parts, containers, and supplies	175.7	1262.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	134.6	120.3
	INDUSTRY 3086, PLASTICS FOAM PRODUCTS		
	Materials, ingredients, containers, and supplies	**4 780.3**	**3 605.9**
249340	Hardboard - wood fiberboard	8.1	5.6
	Chemical and allied products:		
281000	Industrial inorganic chemicals	135.9	143.9
281600	Inorganic pigments	8.3	12.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1 191.2	890.0
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	841.5	475.2
286503	Synthetic dyes, pigments, lakes, and toners	14.3	15.1
280070	All other chemical and allied products	102.8	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	288.2	206.3
308700	Custom compounded resins (purchased)	315.6	314.8
322939	Textile-type glass fiber	20.9	26.0
220110	Broadwoven fabrics	83.3	(1)
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	49.0	27.9
265001	Paperboard containers, boxes, and corrugated paperboard	89.8	65.7
355931	Parts and attachments specially designed for plastics working machinery	11.5	22.4
970099	All other materials and components, parts, containers, and supplies	892.8	1 041.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	727.1	358.5
	INDUSTRY 3087, CUSTOM COMPOUNDING OF PURCHASED PLASTICS RESINS		
	Materials, ingredients, containers, and supplies	**2 531.1**	**1 421.2**
249340	Hardboard - wood fiberboard	1.4	.2
	Chemical and allied products:		
281000	Industrial inorganic chemicals	96.0	30.9
281600	Inorganic pigments	188.2	95.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1 031.7	668.2
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	189.4	107.3
286503	Synthetic dyes, pigments, lakes, and toners	144.1	28.2
280070	All other chemical and allied products	149.8	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	12.2	4.0
308700	Custom compounded resins (purchased)	84.8	31.0
322939	Textile-type glass fiber	18.4	17.1
220110	Broadwoven fabrics	(2)	1.2
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	1.2	1.0
265001	Paperboard containers, boxes, and corrugated paperboard	36.2	15.7
355931	Parts and attachments specially designed for plastics working machinery	8.2	2.3
970099	All other materials and components, parts, containers, and supplies	2250.8	1319.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	318.6	99.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3088, PLASTICS PLUMBING FIXTURES		
	Materials, ingredients, containers, and supplies	**411.8**	**284.3**
249340	Hardboard - wood fiberboard	6.2	(D)
	Chemical and allied products:		
281000	Industrial inorganic chemicals	8.3	.6
281600	Inorganic pigments	1.2	.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	91.3	71.3
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	1.5	(D)
286503	Synthetic dyes, pigments, lakes, and toners	.9	(D)
280070	All other chemical and allied products	12.4	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	50.3	16.3
308700	Custom compounded resins (purchased)	1.2	3.9
322939	Textile-type glass fiber	14.4	14.5
220110	Broadwoven fabrics	(D)	(D)
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	(D)	(D)
265001	Paperboard containers, boxes, and corrugated paperboard	15.0	5.6
355931	Parts and attachments specially designed for plastics working machinery	(D)	.3
970099	All other materials and components, parts, containers, and supplies	140.8	1128.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	62.7	38.2
	INDUSTRY 3089, PLASTICS PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**18 300.4**	**14 168.8**
249340	Hardboard - wood fiberboard	55.6	59.5
	Chemical and allied products:		
281000	Industrial inorganic chemicals	89.0	108.9
281600	Inorganic pigments	94.7	71.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	6 103.0	4 213.1
286030	Industrial organic and synthetic organic chemicals, including plasticizers (except synthetic dyes, pigments, and toners)	171.8	116.5
286503	Synthetic dyes, pigments, lakes, and toners	120.2	45.4
280070	All other chemical and allied products	175.8	(1)
	Rubber and miscellaneous plastics products:		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	1 616.0	795.9
308700	Custom compounded resins (purchased)	384.5	227.9
322939	Textile-type glass fiber	338.7	173.4
220110	Broadwoven fabrics	182.8	100.8
	Paper and allied products:		
260070	Paper and paperboard products except paperboard boxes, containers, and corrugated paperboard	182.4	101.0
265001	Paperboard containers, boxes, and corrugated paperboard	527.9	332.6
355931	Parts and attachments specially designed for plastics working machinery	175.0	119.7
970099	All other materials and components, parts, containers, and supplies	3 909.6	13 459.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	4 174.2	4 243.1

[1]For 1987, data were included in material code 970099.
[2]Data are combined with material code 970099 to avoid disclosing data for individual companies.
[3]Total cost of materials that did not report materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
30119 25	30119 23
30119 25	30119 24
3011A 52	3011A 41
3011A 52	3011A 51
3011C	3011B
3011C 23	3011B 00
30521 41	30521 00
30521 43	30521 00
30521 45	30521 00
30521 49	30521 00
30522 25	30522 00
30522 31	30522 00
30522 41	30522 00
30522 51	30522 00
30522 89	30522 00
3052A	30523
3052A	30524
3052A	30526
3052A 01	30523 00
3052A 01	30524 00
3052A 01	30526 00
3052A 02	30523 00
3052A 02	30524 00
3052A 02	30526 00
3052B	30523
3052B	30524
3052B	30526
3052B 00	30523 00
3052B 00	30524 00
3052B 00	30526 00
3052C	30523
3052C	30524
3052C	30526
3052C 00	30523 00
3052C 00	30524 00
3052C 00	30526 00
3052D	30525
3052D 01	30525 00
3052D 02	30525 00
3052F	30523
3052F	30524
3052F	30526
3052F 10	30523 00
3052F 10	30524 00
3052F 10	30526 00
3052F 20	30523 00
3052F 20	30524 00
3052F 20	30526 00
3052F 30	30526 00
3052F 40	30526 00
3052G	30523
3052G	30524
3052G	30526
3052G 10	30523 00
3052G 10	30524 00
3052G 10	30526 00
3052G 20	30523 00
3052G 20	30524 00
3052G 20	30526 00
3052G 30	30526 00
3052G 40	30526 00
30534 18	30534 13
30534 18	30534 17
30535 31	30535 23
30535 31	30535 29
30537 48	30537 39
30537 48	30537 41
30537 48	30537 43
30537 48	30537 49
30696 15	30696 11
30696 15	30696 31
30698 71	30698 76
30698 71	30698 77
3069C 23	3069C 21
3069C 23	3069C 22
3069C 44	3069C 13
3069C 44	3069C 41
3069D 15	3069D 14
3069D 15	3069D 16
3069E 13	3069E 11
3069E 13	3069E 12
3069E 28	3069E 24
3069E 28	3069E 25
30894 08	30894 09
30894 10	30894 04
30894 20	30894 04
30894 30	30894 04
30894 40	30894 04
30894 90	30894 09

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
30119 23	30119 25
30119 24	30119 25
3011A 41	3011A 52
3011A 51	3011A 52
3011B	3011C
3011B 00	3011C 23
30521 00	30521 41
30521 00	30521 43
30521 00	30521 45
30521 00	30521 49
30522 00	30522 25
30522 00	30522 31
30522 00	30522 41
30522 00	30522 51
30522 00	30522 89
30523	3052A
30523	3052B
30523	3052C
30523	3052F
30523	3052G
30523 00	3052A 01
30523 00	3052A 02
30523 00	3052B 00
30523 00	3052C 00
30523 00	3052F 10
30523 00	3052F 20
30523 00	3052G 10
30523 00	3052G 20
30524	3052A
30524	3052B
30524	3052C
30524	3052F
30524	3052G
30524 00	3052A 01
30524 00	3052A 02
30524 00	3052B 00
30524 00	3052C 00
30524 00	3052F 10
30524 00	3052F 20
30524 00	3052G 10
30524 00	3052G 20
30525	3052D
30525 00	3052D 01
30525 00	3052D 02
30526	3052A
30526	3052B
30526	3052C
30526	3052F
30526	3052G
30526 00	3052A 01
30526 00	3052A 02
30526 00	3052B 00
30526 00	3052C 00
30526 00	3052F 10
30526 00	3052F 20
30526 00	3052F 30
30526 00	3052F 40
30526 00	3052G 10
30526 00	3052G 20
30526 00	3052G 30
30526 00	3052G 40
30534 13	30534 18
30534 17	30534 18
30535 23	30535 31
30535 29	30535 31
30537 39	30537 48
30537 41	30537 48
30537 43	30537 48
30537 49	30537 48
30696 11	30696 15
30696 31	30696 15
30698 76	30698 71
30698 77	30698 71
3069C 13	3069C 44
3069C 21	3069C 23
3069C 22	3069C 23
3069C 41	3069C 44
3069D 14	3069D 15
3069D 16	3069D 15
3069E 11	3069E 13
3069E 12	3069E 13
3069E 24	3069E 28
3069E 25	3069E 28
30894 04	30894 10
30894 04	30894 20
30894 04	30894 30
30894 04	30894 40
30894 09	30894 08
30894 09	30894 90

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:30 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3021400	MA31A, Footwear
3021500	MA31A, Footwear
3088000	MQ34E, Plumbing Fixtures

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:30 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08293210.DAT;1 1/ 6/ 95 08:29:39 UTF:TIPS93-08293210.DAT;1 1/ 6/ 95 08:29:40 META:TIPS96-08293210.DAT;1 1/ 6/ 95 08:30:14

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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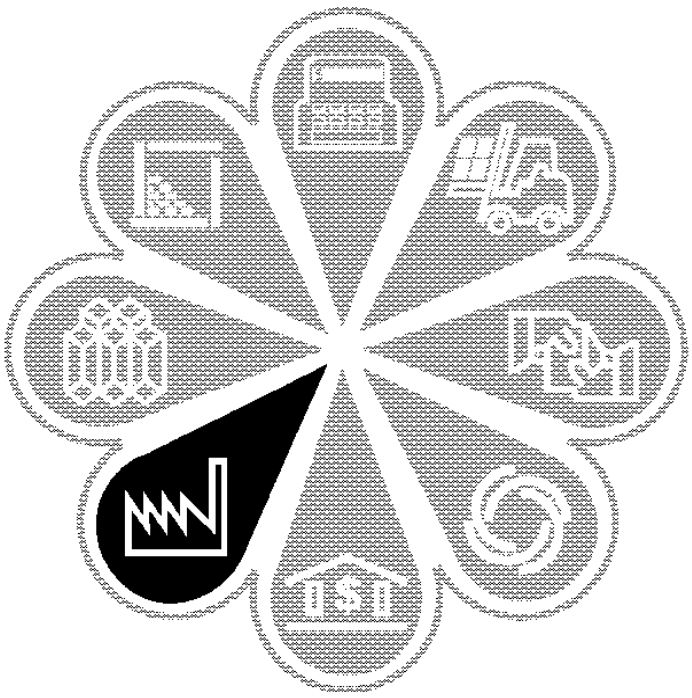
1992 Census of Manufactures

MC92-I-31A

INDUSTRY SERIES

Tanning; Industrial Leather Goods; and Shoes

Industries 3111, 3131, 3142, 3143, 3144, and 3149



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3111	Leather Tanning and Finishing
3131	Footwear Cut Stock
3142	House Slippers
3143	Men's Footwear, Except Athletic
3144	Women's Footwear, Except Athletic
3149	Footwear, Except Rubber, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3111, LEATHER TANNING AND FINISHING

This industry is made up of establishments primarily engaged in tanning, currying, and finishing hides and skins into leather. Also included in this industry are establishments primarily engaged in leather converting (buying hides and skins and having them processed into leather on a contract basis by others).

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3111, Leather Tanning and Finishing, had employment of 16.6 thousand. The employment figure was 14 percent above the 14.6 thousand reported in 1987. Compared with 1991, employment increased 44 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Michigan, and Wisconsin accounting for approximately 36 percent of the industry's employment. This represents a shift from 1987 when New York, Wisconsin, and Pennsylvania accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3111 shipped $2.8 billion of products considered primary to the industry, $51.5 million of secondary products, and had $61.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3111, no matter in what industry they were produced, appear in table 6a and aggregate to $2.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the leather tanning and finishing industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3131, FOOTWEAR CUT STOCK

This industry is made up of establishments primarily engaged in manufacturing leather soles, innersoles, other boot and shoe cut stock and findings, and finished wood heels. Establishments primarily engaged in manufacturing heels, soles, and soling strips and soles made of rubber, composition, plastics, and fiber are classified in Major Group 30, Rubber and Miscellaneous Plastics Products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3131, Footwear Cut Stock, had employment of 3.7 thousand. The employment figure was 26 percent below the 5.0 thousand reported in 1987. Compared with 1991, employment decreased 29 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts and Missouri. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $316.9 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3131 shipped $290.3 million of products considered primary to the industry, $20.5 million of secondary products, and had $6.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3131, no matter in what industry they were produced, appear in table 6a and aggregate to $315.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the footwear cut stock industry amounted to $163.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3142, HOUSE SLIPPERS

This industry is made up of establishments primarily engaged in manufacturing house slippers of leather or other materials. Products of this industry also are collected in the Current Industrial Report (CIR) MA31A, Footwear. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3142, House Slippers, had employment of 3.8 thousand. The employment figure was 3 percent above the 3.7 thousand reported in 1987.

The leading States in employment in 1992 were New York, Maine, New Jersey, and North Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $285.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3142 shipped $253.9 million of products considered primary to the industry. Figures for secondary products, miscellaneous receipts, and contract work were not shown.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3142, no matter in what industry they were produced, appear in table 6a and aggregate to $258.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the house slippers industry amounted to $109.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC

This industry is made up of establishments primarily engaged in the production of men's footwear designed primarily for dress, work, and street. Establishments primarily engaged in the production of such protective footwear as rubbers, rubber boots, storm shoes, galoshes, and other footwear with rubber soles vulcanized to the uppers are classified in industry 3021. Establishments primarily engaged in the production of athletic shoes and youths' and boys' shoes are classified in industry 3149. Products of this industry also are collected in the Current Industrial Report (CIR) MA31A, Footwear. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3143, Men's Footwear, Except Athletic, had employment of 24.2 thousand. The employment figure was 23 percent below the 31.6 thousand reported in 1987.

The leading States in employment in 1992 were Maine, Tennessee, Texas, and Wisconsin accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Maine, Pennsylvania, Wisconsin, and Tennessee accounted for approximately 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3143 shipped $1.7 billion of products considered primary to the industry, $225.6 million of secondary products, and had $248.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 3143, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the men's footwear, except athletic industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC

This industry is made up of establishments primarily engaged in the production of women's footwear designed primarily for dress, work, and street. Establishments primarily engaged in the production of rubber or plastics footwear are classified in industry 3021. Establishments primarily engaged in the production of athletic shoes and misses', children's, infants', and babies' footwear are classified in industry 3149. Products of this industry also are collected in the Current Industrial Report (CIR) MA31A, Footwear. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3144, Women's Footwear, Except Athletic, had employment of 15.0 thousand. The employment figure was 44 percent below the 26.6 thousand reported in 1987. Compared with 1991, employment decreased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Missouri, Arkansas, Tennessee, and Maine. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3144 shipped $1.0 billion of products considered primary to the industry, $65.3 million of secondary products, and had $20.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3144, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's footwear, except athletic amounted to $479.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.

This industry is made up of establishments primarily engaged in the production of shoes, not elsewhere classified, such as misses', youths', boys', children's, and infants' footwear. Establishments primarily engaged in the production of rubber or plastics footwear are classified in industry 3021. Products of this industry also are collected in the Current Industrial Report (CIR) MA31A, Footwear. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3149, Footwear, Except Rubber, N.E.C., had employment of 6.0 thousand. The employment figure was 35 percent below the 9.2 thousand reported in 1987.

The leading States in employment in 1992 were Missouri and Pennsylvania. This represents a shift from 1987 when Missouri, Pennsylvania, Florida, and Arkansas were the leading States in employment.

The total value of shipments for establishments classified in this industry was $308.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3149 shipped $254.9 million of products considered primary to the industry, $32.6 million of secondary products, and had $21.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3149, no matter in what industry they were produced, appear in table 6a and aggregate to $314.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the footwear, except rubber, not elsewhere classified industry amounted to $149.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3111, LEATHER TANNING AND FINISHING															
1992 Census	297	332	126	16.6	420.3	13.3	27.9	293.5	895.9	2 035.9	2 910.4	48.5	465.4	98	95
1991 ASM	(NA)	(NA)	(NA)	11.5	278.3	9.8	19.1	202.9	710.1	1 485.8	2 183.1	41.4	353.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.1	282.2	10.3	21.2	203.1	779.9	1 638.5	2 410.9	39.0	394.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.3	281.5	10.6	21.4	207.0	875.6	1 715.8	2 501.4	47.9	426.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.1	314.4	12.5	25.5	226.6	839.5	1 661.8	2 487.8	34.6	419.8	(NA)	(NA)
1987 Census	311	344	139	14.6	291.6	12.1	24.6	211.9	747.4	1 496.5	2 218.6	27.7	383.4	98	96
1986 ASM	(NA)	(NA)	(NA)	13.2	249.1	10.9	22.1	181.7	474.9	1 114.8	1 589.1	20.7	264.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	14.2	262.5	11.7	23.6	189.4	508.6	1 128.0	1 643.0	23.5	272.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.7	291.5	14.0	26.7	212.0	573.7	1 220.3	1 813.6	21.8	288.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.5	332.0	16.2	31.8	242.6	649.5	1 271.3	1 881.7	41.0	313.0	(NA)	(NA)
1982 Census	342	384	172	19.5	310.6	16.2	31.1	225.2	579.8	1 165.1	1 753.0	33.2	267.0	99	99
1981 ASM	(NA)	(NA)	(NA)	20.4	304.2	17.4	33.9	231.3	647.7	1 272.8	1 928.7	47.9	241.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.7	281.3	17.5	32.8	207.6	610.0	1 200.4	1 822.7	48.3	242.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	21.2	264.9	17.9	33.2	196.7	559.1	1 252.1	1 803.0	43.9	241.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	23.0	270.8	19.7	36.4	204.6	564.3	1 041.5	1 579.7	51.1	226.3	(NA)	(NA)
1977 Census	428	465	191	23.0	254.8	19.6	38.2	192.2	535.1	927.6	1 456.1	30.7	187.6	99	99
INDUSTRY 3131, FOOTWEAR CUT STOCK															
1992 Census	94	100	38	3.7	63.3	3.1	5.8	42.3	148.6	163.7	316.9	3.3	39.9	93	92
1991 ASM	(NA)	(NA)	(NA)	5.2	83.4	4.6	8.5	64.3	182.0	199.8	382.5	1.9	38.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.2	93.6	4.4	8.7	62.0	196.4	217.1	413.3	3.6	43.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.4	73.5	3.7	8.0	53.8	173.5	187.5	359.0	2.1	41.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.5	66.0	3.8	7.2	47.2	128.0	196.4	321.7	2.5	43.2	(NA)	(NA)
1987 Census	114	127	57	5.0	69.6	4.3	8.5	49.8	141.4	182.9	324.1	3.3	38.2	97	93
1986 ASM	(NA)	(NA)	(NA)	4.3	56.3	3.8	6.8	41.2	97.2	149.4	246.5	2.1	27.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.4	64.5	4.7	8.2	45.5	111.1	168.8	277.3	2.9	34.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.0	73.8	5.1	9.3	52.6	128.3	186.5	313.8	2.8	36.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.3	75.7	5.7	10.6	57.3	142.0	206.7	353.1	4.5	50.1	(NA)	(NA)
1982 Census	149	161	80	6.8	80.8	5.7	10.4	54.4	154.7	212.8	367.8	6.0	48.6	94	94
1981 ASM	(NA)	(NA)	(NA)	9.8	105.5	8.4	15.3	76.7	219.6	270.4	488.4	8.4	53.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.0	93.1	8.7	15.4	70.4	196.3	234.2	431.5	6.3	43.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.6	82.3	8.1	13.9	57.0	142.1	218.0	365.8	3.6	38.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	73.6	8.3	14.0	55.5	117.2	181.4	298.4	3.9	35.8	(NA)	(NA)
1977 Census	174	190	96	8.5	65.3	7.4	13.0	48.8	109.4	159.1	270.6	3.0	31.2	90	92
INDUSTRY 3142, HOUSE SLIPPERS															
1992 Census	28	31	21	3.8	59.2	3.0	5.5	35.6	176.3	109.6	285.1	2.1	48.5	(D)	98
1991 ASM	(NA)	(NA)	(NA)	4.0	61.3	3.2	6.1	41.4	158.0	116.6	277.3	2.4	67.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.3	58.9	3.4	6.5	39.6	160.7	113.1	276.0	3.3	74.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.7	63.3	3.9	6.9	44.1	160.9	139.0	286.8	3.8	81.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.8	52.6	3.0	6.2	34.5	133.1	114.3	244.3	4.1	50.6	(NA)	(NA)
1987 Census	34	37	23	3.7	50.3	3.0	5.6	30.1	132.9	99.6	232.5	2.7	42.9	89	97
1986 ASM	(NA)	(NA)	(NA)	4.7	57.3	3.9	6.6	36.2	103.4	104.3	208.7	6.0	44.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.7	62.5	4.9	8.7	46.0	112.3	110.6	223.2	4.2	50.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.5	66.8	5.4	9.3	49.4	133.6	118.5	248.4	4.1	53.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.4	64.2	5.4	9.8	45.8	128.9	108.6	241.9	2.6	52.3	(NA)	(NA)
1982 Census	53	62	44	7.5	71.3	6.4	11.2	51.7	149.7	128.8	275.8	3.1	46.1	96	98
1981 ASM	(NA)	(NA)	(NA)	8.8	75.9	7.5	12.7	57.5	149.4	124.2	268.2	3.5	42.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.2	74.0	7.7	13.4	55.3	190.9	135.0	323.1	2.3	38.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.8	66.2	7.5	12.6	48.1	150.4	109.9	261.0	1.5	32.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.1	58.9	6.9	11.6	42.8	136.0	101.5	232.0	2.5	37.1	(NA)	(NA)
1977 Census	65	78	55	8.1	54.5	7.0	11.7	39.6	108.8	92.7	201.2	2.3	29.7	94	96
INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC															
1992 Census	108	140	88	24.2	398.9	20.0	36.6	282.4	1 087.7	1 135.6	2 209.5	32.8	390.4	88	96
1991 ASM	(NA)	(NA)	(NA)	24.5	387.0	21.0	35.4	274.1	997.9	1 054.5	2 064.0	18.1	379.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.5	444.9	24.6	44.0	312.8	1 058.6	1 080.3	2 148.8	22.8	465.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.7	462.1	26.6	47.4	342.0	1 083.1	1 157.8	2 228.4	21.2	511.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.0	438.0	26.9	49.0	328.7	1 093.6	1 095.8	2 167.9	17.4	493.4	(NA)	(NA)
1987 Census	110	154	111	31.6	434.1	27.5	51.3	326.4	1 046.7	1 056.6	2 104.8	17.4	445.1	91	96
1986 ASM	(NA)	(NA)	(NA)	31.8	416.6	28.0	49.3	315.8	913.1	968.8	1 891.4	16.2	358.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	34.9	435.9	30.8	53.8	336.8	1 051.4	1 031.8	2 070.5	28.9	365.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	40.1	472.7	35.3	61.5	368.4	1 118.9	1 104.0	2 230.6	28.0	374.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	43.0	494.1	38.0	67.1	380.8	1 138.7	1 120.5	2 264.0	18.8	386.5	(NA)	(NA)
1982 Census	129	203	159	46.5	503.1	40.7	69.6	382.2	1 101.4	1 141.3	2 261.4	28.3	399.2	89	95
1981 ASM	(NA)	(NA)	(NA)	49.2	518.1	43.9	80.1	412.4	1 280.3	1 213.3	2 458.5	47.4	393.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	46.7	441.6	41.9	74.2	354.4	1 084.7	1 061.0	2 149.0	22.9	331.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	50.8	443.7	45.3	80.4	347.8	957.3	1 039.5	1 964.3	25.5	371.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	54.2	444.3	48.8	87.8	351.5	896.5	959.1	1 827.3	18.0	318.5	(NA)	(NA)
1977 Census	115	213	180	55.0	417.0	49.2	90.1	332.2	871.9	880.0	1 734.5	14.5	272.2	92	96
INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC															
1992 Census	99	127	77	15.0	219.5	13.2	23.7	166.1	636.9	479.6	1 095.1	10.5	114.8	94	82
1991 ASM	(NA)	(NA)	(NA)	19.0	247.9	17.0	31.0	189.2	633.7	505.5	1 153.7	9.1	90.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.8	292.8	19.1	35.8	213.4	682.7	727.9	1 393.2	13.4	154.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.1	290.3	20.5	40.5	225.7	703.0	645.7	1 351.3	11.1	135.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.1	320.2	23.3	44.6	250.1	716.2	655.4	1 373.4	12.4	156.4	(NA)	(NA)
1987 Census	123	163	123	26.6	320.0	23.7	45.5	253.2	755.8	572.4	1 316.0	11.3	121.5	93	88
1986 ASM	(NA)	(NA)	(NA)	30.2	341.9	26.3	46.5	269.8	812.3	597.8	1 425.9	13.8	180.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	34.3	378.8	30.3	54.9	296.1	919.6	684.1	1 613.0	12.3	206.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	40.7	431.2	36.1	63.7	338.9	987.1	737.1	1 728.1	23.2	222.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	46.5	495.4	41.5	74.4	393.6	1 156.2	809.9	1 957.7	22.8	229.9	(NA)	(NA)
1982 Census	209	293	226	48.4	483.1	43.4	77.1	392.9	1 107.0	821.9	1 933.2	20.2	214.5	94	90
1981 ASM	(NA)	(NA)	(NA)	52.0	494.7	46.2	82.9	383.9	1 086.6	864.5	1 913.8	29.4	235.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	52.4	453.4	46.1	81.8	354.2	955.1	779.0	1 733.5	21.4	178.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	53.3	421.4	47.1	83.6	334.5	845.2	727.9	1 565.8	19.7	182.0	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC—Con.														
1978 ASM	(NA)	(NA)	(NA)	56.2	408.7	50.5	89.4	336.2	798.4	643.9	1 428.4	12.4	165.9	(NA)	(NA)
1977 Census	243	328	241	57.6	388.6	51.3	91.3	315.6	755.0	607.1	1 361.2	9.7	147.4	97	92
	INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.														
1992 Census	84	94	41	6.0	84.4	5.2	9.1	61.6	159.0	149.4	308.6	5.8	56.7	88	81
1991 ASM	(NA)	(NA)	(NA)	5.6	73.4	4.8	9.0	52.2	152.1	133.3	279.7	1.9	50.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.5	99.5	6.4	11.8	72.3	218.2	197.9	414.1	2.6	68.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.5	98.6	6.5	12.6	73.4	206.7	192.3	395.5	4.5	69.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.5	113.4	8.4	14.9	84.5	228.8	252.7	472.3	5.1	89.2	(NA)	(NA)
1987 Census	119	129	61	9.2	108.6	8.0	14.5	81.3	217.2	202.2	419.3	6.6	81.9	94	82
1986 ASM	(NA)	(NA)	(NA)	9.2	111.4	7.9	13.8	79.3	232.5	254.3	481.7	5.7	93.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.2	125.6	9.7	17.2	92.1	274.0	272.2	541.4	7.9	90.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.0	155.2	12.1	21.1	110.1	363.2	311.2	676.2	8.6	106.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.4	182.9	15.2	26.7	137.1	426.0	333.8	764.5	7.7	122.0	(NA)	(NA)
1982 Census	167	193	107	19.1	192.7	16.8	28.7	146.8	450.9	352.8	798.9	14.0	130.2	82	81
1981 ASM	(NA)	(NA)	(NA)	23.4	226.2	20.4	37.2	175.9	471.1	395.2	855.7	23.8	137.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	26.6	234.7	23.3	41.6	184.6	514.7	395.0	901.3	21.3	153.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	25.5	207.9	22.5	39.9	158.8	378.5	309.9	697.2	13.3	133.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.2	189.4	22.3	38.4	146.6	352.8	308.2	653.6	7.8	122.3	(NA)	(NA)
1977 Census	159	192	127	24.8	171.4	21.8	38.2	135.1	333.7	269.3	594.8	10.6	108.7	84	83

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3111, LEATHER TANNING AND FINISHING								
1992 Census	25 319	80	2 098	10.52	70	84	53 970	47	32.11
1991 ASM	24 200	85	1 949	10.62	68	81	61 748	39	37.18
1990 ASM	23 322	85	2 058	9.58	68	80	64 455	36	36.79
1989 ASM	22 886	86	2 019	9.67	69	80	71 187	32	40.92
1988 ASM	20 821	83	2 040	8.89	67	79	55 596	37	32.92
1987 Census	19 973	83	2 033	8.61	67	81	51 192	39	30.38
1986 ASM	18 871	83	2 028	8.22	70	86	35 977	52	21.49
1985 ASM	18 486	82	2 017	8.03	69	85	35 817	52	21.55
1984 ASM	17 455	84	1 907	7.94	67	83	34 353	51	21.49
1983 ASM	17 026	83	1 963	7.63	68	85	33 308	51	20.42
1982 Census	15 928	83	1 920	7.24	66	84	29 733	54	18.64
1981 ASM	14 912	85	1 948	6.82	66	82	31 750	47	19.11
1980 ASM	13 589	85	1 874	6.33	66	81	29 469	46	18.60
1979 ASM	12 495	84	1 855	5.92	69	84	26 373	47	16.84
1978 ASM	11 774	86	1 848	5.62	66	83	24 535	48	15.50
1977 Census	11 078	85	1 949	5.03	64	81	23 265	48	14.01
	INDUSTRY 3131, FOOTWEAR CUT STOCK								
1992 Census	17 108	84	1 871	7.29	52	72	40 162	43	25.62
1991 ASM	16 038	88	1 848	7.56	52	74	35 000	46	21.41
1990 ASM	18 000	85	1 977	7.13	53	75	37 769	48	22.57
1989 ASM	16 705	84	2 162	6.73	52	73	39 432	42	21.69
1988 ASM	14 667	84	1 895	6.56	61	82	28 444	52	17.78
1987 Census	13 920	86	1 977	5.86	56	78	28 280	49	16.64
1986 ASM	13 093	88	1 789	6.06	61	83	22 605	58	14.29
1985 ASM	11 944	87	1 745	5.55	61	84	20 574	58	13.55
1984 ASM	12 300	85	1 824	5.66	59	83	21 383	58	13.80
1983 ASM	12 016	90	1 860	5.41	59	80	22 540	53	13.40
1982 Census	11 882	84	1 825	5.23	58	80	22 750	52	14.88
1981 ASM	10 765	86	1 821	5.01	55	77	22 408	48	14.35
1980 ASM	9 310	87	1 770	4.57	54	76	19 630	47	12.75
1979 ASM	8 573	84	1 716	4.10	60	82	14 802	58	10.22
1978 ASM	7 830	88	1 687	3.96	61	85	12 468	63	8.37
1977 Census	7 682	87	1 757	3.75	59	83	12 871	60	8.42

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3142, HOUSE SLIPPERS								
1992 Census	15 579	79	1 833	6.47	38	59	46 395	34	32.05
1991 ASM	15 325	80	1 906	6.79	42	64	39 500	39	25.90
1990 ASM	13 698	79	1 912	6.09	41	62	37 372	37	24.72
1989 ASM	13 468	83	1 769	6.39	48	71	34 234	39	23.32
1988 ASM	13 842	79	2 067	5.56	47	68	35 026	40	21.47
1987 Census	13 595	81	1 867	5.38	43	64	35 919	38	23.73
1986 ASM	12 191	83	1 692	5.48	50	77	22 000	55	15.67
1985 ASM	10 965	86	1 776	5.29	50	78	19 702	56	12.91
1984 ASM	10 277	83	1 722	5.31	48	75	20 554	50	14.37
1983 ASM	10 031	84	1 815	4.67	45	71	20 141	50	13.15
1982 Census	9 507	85	1 750	4.62	47	73	19 960	48	13.37
1981 ASM	8 625	85	1 693	4.53	46	75	16 977	51	11.76
1980 ASM	8 043	84	1 740	4.13	42	65	20 750	39	14.25
1979 ASM	7 523	85	1 680	3.82	42	67	17 091	44	11.94
1978 ASM	7 272	85	1 681	3.69	44	69	16 790	43	11.72
1977 Census	6 728	86	1 671	3.38	46	73	13 432	50	9.30
	INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC								
1992 Census	16 483	83	1 830	7.72	51	69	44 946	37	29.72
1991 ASM	15 796	86	1 686	7.74	51	70	40 731	39	28.19
1990 ASM	15 611	86	1 789	7.11	50	71	37 144	42	24.06
1989 ASM	15 052	87	1 782	7.22	52	73	35 280	43	22.85
1988 ASM	14 129	87	1 822	6.71	51	71	35 277	40	22.32
1987 Census	13 737	87	1 865	6.36	50	71	33 123	41	20.40
1986 ASM	13 101	88	1 761	6.41	51	73	28 714	46	18.52
1985 ASM	12 490	88	1 747	6.26	50	71	30 126	41	19.54
1984 ASM	11 788	88	1 742	5.99	49	71	27 903	42	18.19
1983 ASM	11 491	88	1 766	5.68	49	71	26 481	43	16.97
1982 Census	10 819	88	1 710	5.49	50	73	23 686	46	15.82
1981 ASM	10 530	89	1 825	5.15	49	70	26 022	40	15.98
1980 ASM	9 456	90	1 771	4.78	49	70	23 227	41	14.62
1979 ASM	8 734	89	1 775	4.33	53	76	18 844	46	11.91
1978 ASM	8 197	90	1 799	4.00	52	77	16 541	50	10.21
1977 Census	7 582	89	1 831	3.69	51	75	15 853	48	9.68
	INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC								
1992 Census	14 633	88	1 795	7.01	44	64	42 460	34	26.87
1991 ASM	13 047	89	1 824	6.10	44	65	33 353	39	20.44
1990 ASM	13 431	88	1 874	5.96	52	73	31 317	43	19.07
1989 ASM	12 567	89	1 976	5.57	48	69	30 433	41	17.36
1988 ASM	12 268	89	1 914	5.61	48	71	27 441	45	16.06
1987 Census	12 030	89	1 920	5.56	43	68	28 414	42	16.61
1986 ASM	11 321	87	1 768	5.80	42	66	26 897	42	17.47
1985 ASM	11 044	88	1 812	5.39	42	66	26 810	41	16.75
1984 ASM	10 595	89	1 765	5.32	43	68	24 253	44	15.50
1983 ASM	10 654	89	1 793	5.29	41	67	24 865	43	15.54
1982 Census	9 981	90	1 776	5.10	43	68	22 872	44	14.36
1981 ASM	9 513	89	1 794	4.63	45	71	20 896	46	13.11
1980 ASM	8 653	88	1 774	4.33	45	71	18 227	47	11.68
1979 ASM	7 906	88	1 775	4.00	46	73	15 857	50	10.11
1978 ASM	7 272	90	1 770	3.76	45	74	14 206	51	8.93
1977 Census	6 747	89	1 780	3.46	45	73	13 108	51	8.27
	INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.								
1992 Census	14 067	87	1 750	6.77	48	76	26 500	53	17.47
1991 ASM	13 107	86	1 875	5.80	48	74	27 161	48	16.90
1990 ASM	13 267	85	1 844	6.13	48	72	29 093	46	18.49
1989 ASM	13 147	87	1 938	5.83	49	74	27 560	48	16.40
1988 ASM	11 937	88	1 774	5.67	54	78	24 084	50	15.36
1987 Census	11 804	87	1 813	5.61	48	74	23 609	50	14.98
1986 ASM	12 109	86	1 747	5.75	53	76	25 272	48	16.85
1985 ASM	11 214	87	1 773	5.35	50	73	24 464	46	15.93
1984 ASM	11 086	86	1 744	5.22	46	69	25 943	43	17.21
1983 ASM	10 511	87	1 757	5.13	44	68	24 483	43	15.96
1982 Census	10 089	88	1 708	5.11	44	68	23 607	43	15.71
1981 ASM	9 667	87	1 824	4.73	46	73	20 132	48	12.66
1980 ASM	8 823	88	1 785	4.44	44	70	19 350	46	12.37
1979 ASM	8 153	88	1 773	3.98	44	74	14 843	55	9.49
1978 ASM	7 516	88	1 722	3.82	47	76	14 000	54	9.19
1977 Census	6 911	88	1 752	3.54	45	74	13 456	51	8.74

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3111, LEATHER TANNING AND FINISHING														
United States	–	**332**	**126**	**16.6**	**420.3**	**13.3**	**27.9**	**293.5**	**895.9**	**2 035.9**	**2 910.4**	**48.5**	**14.6**	**747.4**
California	E2	24	6	.7	17.0	.6	1.2	13.1	24.9	70.5	95.6	2.4	F	(D)
Georgia	E6	6	2	.1	2.3	.1	.2	1.6	7.4	6.5	14.3	.1	(NA)	(NA)
Illinois	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	45	13	1.0	26.2	.8	1.7	18.3	54.1	101.3	153.6	2.0	1.1	45.9
Michigan	–	11	6	2.0	62.6	1.6	3.6	39.7	141.1	176.4	312.2	(D)	G	(D)
Minnesota	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	8	5	.6	11.2	.4	.9	8.5	22.2	35.3	58.8	(D)	E	(D)
Nebraska	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	11	4	.6	17.7	.5	1.0	13.5	67.9	60.8	127.0	1.7	.7	48.2
New York	E1	67	22	1.5	32.0	1.3	2.5	23.8	65.4	82.5	148.9	1.1	1.9	62.5
North Carolina	–	10	4	.7	18.2	.5	1.1	11.6	47.6	124.5	170.4	2.1	E	(D)
Pennsylvania	–	17	10	2.1	49.7	1.5	3.1	32.9	87.4	386.8	473.5	5.7	1.4	72.0
Tennessee	–	7	3	.2	3.9	.2	.4	2.3	18.2	31.8	50.7	.3	.5	20.3
Texas	E2	20	6	.5	8.3	.3	.7	5.2	14.9	19.0	34.1	1.0	E	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	16	14	1.8	49.5	1.5	3.3	33.1	115.4	225.1	336.9	11.1	1.8	85.8
INDUSTRY 3131, FOOTWEAR CUT STOCK														
United States	–	**100**	**38**	**3.7**	**63.3**	**3.1**	**5.8**	**42.3**	**148.6**	**163.7**	**316.9**	**3.3**	**5.0**	**141.4**
California	–	6	2	.1	1.5	.1	.2	1.1	3.2	3.2	6.5	(D)	(NA)	(NA)
Indiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	26	8	.6	13.7	.5	.9	8.4	22.9	32.8	54.8	.5	G	(D)
Missouri	–	19	10	1.3	20.0	1.0	1.9	12.9	37.6	40.2	78.4	.5	1.4	32.1
Pennsylvania	–	5	2	.1	3.4	.1	.2	1.8	2.9	17.0	21.7	.1	.4	10.1
Rhode Island	–	5	3	.1	2.3	.1	.1	1.2	3.8	4.4	8.3	(D)	(NA)	(NA)
Tennessee	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3142, HOUSE SLIPPERS														
United States	–	**31**	**21**	**3.8**	**59.2**	**3.0**	**5.5**	**35.6**	**176.3**	**109.6**	**285.1**	**2.1**	**3.7**	**132.9**
Alabama	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Maine	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	5.6
New Jersey	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC														
United States	–	**140**	**88**	**24.2**	**398.9**	**20.0**	**36.6**	**282.4**	**1 087.7**	**1 135.6**	**2 209.5**	**32.8**	**31.6**	**1 046.7**
Arkansas	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	11	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	E	(D)
Kentucky	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	11	11	4.3	68.1	3.7	5.5	47.8	199.8	185.0	382.8	(D)	6.3	221.0
Maryland	E9	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	8	3	.7	12.4	.5	1.0	8.0	19.1	27.8	47.0	.6	G	(D)
Michigan	E9	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	4	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E1	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E1	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E1	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	G	(D)
Ohio	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Pennsylvania	–	12	9	1.9	28.8	1.7	3.2	24.3	70.4	73.4	143.6	1.5	3.5	80.4
Tennessee	E1	7	7	2.9	45.2	2.3	4.4	30.6	135.2	131.2	274.6	3.8	2.9	97.1
Texas	–	25	10	2.6	44.2	2.2	4.4	31.5	124.3	194.6	312.0	6.9	G	(D)
Virginia	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	11	10	2.0	38.4	1.4	2.7	22.6	88.6	112.3	198.4	2.0	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC														
United States	**–**	**127**	**77**	**15.0**	**219.5**	**13.2**	**23.7**	**166.1**	**636.9**	**479.6**	**1 095.1**	**10.5**	**26.6**	**755.8**
Arkansas	–	10	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	20	9	.9	15.5	.8	1.5	12.3	35.0	18.2	53.4	.4	G	(D)
Florida	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Indiana	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	11	8	1.6	23.3	1.4	2.5	18.4	52.4	60.8	112.2	(D)	(NA)	(D)
Massachusetts	–	5	4	.6	9.8	.6	1.1	7.9	14.0	21.3	34.6	(D)	F	(D)
Missouri	–	10	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.0	140.6
New Hampshire	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	51.1
New York	E1	17	6	.5	10.0	.3	.7	4.7	24.8	10.6	35.6	.4	G	(D)
Ohio	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	G	(D)
Tennessee	–	10	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E1	9	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.														
United States	**–**	**94**	**41**	**6.0**	**84.4**	**5.2**	**9.1**	**61.6**	**159.0**	**149.4**	**308.6**	**5.8**	**9.2**	**217.2**
Arkansas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	6	4	.5	9.2	.4	.7	5.5	18.3	13.8	31.2	(D)	E	(D)
Missouri	–	11	8	1.5	20.5	1.2	2.2	15.7	42.0	33.8	76.0	1.3	G	(D)
New Hampshire	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	12	8	1.0	14.0	.9	1.5	10.2	25.9	22.0	47.7	(D)	1.8	34.5
Tennessee	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Leather tanning and finishing (SIC 3111)				Footwear cut stock (SIC 3131)	House slippers (SIC 3142)	Men's footwear, except athletic (SIC 3143)	Women's footwear, except athletic (SIC 3144)	Footwear, except rubber, n.e.c. (SIC 3149)
		Total	Tanneries (SIC 3111–11)	Converters (SIC 3111–22)	Contractors (SIC 3111–33)					
Companies	number	297	208	22	73	94	28	108	99	84
All establishments	number	332	233	23	76	100	31	140	127	94
With 1 to 19 employees	number	206	136	18	52	62	10	52	50	53
With 20 to 99 employees	number	82	58	4	20	32	10	22	30	20
With 100 employees or more	number	44	39	1	4	6	11	66	47	21
Employment and labor costs:										
Employees	1,000	16.6	13.9	.7	2.0	3.7	3.8	24.2	15.0	6.0
Compensation, total	mil dol	540.5	469.5	19.4	51.6	76.7	71.9	490.9	269.9	105.6
Annual payroll	mil dol	420.3	363.6	15.1	41.6	63.3	59.2	398.9	219.5	84.4
Fringe benefits	mil dol	120.3	106.0	4.3	10.0	13.5	12.7	92.0	50.3	21.2
Social Security and other legally required payments	mil dol	56.9	49.7	2.1	5.2	6.7	7.4	43.8	27.7	11.2
Employer voluntary payments	mil dol	63.4	56.3	2.3	4.8	6.8	5.3	48.2	22.6	10.0

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather tanning and finishing (SIC 3111)				Footwear cut stock (SIC 3131)	House slippers (SIC 3142)	Men's footwear, except athletic (SIC 3143)	Women's footwear, except athletic (SIC 3144)	Footwear, except rubber, n.e.c. (SIC 3149)
	Total	Tanneries (SIC 3111–11)	Converters (SIC 3111–22)	Contractors (SIC 3111–33)					
Production workers:									
Average for year ---- 1,000	13.3	11.4	.1	1.8	3.1	3.0	20.0	13.2	5.2
March ---- 1,000	13.6	11.6	.1	1.8	3.0	2.8	19.7	13.3	5.4
May ---- 1,000	13.7	11.8	.1	1.8	3.1	2.9	20.0	13.6	5.3
August ---- 1,000	13.1	11.2	.1	1.8	3.2	3.3	20.1	13.4	5.0
November ---- 1,000	12.9	11.1	.1	1.7	3.1	2.9	20.1	12.6	5.0
Hours ---- millions	27.9	24.1	.2	3.5	5.8	5.5	36.6	23.7	9.1
Wages ---- mil dol	293.5	259.0	1.6	32.9	42.3	35.6	282.4	166.1	61.6
Cost of materials[1] ---- mil dol	2 035.9	1 803.1	190.4	42.4	163.7	109.6	1 135.6	479.6	149.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 817.5	1 674.6	108.5	34.4	154.3	93.3	927.6	452.2	132.9
Resales ---- mil dol	36.5	36.5	–	(Z)	3.1	11.9	190.1	13.1	11.5
Fuels ---- mil dol	28.2	21.4	3.1	3.7	.6	.5	1.9	.8	.7
Purchased electricity ---- mil dol	30.7	23.6	3.2	4.0	2.1	1.7	10.2	6.1	2.9
Contract work ---- mil dol	122.9	47.0	75.6	.3	3.6	2.2	5.7	7.4	1.3
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	451.6	356.5	36.4	58.7	33.2	22.3	144.0	88.4	41.6
Generated less sold ---- mil kWh	(D)	(D)	–	–	–	(D)	–	–	–
Total value of shipments ---- mil dol	2 910.4	2 544.8	244.8	120.8	316.9	285.1	2 209.5	1 095.1	308.6
Value added ---- mil dol	895.9	763.7	53.8	78.4	148.6	176.3	1 087.7	636.9	159.0
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	443.3	396.9	31.0	15.4	41.0	48.1	366.2	93.5	58.4
Finished goods ---- mil dol	138.9	126.5	10.8	1.6	18.4	24.5	203.8	33.9	26.7
Work in process ---- mil dol	195.8	177.3	12.2	6.4	8.0	3.7	38.8	29.3	10.7
Materials and supplies ---- mil dol	108.6	93.2	8.0	7.5	14.6	19.9	123.6	30.3	21.0
End of 1992 ---- mil dol	465.4	419.6	32.7	13.0	39.9	48.5	390.4	114.8	56.7
Finished goods ---- mil dol	147.6	136.8	9.2	1.5	14.9	24.9	209.7	58.6	27.9
Work in process ---- mil dol	208.5	188.9	13.1	6.4	6.9	4.1	46.7	26.0	9.2
Materials and supplies ---- mil dol	109.3	93.9	10.4	5.1	18.1	19.4	134.1	30.2	19.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather tanning and finishing (SIC 3111)	Footwear cut stock (SIC 3131)	House slippers (SIC 3142)	Men's footwear, except athletic (SIC 3143)	Women's footwear, except athletic (SIC 3144)	Footwear, except rubber, n.e.c. (SIC 3149)
Gross book value of depreciable assets:						
Total:						
Beginning of year	479.0	50.4	35.5	235.3	116.6	52.9
New capital expenditures[1]	48.5	3.3	2.1	32.8	10.5	5.8
Used capital expenditures	6.7	(D)	.7	1.9	3.0	.8
Retirements	15.1	(D)	1.0	9.7	15.7	3.9
End of year	519.0	49.3	37.3	260.4	114.3	55.7
Buildings and other structures:						
Beginning of year	131.9	14.2	13.1	85.1	36.9	17.0
New capital expenditures	8.6	.5	(D)	13.2	2.2	1.2
Used capital expenditures	(D)	(D)	.1	.2	.1	(D)
Retirements	(D)	(D)	(D)	1.9	4.0	(D)
End of year	139.4	13.5	13.0	96.5	35.3	18.0
Machinery and equipment:						
Beginning of year	347.1	36.2	22.4	150.2	79.6	35.9
New capital expenditures[1]	39.9	2.8	(D)	19.6	8.3	4.6
Used capital expenditures	(D)	(D)	.6	1.8	2.9	(D)
Retirements	(D)	(D)	(D)	7.8	11.8	(D)
End of year	379.7	35.8	24.3	163.9	79.1	37.7
Depreciation charges during 1992:						
Total	35.0	3.7	2.2	19.1	8.6	4.7
Buildings and other structures	7.0	.7	.5	5.4	1.4	1.2
Machinery and equipment	27.9	3.1	1.8	13.7	7.2	3.6
Rental payments:						
Total	10.5	1.7	1.6	14.1	8.9	2.9
Buildings and other structures	5.8	.9	1.1	6.2	2.9	1.4
Machinery and equipment	4.7	.8	.5	7.8	6.0	1.5

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather tanning and finishing (SIC 3111)		Footwear cut stock (SIC 3131)		House slippers (SIC 3142)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	3.7	(X)	.5	(X)	.1	(X)
Response coverage ratio (percent)[2]	75.7	(X)	68.8	(X)	89.0	(X)
Machinery	17.4	(X)	.6	(X)	1.0	(X)
Response coverage ratio (percent)[2]	75.6	(X)	68.8	(X)	89.0	(X)
Other purchased services:						
Communications	2.4	(X)	.4	(X)	.5	(X)
Response coverage ratio (percent)[2]	75.7	(X)	97.8	(X)	89.0	(X)
Legal	2.8	(X)	.1	(X)	.4	(X)
Response coverage ratio (percent)[2]	75.7	(X)	97.8	(X)	89.0	(X)
Accounting and bookkeeping	1.4	(X)	.3	(X)	.3	(X)
Response coverage ratio (percent)[2]	75.7	(X)	97.8	(X)	89.0	(X)
Advertising	1.8	(X)	(Z)	(X)	.7	(X)
Response coverage ratio (percent)[2]	75.7	(X)	68.8	(X)	83.7	(X)
Software and other data processing	.7	(X)	.1	(X)	.2	(X)
Response coverage ratio (percent)[2]	72.2	(X)	97.8	(X)	89.0	(X)
Refuse removal, including hazardous waste	6.5	(X)	.1	(X)	.4	(X)
Response coverage ratio (percent)[2]	75.7	(X)	71.2	(X)	89.0	(X)
New machinery and equipment expenditures	39.9	(X)	2.8	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	.9	20	(S)	(X)	.1	33
Computers and peripheral data processing equipment	.7	29	(S)	(X)	.5	51
All other	38.2	1	(S)	(X)	(D)	(X)
Adjustment ratio[3]	1.1	(X)	(S)	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	1 817.5	(X)	154.3	(X)	93.3	(X)
Materials purchased or transferred from foreign sources[4]	125.1	29	1.8	31	1.4	28
Materials purchased or transferred from domestic sources	1 692.4	3	152.5	1	91.9	1
Adjustment ratio[3]	1.6	(X)	1.7	(X)	1.4	(X)

Item	Men's footwear, except athletic (SIC 3143)		Women's footwear, except athletic (SIC 3144)		Footwear, except rubber, n.e.c. (SIC 3149)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.7	(X)	1.3	(X)	.2	(X)
Response coverage ratio (percent)[2]	78.3	(X)	83.1	(X)	55.2	(X)
Machinery	7.5	(X)	5.7	(X)	.7	(X)
Response coverage ratio (percent)[2]	83.6	(X)	83.1	(X)	55.2	(X)
Other purchased services:						
Communications	3.3	(X)	.9	(X)	.5	(X)
Response coverage ratio (percent)[2]	79.2	(X)	83.1	(X)	55.2	(X)
Legal	2.6	(X)	1.2	(X)	.8	(X)
Response coverage ratio (percent)[2]	81.9	(X)	83.1	(X)	94.1	(X)
Accounting and bookkeeping	1.1	(X)	1.1	(X)	.1	(X)
Response coverage ratio (percent)[2]	83.6	(X)	83.1	(X)	94.1	(X)
Advertising	37.0	(X)	3.2	(X)	1.5	(X)
Response coverage ratio (percent)[2]	81.0	(X)	83.1	(X)	94.1	(X)
Software and other data processing	37.5	(X)	.5	(X)	(Z)	(X)
Response coverage ratio (percent)[2]	80.3	(X)	79.3	(X)	55.2	(X)
Refuse removal, including hazardous waste	82.1	(X)	(S)	(X)	.8	(X)
Response coverage ratio (percent)[2]	81.6	(X)	(S)	(X)	94.1	(X)
New machinery and equipment expenditures	19.6	(X)	8.3	(X)	4.6	(X)
Automobiles, trucks, etc., for highway use	.7	46	(Z)	(X)	(Z)	(X)
Computers and peripheral data processing equipment	1.6	7	.4	12	.4	43
All other	17.2	3	7.8	1	4.2	5
Adjustment ratio[3]	1.0	(X)	1.1	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	927.6	(X)	452.2	(X)	132.9	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	47.3	11	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	404.9	2	(S)	(X)
Adjustment ratio[3]	(S)	(X)	1.4	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3111, LEATHER TANNING AND FINISHING												
Total	**–**	**332**	**16.6**	**420.3**	**13.3**	**27.9**	**293.5**	**890.7**	**2 035.9**	**2 905.2**	**48.5**	**465.4**
Establishments with an average of—												
1 to 4 employees	E7	108	.2	4.1	.1	.3	2.6	8.6	19.3	27.5	.4	4.5
5 to 9 employees	E4	53	.4	6.5	.3	.5	4.3	13.3	31.1	43.9	.5	8.3
10 to 19 employees	E2	45	.7	12.2	.5	1.0	8.1	28.4	47.5	75.8	.7	9.6
20 to 49 employees	–	38	1.2	25.6	.9	1.8	16.6	46.1	108.4	156.2	1.9	17.9
50 to 99 employees	–	44	3.0	65.4	2.3	4.9	43.8	166.1	384.9	547.8	6.7	64.0
100 to 249 employees	E1	29	4.3	103.0	3.6	7.7	79.0	233.2	399.5	625.0	14.3	109.5
250 to 499 employees	–	10	3.3	101.2	2.5	5.7	60.8	219.9	441.0	656.2	9.4	153.8
500 to 999 employees	–	4	3.6	102.2	3.0	6.1	78.3	175.1	604.1	772.8	14.6	97.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	133	.5	6.8	.4	.7	4.8	10.3	23.8	34.1	.5	4.6
INDUSTRY 3131, FOOTWEAR CUT STOCK												
Total	**–**	**100**	**3.7**	**63.3**	**3.1**	**5.8**	**42.3**	**148.6**	**163.7**	**316.9**	**3.3**	**39.9**
Establishments with an average of—												
1 to 4 employees	E8	26	(Z)	.6	(Z)	.1	.4	1.0	1.0	2.0	(Z)	.4
5 to 9 employees	–	14	.1	2.3	.1	.1	.9	3.3	8.8	12.5	(Z)	3.2
10 to 19 employees	–	22	.3	5.1	.2	.4	3.0	7.4	12.0	19.3	.2	3.6
20 to 49 employees	–	20	.7	14.8	.6	1.1	9.3	22.7	31.2	55.4	.4	9.0
50 to 99 employees	–	12	.9	16.1	.7	1.4	10.7	43.8	62.0	106.2	1.3	10.4
100 to 249 employees	–	3	.5	7.7	.4	.6	4.2	35.1	18.9	55.4	1.4	10.9
250 to 499 employees	–	2	1.3	16.7	1.1	2.1	13.9	35.4	29.9	66.0	(D)	2.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	29	.1	1.0	.1	.1	.7	1.6	1.5	3.2	(Z)	.7
INDUSTRY 3142, HOUSE SLIPPERS												
Total	**–**	**31**	**3.8**	**59.2**	**3.0**	**5.5**	**35.6**	**176.3**	**109.6**	**285.1**	**2.1**	**48.5**
Establishments with an average of—												
1 to 4 employees	E9	3	(Z)	(Z)	(Z)	(Z)	(Z)	.1	.1	.2	.1	(Z)
5 to 9 employees	E1	4	.1	1.1	(Z)	.1	.5	3.0	5.3	8.0	(D)	.8
10 to 19 employees	E2	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E1	5	.2	2.3	.1	.2	1.2	4.4	1.8	6.4	(D)	1.4
50 to 99 employees	–	5	.3	5.0	.2	.4	3.3	19.9	9.7	29.4	.2	3.5
100 to 249 employees	–	7	1.2	18.6	.7	1.5	8.9	92.0	43.0	134.5	1.5	15.8
250 to 499 employees	–	2	2.1	32.2	1.8	3.4	21.7	57.0	49.7	106.7	.4	26.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.2	(Z)	(Z)	.2	.6	.4	1.0	(Z)	.2
INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC												
Total	**–**	**140**	**24.2**	**398.9**	**20.0**	**36.6**	**282.4**	**1 087.7**	**1 135.6**	**2 209.5**	**32.8**	**390.4**
Establishments with an average of—												
1 to 4 employees	E9	24	(Z)	.6	(Z)	.1	.5	1.2	1.2	2.4	(Z)	.4
5 to 9 employees	E9	15	.1	1.1	.1	.1	.9	2.0	2.2	4.2	.1	.7
10 to 19 employees	E4	13	.2	3.5	.2	.3	2.7	6.6	10.2	17.0	.2	2.0
20 to 49 employees	E3	14	.5	6.8	.4	.7	5.1	12.1	10.6	22.7	.2	4.7
50 to 99 employees	E1	8	.6	10.0	.5	.9	7.1	22.9	19.1	41.9	.7	5.8
100 to 249 employees	E1	30	4.8	76.8	4.2	7.9	55.9	191.6	173.0	359.3	4.7	56.7
250 to 499 employees	–	23	7.7	123.0	6.6	12.3	90.9	357.6	414.8	768.8	15.9	114.5
500 to 999 employees	–	11	10.3	177.0	8.0	14.4	119.3	493.8	504.5	993.3	11.1	205.7
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	39	.2	2.4	.1	.2	2.0	4.3	4.7	9.0	.1	1.4
INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC												
Total	**–**	**127**	**15.0**	**219.5**	**13.2**	**23.7**	**166.1**	**636.9**	**479.6**	**1 095.1**	**10.5**	**114.8**
Establishments with an average of—												
1 to 4 employees	E6	27	(Z)	.8	(Z)	.1	.7	4.2	2.0	6.1	(Z)	.5
5 to 9 employees	E8	11	.1	1.0	.1	.1	.8	1.9	2.0	3.9	(Z)	.4
10 to 19 employees	E2	12	.2	3.0	.1	.3	2.5	9.4	8.0	17.2	.1	2.1
20 to 49 employees	E3	19	.7	8.3	.6	1.0	6.4	20.3	12.9	34.5	.3	3.8
50 to 99 employees	–	11	.8	15.0	.7	1.4	11.4	37.8	45.0	83.0	.6	10.5
100 to 249 employees	–	23	3.8	59.8	3.2	6.1	40.4	128.0	103.3	229.9	2.6	31.7
250 to 499 employees	–	21	7.6	98.5	6.7	11.7	78.9	332.4	267.8	580.0	6.8	57.8
500 to 999 employees	–	3	1.9	33.2	1.7	3.0	25.1	102.8	38.5	140.5	(D)	8.1
Covered by administrative records[2]	E9	34	.1	2.0	.1	.2	1.6	4.7	4.4	9.0	.1	1.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.												
Total	**–**	**94**	**6.0**	**84.4**	**5.2**	**9.1**	**61.6**	**159.0**	**149.4**	**308.6**	**5.8**	**56.7**
Establishments with an average of—												
1 to 4 employees	E9	26	.1	.7	.1	.1	.6	1.5	1.3	2.8	(Z)	.4
5 to 9 employees	E3	16	.1	1.7	.1	.1	1.3	2.9	6.7	9.7	.2	1.4
10 to 19 employees	E3	11	.2	2.7	.1	.3	2.3	3.3	2.8	6.2	.1	1.1
20 to 49 employees	–	11	.4	5.1	.3	.5	3.5	7.7	7.1	15.4	.3	4.8
50 to 99 employees	–	9	.7	10.8	.5	.9	6.7	18.7	13.0	34.2	.2	6.9
100 to 249 employees	–	11	1.8	24.4	1.5	2.5	17.1	46.1	37.3	83.5	1.4	14.6
250 to 499 employees	–	10	3.0	39.0	2.6	4.7	30.1	78.7	81.2	156.8	3.6	27.7
Covered by administrative records[2]	E9	36	.1	1.6	.1	.2	1.3	3.2	2.9	6.2	.1	1.0

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3111	**Leather tanning and finishing:**										
	All establishments in industry	332	16.6	420.3	13.3	27.9	293.5	895.9	2 035.9	2 910.4	48.5
	Establishments with this product class primary:										
31116	Finished and unfinished leather	124	12.9	328.0	10.1	21.2	233.1	750.2	1 888.4	2 617.5	42.0
31119	Contract and commission receipts for tanning or finishing leather owned by others	52	2.6	71.5	2.2	4.8	45.7	93.5	66.3	159.8	4.6
3131	**Footwear cut stock:**										
	All establishments in industry	100	3.7	63.3	3.1	5.8	42.3	148.6	163.7	316.9	3.3
3142	**House slippers:**										
	All establishments in industry	31	3.8	59.2	3.0	5.5	35.6	176.3	109.6	285.1	2.1
3143	**Men's footwear, except athletic:**										
	All establishments in industry	140	24.2	398.9	20.0	36.6	282.4	1 087.7	1 135.6	2 209.5	32.8
3144	**Women's footwear, except athletic:**										
	All establishments in industry	127	15.0	219.5	13.2	23.7	166.1	636.9	479.6	1 095.1	10.5
3149	**Footwear, except rubber, n.e.c.:**										
	All establishments in industry	94	6.0	84.4	5.2	9.1	61.6	159.0	149.4	308.6	5.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3111, LEATHER TANNING AND FINISHING			
Total value of shipments	2 910.4	2 218.6	1 753.0
Primary products value of shipments	2 797.5	2 118.5	1 695.4
Secondary products value of shipments	51.5	45.2	16.4
Total miscellaneous receipts	61.5	54.9	41.2
Value of resales	41.7	33.3	29.9
Contract receipts	5.2	14.5	2.0
Other miscellaneous receipts	14.6	7.1	9.2
Primary products specialization ratio	98	98	99
Value of primary products shipments made in all industries	2 929.7	2 212.2	1 706.2
Value of primary products shipments made in this industry	2 797.5	2 118.5	1 695.4
Value of primary products shipments made in other industries	132.2	93.7	10.8
Coverage ratio	95	96	99
INDUSTRY 3131, FOOTWEAR CUT STOCK			
Total value of shipments	316.9	324.1	367.8
Primary products value of shipments	290.3	310.3	326.1
Secondary products value of shipments	20.5	9.0	22.3
Total miscellaneous receipts	6.1	4.8	19.4
Value of resales	4.0	2.2	12.9
Contract receipts	1.1	(D)	.5
Other miscellaneous receipts	1.1	(D)	6.2
Primary products specialization ratio	93	97	94
Value of primary products shipments made in all industries	315.1	335.3	346.8
Value of primary products shipments made in this industry	290.3	310.3	326.1
Value of primary products shipments made in other industries	24.7	25.0	20.7
Coverage ratio	92	93	94
INDUSTRY 3142, HOUSE SLIPPERS			
Total value of shipments	285.1	232.5	275.8
Primary products value of shipments	253.9	198.2	258.7
Secondary products value of shipments	(D)	23.5	9.6
Total miscellaneous receipts	(D)	10.8	7.5
Value of resales	(D)	10.7	6.1
Contract receipts	.3	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	89	96
Value of primary products shipments made in all industries	258.8	205.3	265.3
Value of primary products shipments made in this industry	253.9	198.2	258.7
Value of primary products shipments made in other industries	5.0	7.1	6.6
Coverage ratio	98	97	98
INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC			
Total value of shipments	2 209.5	2 104.8	2 261.4
Primary products value of shipments	1 735.5	1 762.7	1 865.4
Secondary products value of shipments	225.6	182.3	222.8
Total miscellaneous receipts	248.5	159.9	173.2
Value of resales	229.6	156.2	171.7
Contract receipts	(D)	2.6	1.5
Other miscellaneous receipts	(D)	1.1	–
Primary products specialization ratio	88	91	89
Value of primary products shipments made in all industries	1 806.6	1 833.5	1 971.2
Value of primary products shipments made in this industry	1 735.5	1 762.7	1 865.4
Value of primary products shipments made in other industries	71.1	70.8	105.8
Coverage ratio	96	96	95
INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC			
Total value of shipments	1 095.1	1 316.0	1 933.2
Primary products value of shipments	1 009.8	1 213.0	1 787.8
Secondary products value of shipments	65.3	86.8	108.5
Total miscellaneous receipts	20.0	16.2	36.9
Value of resales	18.0	11.7	21.9
Contract receipts	(D)	(D)	.3
Other miscellaneous receipts	(D)	(D)	14.7
Primary products specialization ratio	94	93	94
Value of primary products shipments made in all industries	1 228.6	1 374.4	1 994.1
Value of primary products shipments made in this industry	1 009.8	1 213.0	1 787.8
Value of primary products shipments made in other industries	218.8	161.4	206.3
Coverage ratio	82	88	90

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.			
Total value of shipments	308.6	419.3	798.9
Primary products value of shipments	254.9	368.6	587.5
Secondary products value of shipments	32.6	23.6	130.7
Total miscellaneous receipts	21.2	27.0	80.7
Value of resales	20.2	25.2	77.8
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	89	94	82
Value of primary products shipments made in all industries	314.2	449.1	721.7
Value of primary products shipments made in this industry	254.9	368.7	587.5
Value of primary products shipments made in other industries	59.3	80.5	134.2
Coverage ratio	81	82	81

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3111– —	**LEATHER TANNING AND FINISHING**						
	Total	**(NA)**	**(X)**	**2 929.7**	**(NA)**	**(X)**	**2 212.2**
31116	Finished and unfinished leather	(NA)	(X)	2 610.2	(NA)	(X)	1 931.0
	Cattle hide and kip side leathers, finished:						
	Full grain and grain split (except offal and welting leather):						
31116 11	Sole leather — mil sq ft	9	90.2	224.2	12	47.7	113.1
31116 15	Bag, case, and strap leather (sides) — mil sq ft	17	*36.5	68.3	11	29.5	63.3
31116 19	Upholstery leather, top grains and machine buffs — mil sq ft	11	233.3	683.0	17	238.9	453.3
31116 24	Upper leather, including patent (sides) — mil sq ft	31	292.4	648.3	29	333.0	632.7
31116 27	Garment leather (sides) — mil sq ft	17	30.4	52.0	14	28.0	42.3
31116 29	Other grains, including flat and handbag leather, lining leather (sides), and belting and mechanical leather — mil sq ft	24	*165.3	207.1	26	213.2	175.4
31116 33	Offal (heads, shoulders, bellies, etc.) and welting leather — mil sq ft	14	44.9	37.9	13	29.4	22.5
31116 35	Finished splits, including shoulder splits, deep buffs, buffing, and fleshers — mil sq ft	13	74.0	61.7	17	71.2	49.7
	Cattle hide and kip side leathers, unfinished:						
31116 37	Wet blues — 1,000 hides (whole hide equiv)	18	472.4	333.0	15	188.8	120.0
31116 38	Other — 1,000 hides (whole hide equiv)	15	108.4	178.9	18	41.5	137.4
31116 43	All calf and whole kip leathers, finished and unfinished — mil sq ft	5	19.7	35.7	(NA)	42.5	67.9
31116 51	Garment — mil sq ft	6	13.8	18.5			
31116 57	Other (including glove, shoe, fleshers, skivers, and shearlings) — mil sq ft	9	21.3	34.3	11	18.9	32.9
	Other leathers, finished and unfinished:						
31116 62	Goat and kid leathers — mil sq ft	1	(D)	(D)	2	(D)	(3)
31116 63	Pig skin leathers — mil sq ft	2	(D)	(D)	2	(D)	(3)
31116 65	Other animal leathers (including horse, colt, mule, ass, and pony leathers)	9	(X)	16.5	11	(X)	15.9
31116 00	Finished and unfinished leather, n.s.k.	(NA)	(X)	7.1	(NA)	(X)	34.7
31119	Contract and commission receipts for tanning or finishing leather owned by others	(NA)	(X)	186.3	(NA)	(X)	159.5
31119 00	Contract and commission receipts for tanning or finishing leather owned by others	62	(X)	186.3	48	(X)	159.5
31110	Leather tanning and finishing, n.s.k.	(NA)	(X)	133.1	(NA)	(X)	121.7
31110 00	Leather tanning and finishing, n.s.k.[4]	(NA)	(X)	22.0	(NA)	(X)	7.3
31110 02	Leather tanning and finishing, n.s.k.[5]	(NA)	(X)	111.1	(NA)	(X)	114.4

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3131– —	**BOOT AND SHOE CUT STOCK AND FINDINGS**						
	Total	**(NA)**	**(X)**	**315.1**	**(NA)**	**(X)**	**335.3**
31310	Boot and shoe cut stock and findings	(NA)	(X)	315.1	(NA)	(X)	335.3
31310 16	Outer soles and innersoles of leather, mil dozen pairs	17	2.3	97.0	19	2.9	92.3
31310 31	Other leather cut stock (heels, counters, box toes, taps, etc.)	24	(X)	77.3	27	(X)	69.6
31310 61	Other (wood heel blocks made for sale as such, finished wood heels, shanks, welting, etc.)	34	(X)	133.8	36	(X)	149.7
31310 00	Boot and shoe cut stock and findings, n.s.k.[4]	(NA)	(X)	3.3	(NA)	(X)	5.9
31310 02	Boot and shoe cut stock and findings, n.s.k.[5]	(NA)	(X)	3.7	(NA)	(X)	17.8
3142– —	**HOUSE SLIPPERS**						
	Total	**(NA)**	**(X)**	**258.8**	**(NA)**	**(X)**	**205.3**
31420	House slippers	(NA)	(X)	258.8	(NA)	(X)	205.3
31420 60	House slippers, all types, except slipper socks[6], mil pairs	21	65.0	245.9	26	50.5	190.3
31420 71	Slipper socks made from purchased socks, mil pairs	7	4.7	11.9	7	(NA)	10.4
31420 00	House slippers, n.s.k.[7]	(NA)	(X)	.1	(NA)	(X)	1.5
31420 02	House slippers, n.s.k.[8]	(NA)	(X)	1.0	(NA)	(X)	3.1
3143– —	**MEN'S FOOTWEAR, EXCEPT ATHLETIC**						
	Total	**(NA)**	**(X)**	**1 806.6**	**(NA)**	**(X)**	**1 833.5**
31430	Men's footwear, except athletic	(NA)	(X)	1 806.6	(NA)	(X)	1 833.5
31430 00	Men's footwear, except athletic (size run 6 and larger)[6], mil pairs	84	*46.7	1 797.5	92	64.4	1 816.9
31430 02	Men's footwear, except athletic, n.s.k.[9]	(NA)	(X)	9.0	(NA)	(X)	16.6
3144– —	**WOMEN'S FOOTWEAR, EXCEPT ATHLETIC**						
	Total	**(NA)**	**(X)**	**1 228.6**	**(NA)**	**(X)**	**1 374.4**
31440	Women's footwear, except athletic	(NA)	(X)	1 228.6	(NA)	(X)	1 374.4
31440 00	Women's footwear, except athletic (size run 4 and larger)[6], mil pairs	94	*54.6	1 219.5	124	83.0	1 363.6
31440 02	Women's footwear, except athletic, n.s.k.[8]	(NA)	(X)	9.0	(NA)	(X)	10.8
3149– —	**FOOTWEAR, EXCEPT RUBBER, N.E.C.**						
	Total	**(NA)**	**(X)**	**314.2**	**(NA)**	**(X)**	**449.1**
31490	Footwear, except rubber, n.e.c.	(NA)	(X)	314.2	(NA)	(X)	449.1
31490 10	Athletic shoes, except rubber sole/fabrics upper[6], mil pairs	23	6.2	104.6	28	10.2	146.3
31490 20	All other footwear, including youths' and boys', misses', children's, and infants' (excluding rubber and slippers)[6], mil pairs	46	*19.0	201.0	55	37.2	277.8
31490 00	Footwear, except rubber, n.e.c., n.s.k.[7]	(NA)	(X)	2.4	(NA)	(X)	7.8
31490 02	Footwear, except rubber, n.e.c., n.s.k.[8]	(NA)	(X)	6.2	(NA)	(X)	17.2

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for product codes 31116 62 and 31116 63 were included with product code 31116 00.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]Typically for establishments with less than 20 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
31116, FINISHED AND UNFINISHED LEATHER			**31116, FINISHED AND UNFINISHED LEATHER—Con.**		
United States	**2 610.2**	**1 931.0**	Tennessee	49.6	69.0
California	72.4	64.2	Texas	17.6	97.0
Georgia	8.4	(NA)	Wisconsin	281.8	265.6
Illinois	93.7	50.4			
Massachusetts	106.9	101.2	**31119, CONTRACT AND COMMISSION RECEIPTS FOR TANNING OR FINISHING LEATHER OWNED BY OTHERS**		
Michigan	265.2	(NA)			
Missouri	35.8	(NA)	**United States**	**186.3**	**159.5**
Nebraska	266.9	(NA)	Massachusetts	13.3	14.4
New Jersey	120.2	116.5	New York	47.0	54.5
New York	90.4	85.6	Texas	13.1	(NA)
North Carolina	142.8	63.9	Wisconsin	21.9	(NA)
Ohio	17.2	(NA)			
Pennsylvania	422.9	190.8			

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3111-	**Leather tanning and finishing**	**2 929.7**	**2 225.7**	**2 458.3**	**2 525.4**	**2 424.5**	**2 212.2**	**1 706.2**	**1 380.1**
31116	Finished and unfinished leather	2 610.2	2 035.1	2 243.2	2 207.4	2 141.0	1 931.0	1 400.2	1 202.7
31119	Contract and commission receipts for tanning or finishing leather owned by others	186.3	47.4	65.8	163.6	161.7	159.5	231.9	109.4
31110	Leather tanning and finishing, n.s.k.	133.1	143.3	149.3	154.4	121.7	121.7	74.2	68.0
3131-	**Boot and shoe cut stock and findings**	**315.1**	**379.1**	**412.5**	**352.4**	**326.3**	**335.3**	**346.8**	**255.1**
31310	Boot and shoe cut stock and findings	315.1	379.1	412.5	352.4	326.3	335.3	346.8	255.1
3142-	**House slippers**	**258.8**	**256.4**	**257.3**	**232.6**	**215.1**	**205.3**	**265.3**	**190.2**
31420	House slippers	258.8	256.4	257.3	232.6	215.1	205.3	265.3	190.2
3143-	**Men's footwear, except athletic**	**1 806.6**	**1 763.4**	**1 839.1**	**1 940.4**	**1 914.3**	**1 833.5**	**1 971.2**	**1 592.1**
31430	Men's footwear, except athletic	1 806.6	1 763.4	1 839.1	1 940.4	1 914.3	1 833.5	1 971.2	1 592.1
3144-	**Women's footwear, except athletic**	**1 228.6**	**1 185.9**	**1 310.6**	**1 338.8**	**1 459.3**	**1 374.4**	**1 994.1**	**1 386.8**
31440	Women's footwear, except athletic	1 228.6	1 185.9	1 310.6	1 338.8	1 459.3	1 374.4	1 994.1	1 386.8
3149-	**Footwear, except rubber, n.e.c.**	**314.2**	**289.1**	**373.1**	**395.7**	**443.7**	**449.1**	**721.7**	**568.0**
31490	Footwear, except rubber, n.e.c.	314.2	289.1	373.1	395.7	443.7	449.1	721.7	568.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3111, LEATHER TANNING AND FINISHING		
	Materials, ingredients, containers, and supplies	**1 817.5**	**1 386.5**
201191	Hides, skins, and pelts	1 217.5	977.1
280021	Tanning materials, dressings, dyes, and finishing agents	281.5	237.9
	Finished leather:		
311102	Upper leather	129.2	11.7
311112	Soling leather	33.1	(2)
311108	All other finished leather	16.9	211.9
970099	All other materials and components, parts, containers, and supplies	67.5	58.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	71.7	89.8
	INDUSTRY 3131, FOOTWEAR CUT STOCK		
	Materials, ingredients, containers, and supplies	**154.3**	**176.3**
201191	Hides, skins, and pelts	18.5	(4)
280021	Tanning materials, dressings, dyes, and finishing agents	(D)	.8
	Finished leather:		
311102	Upper leather	13.2	2.4
311112	Soling leather	49.2	52.1
311108	All other finished leather	(D)	11.6
970099	All other materials and components, parts, containers, and supplies	54.3	496.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	11.8	13.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3142, HOUSE SLIPPERS				
	Materials, ingredients, containers, and supplies	**(X)**	**93.3**	**(X)**	**74.7**
229503	Plastics coated, impregnated, or laminated fabrics mil sq yd	9.7	27.1	10.1	19.2
	Cut stock and findings:				
300115	Plastics and natural or synthetic rubber	(X)	4.5	(X)	2.0
308010	Composition	(X)	(D)	(X)	(D)
313108	Leather and other materials	(X)	.8	(X)	(D)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	([5])
	Finished leather:				
311111	Upper leather mil sq ft	11.6	16.5	9.3	12.0
311112	Soling leather mil pairs	.6	2.7	1.2	1.6
311107	Other	(X)	(D)	(X)	.1
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	4.9	(X)	3.0
970099	All other materials and components, parts, containers, and supplies	(X)	34.9	(X)	[5]34.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	.8	(X)	2.1
	INDUSTRY 3143, MEN'S FOOTWEAR, EXCEPT ATHLETIC				
	Materials, ingredients, containers, and supplies	**(X)**	**927.6**	**(X)**	**905.8**
229503	Plastics coated, impregnated, or laminated fabrics mil sq yd	13.6	34.1	9.1	33.1
	Cut stock and findings:				
300115	Plastics and natural or synthetic rubber	(X)	24.0	(X)	20.9
308010	Composition	(X)	32.7	(X)	22.0
313108	Leather and other materials	(X)	67.1	(X)	79.2
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	2.9
	Finished leather:				
311111	Upper leather mil sq ft	*195.8	485.2	232.4	420.2
311112	Soling leather mil pairs	25.2	61.4	35.3	71.1
311107	Other	(X)	38.8	(X)	51.6
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	(D)	(X)	20.2
970099	All other materials and components, parts, containers, and supplies	(X)	120.9	(X)	171.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	15.5	(X)	12.8
	INDUSTRY 3144, WOMEN'S FOOTWEAR, EXCEPT ATHLETIC				
	Materials, ingredients, containers, and supplies	**(X)**	**452.2**	**(X)**	**545.0**
229503	Plastics coated, impregnated, or laminated fabrics mil sq yd	*6.8	32.1	10.7	39.0
	Cut stock and findings:				
300115	Plastics and natural or synthetic rubber	(X)	16.9	(X)	22.0
308010	Composition	(X)	(D)	(X)	(D)
313108	Leather and other materials	(X)	22.5	(X)	26.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	(D)
	Finished leather:				
311111	Upper leather mil sq ft	68.7	184.9	105.0	205.2
311112	Soling leather mil pairs	*31.5	36.2	37.5	35.5
311107	Other	(X)	(D)	(X)	13.1
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	14.7	(X)	16.4
970099	All other materials and components, parts, containers, and supplies	(X)	76.8	(X)	123.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	35.7	(X)	25.6
	INDUSTRY 3149, FOOTWEAR, EXCEPT RUBBER, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**132.9**	**(X)**	**178.3**
229503	Plastics coated, impregnated, or laminated fabrics mil sq yd	*5.9	21.9	5.8	19.5
	Cut stock and findings:				
300115	Plastics and natural or synthetic rubber	(X)	12.9	(X)	16.3
308010	Composition	(X)	(D)	(X)	2.2
313108	Leather and other materials	(X)	16.6	(X)	11.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	6.7
	Finished leather:				
311111	Upper leather mil sq ft	19.2	38.2	23.4	42.9
311112	Soling leather mil pairs	*10.9	7.3	12.5	5.9
311107	Other	(X)	.4	(X)	1.4
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	(X)	7.7	(X)	5.8
970099	All other materials and components, parts, containers, and supplies	(X)	19.3	(X)	50.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	5.5	(X)	15.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1987, data for material code 311112 were included with material code 311108.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, data for material code 201191 were included with material code 970099.
[5]For 1987, data for material code 308007 were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3142060	MA31A, Footwear
3143000	MA31A, Footwear
3144000	MA31A, Footwear
3149010	MA31A, Footwear
3149020	MA31A, Footwear
3151000	MA23D, Gloves and Mittens

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:31 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08303984.DAT;1 1/ 6/ 95 08:30:48 UTF:TIPS93-08303984.DAT;1 1/ 6/ 95 08:30:48 META:TIPS96-08303984.DAT;1 1/ 6/ 95 08:31:13

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-31B

INDUSTRY SERIES

Leather Gloves; Luggage; and Miscellaneous Leather Goods

Industries 3151, 3161, 3171, 3172, and 3199

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-31B

INDUSTRY SERIES

Leather Gloves; Luggage; and Miscellaneous Leather Goods

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4651.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3151	Leather Gloves and Mittens
3161	Luggage
3171	Women's Handbags and Purses
3172	Personal Leather Goods, N.E.C.
3199	Leather Goods, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3151, LEATHER GLOVES AND MITTENS

This industry is made up of establishments primarily engaged in manufacturing dress, semidress, and work gloves exclusively of leather. Establishments primarily engaged in the manufacture of cloth gloves and mittens or cloth and leather combination work gloves and mittens are classified in industry 2381. Products of this industry also are collected in the Current Industrial Report (CIR) MA-23D, Gloves and Mittens. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3151, Leather Gloves and Mittens, had employment of 2.8 thousand. The employment figure was 10 percent below the 3.1 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Wisconsin, Mississippi, and Illinois, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when New York, Wisconsin, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $136.9 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3151 shipped $105.3 million of products considered primary to the industry, $15.4 million of secondary products, and had $16.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3151, no matter in what industry they were produced, appear in table 6a and aggregate to $114.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the leather gloves and mittens industry amounted to $69.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3161, LUGGAGE

This industry is made up of establishments primarily engaged in manufacturing luggage of leather and other materials.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3161, Luggage, had employment of 9.7 thousand. The employment figure was 15 percent below the 11.4 thousand reported in 1987. Compared with 1991, employment decreased 22 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Colorado, New York, and Indiana. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $944.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3161 shipped $806.1 million of products considered primary to the industry, $50.2 million of secondary products, and had $87.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3161, no matter in what industry they were produced, appear in table 6a and aggregate to $845.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the luggage industry amounted to $448.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES

This industry is made up of establishments primarily engaged in manufacturing women's handbags and purses of leather and other materials, except precious metals. Establishments primarily engaged in manufacturing precious metal handbags and purses are classified in industry 3911.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3171, Women's Handbags and Purses, had employment of 5.1 thousand. The employment figure was 46 percent below the 9.5 thousand reported in 1987.

The leading States in employment in 1992 were New York, Florida, New Jersey, and Massachusetts, accounting for approximately 66 percent of the industry's employment. This represents a shift from 1987 when New York, Missouri, Florida, and California were the leading States.

The total value of shipments for establishments classified in this industry was $462.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3171 shipped $402.2 million of products considered primary to the industry, $34.1 million of secondary products, and had $26.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3171, no matter in what industry they were produced, appear in table 6a and aggregate to $410.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the women's handbags and purses industry amounted to $189.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing small articles, such as wallets, key cases, and coin purses of leather and other materials, except precious metals. Establishments primarily engaged in manufacturing similar personal goods of precious metals are classified in industry 3911.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3172, Personal Leather Goods, N.E.C., had employment of 6.1 thousand. The employment figure was 15 percent below the 7.2 thousand reported in 1987.

The leading States in employment in 1992 were New York, Wisconsin, Massachusetts, and California. This represents a shift from 1987 when New York, Massachusetts, Wisconsin, and Arkansas were the leading States.

The total value of shipments for establishments classified in this industry was $427.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3172 shipped $394.6 million of products considered primary to the industry, $9.4 million of secondary products, and had $23.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 76 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3172, no matter in what industry they were produced, appear in table 6a and aggregate to $522.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the personal leather goods, not elsewhere classified, industry amounted to $159.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3199, LEATHER GOODS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing leather goods, not elsewhere classified, such as saddlery, harnesses, whips, embossed leather goods, leather desk sets, and industrial leather belting. Establishments primarily engaged in the manufacture of gaskets and packing are classified in industry 3053.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3199, Leather Goods, N.E.C., had employment of 7.9 thousand. The employment figure was 11 percent above the 7.1 thousand reported in 1987. Compared with 1991, employment decreased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Texas, New York, and Illinois, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when California, Texas, New York, and Tennessee were the leading States.

The total value of shipments for establishments classified in this industry was $571.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3199 shipped $467.0 million of products considered primary to the industry, $49.7 million of secondary products, and had $54.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio also was 90 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3199, no matter in what industry they were produced, appear in table 6a and aggregate to $494.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the leather goods, not elsewhere classified, industry amounted to $275.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3151, LEATHER GLOVES AND MITTENS															
1992 Census	56	71	39	2.8	36.2	2.4	4.4	27.1	65.9	69.6	136.9	.5	35.4	87	92
1991 ASM	(NA)	(NA)	(NA)	2.5	33.3	2.1	4.1	25.5	58.1	84.4	141.1	.2	30.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.8	33.6	2.4	4.2	26.6	59.2	99.3	154.8	.5	29.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.4	26.6	2.1	3.8	20.8	51.4	96.4	148.7	.5	22.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.0	32.4	2.7	4.5	25.3	73.3	118.0	191.4	.6	36.9	(NA)	(NA)
1987 Census	67	77	45	3.1	33.6	2.7	4.9	26.1	74.6	112.3	184.8	.7	39.2	83	93
1986 ASM	(NA)	(NA)	(NA)	3.5	33.7	3.1	5.4	25.7	63.4	131.0	202.9	.8	47.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.5	32.3	3.1	5.3	24.5	65.5	112.1	177.6	1.0	38.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	3.6	34.4	3.2	5.6	26.3	72.4	109.2	180.8	.9	35.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.5	31.8	3.0	4.5	24.2	69.1	99.7	167.4	.8	33.7	(NA)	(NA)
1982 Census	80	96	54	3.9	36.6	3.3	5.6	26.9	72.5	104.4	177.6	.7	33.0	86	81
1981 ASM	(NA)	(NA)	(NA)	5.7	41.7	4.9	8.4	28.8	74.3	118.4	196.3	1.3	41.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.1	38.9	5.3	8.9	27.7	62.4	115.1	180.7	.9	41.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.2	38.6	5.5	9.2	29.0	70.0	115.2	181.0	.9	41.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.3	35.0	4.7	8.3	27.2	72.1	111.3	176.1	5.5	35.8	(NA)	(NA)
1977 Census	84	101	66	5.5	33.9	4.7	8.2	25.5	67.6	111.8	178.0	1.9	33.7	83	85
INDUSTRY 3161, LUGGAGE															
1992 Census	284	292	110	9.7	181.8	7.6	14.2	106.5	494.9	448.9	944.0	14.5	172.2	94	95
1991 ASM	(NA)	(NA)	(NA)	12.5	230.3	9.4	14.3	125.9	598.3	541.9	1 147.5	9.6	179.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.0	244.0	10.8	16.9	141.2	618.0	544.3	1 169.4	11.5	188.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.9	216.7	9.7	17.3	123.1	604.8	520.9	1 121.2	15.0	198.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.1	192.1	8.4	14.9	107.7	504.5	447.1	956.6	9.2	180.5	(NA)	(NA)
1987 Census	234	241	109	11.4	195.7	8.3	15.1	104.1	505.9	430.0	928.9	11.8	184.0	97	94
1986 ASM	(NA)	(NA)	(NA)	11.4	165.7	8.3	14.6	91.1	338.8	318.2	665.8	9.5	167.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.1	189.5	9.8	17.1	105.4	371.9	349.8	724.6	10.6	190.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.7	207.2	11.4	20.9	119.3	467.8	388.9	827.1	10.3	191.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.3	206.8	11.8	20.2	112.5	442.9	362.8	813.5	8.4	123.4	(NA)	(NA)
1982 Census	286	292	131	16.0	193.8	12.5	21.0	112.5	432.8	355.5	789.0	12.0	150.7	93	95
1981 ASM	(NA)	(NA)	(NA)	18.6	215.7	14.7	22.8	134.5	500.4	436.3	928.5	17.9	180.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.7	229.8	16.7	26.9	141.1	527.1	441.4	957.3	16.3	171.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.0	224.5	17.8	29.2	141.6	447.8	435.7	872.8	11.1	156.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.1	175.5	16.4	30.3	114.1	368.0	368.4	717.0	9.3	140.4	(NA)	(NA)
1977 Census	286	298	130	19.2	164.1	15.8	29.0	105.5	328.3	328.0	654.9	8.1	113.5	94	98
INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES															
1992 Census	205	213	62	5.1	94.7	4.1	7.3	60.5	274.3	189.2	462.8	3.4	51.7	92	98
1991 ASM	(NA)	(NA)	(NA)	5.8	112.0	4.6	9.1	65.3	314.7	223.1	544.5	3.1	65.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.4	110.8	5.1	9.6	65.6	319.7	227.7	546.9	6.8	88.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.5	122.6	6.0	11.1	75.6	317.6	235.7	543.8	6.3	89.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.2	139.8	7.6	14.0	92.0	326.3	238.6	563.2	8.1	82.2	(NA)	(NA)
1987 Census	316	321	88	9.5	130.7	7.9	14.9	91.8	317.6	236.0	548.8	10.2	80.1	91	99
1986 ASM	(NA)	(NA)	(NA)	9.2	100.7	7.3	13.0	70.7	215.2	219.9	438.4	3.5	53.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.8	124.6	8.6	15.9	85.0	278.2	272.4	559.7	4.6	59.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.4	128.3	10.3	19.2	85.1	261.3	305.6	585.1	7.8	66.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.5	149.2	12.3	21.7	100.3	275.5	340.9	613.1	6.3	83.1	(NA)	(NA)
1982 Census	383	393	148	15.4	158.5	13.2	25.6	111.7	320.4	302.2	623.7	5.6	76.6	96	94
1981 ASM	(NA)	(NA)	(NA)	21.2	190.4	18.8	27.3	144.5	320.9	309.9	622.2	6.0	97.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	21.6	180.3	19.2	25.7	135.0	303.9	274.3	573.4	(S)	88.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.0	164.0	19.6	32.9	124.0	304.3	279.4	579.3	4.6	73.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.7	161.7	19.1	35.3	122.7	332.0	284.8	613.6	7.7	66.3	(NA)	(NA)
1977 Census	404	418	186	20.3	144.0	18.2	32.8	109.1	266.5	241.9	505.2	6.6	61.9	97	97
INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.															
1992 Census	190	196	60	6.1	106.4	4.6	8.4	58.1	271.8	159.1	427.5	6.8	83.8	98	76
1991 ASM	(NA)	(NA)	(NA)	6.4	97.6	5.1	9.6	58.3	180.4	176.9	361.9	5.0	80.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.5	96.2	5.2	9.6	59.3	189.9	185.1	365.2	5.2	84.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.9	104.7	5.4	10.6	61.9	197.3	167.3	363.4	5.6	68.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.6	108.1	5.9	11.1	65.8	224.5	192.3	415.4	2.9	90.1	(NA)	(NA)
1987 Census	205	209	62	7.2	101.3	5.7	10.6	63.4	212.6	175.8	393.3	3.5	84.5	95	83
1986 ASM	(NA)	(NA)	(NA)	6.8	88.1	5.7	8.9	53.9	193.6	163.4	353.1	2.7	75.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.6	109.9	6.2	10.2	67.8	231.2	149.5	388.1	5.4	72.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.4	111.0	6.9	11.5	68.1	231.7	169.3	397.2	3.9	99.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.8	117.2	7.2	13.2	67.9	260.0	184.1	441.9	2.2	99.7	(NA)	(NA)
1982 Census	239	243	87	9.9	112.6	7.3	13.4	66.3	243.6	167.0	411.4	3.2	97.2	94	83
1981 ASM	(NA)	(NA)	(NA)	10.6	108.1	7.9	13.9	66.9	268.8	161.0	426.8	3.2	71.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.8	100.9	8.3	14.1	62.0	247.8	153.4	406.3	1.9	55.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.8	105.6	9.5	17.3	63.1	241.5	158.8	400.9	3.6	67.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.4	107.7	10.1	18.7	67.5	238.7	166.7	400.0	6.1	76.5	(NA)	(NA)
1977 Census	253	260	97	11.9	98.2	9.6	17.2	60.9	205.8	161.2	366.8	4.8	62.5	96	91
INDUSTRY 3199, LEATHER GOODS, N.E.C.															
1992 Census	428	441	95	7.9	132.3	6.3	12.0	84.2	300.3	275.0	571.0	4.9	101.4	90	94
1991 ASM	(NA)	(NA)	(NA)	9.2	148.6	7.3	14.3	93.4	307.6	295.9	607.0	6.8	117.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.6	131.7	6.8	13.1	85.0	303.2	289.6	594.7	5.8	106.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.1	120.8	6.5	12.6	77.5	276.2	277.6	552.5	3.9	87.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.3	103.5	5.9	10.6	65.2	260.3	211.8	469.1	3.1	78.3	(NA)	(NA)
1987 Census	379	396	97	7.1	95.0	5.8	10.4	63.3	225.8	190.6	411.3	5.6	72.1	90	91
1986 ASM	(NA)	(NA)	(NA)	5.5	69.5	4.5	9.2	48.0	167.0	134.5	305.2	2.2	59.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.0	77.1	5.0	9.9	53.7	183.8	164.8	348.8	2.1	66.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.3	73.8	5.3	10.8	52.4	172.8	158.6	330.5	2.5	67.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.6	75.9	5.5	9.8	50.8	163.7	167.5	332.1	6.5	57.7	(NA)	(NA)
1982 Census	400	415	105	7.0	75.6	5.8	10.4	52.5	160.2	165.3	327.4	5.8	57.8	96	94
1981 ASM	(NA)	(NA)	(NA)	7.9	83.0	6.8	12.7	53.5	211.1	178.5	380.3	11.1	66.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.7	71.9	5.9	10.7	43.1	158.5	152.9	310.5	2.9	53.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.4	66.3	5.9	10.4	41.7	152.3	163.0	311.6	2.5	53.5	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3199, LEATHER GOODS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	8.7	70.3	7.0	12.6	44.7	134.0	168.3	298.6	10.8	58.2	(NA)	(NA)
1977 Census	512	532	117	8.6	67.9	7.0	12.4	43.7	136.7	154.0	284.2	4.1	50.6	94	95

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3151, LEATHER GLOVES AND MITTENS								
1992 Census	12 929	86	1 833	6.16	51	77	23 536	55	14.98
1991 ASM	13 320	84	1 952	6.22	60	83	23 240	57	14.17
1990 ASM	12 000	86	1 750	6.33	64	86	21 143	57	14.10
1989 ASM	11 083	87	1 810	5.47	65	83	21 417	52	13.53
1988 ASM	10 800	90	1 667	5.62	62	79	24 433	44	16.29
1987 Census	10 839	87	1 815	5.33	61	79	24 065	45	15.22
1986 ASM	9 629	89	1 742	4.76	65	81	18 114	53	11.74
1985 ASM	9 229	89	1 710	4.62	63	81	18 714	49	12.36
1984 ASM	9 556	89	1 750	4.70	60	79	20 111	48	12.93
1983 ASM	9 086	86	1 500	5.38	60	79	19 743	46	15.36
1982 Census	9 385	85	1 697	4.80	59	79	18 590	50	12.95
1981 ASM	7 316	86	1 714	3.43	60	82	13 035	56	8.85
1980 ASM	6 377	87	1 679	3.11	64	85	10 230	62	7.01
1979 ASM	6 226	89	1 673	3.15	64	85	11 290	55	7.61
1978 ASM	6 604	89	1 766	3.28	63	83	13 604	49	8.69
1977 Census	6 164	85	1 745	3.11	63	82	12 291	50	8.24
	INDUSTRY 3161, LUGGAGE								
1992 Census	18 742	78	1 868	7.50	48	67	51 021	37	34.85
1991 ASM	18 424	75	1 521	8.80	47	67	47 864	38	41.84
1990 ASM	17 429	77	1 565	8.36	47	67	44 143	39	36.57
1989 ASM	16 798	75	1 784	7.12	46	66	46 884	36	34.96
1988 ASM	17 306	76	1 774	7.23	47	67	45 450	38	33.86
1987 Census	17 167	73	1 819	6.89	46	67	44 377	39	33.50
1986 ASM	14 535	73	1 759	6.24	48	73	29 719	49	23.21
1985 ASM	14 466	75	1 745	6.16	48	74	28 389	51	21.75
1984 ASM	14 095	78	1 833	5.71	47	72	31 823	44	22.38
1983 ASM	13 516	77	1 712	5.57	45	70	28 948	47	21.93
1982 Census	12 113	78	1 680	5.36	45	70	27 050	45	20.61
1981 ASM	11 597	79	1 551	5.90	47	70	26 903	43	21.95
1980 ASM	11 101	81	1 611	5.25	46	70	25 464	44	19.59
1979 ASM	10 205	81	1 640	4.85	50	76	20 355	50	15.34
1978 ASM	8 731	82	1 848	3.77	51	76	18 308	48	12.15
1977 Census	8 547	82	1 835	3.64	50	75	17 099	50	11.32
	INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES								
1992 Census	18 569	80	1 780	8.29	41	61	53 784	35	37.58
1991 ASM	19 310	79	1 978	7.18	41	62	54 259	36	34.58
1990 ASM	17 313	80	1 882	6.83	42	62	49 953	35	33.30
1989 ASM	16 347	80	1 850	6.81	43	66	42 347	39	28.61
1988 ASM	15 196	83	1 842	6.57	42	67	35 467	43	23.31
1987 Census	13 758	83	1 886	6.16	43	67	33 432	41	21.32
1986 ASM	10 946	79	1 781	5.44	50	73	23 391	47	16.55
1985 ASM	11 537	80	1 849	5.35	49	71	25 759	45	17.50
1984 ASM	10 347	83	1 864	4.43	52	74	21 073	49	13.61
1983 ASM	10 290	85	1 764	4.62	56	80	19 000	54	12.70
1982 Census	10 292	86	1 939	4.36	48	74	20 805	49	12.52
1981 ASM	8 981	89	1 452	5.29	50	80	15 137	59	11.75
1980 ASM	8 347	89	1 339	5.25	48	79	14 069	59	11.82
1979 ASM	7 455	89	1 679	3.77	48	77	13 832	54	9.25
1978 ASM	7 452	88	1 848	3.48	46	73	15 300	49	9.41
1977 Census	7 094	90	1 802	3.33	48	76	13 128	54	8.13

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.								
1992 Census	17 443	75	1 826	6.92	37	62	44 557	39	32.36
1991 ASM	15 250	80	1 882	6.07	49	76	28 187	54	18.79
1990 ASM	14 800	80	1 846	6.18	51	77	29 215	51	19.78
1989 ASM	15 174	78	1 963	5.84	46	75	28 594	53	18.61
1988 ASM	14 224	78	1 881	5.93	46	72	29 539	48	20.23
1987 Census	14 069	79	1 860	5.98	45	70	29 528	48	20.06
1986 ASM	12 956	84	1 561	6.06	46	71	28 471	46	21.75
1985 ASM	14 461	82	1 645	6.65	39	67	30 421	48	22.67
1984 ASM	13 214	82	1 667	5.92	43	71	27 583	48	20.15
1983 ASM	11 959	73	1 833	5.14	42	68	26 531	45	19.70
1982 Census	11 374	74	1 836	4.95	41	68	24 606	46	18.18
1981 ASM	10 198	75	1 759	4.81	38	63	25 358	40	19.34
1980 ASM	9 343	77	1 699	4.40	38	63	22 944	41	17.57
1979 ASM	8 949	81	1 821	3.65	40	66	20 466	44	13.96
1978 ASM	8 685	81	1 851	3.61	42	69	19 250	45	12.76
1977 Census	8 252	81	1 792	3.54	44	71	17 294	48	11.97
	INDUSTRY 3199, LEATHER GOODS, N.E.C.								
1992 Census	16 962	81	1 905	7.02	48	71	38 500	44	25.03
1991 ASM	16 152	79	1 959	6.53	49	73	33 435	48	21.51
1990 ASM	15 314	79	1 926	6.49	49	71	35 256	43	23.15
1989 ASM	14 914	80	1 938	6.15	50	72	34 099	44	21.92
1988 ASM	14 178	81	1 797	6.15	45	67	35 658	40	24.56
1987 Census	13 380	82	1 793	6.09	46	69	31 803	42	21.71
1986 ASM	12 636	82	2 044	5.22	44	67	30 364	42	18.15
1985 ASM	12 850	83	1 980	5.42	47	69	30 633	42	18.57
1984 ASM	11 714	84	2 038	4.85	48	70	27 429	43	16.00
1983 ASM	11 500	83	1 782	5.18	50	73	24 803	46	16.70
1982 Census	10 800	83	1 793	5.05	50	74	22 886	47	15.40
1981 ASM	10 506	86	1 868	4.21	47	69	26 722	39	16.62
1980 ASM	9 338	77	1 814	4.03	49	72	20 584	45	14.81
1979 ASM	8 959	80	1 763	4.01	52	74	20 581	44	14.64
1978 ASM	8 080	80	1 800	3.55	56	80	15 402	52	10.63
1977 Census	7 895	81	1 771	3.52	54	78	15 895	50	11.02

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3151, LEATHER GLOVES AND MITTENS														
United States	–	**71**	**39**	**2.8**	**36.2**	**2.4**	**4.4**	**27.1**	**65.9**	**69.6**	**136.9**	**.5**	**3.1**	**74.6**
Arkansas	–	4	4	.3	3.9	.3	.5	3.2	10.7	7.9	18.7	.1	(NA)	(D)
Illinois	E6	5	5	.3	3.5	.3	.5	2.8	4.3	5.4	9.7	(D)	E	(D)
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	6	6	.4	4.9	.4	.7	3.7	8.6	8.0	16.8	(D)	(NA)	(D)
New York	–	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	5	1	.1	1.9	.1	.1	1.1	1.3	1.0	2.3	(D)	(NA)	(NA)
Wisconsin	–	12	8	.4	6.3	.4	.7	4.5	11.3	14.8	26.4	.1	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3161, LUGGAGE														
United States	–	**292**	**110**	**9.7**	**181.8**	**7.6**	**14.2**	**106.5**	**494.9**	**448.9**	**944.0**	**14.5**	**11.4**	**505.9**
California	–	46	19	1.5	29.2	1.2	2.4	18.5	68.3	47.4	117.4	1.0	1.2	46.5
Colorado	–	15	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	10	5	.4	5.2	.3	.6	3.7	8.3	13.3	21.1	.1	E	(D)
Illinois	E1	20	8	.5	9.0	.4	.8	5.7	18.1	15.4	33.6	.2	E	(D)
Indiana	–	12	6	.7	8.4	.6	.9	5.7	17.0	11.3	28.3	.3	E	(D)
Iowa	–	5	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Missouri	–	14	7	.5	6.3	.4	.8	4.4	12.4	10.3	22.6	(D)	(NA)	(NA)
New Jersey	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E1	42	19	1.1	19.7	.9	1.7	12.8	51.7	44.4	96.6	1.1	2.3	95.9
North Carolina	–	7	3	.1	1.9	.1	.2	1.3	5.4	3.8	9.0	(D)	(NA)	(NA)
Ohio	–	11	3	.2	4.7	.2	.3	2.9	8.6	6.2	15.4	.1	(NA)	(D)
Rhode Island	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	9	4	.2	2.6	.2	.3	1.9	3.8	3.1	7.2	(D)	.2	3.1
Utah	–	8	2	.2	1.9	.1	.3	1.6	3.6	2.4	5.9	(Z)	(NA)	(NA)
Virginia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	11	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Wisconsin	–	11	4	.2	2.8	.2	.3	2.0	4.9	3.3	8.1	(Z)	(NA)	(NA)
INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES														
United States	–	**213**	**62**	**5.1**	**94.7**	**4.1**	**7.3**	**60.5**	**274.3**	**189.2**	**462.8**	**3.4**	**9.5**	**317.6**
California	E1	19	6	.3	3.5	.2	.4	2.6	7.5	6.1	13.5	.1	F	(D)
Florida	–	12	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	14	6	.4	10.3	.3	.6	7.1	21.5	16.7	38.3	(D)	F	(D)
New Jersey	–	14	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
New York	–	85	22	1.7	36.7	1.3	2.3	19.8	121.8	92.4	213.5	1.9	4.0	150.8
Tennessee	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E1	12	6	.3	3.6	.2	.4	2.9	5.4	5.1	10.5	.1	E	(D)
INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.														
United States	–	**196**	**60**	**6.1**	**106.4**	**4.6**	**8.4**	**58.1**	**271.8**	**159.1**	**427.5**	**6.8**	**7.2**	**212.6**
Arkansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	29	7	.7	11.8	.5	.9	5.6	28.0	16.6	43.6	.2	E	(D)
Florida	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	9	5	.8	16.2	.6	1.0	8.3	41.4	33.9	74.0	(D)	G	(D)
Missouri	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	12	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
New Mexico	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	39	14	1.1	19.3	.9	1.7	12.1	36.6	27.4	64.0	.5	1.7	42.3
Ohio	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oklahoma	–	4	3	.2	1.8	.2	.2	1.2	3.0	2.4	5.3	.1	(NA)	(D)
Rhode Island	–	8	3	.3	6.1	.3	.6	4.0	9.8	7.3	17.4	(Z)	E	(D)
Wisconsin	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3199, LEATHER GOODS, N.E.C.														
United States	**E1**	**441**	**95**	**7.9**	**132.3**	**6.3**	**12.0**	**84.2**	**300.3**	**275.0**	**571.0**	**4.9**	**7.1**	**225.8**
Arkansas	–	6	3	.2	3.0	.2	.3	1.6	6.6	6.1	12.4	.1	(NA)	(NA)
California	E2	51	12	1.5	28.2	1.2	2.3	17.5	58.5	46.9	105.4	.8	G	(D)
Colorado	–	10	2	.1	1.8	.1	.1	.9	3.6	5.1	9.1	(Z)	(NA)	(NA)
Florida	E1	13	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Idaho	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	13	4	.7	10.4	.6	1.3	8.3	27.3	26.8	50.6	.5	E	(D)
Indiana	–	10	2	.2	3.3	.2	.4	2.2	5.7	3.6	9.3	(D)	(NA)	(NA)
Massachusetts	–	15	6	.3	6.1	.3	.5	4.3	19.2	17.1	36.1	.2	E	(D)
Missouri	–	12	3	.1	2.2	.1	.2	1.2	5.3	2.4	7.2	(Z)	(NA)	(D)
New York	E2	40	10	.7	13.5	.5	1.0	8.1	28.4	26.0	53.2	(D)	F	(D)
North Carolina	–	6	2	.2	2.7	.1	.3	1.6	6.7	4.8	11.2	(D)	(NA)	(NA)
Ohio	–	10	5	.5	8.3	.4	.7	4.9	22.1	21.8	43.5	.3	(NA)	(D)
Oklahoma	–	14	5	.4	5.0	.3	.5	3.0	7.8	8.4	16.4	.2	E	(D)
Pennsylvania	–	15	4	.2	3.5	.2	.3	2.0	10.6	11.0	22.4	(Z)	.4	16.3
Tennessee	–	20	5	.4	6.0	.3	.6	3.8	13.2	17.3	30.5	.4	.5	13.3
Texas	E1	67	15	1.0	15.3	.8	1.5	10.2	31.8	34.4	67.0	.4	1.1	28.9

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather gloves and mittens (SIC 3151)	Luggage (SIC 3161)	Women's handbags and purses (SIC 3171)	Personal leather goods (SIC 3172)	Leather goods, n.e.c. (SIC 3199)
Companies ---- number	56	284	205	190	428
All establishments ---- number	71	292	213	196	441
With 1 to 19 employees ---- number	32	182	151	136	346
With 20 to 99 employees ---- number	33	90	51	42	81
With 100 employees or more ---- number	6	20	11	18	14
Employment and labor costs:					
Employees ---- 1,000	2.8	9.7	5.1	6.1	7.9
Compensation, total ---- mil dol	43.7	222.6	111.0	126.7	160.5
Annual payroll ---- mil dol	36.2	181.8	94.7	106.4	132.3
Fringe benefits ---- mil dol	7.5	40.8	16.3	20.3	28.2
Social Security and other legally required payments ---- mil dol	3.5	23.3	8.3	9.6	13.2
Employer voluntary payments ---- mil dol	3.9	17.4	8.0	10.7	15.0
Production workers:					
Average for year ---- 1,000	2.4	7.6	4.1	4.6	6.3
March ---- 1,000	2.4	7.4	4.1	4.5	6.2
May ---- 1,000	2.4	7.5	4.0	4.5	6.3
August ---- 1,000	2.4	7.7	4.0	4.7	6.3
November ---- 1,000	2.4	7.6	4.2	4.5	6.2
Hours ---- millions	4.4	14.2	7.3	8.4	12.0
Wages ---- mil dol	27.1	106.5	60.5	58.1	84.2
Cost of materials[1] ---- mil dol	69.6	448.9	189.2	159.1	275.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	56.0	376.0	146.5	131.6	229.7
Resales ---- mil dol	9.0	40.3	18.9	11.7	34.8
Fuels ---- mil dol	.5	2.9	1.4	1.1	3.3
Purchased electricity ---- mil dol	.8	6.1	2.8	2.9	4.1
Contract work ---- mil dol	3.4	23.5	19.6	11.7	3.1
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	13.4	86.9	30.4	37.9	60.0
Generated less sold ---- mil kWh	(Z)	–	–	–	–
Total value of shipments ---- mil dol	136.9	944.0	462.8	427.5	571.0
Value added ---- mil dol	65.9	494.9	274.3	271.8	300.3
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	33.9	165.2	50.4	77.9	94.8
Finished goods ---- mil dol	14.4	78.8	22.4	41.2	52.6
Work in process ---- mil dol	7.9	22.9	9.5	9.7	15.8
Materials and supplies ---- mil dol	11.6	63.5	18.5	27.0	26.5
End of 1992 ---- mil dol	35.4	172.2	51.7	83.8	101.4
Finished goods ---- mil dol	13.9	79.3	23.4	44.2	57.9
Work in process ---- mil dol	7.0	22.2	9.2	10.1	14.7
Materials and supplies ---- mil dol	14.5	70.8	19.0	29.4	28.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather gloves and mittens (SIC 3151)	Luggage (SIC 3161)	Women's handbags and purses (SIC 3171)	Personal leather goods (SIC 3172)	Leather goods, n.e.c. (SIC 3199)
Gross book value of depreciable assets:					
Total:					
Beginning of year	14.5	119.8	30.9	50.8	60.4
New capital expenditures[1]	.5	14.5	3.4	6.8	4.9
Used capital expenditures	.1	.2	1.3	.1	.6
Retirements	.3	3.2	.8	1.4	1.5
End of year	14.8	131.4	34.7	56.3	64.3
Buildings and other structures:					
Beginning of year	4.4	35.1	8.1	16.7	18.0
New capital expenditures	(Z)	.9	.9	4.1	.4
Used capital expenditures	(D)	(Z)	(D)	(D)	(Z)
Retirements	(D)	1.3	(D)	(D)	.1
End of year	4.4	34.7	9.0	20.8	18.4
Machinery and equipment:					
Beginning of year	10.1	84.8	22.7	34.1	42.4
New capital expenditures[1]	.4	13.7	2.5	2.7	4.4
Used capital expenditures	(D)	.2	(D)	(D)	.5
Retirements	(D)	1.9	(D)	(D)	1.4
End of year	10.4	96.8	25.7	35.5	45.9
Depreciation charges during 1992:					
Total	1.3	10.4	2.6	3.6	5.0
Buildings and other structures	.3	1.9	.4	.8	.8
Machinery and equipment	1.1	8.5	2.2	2.9	4.2
Rental payments:					
Total	1.3	13.3	5.9	5.2	8.9
Buildings and other structures	.7	7.8	4.2	2.7	5.5
Machinery and equipment	.6	5.4	1.7	2.5	3.5

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Leather gloves and mittens (SIC 3151)		Luggage (SIC 3161)		Women's handbags and purses (SIC 3171)		Personal leather goods (SIC 3172)		Leather goods, n.e.c. (SIC 3199)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	(S)	(X)	.3	(X)	(S)	(X)	(S)	(X)	.4	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	92.0	(X)
Machinery	(S)	(X)	2.8	(X)	(S)	(X)	(S)	(X)	2.9	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	98.6	(X)
Other purchased services:										
Communications	(S)	(X)	3.6	(X)	(S)	(X)	(S)	(X)	3.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	67.2	(X)	(S)	(X)	(S)	(X)	98.2	(X)
Legal	(S)	(X)	1.5	(X)	(S)	(X)	(S)	(X)	.9	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	92.0	(X)
Accounting and bookkeeping	(S)	(X)	1.3	(X)	(S)	(X)	(S)	(X)	1.1	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	92.0	(X)
Advertising	(S)	(X)	10.4	(X)	(S)	(X)	(S)	(X)	7.5	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	98.6	(X)
Software and other data processing	(S)	(X)	1.2	(X)	(S)	(X)	(S)	(X)	1.3	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	87.5	(X)
Refuse removal, including hazardous waste	(S)	(X)	1.0	(X)	(S)	(X)	(S)	(X)	.6	(X)
Response coverage ratio (percent)[2]	(S)	(X)	69.2	(X)	(S)	(X)	(S)	(X)	98.6	(X)
New machinery and equipment expenditures	.4	(X)	13.7	(X)	2.5	(X)	2.7	(X)	4.4	(X)
Automobiles, trucks, etc., for highway use	–	(X)	.1	77	.9	51	(S)	(X)	.5	58
Computers and peripheral data processing equipment	.1	23	4.1	5	.7	25	(S)	(X)	.5	35
All other	.3	8	9.6	3	.8	42	(S)	(X)	3.5	11
Adjustment ratio[3]	1.1	(X)	.5	(X)	18.5	(X)	(S)	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	56.0	(X)	376.0	(X)	146.5	(X)	131.6	(X)	229.7	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	107.3	22	(S)	(X)	(S)	(X)	42.0	41
Materials purchased or transferred from domestic sources	(S)	(X)	268.7	9	(S)	(X)	(S)	(X)	187.6	10
Adjustment ratio[3]	(S)	(X)	.6	(X)	(S)	(X)	(S)	(X)	.9	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3151, LEATHER GLOVES AND MITTENS												
Total	**–**	**71**	**2.8**	**36.2**	**2.4**	**4.4**	**27.1**	**65.9**	**69.6**	**136.9**	**.5**	**35.4**
Establishments with an average of—												
1 to 4 employees	E8	10	(Z)	.2	(Z)	(Z)	.2	.4	.5	.8	–	.2
5 to 9 employees	E1	9	.1	.9	.1	.1	.7	1.4	1.5	3.1	(Z)	.7
10 to 19 employees	E1	13	.2	2.6	.1	.3	1.9	6.1	7.1	13.8	(Z)	3.8
20 to 49 employees	–	20	.7	9.7	.6	1.1	7.3	22.4	23.9	46.2	.2	9.9
50 to 99 employees	–	13	.9	11.5	.7	1.3	8.0	13.6	17.7	31.6	.1	11.8
100 to 249 employees	–	6	.9	11.3	.9	1.6	9.1	22.0	18.9	41.5	.2	9.0
Covered by administrative records[2]	E6	12	(Z)	.3	(Z)	(Z)	.2	.5	.6	1.1	–	.2
INDUSTRY 3161, LUGGAGE												
Total	**–**	**292**	**9.7**	**181.8**	**7.6**	**14.2**	**106.5**	**494.9**	**448.9**	**944.0**	**14.5**	**172.2**
Establishments with an average of—												
1 to 4 employees	E5	90	.2	2.8	.1	.2	1.9	6.6	5.5	12.1	.1	2.7
5 to 9 employees	E4	47	.3	4.4	.2	.4	2.9	8.9	7.3	16.2	.1	3.4
10 to 19 employees	E2	45	.6	8.9	.5	.8	5.7	23.8	12.5	36.4	.3	5.6
20 to 49 employees	E1	56	1.7	26.5	1.4	2.7	17.9	51.7	38.6	90.3	1.1	18.4
50 to 99 employees	–	34	2.5	42.5	2.1	3.7	27.3	105.8	99.3	207.6	1.6	36.6
100 to 249 employees	–	16	2.3	42.9	1.8	3.6	25.6	108.5	134.8	239.3	11.2	45.9
250 to 499 employees	–	3	2.1	53.8	1.5	2.7	25.3	189.5	151.0	342.1	(D)	59.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E6	124	.5	6.5	.4	.7	4.5	14.3	12.4	26.7	.3	6.3
INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES												
Total	**–**	**213**	**5.1**	**94.7**	**4.1**	**7.3**	**60.5**	**274.3**	**189.2**	**462.8**	**3.4**	**51.7**
Establishments with an average of—												
1 to 4 employees	E1	94	.2	2.7	.1	.2	1.9	7.9	6.2	14.1	.2	2.4
5 to 9 employees	E1	31	.2	3.3	.2	.3	2.5	8.6	8.9	17.3	.2	2.4
10 to 19 employees	–	26	.4	6.0	.3	.5	3.8	13.9	12.3	26.1	.2	2.4
20 to 49 employees	–	35	1.1	17.3	.9	1.5	12.4	41.1	29.9	70.9	.6	11.0
50 to 99 employees	–	16	1.0	15.6	.8	1.4	11.1	42.5	29.2	71.8	.5	8.3
100 to 249 employees	–	9	2.3	49.9	1.8	3.3	28.9	160.3	102.8	262.5	1.7	25.3
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E1	110	.4	4.6	.3	.5	3.2	12.2	9.4	21.6	.4	3.8
INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.												
Total	**–**	**196**	**6.1**	**106.4**	**4.6**	**8.4**	**58.1**	**271.8**	**159.1**	**427.5**	**6.8**	**83.8**
Establishments with an average of—												
1 to 4 employees	E4	84	.1	2.0	.1	.2	1.2	4.8	3.9	8.8	.1	1.7
5 to 9 employees	E1	29	.2	2.9	.1	.3	1.8	7.3	4.2	11.5	.1	1.8
10 to 19 employees	E2	23	.3	4.4	.2	.4	2.7	9.2	7.9	17.2	.1	2.7
20 to 49 employees	–	24	.7	11.3	.6	1.1	6.9	19.5	15.3	35.2	.3	6.4
50 to 99 employees	E1	18	1.2	18.3	1.0	1.8	11.6	32.8	27.5	59.7	.7	13.1
100 to 249 employees	–	14	1.9	34.9	1.6	2.9	19.9	80.4	67.1	145.6	5.5	33.1
250 to 499 employees	–	3	1.5	32.6	.9	1.8	14.0	117.7	33.2	149.4	(D)	24.9
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E7	61	.1	1.4	.1	.1	.8	2.7	2.4	5.1	.1	1.0
INDUSTRY 3199, LEATHER GOODS, N.E.C.												
Total	**E1**	**441**	**7.9**	**132.3**	**6.3**	**12.0**	**84.2**	**300.3**	**275.0**	**571.0**	**4.9**	**101.4**
Establishments with an average of—												
1 to 4 employees	E5	206	.3	4.9	.3	.4	3.1	10.4	13.0	23.4	.2	3.2
5 to 9 employees	E2	75	.5	7.0	.4	.7	4.6	14.1	16.4	30.6	.2	4.3
10 to 19 employees	E1	65	.9	13.2	.7	1.2	8.3	28.9	23.7	51.8	.9	8.8
20 to 49 employees	–	59	1.8	30.4	1.4	2.6	18.9	67.6	67.1	134.7	.8	23.0
50 to 99 employees	E1	22	1.6	27.1	1.3	2.4	16.9	54.5	53.0	106.3	1.2	19.2
100 to 249 employees	E1	12	2.7	49.7	2.3	4.8	32.4	124.8	101.8	224.3	1.6	43.0
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E8	171	.3	3.4	.2	.3	2.0	7.8	8.4	16.3	.1	2.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3151	**Leather gloves and mittens:**										
	All establishments in industry	71	2.8	36.2	2.4	4.4	27.1	65.9	69.6	136.9	.5
3161	**Luggage:**										
	All establishments in industry	292	9.7	181.8	7.6	14.2	106.5	494.9	448.9	944.0	14.5
3171	**Women's handbags and purses:**										
	All establishments in industry	213	5.1	94.7	4.1	7.3	60.5	274.3	189.2	462.8	3.4
3172	**Personal leather goods, n.e.c.:**										
	All establishments in industry	196	6.1	106.4	4.6	8.4	58.1	271.8	159.1	427.5	6.8
3199	**Leather goods, n.e.c.:**										
	All establishments in industry	441	7.9	132.3	6.3	12.0	84.2	300.3	275.0	571.0	4.9

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3151, LEATHER GLOVES AND MITTENS			
Total value of shipments	136.9	184.8	177.6
Primary products value of shipments	105.3	137.6	112.9
Secondary products value of shipments	15.4	27.9	18.6
Total miscellaneous receipts	16.1	19.3	46.1
Value of resales	14.2	18.2	42.6
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	87	83	86
Value of primary products shipments made in all industries	114.0	147.3	138.7
Value of primary products shipments made in this industry	105.3	137.6	112.9
Value of primary products shipments made in other industries	8.7	9.7	25.8
Coverage ratio	92	93	81
INDUSTRY 3161, LUGGAGE			
Total value of shipments	944.0	928.9	789.0
Primary products value of shipments	806.1	768.3	615.3
Secondary products value of shipments	50.2	23.8	44.0
Total miscellaneous receipts	87.7	136.7	129.7
Value of resales	77.2	129.2	123.7
Contract receipts	6.2	(D)	2.3
Other miscellaneous receipts	4.3	(D)	3.7
Primary products specialization ratio	94	97	93
Value of primary products shipments made in all industries	845.9	816.8	647.3
Value of primary products shipments made in this industry	806.1	768.3	615.3
Value of primary products shipments made in other industries	39.8	48.5	32.0
Coverage ratio	95	94	95
INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES			
Total value of shipments	462.8	548.8	623.7
Primary products value of shipments	402.2	465.1	495.8
Secondary products value of shipments	34.1	43.8	20.0
Total miscellaneous receipts	26.5	39.9	107.9
Value of resales	25.0	33.0	(D)
Contract receipts	(D)	(D)	5.6
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	92	91	96
Value of primary products shipments made in all industries	410.7	469.3	524.9
Value of primary products shipments made in this industry	402.2	465.1	495.8
Value of primary products shipments made in other industries	8.6	4.2	29.1
Coverage ratio	98	99	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.			
Total value of shipments	427.5	393.3	411.4
Primary products value of shipments	394.6	342.3	327.4
Secondary products value of shipments	9.4	16.8	20.9
Total miscellaneous receipts	23.5	34.2	63.1
Value of resales	16.8	33.9	62.3
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	98	95	94
Value of primary products shipments made in all industries	522.3	411.6	393.1
Value of primary products shipments made in this industry	394.6	342.3	327.4
Value of primary products shipments made in other industries	127.7	69.3	65.6
Coverage ratio	76	83	83
INDUSTRY 3199, LEATHER GOODS, N.E.C.			
Total value of shipments	571.0	411.3	327.4
Primary products value of shipments	467.0	344.9	288.1
Secondary products value of shipments	49.7	37.6	13.9
Total miscellaneous receipts	54.3	28.8	25.4
Value of resales	49.5	25.7	22.6
Contract receipts	(D)	2.8	2.1
Other miscellaneous receipts	(D)	.3	.7
Primary products specialization ratio	90	90	96
Value of primary products shipments made in all industries	494.8	379.0	305.1
Value of primary products shipments made in this industry	467.0	344.9	288.1
Value of primary products shipments made in other industries	27.8	34.1	17.0
Coverage ratio	94	91	94

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3151– —	**LEATHER GLOVES AND MITTENS**				
	Total	**(NA)**	**114.0**	**(NA)**	**147.3**
31510	Gloves and mittens, all leather	(NA)	114.0	(NA)	147.3
31510 00	Gloves and mittens, all leather[3 4 5]	50	112.8	48	133.7
31510 02	Leather gloves and mittens, n.s.k.[6]	(NA)	1.2	(NA)	13.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3161– —	**LUGGAGE**						
	Total	**(NA)**	**(X)**	**845.9**	**(NA)**	**(X)**	**816.8**
31610	Suitcases, briefcases, bags, and musical instrument cases	(NA)	(X)	845.9	(NA)	(X)	816.8
	Hand luggage (including zippered):						
31610 01	Outer surface of all leather or mostly leather — thousands	17	760.9	65.4	15	820.6	70.1
31610 03	Outer surface of all textile or mostly textile materials — thousands	35	5 611.4	192.0	31	3 362.9	146.1
31610 05	Outer surface of supported vinyl or plastics — thousands	21	4 187.9	146.6	20	3 693.4	126.9
31610 07	Molded and semimolded — thousands	3	(D)	(D)	5	1 875.5	85.0
31610 09	All other materials — thousands	4	(D)	(D)	5	15.3	2.3
31610 43	Tote bags, open, without closures — thousands	9	1 746.3	13.6	20	**3 728.9	32.2
31610 53	Occupational luggage cases, sample cases, binocular, and camera cases — thousands	30	3 665.7	66.9	26	2 613.1	55.1
31610 63	Trunks, hand trunks, and lockers — thousands	12	869.3	18.5	5	751.7	19.1
31610 73	Briefcases, brief bags, school bags, envelopes, catalog cases, and zippered ring binders — thousands	44	3 218.7	77.5	36	3 808.8	91.4
31610 81	Musical instrument cases — thousands	20	451.2	20.7	17	654.5	24.5
31610 84	Attache cases — thousands	12	1 176.1	45.3	17	1 129.1	55.0
31610 86	Other luggage — thousands	29	*650.0	47.0	20	680.6	38.2
31610 00	Luggage, n.s.k.[7]	(NA)	(X)	29.4	(NA)	(X)	30.7
31610 02	Luggage, n.s.k.[8]	(NA)	(X)	26.7	(NA)	(X)	40.2
3171– —	**WOMEN'S AND CHILDREN'S HANDBAGS AND PURSES**						
	Total	**(NA)**	**(X)**	**410.7**	**(NA)**	**(X)**	**469.3**
31710	Women's and children's handbags and purses	(NA)	(X)	410.7	(NA)	(X)	469.3
31710 11	Outer surface of all leather or mostly leather — thousands	47	15 508.8	261.3	63	16 458.8	274.5
31710 51	Outer surface of all plastics or mostly plastics (including vinyl) — thousands	19	4 448.8	63.1	22	7 321.8	88.1
31710 71	Outer surface of all other materials, except precious metals — thousands	14	2 596.1	33.4	18	3 417.3	37.4
31710 00	Women's and children's handbags and purses, n.s.k.[5]	(NA)	(X)	31.2	(NA)	(X)	36.7
31710 02	Women's and children's handbags and purses, n.s.k.[6]	(NA)	(X)	21.6	(NA)	(X)	32.6
3172– —	**PERSONAL LEATHER GOODS, N.E.C.**						
	Total	**(NA)**	**(X)**	**522.3**	**(NA)**	**(X)**	**411.6**
31720	Personal leather goods, n.e.c.	(NA)	(X)	522.3	(NA)	(X)	411.6
	Billfolds, wallets, French purses, and clutches:						
31720 11	Leather or mostly leather — thousands	33	22 665.4	232.0	39	18 262.0	154.5
31720 15	Other than leather (plastics, fiber, etc.) — thousands	14	*2 705.9	13.7	15	**3 165.8	17.2
31720 31	Travel kits (fitted and unfitted) — thousands	10	3 468.0	33.8	13	3 440.4	20.0
31720 53	Jewelry boxes and cases, except precious metal; pocket size — thousands	10	2 244.8	26.9	12	2 428.2	39.5
31720 61	Compacts and vanity cases with outer surface of all leather or mostly leather — thousands	(NA)	–	–	2	(D)	([9])
	Other personal goods (including key, cigarette, eyeglass, and pass card cases):						
31720 93	All leather or mostly leather	37	(X)	107.2	30	(X)	72.1
31720 97	Other than leather (plastics, fiber, etc.)	33	(X)	79.1	38	(X)	75.3
31720 00	Personal leather goods, n.e.c., n.s.k.[7]	(NA)	(X)	24.6	(NA)	(X)	[9]11.6
31720 02	Personal leather goods, n.e.c., n.s.k.[8]	(NA)	(X)	5.1	(NA)	(X)	21.4

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3199– —	**LEATHER GOODS, N.E.C.**				
	Total	**(NA)**	**494.8**	**(NA)**	**379.0**
31990	Leather products, n.e.c.	(NA)	494.8	(NA)	379.0
31990 11	Leather novelties	33	60.8	25	64.9
31990 31	Saddlery, harness, and accouterments	54	89.4	30	55.1
31990 91	Industrial leather belting and other industrial leather products made wholly or mostly of leather	21	44.3	11	20.9
31990 96	Dog collars, leashes, and other household pet accessories made of leather	25	85.3	19	35.1
31990 97	Other leather goods (desk sets, holsters, etc.)	78	142.5	52	124.5
31990 00	Leather goods, n.e.c., n.s.k.[5]	(NA)	52.4	(NA)	13.5
31990 02	Leather goods, n.e.c., n.s.k.[6]	(NA)	20.0	(NA)	65.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]This product code is primary to more than one industry.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]For 1987, product code 31720 61 was included with product code 31720 00.

Table 6a–2. **Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Gloves and mittens	(NA)	427.3	(NA)	402.4
22590 20	Made in knitting mills	14	108.0	17	86.1
23813 00	Made from purchased knit fabrics	34	184.3	30	139.6
23814 00	Made from purchased leather-and-fabric (combinations)	24	22.2	32	43.0
31510 00	Gloves and mittens, all leather	50	112.8	48	133.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Not applicable]

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3151-	**Leather gloves and mittens**	**114.0**	**127.0**	**113.0**	**116.6**	**151.7**	**147.3**	**138.7**	**121.9**
31510	Gloves and mittens, all leather	114.0	127.0	113.0	116.6	151.7	147.3	138.7	121.9
3161-	**Luggage**	**845.9**	**1 028.4**	**1 064.3**	**1 001.2**	**871.4**	**816.8**	**647.3**	**585.3**
31610	Suitcases, briefcases, bags, and musical instrument cases	845.9	1 028.4	1 064.3	1 001.2	871.4	816.8	647.3	585.3
3171-	**Women's and children's handbags and purses**	**410.7**	**432.1**	**452.9**	**462.0**	**536.7**	**469.3**	**524.9**	**436.2**
31710	Women's and children's handbags and purses	410.7	432.1	452.9	462.0	536.7	469.3	524.9	436.2
3172-	**Personal leather goods, n.e.c.**	**522.3**	**375.3**	**378.8**	**388.3**	**424.4**	**411.6**	**393.1**	**369.2**
31720	Personal leather goods, n.e.c.	522.3	375.3	378.8	388.3	424.4	411.6	393.1	369.2
3199-	**Leather goods, n.e.c.**	**494.8**	**477.1**	**494.2**	**466.7**	**402.2**	**379.0**	**305.1**	**237.4**
31990	Leather products, n.e.c.	494.8	477.1	494.2	466.7	402.2	379.0	305.1	237.4

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 3151, LEATHER GLOVES AND MITTENS				
	Materials, ingredients, containers, and supplies	**(X)**	**56.0**	**(X)**	**92.4**
220129	Broadwoven fabrics (piece goods) mil lin yd	(S)	3.6	(S)	3.4
225078	Knit fabrics mil lb	*1.5	3.6	(S)	2.5
228015	Yarn, all fibers mil lb	(D)	(2)	(NA)	(3)
311100	Finished leather mil sq ft	*37.8	33.9	41.6	54.7
970099	All other materials and components, parts, containers, and supplies	(X)	[2]7.3	(X)	[3]22.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	(X)	7.6	(X)	9.3

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3161, LUGGAGE		
	Materials, ingredients, containers, and supplies	**376.0**	**341.1**
220129	Broadwoven fabrics (piece goods)	66.1	102.7
229503	Plastics coated, impregnated, or laminated fabrics	85.2	29.7
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	9.5	11.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	19.4	11.2
311100	Finished leather	38.5	51.2
342983	Trunk and luggage hardware, including locks	37.9	32.1
970099	All other materials and components, parts, containers, and supplies	78.5	69.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	42.1	33.8
	INDUSTRY 3171, WOMEN'S HANDBAGS AND PURSES		
	Materials, ingredients, containers, and supplies	**146.5**	**192.6**
220129	Broadwoven fabrics (piece goods)	7.6	8.2
229503	Plastics coated, impregnated, or laminated fabrics	8.8	13.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	–	(Z)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	6.3	18.5
311100	Finished leather	82.0	87.7
342983	Trunk and luggage hardware, including locks	(D)	4.7
970099	All other materials and components, parts, containers, and supplies	(D)	28.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	22.0	31.6
	INDUSTRY 3172, PERSONAL LEATHER GOODS, N.E.C.		
	Materials, ingredients, containers, and supplies	**131.6**	**144.8**
220129	Broadwoven fabrics (piece goods)	13.3	19.8
229503	Plastics coated, impregnated, or laminated fabrics	10.9	14.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	.2	(3)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	2.1	5.1
311100	Finished leather	42.6	51.3
342983	Trunk and luggage hardware, including locks	2.1	.9
970099	All other materials and components, parts, containers, and supplies	52.2	[3]40.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	8.6	12.6
	INDUSTRY 3199, LEATHER GOODS, N.E.C.		
	Materials, ingredients, containers, and supplies	**229.7**	**162.2**
220129	Broadwoven fabrics (piece goods)	12.7	3.5
229503	Plastics coated, impregnated, or laminated fabrics	4.4	3.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	.2	.2
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	5.5	2.3
311100	Finished leather	63.5	60.2
342983	Trunk and luggage hardware, including locks	1.2	(3)
970099	All other materials and components, parts, containers, and supplies	79.9	[3]58.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	62.4	34.4

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]For 1992, data for material code 228015 were included with material code 970099.
[3]For 1987, data for this material code were not collected separately but included with material code 970099.
[4]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3142060	MA31A, Footwear
3143000	MA31A, Footwear
3144000	MA31A, Footwear
3149010	MA31A, Footwear
3149020	MA31A, Footwear
3151000	MA23D, Gloves and Mittens

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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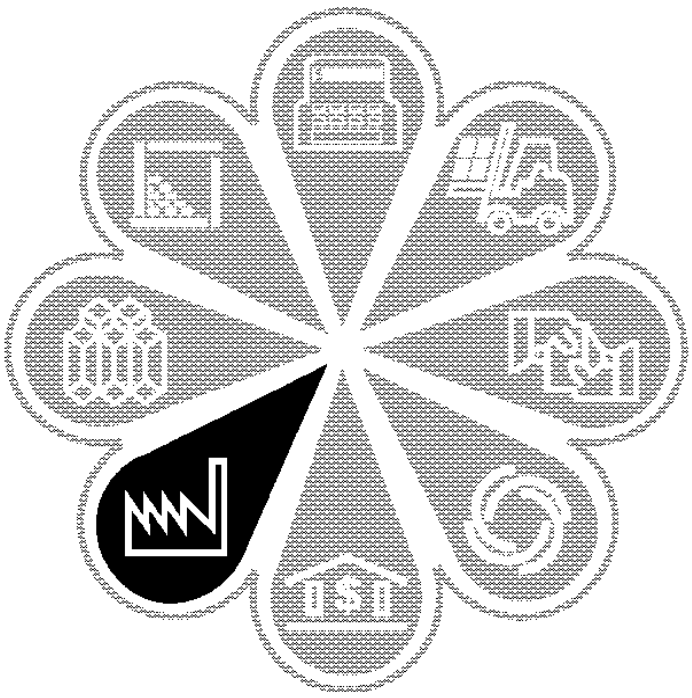
1992 Census of Manufactures

MC92-I-32A

INDUSTRY SERIES

Glass Products

Industries 3211, 3221, 3229, and 3231



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-32A

INDUSTRY SERIES

Glass Products

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
3211	Flat Glass
3221	Glass Containers
3229	Pressed and Blown Glass, N.E.C.
3231	Products of Purchased Glass

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3211, FLAT GLASS

This industry is made up of establishments primarily engaged in manufacturing flat glass. This industry also produces laminated glass, but establishments primarily engaged in manufacturing laminated glass from purchased flat glass are classified in industry 3231. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-32A, Flat Glass. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3211, Flat Glass, had employment of 11.9 thousand. The employment figure was 18 percent below the 14.6 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Tennessee, Pennsylvania, California, and Michigan, accounting for approximately 57 percent of the industry's employment. This represents a shift from 1987 when Tennessee, Pennsylvania, Ohio, and Michigan were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

The products primary to industry 3211, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the flat glass industry amounted to $770.5 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3221, GLASS CONTAINERS

This industry is made up of establishments primarily engaged in manufacturing glass containers for commercial packing and bottling and for home canning. Products of this industry also are collected in the Current Industrial Report (CIR) M-32G, Glass Containers. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3221, Glass Containers, had employment of 32.3 thousand. The employment figure was 21 percent below the 41.1 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Pennsylvania, New Jersey, and Illinois, accounting for approximately 47 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3221 shipped $4.8 billion of glass container products considered primary to the industry, $32.8 million of secondary products, and had $10.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 100 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3221, no matter in what industry they were produced, appear in table 6a and aggregate to $4.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the glass containers industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. No data were obtained from administrative records of other agencies.

INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing glass and glassware, not elsewhere classified, pressed, blown, or shaped from glass produced in the same establishment. Establishments primarily engaged in manufacturing textile glass fibers also are included in this industry, but establishments primarily engaged in manufacturing glass wool insulation products are classified in industry 3296. Establishments primarily engaged in manufacturing fiber optic cables are classified in industry 3357, and those manufacturing fiber optic medical devices are classified in industry group 384. Establishments primarily engaged in the production of pressed lenses for vehicular lighting, beacons, and lanterns are also included in this industry, but establishments primarily engaged in the production of optical lenses are classified in industry 3827. Establishments primarily engaged in manufacturing glass containers are classified in industry 3221, and those manufacturing complete electric light bulbs are classified in industry 3641. Products of this industry also are collected in the Current Industrial Report (CIR) MA-32E, Consumer, Scientific, Technical, and Industrial Glassware. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3229, Pressed and Blown Glass, N.E.C., had employment of 33.9 thousand. The employment figure was 7 percent below the 36.3 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Pennsylvania, North Carolina, and West Virginia, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3229 shipped $4.0 billion of pressed and blown glass products, not elsewhere classified, considered primary to the industry, $28.0 million of secondary products, and had $156.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3229, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pressed and blown glass, not elsewhere classified, industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS

This industry is made up of establishments primarily engaged in manufacturing glass products from purchased glass. Establishments primarily engaged in manufacturing optical lenses, except ophthalmic, are classified in industry 3827, and those manufacturing ophthalmic lenses are classified in industry 3851.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3231, Products of Purchased Glass, had employment of 54.7 thousand. The employment figure was 7 percent above the 51.1 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, North Carolina, Ohio, and California, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Ohio, and Michigan accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3231 shipped $6.5 billion of purchased glass products considered primary to the industry, $195.1 million of secondary products, and had $161.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio).

The products primary to industry 3231, no matter in what industry they were produced, appear in table 6a and aggregate to $6.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the products of purchased glass industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3211, FLAT GLASS															
1992 Census	16	36	33	11.9	452.1	9.7	20.5	356.5	1 313.0	770.5	2 078.3	148.0	293.9	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	13.2	486.0	10.7	22.9	384.0	1 254.1	827.7	2 104.1	112.1	311.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.6	508.5	11.9	24.7	400.0	1 394.8	902.9	2 279.0	127.4	341.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.0	534.1	12.1	25.4	418.4	1 538.4	963.6	2 477.1	144.0	315.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.8	513.3	11.2	25.0	404.5	1 516.6	944.7	2 442.2	150.9	278.3	(NA)	(NA)
1987 Census	65	84	38	14.6	506.8	11.8	25.0	397.6	1 618.4	915.3	2 549.3	151.3	263.9	95	(D)
1986 ASM	(NA)	(NA)	(NA)	14.9	493.7	12.1	25.4	392.5	1 409.7	957.1	2 397.6	85.7	280.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.2	501.4	12.3	26.7	403.2	1 239.9	925.9	2 155.4	260.1	310.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.6	477.5	12.7	27.1	382.6	1 119.9	921.2	2 043.3	100.8	294.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.7	448.6	12.7	26.5	357.4	1 124.2	837.8	1 930.3	108.4	299.0	(NA)	(NA)
1982 Census	49	69	33	15.3	413.8	12.0	24.6	322.0	846.5	827.0	1 665.5	97.6	287.3	95	(D)
1981 ASM	(NA)	(NA)	(NA)	17.3	416.1	13.8	27.6	323.3	914.8	769.1	1 656.7	104.5	264.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	17.3	383.8	13.8	28.1	298.0	842.3	701.4	1 546.9	271.2	234.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.2	414.9	16.8	34.4	335.3	972.2	675.4	1 637.5	151.6	226.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	22.6	446.5	19.0	39.8	366.3	1 065.0	710.8	1 777.2	113.1	212.6	(NA)	(NA)
1977 Census	43	62	32	21.9	401.0	18.5	39.9	328.2	931.0	656.0	1 576.6	81.1	211.4	90	(D)
INDUSTRY 3221, GLASS CONTAINERS															
1992 Census	16	76	76	32.3	1 052.4	28.1	57.3	875.4	3 038.4	1 903.7	4 859.6	233.0	998.7	99	100
1991 ASM	(NA)	(NA)	(NA)	34.5	1 068.9	30.1	59.7	886.1	2 635.4	2 213.7	4 888.3	285.6	904.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	36.6	1 076.1	32.1	62.2	894.4	2 751.4	2 287.2	4 946.1	258.0	955.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	39.3	1 073.3	34.5	65.0	886.0	2 599.4	2 256.9	4 812.2	214.4	885.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	39.7	1 083.5	34.5	71.0	900.3	2 697.3	2 090.8	4 704.4	239.8	845.8	(NA)	(NA)
1987 Census	35	106	93	41.1	1 065.2	36.0	70.8	892.4	2 766.2	2 037.9	4 777.9	226.6	737.6	99	99
1986 ASM	(NA)	(NA)	(NA)	42.8	1 083.4	37.8	75.8	917.5	2 649.5	1 997.3	4 627.4	211.4	714.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.1	1 144.4	38.5	76.9	963.9	2 406.4	2 143.2	4 600.3	182.9	664.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	48.5	1 191.7	42.3	79.8	989.0	2 246.2	2 187.2	4 478.5	185.3	726.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	55.0	1 295.0	48.1	94.3	1 086.7	2 492.5	2 402.9	4 860.2	187.0	830.0	(NA)	(NA)
1982 Census	41	128	113	59.0	1 306.4	51.7	101.0	1 092.3	2 739.1	2 521.8	5 216.8	297.4	799.4	99	99
1981 ASM	(NA)	(NA)	(NA)	61.0	1 259.0	53.4	102.9	1 054.8	2 721.8	2 222.9	4 926.1	266.2	630.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	64.5	1 214.8	56.5	110.0	1 019.4	2 526.1	2 009.5	4 493.4	264.9	604.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	67.7	1 128.0	59.8	116.2	952.9	2 459.6	1 785.2	4 206.5	283.0	545.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.8	1 108.2	64.4	126.4	937.8	2 476.6	1 659.7	4 049.2	251.5	503.0	(NA)	(NA)
1977 Census	31	126	124	70.8	975.4	62.5	120.1	823.0	2 138.9	1 495.3	3 664.2	220.9	408.7	99	99
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.															
1992 Census	411	450	98	33.9	1 024.6	27.8	57.2	783.0	2 867.3	1 351.0	4 182.2	343.8	672.4	99	98
1991 ASM	(NA)	(NA)	(NA)	32.9	946.0	26.9	54.4	709.3	2 493.9	1 337.3	3 866.3	296.4	699.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	35.4	983.1	29.5	60.4	757.0	2 591.4	1 435.8	3 971.9	297.3	739.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	35.2	951.3	29.2	59.8	733.3	2 636.7	1 411.0	4 016.7	431.7	688.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	36.6	927.6	30.5	58.8	719.3	2 542.1	1 312.3	3 858.1	238.6	597.0	(NA)	(NA)
1987 Census	362	416	118	36.3	894.0	29.8	58.6	684.2	2 299.0	1 219.4	3 560.9	195.7	599.6	99	97
1986 ASM	(NA)	(NA)	(NA)	35.0	843.6	29.0	56.5	644.5	2 039.4	1 163.8	3 241.9	228.5	616.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	36.0	815.0	29.2	55.6	619.8	2 017.1	1 176.5	3 207.7	247.7	637.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	38.2	834.8	31.5	61.3	645.3	2 160.8	1 234.8	3 338.7	181.4	635.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	37.4	785.9	29.9	59.4	590.3	2 022.8	1 075.0	3 106.1	173.7	554.8	(NA)	(NA)
1982 Census	278	331	116	37.6	726.0	29.5	56.8	534.4	1 743.1	984.0	2 724.0	233.3	575.0	97	97
1981 ASM	(NA)	(NA)	(NA)	46.4	826.0	37.2	72.7	623.2	2 119.7	1 224.9	3 280.7	183.1	586.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	45.7	736.4	37.1	73.2	559.5	1 852.4	1 075.7	2 900.0	196.9	507.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	45.9	694.9	37.8	75.4	538.1	1 711.2	985.3	2 657.3	245.0	459.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.3	641.8	38.1	75.8	497.5	1 589.8	872.7	2 416.6	169.5	411.1	(NA)	(NA)
1977 Census	325	382	125	46.2	572.8	38.6	74.4	445.9	1 452.8	675.3	2 120.1	143.6	350.7	97	96
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS															
1992 Census	1 441	1 566	418	54.7	1 363.8	42.2	86.8	913.3	3 748.6	3 154.7	6 876.7	275.3	774.9	97	95
1991 ASM	(NA)	(NA)	(NA)	52.0	1 243.1	40.6	83.9	832.3	3 312.4	2 828.8	6 154.7	297.4	695.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	53.9	1 249.7	42.4	87.5	853.0	3 341.5	2 796.1	6 141.3	234.0	699.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	53.3	1 206.7	42.4	86.7	818.4	3 180.6	2 810.4	5 992.9	277.1	692.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	52.5	1 142.6	41.0	83.1	785.4	3 035.5	2 769.0	5 800.8	195.1	681.4	(NA)	(NA)
1987 Census	1 324	1 429	431	51.1	1 059.9	39.5	79.9	720.0	2 837.1	2 587.0	5 429.2	204.3	660.4	95	(D)
1986 ASM	(NA)	(NA)	(NA)	43.7	887.0	33.7	66.3	613.4	2 269.9	2 105.4	4 361.9	219.3	612.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.7	843.6	33.3	66.1	591.0	1 995.1	1 974.0	3 964.3	148.6	569.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	43.2	816.9	33.8	66.2	568.0	1 816.0	1 942.7	3 734.3	110.0	552.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	42.8	741.1	33.1	64.0	503.5	1 644.4	1 595.0	3 204.0	72.2	528.7	(NA)	(NA)
1982 Census	1 228	1 337	387	41.3	696.3	31.5	60.8	466.7	1 483.7	1 480.2	2 976.5	119.1	476.1	95	(D)
1981 ASM	(NA)	(NA)	(NA)	40.8	664.3	31.2	59.5	453.7	1 360.8	1 457.4	2 789.8	104.1	444.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	42.1	590.6	32.6	60.1	407.5	1 253.2	1 302.6	2 551.2	107.8	396.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	42.7	570.8	34.3	65.9	407.8	1 263.0	1 273.1	2 509.0	88.9	373.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	42.3	540.1	35.6	70.4	385.9	1 249.6	1 195.4	2 404.1	105.8	350.4	(NA)	(NA)
1977 Census	1 000	1 101	325	36.2	429.2	28.8	56.7	305.9	960.2	896.5	1 842.4	73.4	285.6	95	(D)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3211, FLAT GLASS								
1992 Census	37 992	82	2 113	17.39	37	59	110 336	34	64.05
1991 ASM	36 818	81	2 140	16.77	39	62	95 008	39	54.76
1990 ASM	34 829	82	2 076	16.19	40	62	95 534	36	56.47
1989 ASM	35 607	81	2 099	16.47	39	60	102 560	35	60.57
1988 ASM	37 196	81	2 232	16.18	39	60	109 899	34	60.66
1987 Census	34 712	81	2 119	15.90	36	56	110 849	31	64.74
1986 ASM	33 134	81	2 099	15.45	40	61	94 611	35	55.50
1985 ASM	32 987	81	2 171	15.10	43	66	81 572	40	46.44
1984 ASM	30 609	81	2 134	14.12	45	68	71 788	43	41.32
1983 ASM	28 573	81	2 087	13.49	43	67	71 605	40	42.42
1982 Census	27 046	78	2 050	13.09	50	75	55 327	49	34.41
1981 ASM	24 052	80	2 000	11.71	46	72	52 879	45	33.14
1980 ASM	22 185	80	2 036	10.60	45	70	48 688	46	29.98
1979 ASM	20 540	83	2 048	9.75	41	67	48 129	43	28.26
1978 ASM	19 757	84	2 095	9.20	40	65	47 124	42	26.76
1977 Census	18 311	84	2 157	8.23	42	67	42 511	43	23.33
	INDUSTRY 3221, GLASS CONTAINERS								
1992 Census	32 582	87	2 039	15.28	39	61	94 068	35	53.03
1991 ASM	30 983	87	1 983	14.84	45	67	76 388	41	44.14
1990 ASM	29 402	88	1 938	14.38	46	68	75 175	39	44.23
1989 ASM	27 310	88	1 884	13.63	47	69	66 142	41	39.99
1988 ASM	27 292	87	2 058	12.68	44	67	67 942	40	37.99
1987 Census	25 917	88	1 967	12.60	43	65	67 304	39	39.07
1986 ASM	25 313	88	2 005	12.10	43	67	61 904	41	34.95
1985 ASM	25 950	87	1 997	12.53	47	71	54 567	48	31.29
1984 ASM	24 571	87	1 887	12.39	49	75	46 313	53	28.15
1983 ASM	23 545	87	1 960	11.52	49	76	45 318	52	26.43
1982 Census	22 142	88	1 954	10.81	48	73	46 425	48	27.12
1981 ASM	20 639	88	1 927	10.25	45	71	44 620	46	26.45
1980 ASM	18 834	88	1 947	9.27	45	72	39 164	48	22.96
1979 ASM	16 662	88	1 943	8.20	42	69	36 331	46	21.17
1978 ASM	15 223	88	1 963	7.42	41	68	34 019	45	19.59
1977 Census	13 777	88	1 922	6.85	41	67	30 210	46	17.81
	INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.								
1992 Census	30 224	82	2 058	13.69	32	57	84 581	36	50.13
1991 ASM	28 754	82	2 022	13.04	35	59	75 802	38	45.84
1990 ASM	27 771	83	2 047	12.53	36	61	73 203	38	42.90
1989 ASM	27 026	83	2 048	12.26	35	59	74 906	36	44.09
1988 ASM	25 344	83	1 928	12.23	34	58	69 456	36	43.23
1987 Census	24 628	82	1 966	11.68	34	59	63 333	39	39.23
1986 ASM	24 103	83	1 948	11.41	36	62	58 269	41	36.10
1985 ASM	22 639	81	1 904	11.15	37	62	56 031	40	36.28
1984 ASM	21 853	82	1 946	10.53	37	62	56 565	39	35.25
1983 ASM	21 013	80	1 987	9.94	35	60	54 086	39	34.05
1982 Census	19 309	78	1 925	9.41	36	63	46 359	42	30.69
1981 ASM	17 802	80	1 954	8.57	37	63	45 683	39	29.16
1980 ASM	16 114	81	1 973	7.64	37	62	40 534	40	25.31
1979 ASM	15 139	82	1 995	7.14	37	63	37 281	41	22.69
1978 ASM	13 862	82	1 990	6.56	36	63	34 337	40	20.97
1977 Census	12 398	84	1 927	5.99	32	59	31 446	39	19.53
	INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS								
1992 Census	24 932	77	2 057	10.52	46	66	68 530	36	43.19
1991 ASM	23 906	78	2 067	9.92	46	66	63 700	38	39.48
1990 ASM	23 186	79	2 064	9.75	46	66	61 994	37	38.19
1989 ASM	22 640	80	2 045	9.44	47	67	59 674	38	36.69
1988 ASM	21 764	78	2 027	9.45	48	67	57 819	38	36.53
1987 Census	20 742	77	2 023	9.01	48	67	55 521	37	35.51
1986 ASM	20 297	77	1 967	9.25	48	69	51 943	39	34.24
1985 ASM	19 756	78	1 985	8.94	50	71	46 724	42	30.18
1984 ASM	18 910	78	1 959	8.58	52	74	42 037	45	27.43
1983 ASM	17 315	77	1 934	7.87	50	73	38 421	45	25.69
1982 Census	16 860	76	1 930	7.68	50	73	35 925	47	24.40
1981 ASM	16 282	76	1 907	7.63	52	76	33 353	49	22.87
1980 ASM	14 029	77	1 844	6.78	51	74	29 767	47	20.85
1979 ASM	13 368	80	1 921	6.19	51	73	29 578	45	19.17
1978 ASM	12 768	84	1 978	5.48	50	72	29 541	43	17.75
1977 Census	11 856	80	1 969	5.40	49	72	26 525	45	16.93

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3211, FLAT GLASS														
United States	–	**36**	**33**	**11.9**	**452.1**	**9.7**	**20.5**	**356.5**	**1 313.0**	**770.5**	**2 078.3**	**148.0**	**14.6**	**1 618.4**
California	–	5	5	1.3	43.8	1.0	2.2	33.9	144.6	82.7	230.0	1.3	1.2	165.5
Georgia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oklahoma	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	G	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	9.3
West Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3221, GLASS CONTAINERS														
United States	–	**76**	**76**	**32.3**	**1 052.4**	**28.1**	**57.3**	**875.4**	**3 038.4**	**1 903.7**	**4 859.6**	**233.0**	**41.1**	**2 766.2**
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	12	12	5.4	187.4	4.8	10.0	158.6	530.4	374.6	893.7	27.1	(NA)	(D)
Colorado	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	3	3	1.1	36.1	.9	2.0	30.8	86.3	76.2	157.6	(D)	G	(D)
Georgia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	8	8	3.1	93.3	2.7	5.3	78.9	219.2	149.7	372.5	(D)	(NA)	(D)
Indiana	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	8	8	3.4	96.0	2.7	5.8	75.0	229.1	169.0	385.6	17.0	(NA)	(D)
New York	–	3	3	1.1	40.6	.9	1.9	32.5	148.2	106.5	249.7	(D)	G	(D)
North Carolina	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	5	5	3.4	106.2	3.1	5.9	91.7	302.2	154.2	444.7	21.5	4.5	280.8
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.														
United States	–	**450**	**98**	**33.9**	**1 024.6**	**27.8**	**57.2**	**783.0**	**2 867.3**	**1 351.0**	**4 182.2**	**343.8**	**36.3**	**2 299.0**
Arkansas	E1	8	3	.2	3.9	.2	.4	3.1	6.5	4.5	10.8	.1	E	(D)
California	E2	76	4	.8	20.9	.6	1.3	15.9	67.6	22.1	88.1	2.2	G	(D)
Illinois	E8	10	2	.2	3.6	.2	.3	2.9	10.6	5.6	16.2	(D)	(NA)	(NA)
Indiana	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	9	6	1.4	42.5	1.1	2.5	34.6	161.1	51.3	213.0	13.6	1.0	80.7
Louisiana	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E1	15	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	21	3	1.9	60.4	1.7	3.5	51.8	154.7	56.7	210.1	12.0	(NA)	(D)
New Mexico	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	41	9	1.8	58.4	1.4	2.9	39.5	128.9	47.0	170.8	(D)	G	(D)
North Carolina	–	11	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	41	19	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	12	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Pennsylvania	–	32	14	5.9	182.2	4.9	10.5	140.2	505.1	297.4	782.8	62.6	4.7	294.4
Rhode Island	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	17	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Vermont	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Virginia	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	E2	13	2	.1	3.3	.1	.1	1.5	7.4	1.8	9.2	(D)	(NA)	(NA)
West Virginia	–	20	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS														
United States	–	**1 566**	**418**	**54.7**	**1 363.8**	**42.2**	**86.8**	**913.3**	**3 748.6**	**3 154.7**	**6 876.7**	**275.3**	**51.1**	**2 837.1**
Alabama	–	14	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	.9	53.3
Arizona	E4	24	5	.3	7.4	.2	.5	4.8	16.8	13.0	29.9	.7	.4	14.2
Arkansas	–	13	3	.2	3.9	.1	.3	2.4	9.3	14.3	23.8	(D)	.3	11.1
California	E1	235	54	4.2	109.3	3.1	6.3	65.2	247.3	187.4	434.0	8.6	5.1	221.0
Colorado	–	37	7	.5	11.2	.3	.8	6.6	25.8	16.8	43.0	(D)	.2	9.0
Connecticut	E1	24	5	.6	12.5	.4	.8	6.9	22.2	19.0	41.7	(D)	.6	26.9
Florida	E1	104	18	2.0	41.9	1.5	3.2	29.3	93.3	83.4	176.7	5.6	1.5	55.1
Georgia	–	25	7	.7	16.8	.6	1.2	12.1	44.9	70.2	113.7	3.1	.9	31.8
Illinois	E2	48	11	1.1	27.0	.8	1.6	16.7	56.4	40.1	96.5	2.8	1.8	74.4
Indiana	–	53	17	3.2	79.1	2.6	5.3	58.1	221.7	190.1	410.5	13.8	2.2	137.3
Iowa	–	9	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E1	18	4	.3	5.8	.2	.4	3.9	12.8	20.1	33.2	1.4	(NA)	(D)
Kentucky	–	19	9	1.9	47.8	1.6	3.4	36.6	131.5	140.4	270.8	7.7	.9	75.2
Massachusetts	–	27	5	.5	14.5	.3	.7	8.2	34.9	25.9	60.3	1.8	F	(D)
Michigan	–	70	19	5.1	156.8	3.6	7.5	103.1	389.4	301.2	687.4	26.1	3.8	248.5
Minnesota	E1	25	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	81.3
Mississippi	E2	9	5	.8	16.3	.6	1.4	11.1	45.8	46.8	91.3	1.2	1.0	37.9
Missouri	E1	26	4	.4	8.3	.3	.5	5.5	17.3	13.3	30.9	1.3	E	(D)
New Hampshire	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	86	32	3.1	80.2	2.3	4.7	48.3	177.6	105.9	280.0	9.9	2.9	138.3
New York	E1	114	25	2.8	63.0	2.2	4.3	40.3	136.6	116.2	252.6	5.5	3.1	152.3
North Carolina	–	46	21	4.3	100.8	3.4	6.7	63.6	469.5	162.3	627.8	(D)	3.8	241.8
Ohio	–	87	33	4.2	104.6	3.4	7.0	75.5	284.1	276.9	562.8	12.5	4.0	237.8
Oklahoma	–	14	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	11.5
Oregon	E1	21	3	.3	8.7	.2	.4	4.9	14.6	8.8	23.5	.6	.3	11.4
Pennsylvania	–	77	25	3.7	106.0	2.9	5.8	73.7	422.9	371.5	793.3	8.6	5.0	390.6
Rhode Island	–	11	4	.3	7.5	.1	.3	2.5	21.9	21.8	45.4	.2	(NA)	(NA)
South Carolina	–	13	4	1.0	24.7	.8	1.7	19.1	96.6	49.3	145.5	(D)	.5	20.3
Tennessee	–	33	15	2.8	60.5	2.3	4.8	44.6	149.9	256.5	398.8	16.4	2.1	85.1
Texas	–	81	17	1.9	48.1	1.5	3.1	33.3	131.6	121.1	253.9	8.2	1.9	102.4
Utah	E1	9	1	.1	2.3	.1	.2	1.8	4.4	7.7	12.3	.1	(NA)	(NA)
Virginia	–	34	14	2.3	39.7	1.9	3.7	27.0	76.1	74.7	151.8	4.3	1.2	54.3
Washington	–	38	12	1.0	22.8	.7	1.4	13.8	48.6	36.9	85.0	3.6	.6	33.2
West Virginia	E3	13	3	.2	4.2	.2	.3	2.9	6.5	5.1	11.5	.4	F	(D)
Wisconsin	–	41	12	1.7	42.1	1.4	2.9	29.4	105.8	164.8	265.8	16.1	1.0	65.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Companies	number	16	16	411	1 441
All establishments	number	36	76	450	1 566
With 1 to 19 employees	number	3	–	352	1 148
With 20 to 99 employees	number	7	–	37	294
With 100 employees or more	number	26	76	61	124
Employment and labor costs:					
Employees	1,000	11.9	32.3	33.9	54.7
Compensation, total	mil dol	594.0	1 419.0	1 350.6	1 725.9
Annual payroll	mil dol	452.1	1 052.4	1 024.6	1 363.8
Fringe benefits	mil dol	141.9	366.5	325.9	362.1
Social Security and other legally required payments	mil dol	46.8	137.3	120.3	150.3
Employer voluntary payments	mil dol	95.1	229.3	205.6	211.9
Production workers:					
Average for year	1,000	9.7	28.1	27.8	42.2
March	1,000	9.7	28.2	27.3	41.3
May	1,000	9.7	28.1	27.9	42.3
August	1,000	9.6	28.4	27.9	43.1
November	1,000	9.7	27.7	28.0	42.2
Hours	millions	20.5	57.3	57.2	86.8
Wages	mil dol	356.5	875.4	783.0	913.3
Cost of materials[1]	mil dol	770.5	1 903.7	1 351.0	3 154.7
Materials, parts, containers, etc., consumed[2]	mil dol	502.2	1 495.5	929.8	2 863.7
Resales	mil dol	77.2	(D)	127.9	107.0
Fuels	mil dol	112.9	208.1	146.2	35.9
Purchased electricity	mil dol	70.0	191.3	138.3	112.3
Contract work	mil dol	8.2	(D)	8.8	35.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Quantity of electric energy used for heat and power:				
Purchased mil kWh	1 537.7	4 200.1	3 083.9	2 103.8
Generated less sold mil kWh	–	–	–	–
Total value of shipments mil dol	2 078.3	4 859.6	4 182.2	6 876.7
Value added mil dol	1 313.0	3 038.4	2 867.3	3 748.6
Inventories by stage of fabrication:				
Beginning of 1992 mil dol	297.1	895.3	648.3	741.1
Finished goods mil dol	163.2	753.4	386.3	301.9
Work in process mil dol	62.7	1.8	77.2	152.2
Materials and supplies mil dol	71.2	140.0	184.9	287.1
End of 1992 mil dol	293.9	998.7	672.4	774.9
Finished goods mil dol	177.4	835.8	417.0	316.2
Work in process mil dol	53.8	2.0	82.6	164.5
Materials and supplies mil dol	62.7	160.9	172.8	294.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Gross book value of depreciable assets:				
Total:				
Beginning of year	2 328.4	2 709.5	3 715.4	2 605.9
New capital expenditures[1]	148.0	233.0	343.8	275.3
Used capital expenditures	(D)	4.9	4.8	(D)
Retirements	(D)	109.6	99.8	(D)
End of year	2 457.8	2 837.8	3 964.3	2 810.4
Buildings and other structures:				
Beginning of year	490.7	596.2	747.5	663.8
New capital expenditures	14.7	9.1	28.9	61.6
Used capital expenditures	(D)	.6	.2	(D)
Retirements	(D)	12.2	5.4	(D)
End of year	504.3	593.6	771.1	717.6
Machinery and equipment:				
Beginning of year	1 837.7	2 113.3	2 968.0	1 942.0
New capital expenditures[1]	133.4	223.9	315.0	213.6
Used capital expenditures	(D)	4.3	4.6	(D)
Retirements	(D)	97.3	94.4	(D)
End of year	1 953.6	2 244.2	3 193.2	2 092.8
Depreciation charges during 1992:				
Total	132.4	227.1	242.4	183.7
Buildings and other structures	14.1	23.3	31.5	29.8
Machinery and equipment	118.3	203.8	210.9	153.8
Rental payments:				
Total	3.2	52.7	13.7	66.4
Buildings and other structures	.3	29.9	7.1	31.8
Machinery and equipment	2.8	22.7	6.6	34.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)		Glass containers (SIC 3221)		Pressed and blown glass, n.e.c. (SIC 3229)		Products of purchased glass (SIC 3231)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	4.0	(X)	16.7	(X)	10.3	(X)	10.5	(X)
Response coverage ratio (percent)[2]	100.0	(X)	97.0	(X)	90.4	(X)	81.6	(X)
Machinery	40.9	(X)	98.5	(X)	76.6	(X)	48.6	(X)
Response coverage ratio (percent)[2]	100.0	(X)	99.1	(X)	89.2	(X)	82.7	(X)
Other purchased services:								
Communications	2.2	(X)	3.9	(X)	5.1	(X)	13.1	(X)
Response coverage ratio (percent)[2]	91.7	(X)	88.2	(X)	91.6	(X)	82.5	(X)
Legal	.3	(X)	1.8	(X)	.9	(X)	11.2	(X)
Response coverage ratio (percent)[2]	95.1	(X)	99.1	(X)	88.1	(X)	83.7	(X)
Accounting and bookkeeping	.1	(X)	.1	(X)	.2	(X)	6.4	(X)
Response coverage ratio (percent)[2]	92.1	(X)	98.3	(X)	89.2	(X)	79.3	(X)
Advertising	.3	(X)	(Z)	(X)	2.1	(X)	10.8	(X)
Response coverage ratio (percent)[2]	95.1	(X)	98.3	(X)	90.0	(X)	80.5	(X)
Software and other data processing	1.2	(X)	4.9	(X)	4.5	(X)	5.0	(X)
Response coverage ratio (percent)[2]	100.0	(X)	99.1	(X)	87.0	(X)	80.3	(X)
Refuse removal, including hazardous waste	3.6	(X)	2.6	(X)	15.4	(X)	14.7	(X)
Response coverage ratio (percent)[2]	100.0	(X)	98.3	(X)	88.4	(X)	83.1	(X)
New machinery and equipment expenditures	133.4	(X)	223.9	(X)	315.0	(X)	213.6	(X)
Automobiles, trucks, etc., for highway use	–	(X)	.2	1	.3	35	6.9	29
Computers and peripheral data processing equipment	4.7	1	1.6	1	8.1	1	10.7	6
All other	128.7	1	222.1	1	306.6	1	196.0	2
Adjustment ratio[3]	1.7	(X)	1.0	(X)	1.0	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	502.2	(X)	1 495.5	(X)	929.8	(X)	2 863.7	(X)
Materials purchased or transferred from foreign sources[4]	3.4	1	3.7	1	71.9	2	167.8	9
Materials purchased or transferred from domestic sources	498.8	1	1 491.9	1	857.9	1	2 695.8	1
Adjustment ratio[3]	1.4	(X)	1.1	(X)	1.5	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3211, FLAT GLASS												
Total	**–**	**36**	**11.9**	**452.1**	**9.7**	**20.5**	**356.5**	**1 313.0**	**770.5**	**2 078.3**	**148.0**	**293.9**
Establishments with an average of–												
1 to 4 employees	–	1	.3	6.8	.2	.5	4.4	14.4	10.5	25.2	64.9	5.9
5 to 9 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E2	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	5	.8	24.2	.7	1.4	17.4	85.2	50.2	128.9	(D)	28.1
250 to 499 employees	–	14	5.0	168.8	4.0	8.4	127.6	561.0	320.9	871.2	83.1	136.7
500 to 999 employees	–	6	5.8	252.3	4.8	10.1	207.2	652.3	389.0	1 053.0	(D)	123.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 3221, GLASS CONTAINERS												
Total	**–**	**76**	**32.3**	**1 052.4**	**28.1**	**57.3**	**875.4**	**3 038.4**	**1 903.7**	**4 859.6**	**233.0**	**998.7**
Establishments with an average of–												
100 to 249 employees	–	13	2.7	90.1	2.3	5.1	71.1	307.0	181.0	489.5	21.7	74.6
250 to 499 employees	–	45	16.2	539.5	14.0	28.6	443.1	1 606.7	1 035.4	2 602.5	131.5	454.6
500 to 999 employees	–	15	9.8	324.3	8.7	17.9	279.6	890.9	523.8	1 383.8	73.2	355.1
1,000 to 2,499 employees	–	3	3.6	98.6	3.0	5.7	81.6	233.8	163.5	383.7	6.7	114.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.												
Total	**–**	**450**	**33.9**	**1 024.6**	**27.8**	**57.2**	**783.0**	**2 867.3**	**1 351.0**	**4 182.2**	**343.8**	**672.4**
Establishments with an average of—												
1 to 4 employees	E9	238	.4	9.0	.3	.7	7.0	22.3	12.8	35.1	1.8	6.6
5 to 9 employees	E8	69	.5	11.7	.4	.8	9.0	24.9	13.7	38.4	1.8	7.0
10 to 19 employees	E4	45	.6	14.2	.5	.9	10.3	29.0	20.9	49.5	3.7	8.7
20 to 49 employees	E2	22	.7	18.4	.5	1.1	11.5	41.6	19.5	61.0	1.9	8.9
50 to 99 employees	E1	15	1.1	25.0	.8	1.6	17.4	69.9	36.2	105.7	3.6	16.1
100 to 249 employees	–	23	3.8	122.2	3.1	6.9	96.1	414.8	164.0	580.5	33.3	63.0
250 to 499 employees	–	15	5.7	173.3	4.5	9.5	129.3	483.5	171.8	649.7	40.8	117.8
500 to 999 employees	–	13	9.1	284.1	7.6	15.7	216.7	753.3	354.1	1 100.9	151.1	159.2
1,000 to 2,499 employees	–	10	12.0	366.8	10.1	20.1	285.7	1 028.0	558.1	1 561.3	105.7	285.1
Covered by administrative records[2]	E9	294	.9	20.2	.8	1.5	15.7	44.6	25.6	70.2	3.7	13.3
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS												
Total	**–**	**1 566**	**54.7**	**1 363.8**	**42.2**	**86.8**	**913.3**	**3 748.6**	**3 154.7**	**6 876.7**	**275.3**	**774.9**
Establishments with an average of—												
1 to 4 employees	E8	741	1.1	25.1	.9	1.8	17.8	64.4	54.1	117.9	3.8	13.8
5 to 9 employees	E4	242	1.6	34.5	1.2	2.3	23.4	71.4	57.3	128.4	5.0	14.6
10 to 19 employees	E2	165	2.3	53.4	1.7	3.5	35.0	110.8	87.7	197.9	4.4	24.9
20 to 49 employees	E1	188	6.1	146.3	4.5	9.2	89.4	334.3	370.5	701.4	15.7	74.9
50 to 99 employees	E1	106	7.6	176.8	5.7	11.7	108.5	399.0	380.4	774.1	21.9	86.0
100 to 249 employees	–	75	11.4	271.3	8.4	17.4	166.0	641.4	649.8	1 284.4	67.4	152.7
250 to 499 employees	–	32	11.3	288.8	9.1	18.5	205.3	918.7	818.7	1 735.1	36.8	265.9
500 to 999 employees	–	15	13.4	367.5	10.8	22.6	267.8	1 208.6	736.1	1 937.6	120.3	142.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	705	1.4	29.1	1.1	2.3	20.1	72.4	62.9	135.3	4.6	14.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3211	**Flat glass:**										
	All establishments in industry	36	11.9	452.1	9.7	20.5	356.5	1 313.0	770.5	2 078.3	148.0
	Establishments with this product class primary:										
32113	Laminated glass	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32114	Other glass products	12	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32115	Flat glass	22	8.8	307.7	7.2	15.0	239.7	1 029.2	617.4	1 634.6	(D)
3221	**Glass containers:**										
	All establishments in industry	76	32.3	1 052.4	28.1	57.3	875.4	3 038.4	1 903.7	4 859.6	233.0
3229	**Pressed and blown glass, n.e.c.:**										
	All establishments in industry	450	33.9	1 024.6	27.8	57.2	783.0	2 867.3	1 351.0	4 182.2	343.8
	Establishments with this product class primary:										
32293	Glass fiber, textile-type	18	8.5	276.5	7.1	14.4	216.1	792.1	492.8	1 293.1	129.7
32295	Machine-made table, kitchen, art, and novelty glassware	20	8.1	224.0	6.8	13.1	172.3	581.3	226.4	796.9	45.9
32296	Machine-made lighting, automotive, and electronic glassware	24	8.9	290.6	7.3	16.3	223.8	856.6	420.1	1 252.1	113.3
32297	All other machine-made glassware	24	4.7	149.7	3.7	7.9	113.0	459.1	137.9	590.5	43.4
32298	Handmade pressed and blown glassware	29	2.0	45.9	1.5	2.9	30.0	92.6	28.0	118.4	4.4
3231	**Products of purchased glass:**										
	All establishments in industry	1 566	54.7	1 363.8	42.2	86.8	913.3	3 748.6	3 154.7	6 876.7	275.3
	Establishments with this product class primary:										
32311	Machine-made pressed and blown glassware	94	8.2	195.5	6.1	12.4	122.8	640.4	585.6	1 210.0	48.9
32312	Handmade pressed and blown glassware	49	2.1	59.1	1.6	3.4	39.0	124.4	49.2	168.5	4.9
32313	Laminated glass	33	5.8	156.2	4.5	9.6	113.0	437.5	422.8	867.7	24.0
32315	Mirrors (decorated or undecorated)	74	6.9	142.1	5.2	10.4	85.7	329.8	306.9	639.5	13.6
32318	Other glass products	404	27.4	714.5	21.3	43.9	485.9	1 997.3	1 607.9	3 591.4	170.5

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3211, FLAT GLASS			
Total value of shipments	2 078.3	2 549.3	1 665.5
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	79.7	51.0	96.4
Value of resales	78.4	48.1	93.5
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	1.3	(D)	(D)
Sales of scrap and refuse	1.3	(NA)	(D)
Receipts for research and development	–	(NA)	–
Other miscellaneous receipts	(Z)	(D)	1.5
Other miscellaneous receipts, n.s.k.	–	(NA)	(NA)
Primary products specialization ratio	(D)	[1]95	[1]95
Value of primary products shipments made in all industries	1 998.7	(D)	(D)
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)
INDUSTRY 3221, GLASS CONTAINERS			
Total value of shipments	4 859.6	4 777.9	5 216.8
Primary products value of shipments	4 816.2	4 709.9	5 143.6
Secondary products value of shipments	32.8	48.2	42.7
Total miscellaneous receipts	10.6	19.8	30.5
Value of resales	(D)	(D)	(D)
Contract receipts	–	–	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Sales of scrap and refuse	3.8	(NA)	2.4
Receipts for research and development	–	(NA)	–
Other miscellaneous receipts	(D)	(D)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	99	99	99
Value of primary products shipments made in all industries	4 816.2	4 720.7	5 143.8
Value of primary products shipments made in this industry	4 816.2	4 709.9	5 143.6
Value of primary products shipments made in other industries	–	10.8	.2
Coverage ratio	100	99	99
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.			
Total value of shipments	4 182.2	3 560.9	2 724.0
Primary products value of shipments	3 997.7	3 433.7	2 609.9
Secondary products value of shipments	28.0	51.9	86.3
Total miscellaneous receipts	156.6	75.3	27.8
Value of resales	153.3	70.6	24.6
Contract receipts	.1	(D)	(D)
Other miscellaneous receipts	3.1	(D)	(D)
Sales of scrap and refuse	3.0	(NA)	1.8
Receipts for research and development	–	(NA)	–
Other miscellaneous receipts	.1	(D)	(D)
Other miscellaneous receipts, n.s.k.	–	(NA)	(NA)
Primary products specialization ratio	99	99	97
Value of primary products shipments made in all industries	4 094.0	3 540.5	2 677.0
Value of primary products shipments made in this industry	3 997.7	3 433.7	2 609.9
Value of primary products shipments made in other industries	96.3	106.8	67.1
Coverage ratio	98	97	97
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS			
Total value of shipments	6 876.7	5 429.2	2 976.5
Primary products value of shipments	6 519.7	(D)	(D)
Secondary products value of shipments	195.1	(D)	(D)
Total miscellaneous receipts	161.9	153.1	89.5
Value of resales	132.5	120.2	60.4
Contract receipts	17.4	(D)	9.5
Other miscellaneous receipts	12.1	(D)	19.6
Sales of scrap and refuse	3.7	(NA)	(D)
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts	6.7	(D)	17.2
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	97	[1]95	[1]95
Value of primary products shipments made in all industries	6 860.2	(D)	(D)
Value of primary products shipments made in this industry	6 519.7	(D)	(D)
Value of primary products shipments made in other industries	340.5	(D)	(D)
Coverage ratio	95	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Minimum percentage; exact percentage withheld to avoid disclosing data for individual companies.

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Table 6a–1. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3211– —	**FLAT GLASS**				
	Total	**(NA)**	**1 998.7**	**(NA)**	**(D)**
	Glass and glass products made by flat glass producers:				
32113	Laminated glass	(NA)	(D)	(NA)	(D)
32113 00	Laminated glass[2 3]	2	(D)	(NA)	(D)
32114	Other glass products	(NA)	(D)	(NA)	632.5
32114 11	Rolled and wire glass	4	([4])	3	([5])
32114 24	Tempered glass for construction, architectural, and automotive purposes[2 3]	5	292.1	(NA)	(D)
32114 29	Tempered glass for other uses, such as for appliances[2]	2	(D)	1	(D)
32114 31	Multiple-glazed, sealed insulating units[2]	2	(D)	4	(D)
32114 39	Other glass products (including such items as bent, enameled, stained, leaded, faceted, and colored glass slabs)	9	[4]94.6	11	[5]65.3
32114 00	Other glass products, n.s.k.	(NA)	–	(NA)	(Z)
32115	Flat glass	(NA)	1 400.7	(NA)	1 469.9
32115 00	Flat glass (float, sheet, and plate)[6]	7	1 400.7	11	1 469.9
32110	Flat glass, n.s.k.	(NA)	.6	(NA)	r16.4
32110 00	Flat glass, n.s.k.	(NA)	.6	(NA)	r16.4
32110 02	Flat glass, n.s.k.[7]	(NA)	–	(NA)	–
3221– —	**GLASS CONTAINERS**				
	Total	**(NA)**	**4 816.2**	**(NA)**	**4 720.7**
32210	Glass containers	(NA)	4 816.2	(NA)	4 720.7
32210 00	Glass containers (including value of packaging)[8]	16	4 816.2	36	4 720.7
32210 02	Glass containers, n.s.k.[7]	(NA)	–	(NA)	–
3229– —	**PRESSED AND BLOWN GLASS, N.E.C.**				
	Total	**(NA)**	**4 094.0**	**(NA)**	**3 540.5**
	Pressed and blown glassware made by establishments producing glass:				
32293	Glass fiber, textile-type	(NA)	1 261.7	(NA)	1 226.0
32293 25	Mat[3]	7	231.0		
32293 29	Other textile-type fiber (including yarn, strand, staple yarn, sliver, roving, chopped strand, and milled fiber)[3]	6	1 030.6	14	1 226.0
32293 00	Glass fiber, textile-type, n.s.k.	(NA)	.1		
32295	Machine-made table, kitchen, art, and novelty glassware	(NA)	783.3	(NA)	598.7
32295 00	Machine-made table, kitchen, art, and novelty glassware[2 6]	17	783.3	18	598.7
32296	Machine-made lighting, automotive, and electronic glassware	(NA)	1 157.3	(NA)	637.1
32296 00	Machine-made lighting, automotive, and electronic glassware[2 6]	16	1 157.3	14	637.1
32297	All other machine-made glassware	(NA)	646.4	(NA)	477.1
32297 00	All other machine-made glassware (including technical and scientific glassware, glass blocks, and lens blanks)[2 6]	33	646.4	34	477.1
32298	Handmade pressed and blown glassware	(NA)	118.5	(NA)	102.9
32298 00	Handmade pressed and blown glassware[2 6]	30	118.5	25	102.9
32290	Pressed and blown glass, n.e.c., n.s.k.	(NA)	126.8	(NA)	498.7
32290 00	Pressed and blown glass, n.e.c., n.s.k.[9]	(NA)	56.6	(NA)	415.1
32290 02	Pressed and blown glass, n.e.c., n.s.k.[10]	(NA)	70.2	(NA)	83.6
3231– —	**PRODUCTS OF PURCHASED GLASS**				
	Total	**(NA)**	**6 860.2**	**(NA)**	**(D)**
	Glass products made in establishments not producing glass:				
32311	Machine-made pressed and blown glassware	(NA)	1 122.1	(NA)	710.0
32311 00	Machine-made pressed and blown glassware (table, kitchen, novelty, lighting, electronic, scientific, industrial, etc.)[2 6]	97	1 122.1	60	710.0
32312	Handmade pressed and blown glassware	(NA)	151.2	(NA)	77.3
32312 00	Handmade pressed and blown glassware[2 6]	46	151.2	16	77.3
32313	Laminated glass	(NA)	(D)	(NA)	(D)
32313 00	Laminated glass[2 3]	40	(D)	(NA)	(D)
32315	Mirrors (decorated or undecorated)	(NA)	799.5	(NA)	775.2
32315 21	Framed mirrors	74	264.5	56	275.2
32315 41	Unframed mirrors	62	251.3	59	301.1
32315 71	Automotive mirrors	19	271.0	18	195.5
32315 00	Mirrors (decorated or undecorated), n.s.k.	(NA)	12.7	(NA)	3.4
32318	Other glass products	(NA)	(D)	(NA)	2 377.9
32318 21	Stained, leaded, and faceted glass and colored glass slabs	64	52.7	52	62.6
32318 71	Multiple-glazed, sealed insulating glass units[2]	99	(D)	77	(D)
32318 84	Tempered glass for construction, architectural, and automotive purposes[2 3]	82	1 541.3	(NA)	(D)
32318 89	Tempered glass for other uses, such as for appliances[2]	29	(D)	23	(D)
32318 92	Optical glass fiber, data and nondata transmission[6]	12	555.6	(NA)	265.5
32318 95	Glass and glass fiber optical components	10	14.7		
32318 99	Other glass products not listed above	167	500.5	79	281.8
32318 00	Other glass products, n.s.k.	(NA)	101.8	(NA)	53.5

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3231– ––	**PRODUCTS OF PURCHASED GLASS**—Con.				
32310	Products of purchased glass, n.s.k.	(NA)	401.0	(NA)	562.5
32310 00	Products of purchased glass, n.s.k.[11]	(NA)	263.6	(NA)	418.8
32310 02	Products of purchased glass, n.s.k.[12]	(NA)	137.4	(NA)	143.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]This product code is primary to more than one industry. See table 6a-2 for combined value of product shipments.
[3]For 1992, product code is revised. See appendix C, parts 1 and 2, for comparability to 1987.
[4]For 1992, product code 32114 11 is included with product code 32114 39 to avoid disclosing data for individual companies.
[5]For 1987, product code 32114 11 was included with product code 32114 39 to avoid disclosing data for individual companies.
[6]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[7]There were no administrative-record cases for this industry.
[8]Detailed statistics for shipments, production, and stocks, by end use, are published in the monthly Current Industrial Report M32G, Glass Containers.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]Typically for establishments with 5 employees or more.
[12]Typically for establishments with less than 5 employees.

Table 6a–2. **Selected Products Primary to More Than One Industry—Value of Shipments by Industry: 1992 and 1987**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Laminated glass	(NA)	1 155.0	(NA)	1 390.2
32113 00	Made by glass producers	2	(D)	(NA)	(D)
32313 00	Made from purchased glass	40	(D)	(NA)	(D)
	Other glass products:	(NA)	2 508.9	(NA)	2 281.6
	Tempered glass for construction, architectural, and automotive purposes	(NA)	1 833.5	(NA)	1 651.5
32114 24	Made by glass producers	5	292.1	(NA)	(D)
32318 84	Made from purchased glass	82	1 541.3	(NA)	(D)
	Tempered glass for other uses, such as for appliances	(NA)	228.9	(NA)	168.5
32114 29	Made by glass producers	2	(D)	1	(D)
32318 89	Made from purchased glass	29	(D)	23	(D)
	Multiple-glazed, sealed insulating units	(NA)	446.5	(NA)	461.6
32114 31	Made by glass producers	2	(D)	4	(D)
32318 71	Made from purchased glass	99	(D)	77	(D)
	Machine-made pressed and blown glassware	(NA)	3 709.1	(NA)	2 422.9
	Made by glass producers	(NA)	2 587.0	(NA)	1 712.9
32295 00	Machine-made table, kitchen, art, and novelty glassware	17	783.3	18	598.7
32296 00	Machine-made lighting, automotive, and electronic glassware	16	1 157.3	14	637.1
32297 00	All other machine-made glassware (including technical and scientific glassware, glass blocks, and lens blanks)	33	646.4	34	477.1
32311 00	Made from purchased glass	97	1 122.1	60	710.0
	Handmade pressed and blown glassware	(NA)	269.7	(NA)	180.2
32298 00	Made by glass producers	30	118.5	25	102.9
32312 00	Made from purchased glass	46	151.2	16	77.3

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
32113, LAMINATED GLASS		
United States	**(D)**	**(D)**
32114, OTHER GLASS PRODUCTS		
United States	**(D)**	**632.5**
California	41.5	(NA)
32115, FLAT GLASS		
United States	**1 400.7**	**1 469.9**
California	168.6	170.5
32293, GLASS FIBER, TEXTILE-TYPE		
United States	**1 261.7**	**1 226.0**
32295, MACHINE-MADE TABLE, KITCHEN, ART, AND NOVELTY GLASSWARE		
United States	**783.3**	**598.7**
New Jersey	101.5	(NA)
Ohio	222.2	191.3
Pennsylvania	79.3	51.2
32296, MACHINE-MADE LIGHTING, AUTOMOTIVE, AND ELECTRONIC GLASSWARE		
United States	**1 157.3**	**637.1**
Kentucky	135.8	(NA)
Ohio	476.7	335.3
Pennsylvania	413.6	153.0
32297, ALL OTHER MACHINE-MADE GLASSWARE		
United States	**646.4**	**477.1**
Ohio	124.3	(NA)
Pennsylvania	109.3	52.7
32298, HANDMADE PRESSED AND BLOWN GLASSWARE		
United States	**118.5**	**102.9**
California	4.2	12.8
Ohio	3.5	(NA)
West Virginia	49.7	(NA)
32311, MACHINE-MADE PRESSED AND BLOWN GLASSWARE		
United States	**1 122.1**	**710.0**
California	64.3	12.6
New Jersey	127.7	72.5
New York	67.0	(NA)
Ohio	22.0	(NA)
Texas	41.3	(NA)
32312, HANDMADE PRESSED AND BLOWN GLASSWARE		
United States	**151.2**	**77.3**
California	37.2	3.1
Colorado	4.8	(NA)
New Jersey	50.3	13.4
32313, LAMINATED GLASS		
United States	**(D)**	**(D)**
California	14.0	59.4
Kentucky	83.7	(NA)
Ohio	154.2	144.6
Pennsylvania	173.9	180.4
32315, MIRRORS (DECORATED OR UNDECORATED)		
United States	**799.5**	**775.2**
California	96.3	101.7
Florida	10.3	9.4
Illinois	6.8	(NA)
Indiana	16.1	12.6
Missouri	3.8	5.3
New Jersey	13.3	21.4
New York	54.5	68.5
North Carolina	125.8	140.4
Ohio	5.8	15.4
Tennessee	81.0	42.4
Virginia	80.0	78.9
32318, OTHER GLASS PRODUCTS		
United States	**(D)**	**2 377.9**
Arizona	14.9	11.5
California	150.5	162.1
Colorado	29.0	8.7
Connecticut	24.1	26.2
Florida	77.3	45.3
Georgia	128.6	117.6
Illinois	71.0	79.1
Indiana	254.1	114.6
Kansas	10.4	(NA)
Kentucky	160.7	(NA)
Massachusetts	49.7	52.7
Michigan	443.7	217.5
Minnesota	114.6	131.3
New Jersey	36.8	57.8
New York	77.0	98.0
North Carolina	478.8	180.5
Ohio	308.3	248.8
Oklahoma	16.2	30.0
Pennsylvania	128.0	183.9
Tennessee	241.1	125.7
Texas	100.0	71.6
Virginia	65.8	16.7
Washington	67.5	49.4
Wisconsin	209.1	94.1

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3211-	**Flat glass**	**1 998.7**	**[2]2 944.2**	**[2]3 179.5**	**[2]3 404.9**	**[2]3 412.6**	**[2]3 509.0**	**[2]1 998.3**	**[2]1 817.6**
32113	Laminated glass	(D)	[2]1 109.2	[2]1 217.6	[2]1 248.9	[2]1 293.3	[2]1 390.2	[2]697.2	[2]707.2
32114	Other glass products	(D)	580.9	584.4	645.2	656.4	632.5	424.6	360.6
32115	Flat glass	1 400.7	1 237.6	1 350.0	1 482.3	1 447.1	1 469.9	869.9	742.8
32110	Flat glass, n.s.k.	.6	16.5	27.4	28.5	15.8	16.4	6.6	7.0
3221-	**Glass containers**	**4 816.2**	**4 847.3**	**4 915.1**	**4 760.0**	**4 644.3**	**4 720.7**	**5 143.8**	**3 618.0**
32210	Glass containers	4 816.2	4 847.3	4 915.1	4 760.0	4 644.3	4 720.7	5 143.8	3 618.0

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3229-	**Pressed and blown glass, n.e.c.**	**4 094.0**	**3 815.7**	**3 898.3**	**3 935.0**	**3 869.2**	**3 540.5**	**2 677.0**	**2 100.7**
32293	Glass fiber, textile-type	1 261.7	1 206.5	1 403.9	1 463.6	1 469.0	1 226.0	768.2	514.0
32295	Machine-made table, kitchen, art, and novelty glassware	783.3	720.3	708.6	695.9	694.4	598.7		
32296	Machine-made lighting, automotive, and electronic glassware	1 157.3	930.3	841.0	847.9	773.2	637.1	1 869.4	1 536.7
32297	All other machine-made glassware	646.4	636.7	607.7	619.0	621.9	477.1		
32298	Handmade pressed and blown glassware	118.5	103.3	107.6	94.2	105.9	102.9		
32290	Pressed and blown glass, n.e.c., n.s.k.	126.8	218.6	229.4	214.5	204.9	498.7	39.4	50.0
3231-	**Products of purchased glass**	**6 860.2**	**[2]4 986.8**	**[2]4 958.0**	**[2]4 814.6**	**[2]4 646.2**	**[2]4 502.9**	**[2]2 544.6**	**[2]1 643.3**
32311	Machine-made pressed and blown glassware	1 122.1	941.1	885.6	848.2	853.8	710.0	713.8	298.1
32312	Handmade pressed and blown glassware	151.2	196.2	130.9	134.0	88.1	77.3		
32313	Laminated glass	(D)	[2](NA)	[2](NA)	[2](NA)	[2](NA)	[2](NA)	[2](NA)	[2](NA)
32315	Mirrors (decorated or undecorated)	799.5	668.3	767.2	772.4	759.8	775.2	480.1	409.4
32318	Other glass products	(D)	2 857.1	2 741.0	2 673.8	2 446.6	2 377.9	1 189.2	758.1
32310	Products of purchased glass, n.s.k.	401.0	324.1	433.3	386.2	497.9	562.5	161.5	177.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]For 1977 through 1991, data for product class 32313 was included with product class 32113.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3211, FLAT GLASS		
	Materials, ingredients, containers, and supplies	**502.2**	**645.8**
144611	Glass sand, all types	61.6	57.6
	Chemicals and allied products:		
281228	Sodium carbonate (soda ash)	112.2	100.8
281901	Industrial inorganic chemicals, except sodium carbonate	35.8	26.2
280091	Other chemical and allied products	9.5	(2)
	Stone, clay, glass, and concrete products:		
	Glass products:		
321105	Float, sheet, and plate	(D)	44.0
322902	Other glass products (including glass tumblers, stemware, and tableware, excluding scrap)	–	(2)
329509	Minerals and earth, ground or treated	(D)	7.7
320097	Other stone, clay, and concrete products	1.2	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	22.8	7.6
	Lumber and wood products, except furniture:		
242101	Rough and dressed lumber	6.3	10.6
244021	Boxes, pallets, skids, and containers	36.0	53.2
240090	Other lumber and wood products	2.0	(2)
308100	Plastics film and sheet, unsupported	(D)	(2)
190028	Cullet (glass scrap)	32.3	24.6
970099	All other materials and components, parts, containers, and supplies	99.9	[2]298.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	3.1	14.8

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3221, GLASS CONTAINERS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 495.5**	**(X)**	**1 606.9**
281228	Sodium carbonate (soda ash) 1,000 s tons	1 821.9	214.2	1 981.3	226.2
144611	Glass sand, all types 1,000 s tons	5 521.3	126.3	6 196.5	124.6
	Stone, clay, glass, and concrete products:				
327403	Lime (including quicklime and dead-burned dolomite) 1,000 s tons	1 560.7	36.4	*1 559.7	36.4
329511	Nonmetallic minerals and earths, ground or otherwise treated 1,000 s tons	*678.6	30.7	(NA)	55.0
320099	Other stone, clay, glass, and concrete products 1,000 s tons	(S)	18.0	(NA)	(4)
265001	Paperboard boxes and corrugated paperboard 1,000 s tons	(S)	551.5	(NA)	517.2
190028	Cullet (glass) mil lb	4 590.2	152.8	(S)	81.6
308100	Plastics film and sheet, unsupported (for wraps or labels)	(X)	82.6	(X)	50.0
354401	Industrial dies, molds, jigs, and fixtures	(X)	66.9	(X)	(4)
970099	All other materials and components, parts, containers, and supplies	(X)	156.0	(X)	[4]346.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	60.1	(X)	169.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.		
	Materials, ingredients, containers, and supplies	**929.8**	**883.2**
144611	Glass sand, all types	123.8	77.5
	Chemicals and allied products:		
281228	Sodium carbonate (soda ash)	31.4	28.7
281901	Industrial inorganic chemicals, except sodium carbonate	147.0	99.8
280091	Other chemical and allied products	97.7	(5)
	Stone, clay, glass, and concrete products:		
	Glass products:		
321105	Float, sheet, and plate	(D)	(5)
322902	Other glass products (including glass tumblers, stemware, and tableware, excluding scrap)	14.8	(5)
329509	Minerals and earth, ground or treated	22.3	31.8
320097	Other stone, clay, and concrete products	12.6	(5)
265001	Paperboard containers, boxes, and corrugated paperboard	86.9	63.7
	Lumber and wood products, except furniture:		
242101	Rough and dressed lumber	(D)	(5)
244021	Boxes, pallets, skids, and containers	19.7	7.3
240090	Other lumber and wood products	.1	(5)
308100	Plastics film and sheet, unsupported	3.8	(5)
190028	Cullet (glass scrap)	14.2	18.1
970099	All other materials and components, parts, containers, and supplies	297.8	5430.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	57.0	126.3
	INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS		
	Materials, ingredients, containers, and supplies	**2 863.7**	**2 341.2**
144611	Glass sand, all types	(D)	2.7
	Chemicals and allied products:		
281228	Sodium carbonate (soda ash)	(Z)	(6)
281901	Industrial inorganic chemicals, except sodium carbonate	15.9	5.8
280091	Other chemical and allied products	47.3	(6)
	Stone, clay, glass, and concrete products:		
	Glass products:		
321105	Float, sheet, and plate	1 117.9	896.7
322902	Other glass products (including glass tumblers, stemware, and tableware, excluding scrap)	486.4	(6)
329509	Minerals and earth, ground or treated	.2	2.8
320097	Other stone, clay, and concrete products	(D)	(6)
265001	Paperboard containers, boxes, and corrugated paperboard	75.4	95.7
	Lumber and wood products, except furniture:		
242101	Rough and dressed lumber	8.8	19.2
244021	Boxes, pallets, skids, and containers	19.9	25.0
240090	Other lumber and wood products	4.0	(6)
308100	Plastics film and sheet, unsupported	96.1	73.8
190028	Cullet (glass scrap)	12.3	20.2
970099	All other materials and components, parts, containers, and supplies	658.6	6849.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	318.1	350.0

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, data for material codes 280091, 322902, 320097, 240090, and 308100 were included in material code 970099.

[3]Total cost of materials of establisnments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1987, data for material codes 320099 and 354401 were included in material code 970099.

[5]For 1987, data for material codes 280091, 321105, 322902, 320097, 242101, 240090, and 308100 were included in material code 970099.

[6]For 1987, data for material codes 281228, 280091, 322902, 320097, and 240090 were included in material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
32113 00	32113 21	32318 84	32318 81	32630 00	32630 15	32922 58	32922 51
32113 00	32113 41	32318 84	32318 83	32630 00	32630 19	32922 58	32922 55
32113 00	32113 69						
		32410 18	32410 15	32640 55	32640 52		
32114 24	32114 21	32410 18	32410 17			32927 10	32927 15
32114 24	32114 23	32410 23	32410 22	32710 34	32710 00	32927 10	32927 31
						32927 11	32927 33
		32610 20	32610 10	32721 37	32721 36	32927 11	32927 34
32293 25	32293 00	32610 61	32610 51	32721 37	32721 39	32927 12	32927 41
32293 29	32293 00	32610 70	32610 10			32927 12	32927 77
		32610 70	32610 51	32722 99	32722 41	32927 12	32927 78
32313 00	32313 21			32722 99	32722 98	32927 99	32927 14
32313 00	32313 41	32620 00	32620 15			32927 99	32927 36
32313 00	32313 69	32620 00	32620 19	32740 72	32740 00	32927 99	32927 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
32113 21	32113 00	32318 81	32318 84	32630 15	32630 00	32922 51	32922 58
32113 41	32113 00	32318 83	32318 84	32630 19	32630 00	32922 55	32922 58
32113 69	32113 00						
		32410 15	32410 18	32640 52	32640 55		
32114 21	32114 24	32410 17	32410 18			32927 14	32927 99
32114 23	32114 24	32410 22	32410 23	32710 00	32710 34	32927 15	32927 10
						32927 31	32927 10
		32610 10	32610 20	32721 36	32721 37	32927 33	32927 11
32293 00	32293 25	32610 10	32610 70	32721 39	32721 37	32927 34	32927 11
32293 00	32293 29	32610 51	32610 61			32927 36	32927 99
		32610 51	32610 70	32722 41	32722 99	32927 41	32927 12
32313 21	32313 00			32722 98	32722 99	32927 77	32927 12
32313 41	32313 00	32620 15	32620 00			32927 78	32927 12
32313 69	32313 00	32620 19	32620 00	32740 00	32740 72	32927 98	32927 99

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3211500	MQ32A, Flat Glass
3229500	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229600	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229700	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229800	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3231892	MA33L, Insulated Wire and Cable
3251011	MQ32D, Clay Construction Products
3251020	MQ32D, Clay Construction Products
3253000	MQ32D, Clay Construction Products
3255000	MA32C, Refractories
3259100	MQ32D, Clay Construction Products
3261020	MQ34E, Plumbing Fixtures
3274071	MA32C, Refractories
3295020	MA32C, Refractories
3297000	MA32C, Refractories

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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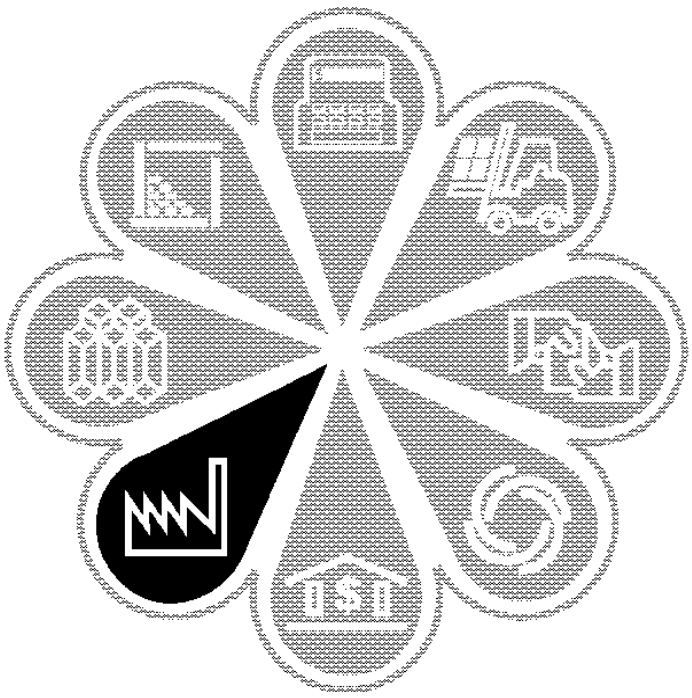
1992 Census of Manufactures

MC92-I-32B

INDUSTRY SERIES

Cement and Structural Clay Products

Industries 3241, 3251, 3253, 3255, and 3259



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-32B

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3241	Cement, Hydraulic
3251	Brick and Structural Clay Tile
3253	Ceramic Wall and Floor Tile
3255	Clay Refractories
3259	Structural Clay Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3241, CEMENT, HYDRAULIC

This industry is made up of establishments primarily engaged in manufacturing hydraulic cement, including portland, natural, masonry, and possolana cements.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3241, Cement, Hydraulic, had employment of 17.0 thousand. The employment figure was 11 percent below the 19.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Pennsylvania, Texas, and Missouri, accounting for approximately 36 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3241 shipped $3.9 billion of hydraulic cement considered primary to the industry, $28.0 million of secondary products, and had $127.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3241, no matter in what industry they were produced, appear in table 6a and aggregate to $3.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hydraulic cement industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments

(and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE

This industry is made up of establishments primarily engaged in manufacturing brick and structural clay tile. Establishments primarily engaged in manufacturing clay firebrick are classified in industry 3255. Establishments primarily engaged in manufacturing nonclay firebrick are classified in industry 3297.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3251, Brick and Structural Clay Tile, had employment of 14.2 thousand. The employment figure was 14 percent below the 16.6 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Ohio, South Carolina, and Texas. This represents a shift from 1987 when North Carolina, Texas, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3251 shipped $1.1 billion of brick and structural clay tile considered primary to the industry, $16.7 million of secondary products, and had $46.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3251, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the brick and structural clay tile industry amounted to $372.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE

This industry is made up of establishments primarily engaged in manufacturing ceramic wall and floor tile. Establishments primarily engaged in manufacturing structural clay tile are classified in industry 3251. Establishments primarily engaged in manufacturing drain tile are classified in industry 3259.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3253, Ceramic Wall and Floor Tile, had employment of 8.9 thousand. The employment figure was 6 percent below the 9.5 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Tennessee, and Texas, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when Texas, Pennsylvania, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $731.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3253 shipped $668.4 million of ceramic wall and floor tile considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3253, no matter in what industry they were produced, appear in table 6a and aggregate to $677.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ceramic wall and floor tile industry amounted to $261.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3255, CLAY REFRACTORIES

This industry is made up of establishments primarily engaged in manufacturing clay firebrick and other heat resisting clay products. Establishments primarily engaged in manufacturing nonclay refractories and all graphite refractories, whether of carbon bond or ceramic bond are classified in industry 3297.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3255, Clay Refractories, had employment of 6.2 thousand. The employment figure was 3 percent below the 6.4 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, Pennsylvania, Ohio, and Georgia accounting for approximately 61 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 68 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $886.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3255 shipped $739.3 million of clay refractories considered primary to the industry, $90.3 million of secondary products, and had $57.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3255, no matter in what industry they were produced, appear in table 6a and aggregate to $779.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the clay refractories industry amounted to $452.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing clay sewer pipe and structural clay products, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3259, Structural Clay Products, N.E.C., had employment of 1.7 thousand. The employment figure was 19 percent below the 2.1 thousand reported in 1987.

The leading States in employment in 1992 were California and Ohio, accounting for approximately 65 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $125.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3259 shipped $120.8 million of structural clay products, not elsewhere classified, considered primary to the industry, less than $.3 million of secondary products, and had $4.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3259, no matter in what industry they were produced, appear in table 6a and aggregate to $124.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the structural clay products, not elsewhere classified industry amounted to $49.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3241, CEMENT, HYDRAULIC															
1992 Census	122	218	138	17.0	594.9	12.8	26.8	406.1	2 149.3	1 869.2	4 050.8	226.2	832.9	99	99
1991 ASM	(NA)	(NA)	(NA)	16.4	559.8	12.2	25.6	380.4	1 936.9	1 883.5	3 777.7	225.3	845.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.6	598.6	13.4	27.8	421.5	2 196.8	2 079.2	4 250.7	264.9	800.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.9	558.2	13.0	27.6	401.1	2 139.0	2 014.4	4 129.4	262.6	770.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.6	584.2	14.2	29.7	415.0	2 184.7	2 042.9	4 234.3	193.0	712.4	(NA)	(NA)
1987 Census	123	213	138	19.1	598.6	14.5	30.2	424.4	2 304.1	2 002.0	4 335.4	166.2	724.5	99	98
1986 ASM	(NA)	(NA)	(NA)	19.7	622.6	14.9	31.2	446.0	2 153.1	2 017.1	4 220.1	169.3	773.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.2	645.4	15.9	32.2	457.1	2 220.8	2 031.5	4 222.1	196.3	825.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.6	658.0	17.4	33.4	478.3	2 218.1	1 966.5	4 182.9	346.7	812.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.1	639.6	17.8	35.2	475.2	1 914.6	1 761.8	3 683.1	201.3	801.6	(NA)	(NA)
1982 Census	119	237	160	24.6	636.4	19.1	36.5	473.6	1 815.7	1 752.6	3 542.0	421.9	800.0	98	99
1981 ASM	(NA)	(NA)	(NA)	28.1	687.6	22.3	43.9	532.0	1 971.8	1 814.2	3 715.4	411.3	715.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.4	698.5	24.2	48.4	543.4	2 119.4	1 891.5	3 962.8	410.2	684.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	30.4	644.7	24.5	50.2	510.3	2 211.4	1 865.1	4 017.1	282.2	590.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.7	558.9	22.9	46.9	433.5	1 961.9	1 619.3	3 604.3	352.3	466.6	(NA)	(NA)
1977 Census	84	201	160	27.8	485.1	22.2	44.4	380.0	1 671.5	1 343.0	3 042.3	296.6	484.8	99	99
INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE															
1992 Census	117	220	186	14.2	316.3	11.1	22.3	213.9	727.7	372.2	1 116.0	42.9	276.7	98	99
1991 ASM	(NA)	(NA)	(NA)	14.0	306.4	11.2	22.6	210.1	663.1	386.3	1 044.6	47.2	318.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	15.5	334.5	12.5	26.0	229.5	753.5	429.4	1 168.7	60.0	316.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.1	335.2	13.0	27.1	234.9	741.5	481.6	1 191.6	62.3	306.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.7	307.9	12.7	26.2	216.7	744.0	516.9	1 242.2	65.8	253.7	(NA)	(NA)
1987 Census	167	266	204	16.6	311.5	13.4	27.8	224.3	771.9	480.2	1 254.0	56.4	240.3	98	99
1986 ASM	(NA)	(NA)	(NA)	19.1	348.5	15.4	31.9	249.7	796.1	533.4	1 347.7	43.8	260.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.0	319.7	14.7	30.2	230.4	674.7	531.0	1 207.3	77.9	267.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.9	272.5	13.9	28.2	205.3	534.2	473.5	1 015.4	60.6	243.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.4	229.9	11.7	24.5	162.6	456.6	378.5	836.7	49.7	224.3	(NA)	(NA)
1982 Census	195	294	185	12.5	185.4	9.9	19.7	130.1	338.6	295.7	657.3	25.7	213.5	98	99
1981 ASM	(NA)	(NA)	(NA)	17.0	228.0	13.5	26.4	162.5	425.2	347.4	738.6	68.5	225.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.2	245.8	15.7	31.2	183.5	491.2	375.2	822.5	78.6	193.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.9	255.9	18.5	36.9	198.2	552.2	399.7	915.9	78.4	140.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.6	227.4	18.2	36.7	171.0	521.5	362.1	877.1	63.9	117.8	(NA)	(NA)
1977 Census	253	352	262	20.5	197.3	17.0	34.0	149.2	467.9	299.8	777.7	49.6	93.2	97	99
INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE															
1992 Census	102	118	55	8.9	196.9	7.3	15.3	145.3	458.1	261.3	731.3	48.9	167.3	(D)	99
1991 ASM	(NA)	(NA)	(NA)	9.5	192.8	7.7	15.7	140.4	465.1	264.3	750.8	22.1	174.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.8	208.6	8.1	16.4	156.9	556.6	303.5	845.0	68.8	195.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.0	203.6	8.4	17.3	155.4	501.9	299.1	792.6	32.3	173.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.8	196.4	8.1	15.7	149.2	489.6	281.1	756.0	71.9	174.0	(NA)	(NA)
1987 Census	95	114	51	9.5	182.8	7.7	15.6	134.6	463.1	261.9	717.4	33.2	128.8	99	99
1986 ASM	(NA)	(NA)	(NA)	9.6	175.2	7.8	16.0	129.0	442.1	239.4	665.9	51.3	127.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.7	153.6	7.2	15.1	117.6	354.4	204.7	568.8	28.2	98.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.5	144.4	7.1	14.7	111.6	373.7	190.8	553.5	84.2	102.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.2	127.2	6.8	14.4	96.9	302.9	169.0	470.8	13.0	80.3	(NA)	(NA)
1982 Census	77	97	52	7.5	114.2	6.1	12.3	80.2	256.1	149.7	406.9	7.7	77.4	99	97
1981 ASM	(NA)	(NA)	(NA)	8.9	117.5	7.3	14.8	89.0	292.6	160.2	437.9	14.2	76.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.7	105.8	7.2	14.9	80.2	249.2	143.0	384.5	19.4	56.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.7	99.7	7.2	14.9	75.9	213.7	135.8	341.1	20.1	49.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.6	81.6	6.3	13.1	60.6	181.9	106.9	292.8	13.8	40.1	(NA)	(NA)
1977 Census	61	79	48	7.8	78.3	6.3	12.8	56.4	155.4	98.7	252.5	6.6	42.1	99	95
INDUSTRY 3255, CLAY REFRACTORIES															
1992 Census	95	145	84	6.2	183.8	4.4	8.8	113.0	435.7	452.8	886.8	24.6	179.3	89	95
1991 ASM	(NA)	(NA)	(NA)	6.2	166.0	4.5	9.0	111.9	391.2	464.8	850.4	18.5	172.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.5	168.8	4.8	9.6	118.2	451.4	475.3	922.9	15.2	173.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.9	176.7	5.2	10.6	122.4	470.2	451.3	906.3	11.9	179.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.4	160.0	4.8	9.3	108.3	437.6	401.7	836.7	14.0	169.9	(NA)	(NA)
1987 Census	111	153	82	6.4	150.2	4.7	9.3	99.4	405.1	387.5	788.2	11.7	162.1	94	89
1986 ASM	(NA)	(NA)	(NA)	6.9	160.4	5.0	9.7	108.7	425.9	412.6	843.5	15.8	178.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.1	166.8	5.3	10.4	118.8	400.8	397.5	803.0	22.1	176.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.9	176.6	6.1	12.0	130.0	421.0	438.2	868.6	22.0	197.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.9	147.1	5.1	10.0	103.9	398.0	358.5	745.5	12.0	197.6	(NA)	(NA)
1982 Census	104	159	103	7.6	155.2	5.6	10.4	109.3	316.5	339.0	670.3	21.2	191.3	92	94
1981 ASM	(NA)	(NA)	(NA)	9.9	199.6	7.7	15.0	145.0	455.7	410.6	864.2	36.1	152.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.3	183.6	7.7	14.4	132.0	398.7	363.1	761.6	31.5	152.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.1	191.5	9.7	17.5	144.8	395.6	384.7	776.9	29.4	131.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.8	171.8	9.3	19.1	126.9	361.8	364.6	717.3	23.1	129.8	(NA)	(NA)
1977 Census	98	167	104	11.3	146.8	8.8	17.6	106.5	308.4	296.8	607.2	20.0	126.4	89	95
INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.															
1992 Census	59	65	22	1.7	37.8	1.2	2.3	23.5	74.6	49.3	125.8	5.4	32.6	99	97
1991 ASM	(NA)	(NA)	(NA)	2.0	39.4	1.5	2.8	25.8	85.0	47.8	136.1	12.3	35.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	2.2	43.6	1.7	3.1	29.8	91.3	57.4	149.8	4.8	35.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	2.2	45.6	1.7	3.5	32.0	82.5	68.5	153.3	4.1	33.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	2.2	47.8	1.7	3.5	33.2	108.7	64.2	175.4	4.2	31.5	(NA)	(NA)
1987 Census	58	67	29	2.1	44.9	1.7	3.6	32.2	99.9	53.5	155.2	3.9	38.6	99	96
1986 ASM	(NA)	(NA)	(NA)	2.3	45.4	1.8	3.7	32.0	97.5	66.2	163.8	3.0	43.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.2	42.4	1.7	3.7	30.3	87.6	60.2	152.5	4.7	42.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.7	47.0	2.2	4.5	36.4	91.6	70.6	158.4	2.3	43.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	2.2	36.2	1.7	3.6	29.0	87.8	54.7	139.7	.9	37.7	(NA)	(NA)
1982 Census	67	78	31	2.3	35.7	1.8	3.6	27.4	77.9	53.8	133.6	2.3	38.9	98	96
1981 ASM	(NA)	(NA)	(NA)	3.2	47.7	2.6	5.1	36.3	81.5	67.8	144.7	.7	41.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	4.2	58.6	3.5	7.0	44.2	102.6	76.5	174.0	2.6	41.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.2	67.4	4.3	8.5	52.1	118.7	87.4	203.4	4.6	42.4	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	5.5	70.0	4.5	9.0	55.5	138.0	102.6	234.8	10.8	47.7	(NA)	(NA)
1977 Census	94	113	57	5.5	64.0	4.5	8.9	48.2	126.1	90.4	214.6	6.1	37.2	94	92

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3241, CEMENT, HYDRAULIC								
1992 Census	35 201	76	2 094	15.15	46	61	127 178	28	80.20
1991 ASM	34 134	74	2 098	14.86	50	65	118 104	29	75.66
1990 ASM	34 011	76	2 075	15.16	49	63	124 818	27	79.02
1989 ASM	33 030	77	2 123	14.53	49	62	126 568	26	77.50
1988 ASM	31 409	76	2 092	13.97	48	62	117 457	27	73.56
1987 Census	31 340	76	2 083	14.05	46	60	120 634	26	76.29
1986 ASM	31 604	76	2 094	14.29	48	63	109 294	29	69.01
1985 ASM	30 443	75	2 025	14.20	48	63	104 755	29	68.97
1984 ASM	29 115	77	1 920	14.32	47	63	98 146	30	66.41
1983 ASM	27 688	77	1 978	13.50	48	65	82 883	33	54.39
1982 Census	25 870	78	1 911	12.98	49	67	73 809	35	49.75
1981 ASM	24 470	79	1 969	12.12	49	67	70 171	35	44.92
1980 ASM	22 977	80	2 000	11.23	48	65	69 717	33	43.79
1979 ASM	21 207	81	2 049	10.17	46	62	72 743	29	44.05
1978 ASM	19 474	80	2 048	9.24	45	60	68 359	28	41.83
1977 Census	17 450	80	2 000	8.56	44	60	60 126	29	37.65
	INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE								
1992 Census	22 275	78	2 009	9.59	33	62	51 246	43	32.63
1991 ASM	21 886	80	2 018	9.30	37	66	47 364	46	29.34
1990 ASM	21 581	81	2 080	8.83	37	65	48 613	44	28.98
1989 ASM	20 820	81	2 085	8.67	40	69	46 056	45	27.36
1988 ASM	19 611	81	2 063	8.27	42	66	47 389	41	28.40
1987 Census	18 765	81	2 075	8.07	38	63	46 500	40	27.77
1986 ASM	18 246	81	2 071	7.83	40	65	41 681	44	24.96
1985 ASM	17 761	82	2 054	7.63	44	70	37 483	47	22.34
1984 ASM	16 124	82	2 029	7.28	47	73	31 609	51	18.94
1983 ASM	14 929	76	2 094	6.64	45	73	29 649	50	18.64
1982 Census	14 832	79	1 990	6.60	45	73	27 088	55	17.19
1981 ASM	13 412	79	1 956	6.16	47	78	25 012	54	16.11
1980 ASM	12 168	78	1 987	5.88	46	76	24 317	50	15.74
1979 ASM	11 175	81	1 995	5.37	44	72	24 114	46	14.96
1978 ASM	10 528	84	2 016	4.66	41	67	24 144	44	14.21
1977 Census	9 624	83	2 000	4.39	39	64	22 824	42	13.76
	INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE								
1992 Census	22 124	82	2 096	9.50	36	63	51 472	43	29.94
1991 ASM	20 295	81	2 039	8.94	35	61	48 958	41	29.62
1990 ASM	21 286	83	2 025	9.57	36	61	56 796	37	33.94
1989 ASM	20 360	84	2 060	8.98	38	63	50 190	41	29.01
1988 ASM	20 041	83	1 938	9.50	37	63	49 959	40	31.18
1987 Census	19 242	81	2 026	8.63	37	62	48 747	39	29.69
1986 ASM	18 250	81	2 051	8.06	36	62	46 052	40	27.63
1985 ASM	17 655	83	2 097	7.79	36	63	40 736	43	23.47
1984 ASM	16 988	84	2 070	7.59	34	61	43 965	39	25.42
1983 ASM	15 512	83	2 118	6.73	36	63	36 939	42	21.03
1982 Census	15 227	81	2 016	6.52	37	65	34 147	45	20.82
1981 ASM	13 202	82	2 027	6.01	37	63	32 876	40	19.77
1980 ASM	12 161	83	2 069	5.38	37	65	28 644	42	16.72
1979 ASM	11 460	83	2 069	5.09	40	69	24 563	47	14.34
1978 ASM	10 737	83	2 079	4.63	37	64	23 934	45	13.89
1977 Census	10 038	81	2 032	4.41	39	70	19 923	50	12.14

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3255, CLAY REFRACTORIES								
1992 Census	29 645	71	2 000	12.84	51	72	70 274	42	49.51
1991 ASM	26 774	73	2 000	12.43	55	74	63 097	42	43.47
1990 ASM	25 969	74	2 000	12.31	52	70	69 446	37	47.02
1989 ASM	25 609	75	2 038	11.55	50	69	68 145	38	44.36
1988 ASM	25 000	75	1 938	11.65	48	67	68 375	37	47.05
1987 Census	23 469	73	1 979	10.69	49	68	63 297	37	43.56
1986 ASM	23 246	72	1 940	11.21	49	68	61 725	38	43.91
1985 ASM	23 493	75	1 962	11.42	50	70	56 451	42	38.54
1984 ASM	22 354	77	1 967	10.83	50	71	53 291	42	35.08
1983 ASM	21 319	74	1 961	10.39	48	68	57 681	37	39.80
1982 Census	20 421	74	1 857	10.51	51	74	41 645	49	30.43
1981 ASM	20 162	78	1 948	9.67	48	71	46 030	44	30.38
1980 ASM	17 825	75	1 870	9.17	48	72	38 709	46	27.69
1979 ASM	15 826	80	1 804	8.27	50	74	32 694	48	22.61
1978 ASM	14 559	79	2 054	6.64	51	75	30 661	47	18.94
1977 Census	12 991	78	2 000	6.05	49	73	27 292	48	17.52
	INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.								
1992 Census	22 235	71	1 917	10.22	39	69	43 882	51	32.43
1991 ASM	19 700	75	1 867	9.21	35	64	42 500	46	30.36
1990 ASM	19 818	77	1 824	9.61	38	67	41 500	48	29.45
1989 ASM	20 727	77	2 059	9.14	45	74	37 500	55	23.57
1988 ASM	21 727	77	2 059	9.49	37	64	49 409	44	31.06
1987 Census	21 381	81	2 118	8.94	34	63	47 571	45	27.75
1986 ASM	19 739	78	2 056	8.65	40	68	42 391	47	26.35
1985 ASM	19 273	77	2 176	8.19	39	67	39 818	48	23.68
1984 ASM	17 407	81	2 045	8.09	45	74	33 926	51	20.36
1983 ASM	16 455	77	2 118	8.06	39	65	39 909	41	24.39
1982 Census	15 522	78	2 000	7.61	40	67	33 870	46	21.64
1981 ASM	14 906	81	1 962	7.12	47	80	25 469	59	15.98
1980 ASM	13 952	83	2 000	6.31	44	78	24 429	57	14.66
1979 ASM	12 962	83	1 977	6.13	43	76	22 827	57	13.96
1978 ASM	12 727	82	2 000	6.17	44	74	25 091	51	15.33
1977 Census	11 636	82	1 978	5.42	42	72	22 927	51	14.17

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3241, CEMENT, HYDRAULIC														
United States	**–**	**218**	**138**	**17.0**	**594.9**	**12.8**	**26.8**	**406.1**	**2 149.3**	**1 869.2**	**4 050.8**	**226.2**	**19.1**	**2 304.1**
Alabama	E1	6	5	.6	22.9	.5	1.0	15.2	80.5	68.8	147.6	12.9	.7	92.0
Arizona	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	22	14	2.0	77.8	1.5	3.1	53.8	277.9	239.5	524.2	29.3	2.3	354.2
Colorado	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	13	7	.6	18.3	.4	.8	12.0	86.0	120.8	211.5	5.3	.5	73.3
Georgia	E4	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Hawaii	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	10	4	.5	18.4	.5	1.0	13.3	70.6	63.2	137.0	4.5	E	(D)
Indiana	E1	6	5	.6	21.0	.5	1.0	14.3	87.0	67.3	155.8	5.0	.8	93.2
Iowa	–	4	4	.5	15.6	.4	.8	11.7	70.7	62.2	135.1	4.5	.5	56.8
Kansas	–	4	4	.6	18.2	.4	.8	13.0	45.8	31.4	76.0	5.7	.7	45.5
Kentucky	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	E9	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	5	4	.4	14.7	.4	.7	11.3	51.1	45.0	94.1	5.4	.4	55.8
Michigan	–	11	5	.7	31.3	.6	1.4	22.7	131.4	114.2	246.0	13.2	.9	159.6
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	7	6	.9	30.2	.6	1.3	18.7	146.3	71.3	222.3	12.7	.9	125.9
Montana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	9	4	.7	24.7	.5	1.0	16.5	64.5	64.0	130.5	7.1	F	(D)
Ohio	E1	9	7	.6	20.6	.5	1.1	13.5	68.1	49.9	118.0	5.7	.6	73.7
Oklahoma	–	4	3	.4	12.7	.3	.5	9.0	31.8	29.4	62.5	3.8	.5	32.7
Pennsylvania	E1	19	13	1.8	57.2	1.3	2.6	38.7	160.9	157.0	315.8	46.2	1.9	202.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3241, CEMENT, HYDRAULIC—Con.														
South Carolina	–	4	3	.5	20.9	.4	.8	15.0	68.3	46.7	119.3	6.3	F	(D)
Tennessee	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
Texas	–	17	13	1.5	50.4	1.1	2.4	32.6	194.0	175.1	370.6	12.7	2.1	143.4
Utah	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	25.9
Virginia	E2	7	3	.5	15.6	.3	.8	9.9	63.1	59.0	121.6	3.4	.4	51.4
Washington	–	7	3	.2	7.6	.2	.4	4.9	48.8	41.8	88.0	(D)	.3	33.0
West Virginia	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wyoming	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE														
United States	**–**	**220**	**186**	**14.2**	**316.3**	**11.1**	**22.3**	**213.9**	**727.7**	**372.2**	**1 116.0**	**42.9**	**16.6**	**771.9**
Alabama	–	12	10	.7	14.4	.5	1.2	9.8	45.8	23.6	70.0	1.8	.8	53.9
Arkansas	–	7	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	11	9	.6	16.7	.4	.9	9.4	37.2	14.2	49.7	1.5	F	(D)
Colorado	E2	4	4	.3	7.4	.2	.4	4.3	18.5	9.4	28.4	(D)	E	(D)
Georgia	–	5	5	.8	17.1	.6	1.3	10.6	26.9	27.6	57.3	4.2	1.1	33.8
Illinois	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	E3	5	4	.3	6.4	.2	.5	4.7	12.7	7.8	21.2	(D)	E	(D)
Kansas	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	10.6
Mississippi	–	6	6	.5	8.5	.3	.7	5.2	17.5	13.2	31.9	(D)	.7	21.3
Missouri	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	4	4	.2	3.6	.1	.2	2.1	6.5	3.3	10.5	.5	(NA)	(D)
North Carolina	–	23	20	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.2	G	(D)
Ohio	E3	24	22	1.6	36.4	1.3	2.6	26.7	70.1	39.5	109.5	(D)	1.3	60.9
Oklahoma	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	15	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	G	(D)
South Carolina	–	10	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	17	16	1.4	26.5	1.1	2.4	19.0	85.3	25.5	117.2	6.0	1.7	76.7
Utah	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E1	9	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE														
United States	**E1**	**118**	**55**	**8.9**	**196.9**	**7.3**	**15.3**	**145.3**	**458.1**	**261.3**	**731.3**	**48.9**	**9.5**	**463.1**
Alabama	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E3	17	6	.3	5.3	.2	.4	3.3	10.4	6.2	16.9	.4	E	(D)
Florida	–	5	3	.6	15.8	.4	.9	10.0	21.5	14.0	33.2	4.5	F	(D)
Georgia	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	E2	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	8	1	.3	5.7	.2	.5	3.9	13.3	8.4	21.7	.3	E	(D)
New York	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E6	10	9	.9	20.4	.7	1.5	14.1	40.7	23.5	64.1	6.6	1.0	36.7
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	10	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.7	1.7	91.3
INDUSTRY 3255, CLAY REFRACTORIES														
United States	**–**	**145**	**84**	**6.2**	**183.8**	**4.4**	**8.8**	**113.0**	**435.7**	**452.8**	**886.8**	**24.6**	**6.4**	**405.1**
Alabama	–	9	7	.4	14.0	.3	.6	8.1	24.9	31.2	57.1	(D)	.4	27.7
California	–	10	4	.2	4.7	.1	.2	2.8	11.3	12.0	23.9	.4	.2	11.4
Colorado	E2	4	3	.1	2.4	.1	.2	1.5	6.0	4.2	10.2	(D)	(NA)	(NA)
Georgia	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	6	6	.3	8.6	.2	.4	4.6	48.0	45.3	94.1	1.2	(NA)	(D)
Indiana	E2	7	2	.2	4.8	.1	.2	2.9	8.3	6.4	14.9	.4	(NA)	(NA)
Kentucky	E2	3	3	.1	3.5	.1	.2	2.9	6.9	8.5	15.3	(D)	(NA)	(NA)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	11	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	29	14	.8	25.0	.6	1.3	16.8	57.1	71.3	127.2	4.6	1.0	72.4
Pennsylvania	E1	25	17	1.0	26.8	.6	1.2	14.6	57.2	69.3	126.0	(D)	1.2	71.5
Texas	–	5	4	.3	7.4	.2	.5	5.2	21.2	27.3	48.0	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.														
United States	**E1**	**65**	**22**	**1.7**	**37.8**	**1.2**	**2.3**	**23.5**	**74.6**	**49.3**	**125.8**	**5.4**	**2.1**	**99.9**
California	E1	15	8	.7	13.9	.5	.9	8.1	27.8	20.8	49.5	1.5	F	(D)
Indiana	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	8	5	.4	11.0	.3	.6	7.0	19.2	10.0	30.8	(D)	.6	28.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cement, hydraulic (SIC 3241)	Brick and structural clay tile (SIC 3251)	Ceramic wall and floor tile (SIC 3253)	Clay refractories (SIC 3255)	Structural clay products, n.e.c. (SIC 3259)
Companies ---- number	122	117	102	95	59
All establishments ---- number	218	220	118	145	65
With 1 to 19 employees ---- number	80	34	63	61	43
With 20 to 99 employees ---- number	48	149	27	71	19
With 100 employees or more ---- number	90	37	28	13	3
Employment and labor costs:					
Employees ---- 1,000	17.0	14.2	8.9	6.2	1.7
Compensation, total ---- mil dol	778.9	384.4	242.9	238.7	49.1
Annual payroll ---- mil dol	594.9	316.3	196.9	183.8	37.8
Fringe benefits ---- mil dol	184.0	68.1	46.0	54.9	11.3
Social Security and other legally required payments ---- mil dol	69.3	36.3	23.7	23.0	5.5
Employer voluntary payments ---- mil dol	114.7	31.8	22.3	31.8	5.8
Production workers:					
Average for year ---- 1,000	12.8	11.1	7.3	4.4	1.2
March ---- 1,000	12.8	10.5	7.1	4.4	1.2
May ---- 1,000	12.9	11.2	7.3	4.4	1.2
August ---- 1,000	13.0	11.5	7.4	4.3	1.3
November ---- 1,000	12.6	11.0	7.3	4.3	1.2
Hours ---- millions	26.8	22.3	15.3	8.8	2.3
Wages ---- mil dol	406.1	213.9	145.3	113.0	23.5
Cost of materials[1] ---- mil dol	1 869.2	372.2	261.3	452.8	49.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	873.8	191.1	165.0	375.7	31.0
Resales ---- mil dol	103.3	33.5	55.2	32.8	3.1
Fuels ---- mil dol	398.1	95.3	22.5	26.0	10.7
Purchased electricity ---- mil dol	424.6	47.4	16.7	15.1	4.3
Contract work ---- mil dol	69.5	4.9	1.9	3.2	.3
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	9 603.5	829.1	293.8	259.4	59.6
Generated less sold ---- mil kWh	(D)	(D)	–	(D)	–
Total value of shipments ---- mil dol	4 050.8	1 116.0	731.3	886.8	125.8
Value added ---- mil dol	2 149.3	727.7	458.1	435.7	74.6
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	861.8	295.3	177.0	181.5	35.0
Finished goods ---- mil dol	241.1	241.0	128.7	94.6	24.0
Work in process ---- mil dol	191.4	8.6	10.3	13.4	2.9
Materials and supplies ---- mil dol	429.3	45.7	37.9	73.5	8.2
End of 1992 ---- mil dol	832.9	276.7	167.3	179.3	32.6
Finished goods ---- mil dol	221.0	224.6	116.6	96.5	22.4
Work in process ---- mil dol	179.2	8.9	10.6	13.2	2.6
Materials and supplies ---- mil dol	432.6	43.2	40.1	69.5	7.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cement, hydraulic (SIC 3241)	Brick and structural clay tile (SIC 3251)	Ceramic wall and floor tile (SIC 3253)	Clay refractories (SIC 3255)	Structural clay products, n.e.c. (SIC 3259)
Gross book value of depreciable assets:					
Total:					
Beginning of year	6 478.7	1 102.1	684.1	476.3	107.1
New capital expenditures[1]	226.2	42.9	48.9	24.6	5.4
Used capital expenditures	8.7	4.8	.8	4.2	.2
Retirements	64.0	8.9	5.0	6.2	.8
End of year	6 649.6	1 140.9	728.8	498.8	111.8
Buildings and other structures:					
Beginning of year	1 063.4	218.4	156.8	110.3	23.7
New capital expenditures	20.7	3.6	8.4	2.6	.5
Used capital expenditures	.8	.4	.3	.1	(Z)
Retirements	4.4	.5	.1	.2	.1
End of year	1 080.4	221.9	165.4	112.9	24.2
Machinery and equipment:					
Beginning of year	5 415.3	883.7	527.3	366.0	83.3
New capital expenditures[1]	205.6	39.3	40.5	21.9	4.9
Used capital expenditures	7.9	4.5	.5	4.0	.2
Retirements	59.6	8.5	4.9	6.0	.7
End of year	5 569.2	919.0	563.4	385.9	87.6
Depreciation charges during 1992:					
Total	351.7	61.9	40.4	24.3	6.6
Buildings and other structures	47.3	7.7	5.6	4.2	1.0
Machinery and equipment	304.4	54.2	34.8	20.0	5.5
Rental payments:					
Total	35.3	6.2	4.9	5.6	1.3
Buildings and other structures	18.7	3.4	3.0	3.2	.7
Machinery and equipment	16.6	2.8	1.9	2.4	.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cement, hydraulic (SIC 3241)		Brick and structural clay tile (SIC 3251)		Ceramic wall and floor tile (SIC 3253)		Clay refractories (SIC 3255)		Structural clay products, n.e.c. (SIC 3259)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	6.0	(X)	2.3	(X)	.7	(X)	1.4	(X)	.2	(X)
Response coverage ratio (percent)[2]	66.5	(X)	88.3	(X)	60.0	(X)	81.4	(X)	70.6	(X)
Machinery	100.0	(X)	39.4	(X)	3.7	(X)	8.1	(X)	1.3	(X)
Response coverage ratio (percent)[2]	72.5	(X)	88.7	(X)	56.6	(X)	81.4	(X)	70.6	(X)
Other purchased services:										
Communications	5.7	(X)	3.7	(X)	1.5	(X)	1.3	(X)	.6	(X)
Response coverage ratio (percent)[2]	73.5	(X)	77.2	(X)	56.3	(X)	71.9	(X)	70.6	(X)
Legal	6.2	(X)	2.5	(X)	.6	(X)	.2	(X)	.3	(X)
Response coverage ratio (percent)[2]	73.1	(X)	87.9	(X)	56.6	(X)	81.4	(X)	70.6	(X)
Accounting and bookkeeping	1.5	(X)	2.2	(X)	.4	(X)	.5	(X)	.1	(X)
Response coverage ratio (percent)[2]	69.6	(X)	86.2	(X)	56.6	(X)	81.4	(X)	70.6	(X)
Advertising	1.6	(X)	3.7	(X)	3.5	(X)	.5	(X)	.6	(X)
Response coverage ratio (percent)[2]	70.0	(X)	84.2	(X)	56.6	(X)	81.4	(X)	70.6	(X)
Software and other data processing	1.9	(X)	.6	(X)	.3	(X)	.7	(X)	.6	(X)
Response coverage ratio (percent)[2]	70.5	(X)	82.7	(X)	56.6	(X)	81.4	(X)	70.6	(X)
Refuse removal, including hazardous waste	2.2	(X)	.3	(X)	1.7	(X)	.9	(X)	.1	(X)
Response coverage ratio (percent)[2]	74.0	(X)	86.7	(X)	56.6	(X)	81.4	(X)	70.6	(X)
New machinery and equipment expenditures	205.6	(X)	39.3	(X)	40.5	(X)	21.9	(X)	4.9	(X)
Automobiles, trucks, etc., for highway use	6.9	33	6.0	20	1.1	11	.3	65	.1	77
Computers and peripheral data processing equipment	7.6	16	1.2	18	2.7	9	.7	38	.5	53
All other	191.0	2	32.1	5	36.7	1	20.9	3	4.2	9
Adjustment ratio[3]	1.4	(X)	1.2	(X)	1.3	(X)	1.0	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	873.8	(X)	191.1	(X)	165.0	(X)	375.7	(X)	31.0	(X)
Materials purchased or transferred from foreign sources[4]	98.7	19	2.3	8	13.3	23	(S)	(X)	.1	89
Materials purchased or transferred from domestic sources	775.1	3	188.8	1	151.6	3	(S)	(X)	30.9	1
Adjustment ratio[3]	1.7	(X)	1.3	(X)	1.6	(X)	(S)	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3241, CEMENT, HYDRAULIC												
Total	**–**	**218**	**17.0**	**594.9**	**12.8**	**26.8**	**406.1**	**2 149.3**	**1 869.2**	**4 050.8**	**226.2**	**832.9**
Establishments with an average of—												
1 to 4 employees	E1	29	.1	1.5	(Z)	.1	1.1	20.8	15.7	36.6	.4	2.1
5 to 9 employees	E3	30	.2	5.2	.2	.3	3.7	24.8	20.9	43.2	1.3	9.4
10 to 19 employees	E2	21	.3	8.2	.2	.4	4.9	28.0	29.7	58.0	2.2	6.2
20 to 49 employees	E3	20	.6	14.9	.4	.8	9.1	52.3	78.3	130.7	2.2	19.5
50 to 99 employees	–	28	2.3	79.6	1.6	3.4	51.4	327.5	286.6	608.8	17.3	123.1
100 to 249 employees	–	89	13.6	485.6	10.4	21.8	335.8	1 696.0	1 438.2	3 173.6	202.8	672.6
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	29	.1	2.0	.1	.1	1.4	6.1	5.8	12.0	.6	2.3
INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE												
Total	**–**	**220**	**14.2**	**316.3**	**11.1**	**22.3**	**213.9**	**727.7**	**372.2**	**1 116.0**	**42.9**	**276.7**
Establishments with an average of—												
1 to 4 employees	E2	3	(Z)	.2	(Z)	(Z)	.1	.5	.4	1.1	.4	.3
5 to 9 employees	E5	19	.1	2.6	.1	.2	1.6	6.2	3.1	10.3	(D)	2.7
10 to 19 employees	E2	12	.2	3.9	.1	.3	2.6	7.4	5.3	14.7	.5	4.2
20 to 49 employees	E1	68	2.4	51.1	1.9	3.9	36.0	130.0	66.6	202.7	9.2	50.6
50 to 99 employees	–	81	5.7	130.6	4.4	8.6	86.3	317.1	157.8	476.4	18.3	107.4
100 to 249 employees	–	33	4.7	101.3	3.8	7.7	72.3	232.4	107.7	343.4	11.8	96.9
250 to 499 employees	–	4	1.2	26.5	.8	1.7	15.0	34.0	31.3	67.5	2.7	14.6
Covered by administrative records[2]	E9	16	.1	2.3	.1	.2	1.6	4.8	2.7	7.4	.3	1.8
INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE												
Total	**E1**	**118**	**8.9**	**196.9**	**7.3**	**15.3**	**145.3**	**458.1**	**261.3**	**731.3**	**48.9**	**167.3**
Establishments with an average of—												
1 to 4 employees	E9	37	.1	1.2	.1	.1	.9	2.5	1.6	4.1	.2	1.3
5 to 9 employees	E8	16	.1	2.0	.1	.2	1.4	4.4	3.0	7.4	.3	2.4
10 to 19 employees	E7	10	.1	2.9	.1	.2	2.1	6.2	4.4	10.6	.4	2.9
20 to 49 employees	E1	19	.6	11.3	.5	.9	7.6	19.7	10.4	30.5	3.1	5.7
50 to 99 employees	E1	8	.6	11.9	.5	.9	9.4	41.1	16.4	59.5	1.4	7.8
100 to 249 employees	–	17	2.7	63.4	2.1	4.2	41.1	153.9	94.5	248.9	29.8	60.7
250 to 499 employees	–	8	4.8	104.2	4.0	8.8	82.8	230.4	131.0	370.4	13.7	86.4
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	56	.2	4.5	.2	.4	3.3	8.8	5.9	14.7	.6	4.9
INDUSTRY 3255, CLAY REFRACTORIES												
Total	**–**	**145**	**6.2**	**183.8**	**4.4**	**8.8**	**113.0**	**435.7**	**452.8**	**886.8**	**24.6**	**179.3**
Establishments with an average of—												
1 to 4 employees	E7	26	(Z)	1.0	(Z)	.1	.6	2.1	3.2	5.4	.1	.9
5 to 9 employees	E4	17	.1	2.5	.1	.2	1.7	7.0	9.3	16.3	.2	2.7
10 to 19 employees	E2	18	.3	6.3	.2	.4	4.1	20.2	19.4	39.8	.6	6.9
20 to 49 employees	–	47	1.5	38.5	1.0	2.1	23.1	98.8	119.9	219.2	4.8	44.5
50 to 99 employees	–	24	1.7	54.7	1.2	2.4	32.1	111.7	142.0	254.2	7.0	39.8
100 to 249 employees	–	10	1.3	40.3	.9	1.9	26.8	102.2	82.4	184.0	11.9	42.5
250 to 499 employees	–	2	1.3	40.5	.9	1.7	24.6	93.7	76.5	167.8	(D)	41.9
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	30	.1	1.8	.1	.1	1.3	4.5	4.8	9.2	.1	1.7
INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.												
Total	**E1**	**65**	**1.7**	**37.8**	**1.2**	**2.3**	**23.5**	**74.6**	**49.3**	**125.8**	**5.4**	**32.6**
Establishments with an average of—												
1 to 4 employees	E9	21	(Z)	.7	(Z)	(Z)	.5	1.5	.9	2.3	.1	.6
5 to 9 employees	E6	13	.1	1.7	.1	.1	1.2	3.1	2.4	5.5	.1	1.4
10 to 19 employees	E4	9	.1	3.3	.1	.2	1.7	6.2	3.3	9.5	.3	1.7
20 to 49 employees	E1	9	.3	6.5	.2	.5	4.1	15.5	9.6	24.8	.9	4.5
50 to 99 employees	E1	10	.7	17.3	.5	1.0	10.3	27.5	22.7	52.0	4.0	10.5
100 to 249 employees	–	3	.4	8.3	.3	.6	5.7	20.8	10.5	31.7	(D)	13.8
Covered by administrative records[2]	E9	26	.1	1.5	.1	.1	1.0	3.0	1.8	4.8	.2	1.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3241	**Cement, hydraulic:**										
	All establishments in industry	218	17.0	594.9	12.8	26.8	406.1	2 149.3	1 869.2	4 050.8	226.2
3251	**Brick and structural clay tile:**										
	All establishments in industry	220	14.2	316.3	11.1	22.3	213.9	727.7	372.2	1 116.0	42.9
3253	**Ceramic wall and floor tile:**										
	All establishments in industry	118	8.9	196.9	7.3	15.3	145.3	458.1	261.3	731.3	48.9
3255	**Clay refractories:**										
	All establishments in industry	145	6.2	183.8	4.4	8.8	113.0	435.7	452.8	886.8	24.6
3259	**Structural clay products, n.e.c.:**										
	All establishments in industry	65	1.7	37.8	1.2	2.3	23.5	74.6	49.3	125.8	5.4
	Establishments with this product class primary:										
32591	Vitrified clay sewer pipe and fittings	10	.7	13.1	.5	.9	9.0	30.5	15.3	46.2	1.1
32592	Other structural clay products, n.e.c. (except clay refractories)	20	.7	18.5	.5	1.1	10.8	35.3	27.1	62.6	3.4

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3241, CEMENT, HYDRAULIC			
Total value of shipments	4 050.8	4 335.4	3 542.0
Primary products value of shipments	3 895.1	4 051.9	3 451.3
Secondary products value of shipments	28.0	73.5	52.8
Total miscellaneous receipts	127.8	210.0	37.9
Value of resales	119.2	192.8	30.4
Contract receipts	(D)	–	(D)
Other miscellaneous receipts	(D)	17.2	(D)
Primary products specialization ratio	99	99	98
Value of primary products shipments made in all industries	3 928.6	4 116.1	3 474.4
Value of primary products shipments made in this industry	3 895.1	4 051.9	3 451.3
Value of primary products shipments made in other industries	33.5	64.2	23.0
Coverage ratio	99	98	99
INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE			
Total value of shipments	1 116.0	1 254.0	657.3
Primary products value of shipments	1 052.6	1 143.3	618.1
Secondary products value of shipments	16.7	22.4	10.1
Total miscellaneous receipts	46.7	88.3	29.1
Value of resales	43.3	84.3	24.6
Contract receipts	(D)	(Z)	(D)
Other miscellaneous receipts	(D)	3.9	(D)
Primary products specialization ratio	98	98	98
Value of primary products shipments made in all industries	1 053.7	1 151.3	624.4
Value of primary products shipments made in this industry	1 052.6	1 143.3	618.1
Value of primary products shipments made in other industries	1.1	7.9	6.3
Coverage ratio	99	99	99
INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE			
Total value of shipments	731.3	717.4	406.9
Primary products value of shipments	668.4	615.7	356.1
Secondary products value of shipments	(D)	.3	1.2
Total miscellaneous receipts	(D)	101.4	49.6
Value of resales	62.0	(D)	(D)
Contract receipts	(D)	(D)	–
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	99	99
Value of primary products shipments made in all industries	677.7	624.6	366.6
Value of primary products shipments made in this industry	668.4	615.7	356.1
Value of primary products shipments made in other industries	9.3	8.9	10.5
Coverage ratio	99	99	97

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3255, CLAY REFRACTORIES			
Total value of shipments	886.8	788.2	670.3
Primary products value of shipments	739.3	660.5	593.1
Secondary products value of shipments	90.3	42.4	52.3
Total miscellaneous receipts	57.1	85.3	24.9
Value of resales	44.3	(D)	22.8
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	2.3	(D)
Primary products specialization ratio	89	94	92
Value of primary products shipments made in all industries	779.1	744.5	628.7
Value of primary products shipments made in this industry	739.3	660.5	593.1
Value of primary products shipments made in other industries	39.8	84.0	35.6
Coverage ratio	95	89	94
INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.			
Total value of shipments	125.8	155.2	133.6
Primary products value of shipments	120.8	147.9	119.9
Secondary products value of shipments	.3	1.6	2.2
Total miscellaneous receipts	4.7	5.8	11.5
Value of resales	4.0	4.8	10.7
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	99	99	98
Value of primary products shipments made in all industries	124.7	153.8	124.8
Value of primary products shipments made in this industry	120.8	147.9	119.9
Value of primary products shipments made in other industries	4.0	5.9	4.9
Coverage ratio	97	96	96

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3241– —	**CEMENT, HYDRAULIC**						
	Total	**(NA)**	**(X)**	**3 928.6**	**(NA)**	**(X)**	**4 116.1**
32410	Cement, hydraulic (including cost of shipping containers)	(NA)	(X)	3 928.6	(NA)	(X)	4 116.1
	Portland cements:						
32410 12	Normal portland cement ASTM type I, 1,000 s tons	45	49 707.8	2 425.4	50	*50 100.1	2 391.8
32410 13	Moderate heat of hydration (moderate sulfate resistance) ASTM type II, 1,000 s tons	35	13 834.4	719.9	36	(S)	855.8
32410 14	High early strength ASTM type III, 1,000 s tons	30	2 510.7	134.9	33	(S)	193.0
32410 16	High sulfate resistance ASTM type V, 1,000 s tons	13	1 632.6	85.6			
32410 18	Other hydraulic cements (oil well, white cement, blended cements, etc.) including low heat of hydration ASTM type IV, 1,000 s tons	22	2 246.5	141.8	(NA)	3 200.0	161.8
32410 21	Masonry cement, 1,000 s tons	32	2 916.5	209.6	38	4 000.0	292.3
32410 23	Other cements (e.g., natural, hydraulic lime, etc.), 1,000 s tons	17	738.5	54.5	7	(S)	57.8
32410 31	Cement clinker, for sale separately, 1,000 s tons	10	*891.5	28.2	16	(S)	28.9
32410 00	Cement, hydraulic, n.s.k.[3]	(NA)	(X)	116.7	(NA)	(X)	100.8
32410 02	Cement, hydraulic, n.s.k.[4]	(NA)	(X)	12.0	(NA)	(X)	33.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3251– —	**BRICK AND STRUCTURAL CLAY TILE**				
	Total	**(NA)**	**1 053.7**	**(NA)**	**1 151.3**
32510	Brick and clay tile	(NA)	1 053.7	(NA)	1 151.3
32510 11	Building or common brick[5]	86	960.8	99	1 035.7
32510 19	Other brick (paving, floor, and sewer)	17	24.3	11	20.2
32510 20	Glazed brick and structural hollow tile[5]	5	28.6	6	24.0
32510 00	Brick and structural clay tile, n.s.k.[6]	(NA)	32.6	(NA)	47.2
32510 02	Brick and structural clay tile, n.s.k.[7]	(NA)	7.4	(NA)	24.2
3253– —	**CERAMIC WALL AND FLOOR TILE**				
	Total	**(NA)**	**677.7**	**(NA)**	**624.6**
32530	Clay floor and wall tile	(NA)	677.7	(NA)	624.6
32530 00	Clay floor and wall tile, glazed and unglazed (including quarry tile and ceramic mosaic tile)	51	663.0	50	616.6
32530 02	Ceramic wall and floor tile, n.s.k.[8]	(NA)	14.7	(NA)	8.0
3255– —	**CLAY REFRACTORIES**				
	Total	**(NA)**	**779.1**	**(NA)**	**744.5**
32550	Clay refractories	(NA)	779.1	(NA)	744.5
32550 00	Clay refractories[5]	75	769.9	82	722.0
32550 02	Clay refractories, n.s.k.[9]	(NA)	9.2	(NA)	22.5
3259– —	**STRUCTURAL CLAY PRODUCTS, N.E.C.**				
	Total	**(NA)**	**124.7**	**(NA)**	**153.8**
32591	Vitrified clay sewer pipe and fittings	(NA)	42.9	(NA)	73.9
32591 00	Vitrified clay sewer pipe and fittings[5]	7	42.9	8	73.9
32592	Other structural clay products, n.e.c. (except clay refractories)	(NA)	65.7	(NA)	53.2
32592 00	Other structural clay products (architectural terra cotta, drain tile, flue tile, roofing tile, conduit, etc.)	26	65.7	18	53.2
32590	Structural clay products, n.e.c., n.s.k.	(NA)	16.2	(NA)	26.7
32590 00	Structural clay products, n.e.c., n.s.k.[10]	(NA)	11.4	(NA)	19.0
32590 02	Structural clay products, n.e.c., n.s.k.[9]	(NA)	4.8	(NA)	7.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.
[8]Typically for establishments with less than 20 employees.
[9]Typically for establishments with less than 5 employees.
[10]Typically for establishments with 5 employees or more.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
32591, VITRIFIED CLAY SEWER PIPE AND FITTINGS			**32592, OTHER STRUCTURAL CLAY PRODUCTS, N.E.C. (EXCEPT CLAY REFRACTORIES)**		
United States	**42.9**	**73.9**	**United States**	**65.7**	**53.2**
California	24.3	32.7	California	22.3	23.5
			Ohio	18.5	20.4

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3241-	**Cement, hydraulic**	**3 928.6**	**3 700.9**	**4 112.8**	**3 898.2**	**4 022.8**	**4 116.1**	**3 474.4**	**2 971.0**
32410	Cement, hydraulic (including cost of shipping containers)	3 928.6	3 700.9	4 112.8	3 898.2	4 022.8	4 116.1	3 474.4	2 971.0
3251-	**Brick and structural clay tile**	**1 053.7**	**971.6**	**1 110.3**	**1 137.4**	**1 113.2**	**1 151.3**	**624.4**	**715.3**
32510	Brick and clay tile	1 053.7	971.6	1 110.3	1 137.4	1 113.2	1 151.3	624.4	715.3
3253-	**Ceramic wall and floor tile**	**677.7**	**682.9**	**696.3**	**681.4**	**675.4**	**624.6**	**366.6**	**222.4**
32530	Clay floor and wall tile	677.7	682.9	696.3	681.4	675.4	624.6	366.6	222.4
3255-	**Clay refractories**	**779.1**	**754.2**	**779.1**	**834.5**	**824.3**	**744.5**	**628.7**	**540.1**
32550	Clay refractories	779.1	754.2	779.1	834.5	824.3	744.5	628.7	540.1
3259-	**Structural clay products, n.e.c.**	**124.7**	**130.3**	**144.2**	**147.0**	**188.6**	**153.8**	**124.8**	**204.3**
32591	Vitrified clay sewer pipe and fittings	42.9	50.1	57.2	67.1	70.6	73.9	66.5	133.6
32592	Other structural clay products, n.e.c. (except clay refractories)	65.7	50.1	52.8	49.3	91.4	53.2	52.9	63.0
32590	Structural clay products, n.e.c., n.s.k.	16.2	30.1	34.2	30.6	26.7	26.7	5.4	7.7

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3241, CEMENT, HYDRAULIC		
	Materials, ingredients, containers, and supplies	**873.8**	**879.2**
	Paper and allied products:		
263112	Paperboard liners	.8	1.1
267420	Paper shipping sacks and multiwall bags	35.6	68.5
260080	Other paper and allied products	.9	(1)
	Stone, clay, glass, and concrete products:		
320591	Refractories, clay or nonclay	43.3	39.3
324103	Cement clinker	160.5	160.6
329509	Minerals and earths, ground or otherwise treated	128.0	125.5
320020	Other stone, clay, glass, and concrete products	34.2	(1)
142011	Crushed and broken stone (including cement rock, limestone, etc.)	72.3	94.1
970099	All other materials and components, parts, containers, and supplies	374.9	[1]382.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	23.2	7.7
	INDUSTRY 3251, BRICK AND STRUCTURAL CLAY TILE		
	Materials, ingredients, containers, and supplies	**191.1**	**228.3**
145001	Clay, ceramic, and refractory minerals (including kaolin and ball clay)	57.6	50.1
280001	Industrial chemicals	6.5	12.6
970099	All other materials and components, parts, containers, and supplies	97.6	140.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	29.4	25.5
	INDUSTRY 3253, CERAMIC WALL AND FLOOR TILE		
	Materials, ingredients, containers, and supplies	**165.0**	**152.0**
145001	Clay, ceramic, and refractory minerals (including kaolin and ball clay)	78.0	64.6
280001	Industrial chemicals	5.4	7.2
970099	All other materials and components, parts, containers, and supplies	55.3	55.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	26.3	24.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3255, CLAY REFRACTORIES		
	Materials, ingredients, containers, and supplies	**375.7**	**301.4**
145001	Clay, ceramic, and refractory minerals (including kaolin and ball clay)	192.5	174.2
	Stone, clay, glass, and concrete products:		
329502	Dead-burned magnesia or magnesite	7.7	(3)
320591	Refractories, clay or nonclay	73.3	37.6
320015	Other stone, clay, glass, and concrete products	4.8	(3)
280001	Industrial chemicals	2.0	15.4
970099	All other materials and components, parts, containers, and supplies	70.8	354.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	24.7	19.5
	INDUSTRY 3259, STRUCTURAL CLAY PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**31.0**	**23.7**
145001	Clay, ceramic, and refractory minerals (including kaolin and ball clay)	4.9	6.1
280001	Industrial chemicals	.8	1.8
970099	All other materials and components, parts, containers, and supplies	15.7	5.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	9.5	10.0

[1]For 1987, material codes 260080 and 320020 were included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes 329502 and 320015 were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
32113 00	32113 21	32318 84	32318 81	32630 00	32630 15	32922 58	32922 51
32113 00	32113 41	32318 84	32318 83	32630 00	32630 19	32922 58	32922 55
32113 00	32113 69						
		32410 18	32410 15	32640 55	32640 52		
32114 24	32114 21	32410 18	32410 17			32927 10	32927 15
32114 24	32114 23	32410 23	32410 22	32710 34	32710 00	32927 10	32927 31
						32927 11	32927 33
		32610 20	32610 10	32721 37	32721 36	32927 11	32927 34
32293 25	32293 00	32610 61	32610 51	32721 37	32721 39	32927 12	32927 41
32293 29	32293 00	32610 70	32610 10			32927 12	32927 77
		32610 70	32610 51	32722 99	32722 41	32927 12	32927 78
32313 00	32313 21			32722 99	32722 98	32927 99	32927 14
32313 00	32313 41	32620 00	32620 15			32927 99	32927 36
32313 00	32313 69	32620 00	32620 19	32740 72	32740 00	32927 99	32927 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
32113 21	32113 00	32318 81	32318 84	32630 15	32630 00	32922 51	32922 58
32113 41	32113 00	32318 83	32318 84	32630 19	32630 00	32922 55	32922 58
32113 69	32113 00						
		32410 15	32410 18	32640 52	32640 55		
32114 21	32114 24	32410 17	32410 18			32927 14	32927 99
32114 23	32114 24	32410 22	32410 23	32710 00	32710 34	32927 15	32927 10
						32927 31	32927 10
		32610 10	32610 20	32721 36	32721 37	32927 33	32927 11
32293 00	32293 25	32610 10	32610 70	32721 39	32721 37	32927 34	32927 11
32293 00	32293 29	32610 51	32610 61			32927 36	32927 99
		32610 51	32610 70	32722 41	32722 99	32927 41	32927 12
32313 21	32313 00			32722 98	32722 99	32927 77	32927 12
32313 41	32313 00	32620 15	32620 00			32927 78	32927 12
32313 69	32313 00	32620 19	32620 00	32740 00	32740 72	32927 98	32927 99

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3211500	MQ32A, Flat Glass
3229500	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229600	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229700	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229800	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3231892	MA33L, Insulated Wire and Cable
3251011	MQ32D, Clay Construction Products
3251020	MQ32D, Clay Construction Products
3253000	MQ32D, Clay Construction Products
3255000	MA32C, Refractories
3259100	MQ32D, Clay Construction Products
3261020	MQ34E, Plumbing Fixtures
3274071	MA32C, Refractories
3295020	MA32C, Refractories
3297000	MA32C, Refractories

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PPGB 1/23/95 1:01 PM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-13002777.DAT;1 1/23/95 13:00:35 UTF:TIPS93-13002777.DAT;1 1/23/95 13:00:36 META:TIPS96-13002777.DAT;1 1/23/95 13:01:04

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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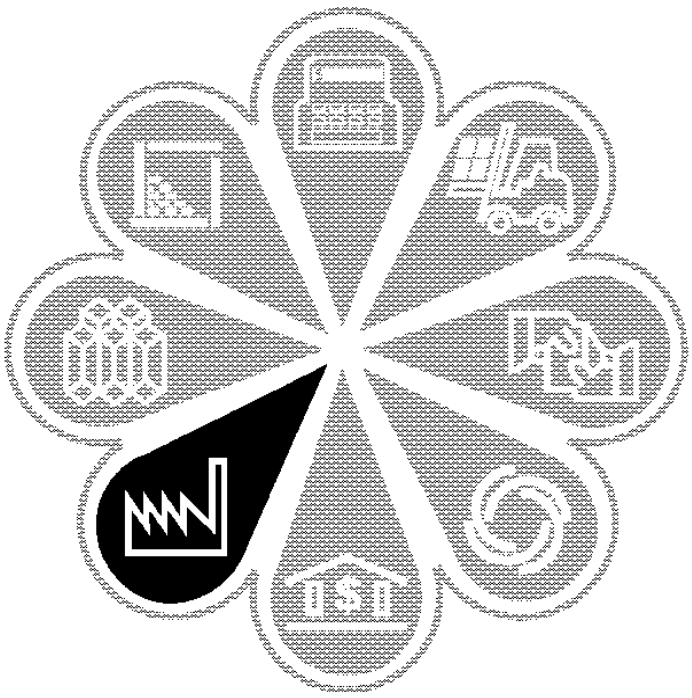
1992 Census of Manufactures

MC92-I-32C

INDUSTRY SERIES

Pottery and Related Products

Industries 3261, 3262, 3263, 3264, and 3269



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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MC92-I-32C

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3261	Vitreous Plumbing Fixtures
3262	Vitreous China Table and Kitchenware
3263	Semivitreous Table and Kitchenware
3264	Porcelain Electrical Supplies
3269	Pottery Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3261, VITREOUS PLUMBING FIXTURES

This industry is made up of establishments primarily engaged in manufacturing vitreous china plumbing fixtures and china and earthenware fittings and bathroom accessories. Establishments primarily engaged in manufacturing enameled iron, cast iron, or pressed metal sanitary ware are classified in industry 3431. Establishments primarily engaged in manufacturing plastics plumbing fixtures are classified in industry 3088.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3261, Vitreous Plumbing Fixtures, had employment of 8.4 thousand. The employment figure was 13 percent below the 9.7 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, Ohio, New Jersey, and South Carolina. This represents a shift from 1987 when New Jersey, Ohio, Pennsylvania, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $902.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3261 shipped $803.3 million of vitreous plumbing fixtures considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3261, no matter in what industry they were produced, appear in table 6a and aggregate to $807.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the vitreous plumbing fixtures industry amounted to $236.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE

This industry is made up of establishments primarily engaged in manufacturing vitreous china table and kitchen articles for use in households and in hotels, restaurants, and other commercial institutions for preparing, serving, or storing food or drink. Establishments primarily engaged in manufacturing fine (semivitreous) earthenware (whiteware) table and kitchen articles are classified in industry 3263.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3262, Vitreous China Table and Kitchenware, had employment of 5.3 thousand. The employment figure was 2 percent below the 5.4 thousand reported in 1987.

The leading States in employment in 1992 were New York, New Jersey, West Virginia, and North Carolina. This represents a shift from 1987 when New Jersey, New York, Ohio, and West Virginia were the leading States.

The total value of shipments for establishments classified in this industry was $315.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3262 shipped $289.1 million of vitreous china table and kitchenware considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3262, no matter in what industry they were produced, appear in table 6a and aggregate to $290.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the vitreous china table and kitchenware industry amounted to $81.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE

This industry is made up of establishments primarily engaged in manufacturing fine (semivitreous) earthenware table and kitchen articles for preparing, serving, or storing food or drink. Establishments primarily engaged in manufacturing vitreous china table and kitchen articles are classified in industry 3262.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3263, Semivitreous Table and Kitchenware, had employment of .9 thousand. The employment figure was 50 percent below the 1.8 thousand reported in 1987. Compared with 1991, employment decreased 18 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Ohio, and California. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $45.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3263 shipped $43.3 million of semivitreous table and kitchenware considered primary to the industry, $1.7 million of secondary products, and had $.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio).

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio).

The products primary to industry 3263, no matter in what industry they were produced, appear in table 6a and aggregate to $45.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the semivitreous table and kitchenware industry amounted to $16.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES

This industry is made up of establishments primarily engaged in manufacturing porcelain electronic and other electrical insulators; molded porcelain parts for electrical devices, spark plugs, and steatitic porcelain; and electronic and electrical supplies from clay and other ceramic materials.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3264, Porcelain Electrical Supplies, had employment of 9.1 thousand. The employment figure was 15 percent below the 10.7 thousand reported in 1987.

The leading States in employment in 1992 were New York, Pennsylvania, and Ohio, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when New Jersey, New York, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $827.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3264 shipped $763.1 million of porcelain electrical supplies considered primary to the industry, $49.9 million of secondary products, and had $14.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3264, no matter in what industry they were produced, appear in table 6a and aggregate to $845.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the porcelain electrical supplies industry amounted to $272.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in firing and decorating white china and earthenware for the trade and manufacturing art and ornamental pottery, industrial and laboratory pottery, stoneware and coarse earthenware table and kitchen articles, unglazed red earthenware florists' articles, and other pottery products, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3269, Pottery Products, N.E.C., had employment of 12.2 thousand. The employment figure was 16 percent above the 10.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Colorado, Ohio, and Pennsylvania. This represents a shift from 1987 when California, Colorado, New Jersey, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $669.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3269 shipped $576.9 million of pottery products, not elsewhere classified, considered primary to the industry, $42.9 million of secondary products, and had $49.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3269, no matter in what industry they were produced, appear in table 6a and aggregate to $601.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pottery products, not elsewhere classified industry amounted to $205.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3261, VITREOUS PLUMBING FIXTURES															
1992 Census	48	61	30	8.4	216.8	7.1	13.6	173.7	658.5	236.4	902.1	14.3	97.9	(D)	99
1991 ASM	(NA)	(NA)	(NA)	8.4	213.8	7.0	13.3	165.5	511.5	230.2	741.5	17.9	109.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.3	236.1	7.8	15.1	180.6	578.0	251.3	825.1	16.3	117.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.4	243.5	7.9	15.7	189.9	580.2	290.7	871.1	22.8	118.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.1	259.4	9.4	19.7	205.3	648.6	302.9	940.8	17.3	126.7	(NA)	(NA)
1987 Census	48	65	40	9.7	217.0	8.2	17.2	176.5	536.9	262.5	790.6	30.9	106.9	96	99
1986 ASM	(NA)	(NA)	(NA)	9.6	212.6	8.1	16.9	173.8	525.2	257.0	772.3	(D)	97.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.3	196.1	7.9	15.8	160.1	471.5	232.3	706.7	(D)	84.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.4	184.4	8.0	15.5	148.9	440.4	216.4	657.2	15.0	89.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.7	165.1	7.4	14.4	133.5	380.1	197.3	570.6	15.0	90.3	(NA)	(NA)
1982 Census	41	56	35	7.9	142.9	6.6	12.6	114.5	313.9	162.5	474.0	28.8	82.2	91	99
1981 ASM	(NA)	(NA)	(NA)	9.3	154.2	7.7	14.8	122.6	358.7	185.9	544.3	21.1	67.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	153.3	8.0	15.8	122.7	359.4	174.5	528.5	10.9	67.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.0	150.5	8.4	16.9	123.8	351.7	173.5	520.0	14.9	58.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.7	134.6	8.2	16.3	110.7	317.4	151.0	466.4	12.7	53.2	(NA)	(NA)
1977 Census	54	70	38	9.2	117.2	7.8	15.6	96.9	277.3	132.9	411.4	7.3	48.9	92	95
INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE															
1992 Census	35	39	24	5.3	118.2	4.3	8.4	82.5	239.1	81.2	315.6	15.8	101.9	(D)	99
1991 ASM	(NA)	(NA)	(NA)	6.0	141.8	4.8	9.7	108.5	282.2	69.9	355.6	30.0	98.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.0	136.4	4.8	9.5	107.1	278.1	68.9	342.0	23.1	103.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.0	131.5	4.5	9.0	86.0	242.2	91.2	324.3	(D)	99.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.4	82.9	3.6	7.3	59.0	169.0	58.4	227.4	(D)	53.5	(NA)	(NA)
1987 Census	32	34	14	5.4	104.6	4.4	8.3	78.9	247.6	53.4	298.4	7.0	95.2	(D)	99
1986 ASM	(NA)	(NA)	(NA)	5.6	102.0	4.6	8.7	76.5	222.7	50.1	268.3	(D)	93.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.0	112.8	4.7	8.9	79.0	219.6	72.0	289.9	(D)	92.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	5.9	108.0	4.7	9.0	77.3	208.6	69.2	274.8	5.9	90.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.0	96.8	4.7	8.5	69.4	218.3	61.8	256.9	7.3	84.5	(NA)	(NA)
1982 Census	31	32	20	6.3	98.0	5.1	9.1	74.2	196.3	49.2	241.6	5.2	61.2	84	98
1981 ASM	(NA)	(NA)	(NA)	7.2	101.9	6.0	11.3	77.7	212.1	56.0	263.1	10.9	55.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.9	99.1	6.7	12.4	76.1	205.3	59.1	258.2	9.9	52.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.5	87.6	6.3	12.0	66.0	172.0	46.8	213.6	10.0	43.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.8	77.8	5.8	11.2	59.6	160.1	38.0	194.5	5.0	34.7	(NA)	(NA)
1977 Census	27	28	14	7.3	72.3	6.0	11.1	53.6	140.0	34.1	170.7	5.4	30.0	80	97
INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE															
1992 Census	28	29	8	.9	17.0	.8	1.8	12.8	28.6	16.7	45.2	1.5	3.3	96	95
1991 ASM	(NA)	(NA)	(NA)	1.1	16.9	.9	2.1	11.6	25.7	16.9	42.0	1.1	8.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	1.2	17.0	1.0	2.2	12.3	34.2	10.7	44.5	.6	8.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	1.2	16.4	1.0	1.9	12.1	37.1	11.2	47.0	(D)	8.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	1.2	14.9	1.0	2.0	11.0	27.7	10.4	38.2	(D)	5.8	(NA)	(NA)
1987 Census	43	44	18	1.8	25.6	1.5	3.3	19.1	74.2	18.9	93.0	1.2	6.9	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	.9	10.6	.7	1.4	8.2	13.9	7.0	22.5	.3	6.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	1.1	13.9	.9	1.5	9.1	20.3	12.2	34.1	.3	9.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	1.8	16.5	1.5	2.9	11.5	27.5	14.8	49.5	.5	11.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	2.6	32.5	2.1	3.9	25.8	52.3	22.6	73.1	1.6	21.6	(NA)	(NA)
1982 Census	38	38	18	3.0	37.1	2.5	4.5	29.4	61.6	23.7	87.6	1.7	20.8	87	82
1981 ASM	(NA)	(NA)	(NA)	3.8	44.1	3.1	6.0	33.0	72.9	27.9	99.1	1.6	20.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	3.8	40.8	3.1	6.0	31.6	69.7	22.2	91.4	1.0	18.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	4.2	40.0	3.5	6.5	31.1	61.5	20.8	82.8	1.0	17.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	4.3	40.6	3.6	6.3	30.1	62.5	22.9	85.9	3.0	17.5	(NA)	(NA)
1977 Census	22	23	17	4.7	38.4	3.5	6.4	27.1	61.2	21.7	81.3	1.7	17.2	85	76
INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES															
1992 Census	112	127	74	9.1	261.1	6.8	14.2	168.5	565.1	272.7	827.2	31.0	138.6	94	90
1991 ASM	(NA)	(NA)	(NA)	8.7	238.2	6.7	13.7	164.5	502.7	285.4	793.0	57.1	119.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.9	241.8	6.9	14.1	167.5	539.4	282.7	810.0	50.9	123.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.2	238.3	7.2	14.7	168.4	502.5	256.8	761.6	48.1	114.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.5	234.5	7.4	14.8	162.2	469.3	241.1	717.5	29.6	118.9	(NA)	(NA)
1987 Census	104	116	66	10.7	248.2	8.2	16.2	166.1	474.5	248.0	714.2	26.4	147.0	94	87
1986 ASM	(NA)	(NA)	(NA)	9.0	197.6	6.8	12.7	127.5	287.6	189.7	479.3	22.6	102.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.0	219.3	7.6	15.0	143.4	359.1	227.7	585.8	46.0	114.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.4	221.2	7.9	15.5	144.1	392.9	231.9	620.8	26.3	114.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.1	197.0	8.1	14.6	135.3	357.3	186.4	542.8	36.7	120.8	(NA)	(NA)
1982 Census	79	90	62	10.1	197.1	8.0	14.8	132.3	350.0	183.4	528.0	25.9	111.1	85	87
1981 ASM	(NA)	(NA)	(NA)	10.4	199.1	8.3	15.5	135.6	363.3	194.9	553.0	25.5	104.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.3	196.1	9.0	16.2	135.3	386.2	196.6	571.3	36.2	99.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.5	175.4	9.4	17.5	125.3	336.4	170.5	503.3	22.8	78.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.8	152.4	8.9	17.0	109.4	269.2	134.4	401.6	12.3	67.6	(NA)	(NA)
1977 Census	77	86	56	11.4	144.4	9.1	17.6	98.0	253.9	117.5	367.5	20.9	59.3	86	82
INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.															
1992 Census	829	834	121	12.2	231.7	9.3	17.5	136.2	467.4	205.2	669.4	21.9	97.0	93	96
1991 ASM	(NA)	(NA)	(NA)	12.5	209.4	9.9	19.8	131.7	435.9	191.6	626.3	31.9	82.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.2	201.0	9.6	18.9	127.8	409.1	183.8	591.7	16.8	85.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.8	192.5	9.2	18.4	123.1	419.3	194.1	602.7	23.1	83.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.1	209.0	9.8	18.8	135.0	437.3	197.1	626.6	26.2	122.5	(NA)	(NA)
1987 Census	748	754	115	10.5	166.8	8.1	15.3	108.0	352.8	170.5	519.7	17.0	78.4	89	88
1986 ASM	(NA)	(NA)	(NA)	6.5	98.5	5.2	11.2	65.5	214.5	113.4	326.7	9.4	48.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.8	100.2	5.4	10.6	69.5	212.9	122.1	338.5	16.0	43.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.5	124.8	7.9	15.5	89.5	302.3	165.5	468.1	10.6	51.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.1	128.7	8.5	15.6	96.0	292.6	150.9	442.4	7.3	50.2	(NA)	(NA)
1982 Census	682	694	103	10.1	122.9	8.6	15.4	91.8	251.7	178.3	430.6	18.0	47.1	98	86
1981 ASM	(NA)	(NA)	(NA)	9.6	107.7	8.3	15.2	80.6	188.8	156.2	344.9	8.4	42.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.7	110.6	9.1	16.5	81.3	189.3	126.7	319.1	9.9	40.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.7	107.4	9.3	17.4	81.4	211.7	108.9	314.0	9.9	39.5	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	8.0	73.0	6.8	13.3	58.1	135.8	68.9	208.4	9.7	25.8	(NA)	(NA)
1977 Census	713	727	116	10.6	87.4	9.2	17.1	66.2	161.2	70.7	230.0	9.8	26.7	95	85

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3261, VITREOUS PLUMBING FIXTURES								
1992 Census	25 810	85	1 915	12.77	26	50	78 393	33	48.42
1991 ASM	25 452	83	1 900	12.44	31	60	60 893	42	38.46
1990 ASM	25 387	84	1 936	11.96	30	59	62 151	41	38.28
1989 ASM	25 904	84	1 987	12.10	33	61	61 723	42	36.96
1988 ASM	23 369	85	2 096	10.42	32	60	58 432	40	32.92
1987 Census	22 371	85	2 098	10.26	33	61	55 351	40	31.22
1986 ASM	22 146	84	2 086	10.28	33	61	54 708	40	31.08
1985 ASM	21 086	85	2 000	10.13	33	61	50 699	42	29.84
1984 ASM	19 617	85	1 938	9.61	33	61	46 851	42	28.41
1983 ASM	18 977	85	1 946	9.27	35	64	43 690	43	26.40
1982 Census	18 089	84	1 909	9.09	34	64	39 734	46	24.91
1981 ASM	16 581	83	1 922	8.28	34	62	38 570	43	24.24
1980 ASM	15 804	82	1 975	7.77	33	62	37 052	43	22.75
1979 ASM	15 050	84	2 012	7.33	33	62	35 170	43	20.81
1978 ASM	13 876	85	1 988	6.79	32	61	32 722	42	19.47
1977 Census	12 739	85	2 000	6.21	32	61	30 141	42	17.78
	INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE								
1992 Census	22 302	81	1 953	9.82	26	63	45 113	49	28.46
1991 ASM	23 633	80	2 021	11.19	20	60	47 033	50	29.09
1990 ASM	22 733	80	1 979	11.27	20	60	46 350	49	29.27
1989 ASM	21 917	75	2 000	9.56	28	69	40 367	54	26.91
1988 ASM	18 841	82	2 028	8.08	26	62	38 409	49	23.15
1987 Census	19 370	81	1 886	9.51	18	53	45 852	42	29.83
1986 ASM	18 214	82	1 891	8.79	19	57	39 768	46	25.60
1985 ASM	18 800	78	1 894	8.88	25	64	36 600	51	24.67
1984 ASM	18 305	80	1 915	8.59	25	64	35 356	52	23.18
1983 ASM	16 133	78	1 809	8.16	24	62	36 383	44	25.68
1982 Census	15 556	81	1 784	8.15	20	61	31 159	50	21.57
1981 ASM	14 153	83	1 883	6.88	21	60	29 458	48	18.77
1980 ASM	12 544	85	1 851	6.14	23	61	25 987	48	16.56
1979 ASM	11 680	84	1 905	5.50	22	63	22 933	51	14.33
1978 ASM	11 441	85	1 931	5.32	20	60	23 544	49	14.29
1977 Census	9 904	82	1 850	4.83	20	62	19 178	52	12.61
	INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE								
1992 Census	18 889	89	2 250	7.11	37	75	31 778	59	15.89
1991 ASM	15 364	82	2 333	5.52	40	80	23 364	66	12.24
1990 ASM	14 167	83	2 200	5.59	24	62	28 500	50	15.55
1989 ASM	13 667	83	1 900	6.37	24	59	30 917	44	19.53
1988 ASM	12 417	83	2 000	5.50	27	66	23 083	54	13.85
1987 Census	14 222	83	2 200	5.79	20	48	41 222	35	22.48
1986 ASM	11 778	78	2 000	5.86	31	78	15 444	76	9.93
1985 ASM	12 636	82	1 667	6.07	36	77	18 455	68	13.53
1984 ASM	9 167	83	1 933	3.97	30	63	15 278	60	9.48
1983 ASM	12 500	81	1 857	6.62	31	75	20 115	62	13.41
1982 Census	12 367	83	1 800	6.53	27	69	20 533	60	13.69
1981 ASM	11 605	82	1 935	5.50	28	73	19 184	60	12.15
1980 ASM	10 737	82	1 935	5.27	24	69	18 342	59	11.62
1979 ASM	9 524	83	1 857	4.78	25	73	14 643	65	9.46
1978 ASM	9 442	84	1 750	4.78	27	74	14 535	65	9.92
1977 Census	8 170	74	1 829	4.23	27	74	13 021	63	9.56

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES								
1992 Census	28 692	75	2 088	11.87	33	65	62 099	46	39.80
1991 ASM	27 379	77	2 045	12.01	36	66	57 782	47	36.69
1990 ASM	27 169	78	2 043	11.88	35	65	60 607	45	38.26
1989 ASM	25 902	78	2 042	11.46	34	65	54 620	47	34.18
1988 ASM	24 684	78	2 000	10.96	34	66	49 400	50	31.71
1987 Census	23 196	77	1 976	10.25	35	69	44 346	52	29.29
1986 ASM	21 956	76	1 868	10.04	40	81	31 956	69	22.65
1985 ASM	21 930	76	1 974	9.56	39	76	35 910	61	23.94
1984 ASM	21 269	76	1 962	9.30	37	73	37 779	56	25.35
1983 ASM	19 505	80	1 802	9.27	34	71	35 376	55	24.47
1982 Census	19 515	79	1 850	8.94	35	72	34 653	56	23.65
1981 ASM	19 144	80	1 867	8.75	35	71	34 933	55	23.44
1980 ASM	17 354	80	1 800	8.35	34	69	34 177	51	23.84
1979 ASM	15 252	82	1 862	7.16	34	69	29 252	52	19.22
1978 ASM	14 111	82	1 910	6.44	33	71	24 926	57	15.84
1977 Census	12 667	80	1 934	5.57	32	71	22 272	57	14.43
	INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.								
1992 Census	18 992	76	1 882	7.78	31	65	38 311	50	26.71
1991 ASM	16 752	79	2 000	6.65	31	64	34 872	48	22.02
1990 ASM	16 475	79	1 969	6.76	31	65	33 533	49	21.65
1989 ASM	16 314	78	2 000	6.69	32	64	35 534	46	22.79
1988 ASM	15 954	75	1 918	7.18	31	65	33 382	48	23.26
1987 Census	15 886	77	1 889	7.06	33	65	33 600	47	23.06
1986 ASM	15 154	80	2 154	5.85	35	65	33 000	46	19.15
1985 ASM	14 735	79	1 963	6.56	36	66	31 309	47	20.08
1984 ASM	13 137	83	1 962	5.77	35	62	31 821	41	19.50
1983 ASM	12 743	84	1 835	6.15	34	63	28 970	44	18.76
1982 Census	12 168	85	1 791	5.96	41	70	24 921	49	16.34
1981 ASM	11 219	86	1 831	5.30	45	77	19 667	57	12.42
1980 ASM	10 336	85	1 813	4.93	40	74	17 692	58	11.47
1979 ASM	10 037	87	1 871	4.68	35	69	19 785	51	12.17
1978 ASM	9 125	85	1 956	4.37	33	68	16 975	54	10.21
1977 Census	8 245	87	1 859	3.87	31	69	15 208	54	9.43

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3261, VITREOUS PLUMBING FIXTURES														
United States	**–**	**61**	**30**	**8.4**	**216.8**	**7.1**	**13.6**	**173.7**	**658.5**	**236.4**	**902.1**	**14.3**	**9.7**	**536.9**
Alabama	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E2	15	3	.5	9.7	.4	.7	7.2	22.0	16.2	36.5	(D)	F	(D)
Georgia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	5	4	1.6	43.1	1.3	2.5	34.7	73.2	50.0	124.8	(D)	1.5	96.8
Pennsylvania	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	7	5	1.7	40.0	1.4	2.7	30.5	168.6	45.9	217.7	(D)	G	(D)
Wisconsin	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE														
United States	–	**39**	**24**	**5.3**	**118.2**	**4.3**	**8.4**	**82.5**	**239.1**	**81.2**	**315.6**	**15.8**	**5.4**	**247.6**
California	E1	7	5	.2	3.9	.2	.4	2.7	7.5	2.5	9.6	(D)	(NA)	(D)
Illinois	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	.8	20.8
Pennsylvania	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE														
United States	–	**29**	**8**	**.9**	**17.0**	**.8**	**1.8**	**12.8**	**28.6**	**16.7**	**45.2**	**1.5**	**1.8**	**74.2**
California	E2	6	2	.1	1.8	.1	.2	.9	2.7	1.1	4.1	.1	F	(D)
Ohio	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.4
Pennsylvania	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES														
United States	–	**127**	**74**	**9.1**	**261.1**	**6.8**	**14.2**	**168.5**	**565.1**	**272.7**	**827.2**	**31.0**	**10.7**	**474.5**
Arizona	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	19	10	.5	12.7	.4	.7	7.9	28.7	14.3	42.8	1.1	F	(D)
Colorado	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	E2	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
Maryland	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	6	3	.2	7.1	.1	.2	3.0	12.6	6.2	18.9	.6	(NA)	(NA)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	9	6	.4	10.6	.2	.5	5.8	19.0	7.5	25.9	.2	F	(D)
New York	–	11	9	2.3	70.8	1.6	3.4	45.0	178.5	71.8	247.2	9.5	(NA)	(D)
North Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	10	7	.7	23.4	.5	1.0	13.1	54.1	31.0	83.6	1.2	.8	31.7
Pennsylvania	–	10	5	.8	22.7	.6	1.3	16.3	45.3	16.5	62.5	1.2	1.6	57.7
South Carolina	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	5	5	.6	14.0	.5	1.0	10.2	36.5	12.3	48.1	2.3	E	(D)
Texas	–	7	2	.2	6.2	.2	.4	3.9	13.8	9.0	22.6	.7	(NA)	(NA)
Vermont	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.														
United States	**E1**	**834**	**121**	**12.2**	**231.7**	**9.3**	**17.5**	**136.2**	**467.4**	**205.2**	**669.4**	**21.9**	**10.5**	**352.8**
Alabama	E2	8	1	.1	1.2	.1	.1	1.1	1.9	1.4	3.3	(D)	(NA)	(D)
Arizona	E3	35	2	.2	2.1	.1	.2	1.5	4.5	1.4	5.9	.1	(NA)	(NA)
California	E1	143	32	2.8	49.9	2.2	4.2	30.6	94.3	54.6	148.0	2.7	2.2	58.7
Colorado	–	20	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	E9	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E3	43	3	.2	3.3	.1	.2	1.5	6.4	2.9	9.3	.2	(NA)	(D)
Georgia	–	12	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Illinois	–	19	7	.7	13.6	.5	1.0	8.8	22.2	8.7	32.1	.5	F	(D)
Kentucky	–	16	4	.3	5.6	.2	.5	3.5	14.8	6.8	21.5	(D)	E	(D)
Michigan	E2	14	3	.1	3.1	.1	.2	2.0	7.4	3.0	10.2	(D)	(NA)	(D)
Mississippi	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	14	3	.2	4.9	.2	.4	3.4	10.7	2.6	13.7	.1	.7	27.3
New York	E2	26	3	.3	6.0	.2	.3	2.6	13.4	5.9	19.3	.4	(NA)	(D)
North Carolina	–	33	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	43	17	1.2	19.1	1.0	2.1	14.3	47.8	13.1	60.3	2.0	.8	33.1
Oklahoma	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E2	33	6	.7	17.3	.6	1.2	9.5	30.8	8.9	39.8	(D)	E	(D)
Tennessee	–	26	5	.5	9.9	.4	.8	6.4	25.6	11.4	37.3	.9	E	(D)
Texas	E2	48	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
Utah	E1	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	29	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E1	20	3	.2	4.0	.1	.2	2.5	6.7	1.3	8.0	.1	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Vitreous plumbing fixtures (SIC 3261)	Vitreous china table and kitchenware (SIC 3262)	Semivitreous table and kitchenware (SIC 3263)	Porcelain electrical supplies (SIC 3264)	Pottery products, n.e.c. (SIC 3269)
Companies ---- number	48	35	28	112	829
All establishments ---- number	61	39	29	127	834
With 1 to 19 employees ---- number	31	15	21	53	713
With 20 to 99 employees ---- number	6	13	7	48	97
With 100 employees or more ---- number	24	11	1	26	24
Employment and labor costs:					
Employees ---- 1,000	8.4	5.3	.9	9.1	12.2
Compensation, total ---- mil dol	289.7	157.5	21.8	336.0	285.3
Annual payroll ---- mil dol	216.8	118.2	17.0	261.1	231.7
Fringe benefits ---- mil dol	72.9	39.3	4.8	74.9	53.6
Social Security and other legally required payments ---- mil dol	32.6	15.2	1.7	28.7	24.7
Employer voluntary payments ---- mil dol	40.4	24.0	3.1	46.2	28.9
Production workers:					
Average for year ---- 1,000	7.1	4.3	.8	6.8	9.3
March ---- 1,000	6.9	4.2	.7	6.7	9.3
May ---- 1,000	7.1	4.2	.8	6.8	9.3
August ---- 1,000	7.1	4.4	.8	6.9	9.3
November ---- 1,000	7.3	4.3	.8	6.8	9.3
Hours ---- millions	13.6	8.4	1.8	14.2	17.5
Wages ---- mil dol	173.7	82.5	12.8	168.5	136.2
Cost of materials[1] ---- mil dol	236.4	81.2	16.7	272.7	205.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	170.0	56.8	14.0	219.1	155.3
Resales ---- mil dol	35.2	7.3	.2	5.8	22.7
Fuels ---- mil dol	18.6	7.8	1.4	14.0	12.2
Purchased electricity ---- mil dol	11.9	7.1	1.1	23.4	10.3
Contract work ---- mil dol	.7	2.1	.1	10.4	4.6
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	219.9	105.9	17.2	375.1	142.0
Generated less sold ---- mil kWh	–	–	–	–	(D)
Total value of shipments ---- mil dol	902.1	315.6	45.2	827.2	669.4
Value added ---- mil dol	658.5	239.1	28.6	565.1	467.4
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	106.0	97.7	3.9	126.8	94.2
Finished goods ---- mil dol	69.6	45.8	.8	41.5	49.9
Work in process ---- mil dol	18.0	34.6	1.8	43.0	18.0
Materials and supplies ---- mil dol	18.4	17.3	1.4	42.2	26.3
End of 1992 ---- mil dol	97.9	101.9	3.3	138.6	97.0
Finished goods ---- mil dol	60.3	48.0	.8	49.0	53.3
Work in process ---- mil dol	20.1	37.1	1.9	46.1	17.8
Materials and supplies ---- mil dol	17.5	16.9	.6	43.5	25.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Vitreous plumbing fixtures (SIC 3261)	Vitreous china table and kitchenware (SIC 3262)	Semivitreous table and kitchenware (SIC 3263)	Porcelain electrical supplies (SIC 3264)	Pottery products, n.e.c. (SIC 3269)
Gross book value of depreciable assets:					
Total:					
Beginning of year	343.2	176.4	36.3	503.2	227.3
New capital expenditures[1]	14.3	15.8	1.5	31.0	21.9
Used capital expenditures	.1	1.3	(Z)	2.8	1.6
Retirements	3.1	3.3	.1	9.6	11.2
End of year	354.6	190.3	37.7	527.5	239.7
Buildings and other structures:					
Beginning of year	101.5	40.9	10.4	120.3	53.8
New capital expenditures	2.8	1.5	.2	2.8	5.3
Used capital expenditures	(Z)	.3	–	.2	.2
Retirements	.2	.1	(Z)	.5	2.8
End of year	104.1	42.6	10.6	122.8	56.5
Machinery and equipment:					
Beginning of year	241.7	135.5	25.9	382.9	173.6
New capital expenditures[1]	11.6	14.4	1.3	28.2	16.6
Used capital expenditures	.1	1.0	(Z)	2.6	1.4
Retirements	2.9	3.2	.1	9.0	8.4
End of year	250.4	147.7	27.2	404.6	183.1
Depreciation charges during 1992:					
Total	36.9	13.0	2.4	25.8	17.1
Buildings and other structures	9.4	1.6	.4	3.6	1.9
Machinery and equipment	27.5	11.3	2.0	22.3	15.1
Rental payments:					
Total	2.4	1.3	.4	9.0	13.3
Buildings and other structures	1.0	.8	.2	2.9	6.6
Machinery and equipment	1.3	.5	.2	6.1	6.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Vitreous plumbing fixtures (SIC 3261)		Vitreous china table and kitchenware (SIC 3262)		Semivitreous table and kitchenware (SIC 3263)		Porcelain electrical supplies (SIC 3264)		Pottery products, n.e.c. (SIC 3269)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.1	(X)	(S)	(X)	.1	(X)	2.1	(X)	2.6	(X)
Response coverage ratio (percent)[2]	65.4	(X)	(S)	(X)	51.6	(X)	70.7	(X)	96.6	(X)
Machinery	6.4	(X)	(S)	(X)	1.3	(X)	16.3	(X)	9.9	(X)
Response coverage ratio (percent)[2]	65.4	(X)	(S)	(X)	51.6	(X)	70.7	(X)	97.0	(X)
Other purchased services:										
Communications	1.0	(X)	(S)	(X)	(Z)	(X)	2.1	(X)	2.2	(X)
Response coverage ratio (percent)[2]	65.4	(X)	(S)	(X)	51.6	(X)	70.7	(X)	94.1	(X)
Legal	2.9	(X)	.5	(X)	–	(X)	.7	(X)	2.6	(X)
Response coverage ratio (percent)[2]	65.4	(X)	75.2	(X)	51.6	(X)	70.7	(X)	93.1	(X)
Accounting and bookkeeping	.2	(X)	(S)	(X)	–	(X)	.5	(X)	.9	(X)
Response coverage ratio (percent)[2]	57.8	(X)	(S)	(X)	51.6	(X)	70.7	(X)	95.6	(X)
Advertising	1.2	(X)	(S)	(X)	(Z)	(X)	.9	(X)	6.3	(X)
Response coverage ratio (percent)[2]	57.8	(X)	(S)	(X)	51.6	(X)	70.7	(X)	97.1	(X)
Software and other data processing	.3	(X)	.3	(X)	(Z)	(X)	.9	(X)	.6	(X)
Response coverage ratio (percent)[2]	57.8	(X)	75.2	(X)	51.6	(X)	70.7	(X)	94.6	(X)
Refuse removal, including hazardous waste	1.3	(X)	(S)	(X)	.1	(X)	1.7	(X)	1.2	(X)
Response coverage ratio (percent)[2]	65.4	(X)	(S)	(X)	51.6	(X)	70.7	(X)	95.5	(X)
New machinery and equipment expenditures	11.6	(X)	14.4	(X)	1.3	(X)	28.2	(X)	16.6	(X)
Automobiles, trucks, etc., for highway use	(Z)	(X)	(Z)	(X)	–	(X)	.1	29	.4	25
Computers and peripheral data processing equipment	.2	6	.4	1	–	(X)	1.6	12	2.1	10
All other	11.3	1	13.9	1	1.3	1	26.4	1	14.1	3
Adjustment ratio[3]	1.0	(X)	1.2	(X)	1.4	(X)	1.3	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	170.0	(X)	56.8	(X)	14.0	(X)	219.1	(X)	155.3	(X)
Materials purchased or transferred from foreign sources[4]	8.1	4	4.1	31	–	(X)	22.4	8	11.7	41
Materials purchased or transferred from domestic sources	161.9	1	52.7	3	14.0	1	196.7	1	143.5	4
Adjustment ratio[3]	1.3	(X)	.9	(X)	1.4	(X)	1.8	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3261, VITREOUS PLUMBING FIXTURES												
Total	**–**	**61**	**8.4**	**216.8**	**7.1**	**13.6**	**173.7**	**658.5**	**236.4**	**902.1**	**14.3**	**97.9**
Establishments with an average of—												
1 to 4 employees	E9	16	(Z)	.7	(Z)	.1	.6	1.7	.7	2.5	1.6	.3
5 to 9 employees	E5	10	.1	1.5	.1	.1	1.1	3.6	1.1	4.7	(D)	.4
10 to 19 employees	E8	5	.1	1.3	.1	.1	1.0	2.8	1.0	3.8	(D)	.6
20 to 49 employees	–	3	.1	1.5	.1	.1	.8	2.8	1.3	4.3	(D)	.7
50 to 99 employees	E4	3	.2	4.4	.2	.3	2.9	9.1	3.5	12.5	.2	1.3
100 to 249 employees	–	12	2.0	49.5	1.7	3.4	39.0	108.5	59.2	166.6	2.5	25.6
250 to 499 employees	–	7	2.5	65.4	2.2	3.9	54.7	217.9	71.5	287.3	3.6	36.9
500 to 999 employees	–	5	3.3	92.4	2.8	5.6	73.6	312.0	98.1	420.3	6.5	32.1
Covered by administrative records[2]	E9	21	.1	1.9	.1	.2	1.5	4.4	2.0	6.3	.1	.8
INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE												
Total	**–**	**39**	**5.3**	**118.2**	**4.3**	**8.4**	**82.5**	**239.1**	**81.2**	**315.6**	**15.8**	**101.9**
Establishments with an average of—												
1 to 4 employees	E9	13	(Z)	.4	(Z)	(Z)	.2	.9	.2	1.2	.2	.3
5 to 9 employees	E9	1	.3	5.2	.3	.5	3.7	9.7	8.6	17.6	(D)	4.2
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E2	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	(D)
50 to 99 employees	–	4	.3	5.3	.2	.5	3.7	8.9	2.5	11.4	.8	2.2
100 to 249 employees	–	4	.7	13.2	.5	1.1	8.9	32.9	15.7	42.6	.2	10.8
250 to 499 employees	–	4	1.5	34.1	1.2	2.5	25.6	81.1	27.9	106.9	13.1	24.2
500 to 999 employees	–	2	2.5	60.0	2.0	3.9	40.4	105.7	26.2	135.9	(D)	60.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	14	(Z)	.5	(Z)	(Z)	.3	1.4	.3	1.7	.2	.5
INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE												
Total	**–**	**29**	**.9**	**17.0**	**.8**	**1.8**	**12.8**	**28.6**	**16.7**	**45.2**	**1.5**	**3.3**
Establishments with an average of—												
1 to 4 employees	E7	11	(Z)	.4	(Z)	(Z)	.3	.7	.3	1.0	1.5	.1
5 to 9 employees	E4	6	(Z)	.5	(Z)	.1	.4	1.1	.3	1.4	(D)	(Z)
10 to 19 employees	E6	4	.1	1.0	(Z)	.1	.6	1.8	.6	2.4	(D)	.3
20 to 49 employees	–	5	.8	15.1	.7	1.6	11.5	25.1	15.5	40.5	(D)	2.8
50 to 99 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	17	.1	1.3	.1	.1	.9	2.3	.9	3.2	.1	.4
INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES												
Total	**–**	**127**	**9.1**	**261.1**	**6.8**	**14.2**	**168.5**	**565.1**	**272.7**	**827.2**	**31.0**	**138.6**
Establishments with an average of—												
1 to 4 employees	E3	25	.1	1.5	(Z)	.1	1.1	5.6	3.0	8.5	.3	1.2
5 to 9 employees	E2	14	.1	2.7	.1	.1	1.8	14.0	10.3	24.4	.7	3.6
10 to 19 employees	E3	14	.2	5.0	.1	.3	2.8	8.9	5.0	13.9	.5	2.0
20 to 49 employees	–	21	.6	14.9	.4	.9	8.6	30.5	18.6	48.8	1.4	8.3
50 to 99 employees	–	27	1.9	50.8	1.3	2.6	28.3	100.7	42.5	142.0	6.7	21.0
100 to 249 employees	–	19	3.1	87.1	2.3	4.9	57.1	177.1	91.3	264.6	6.2	47.2
250 to 499 employees	–	5	3.2	99.1	2.5	5.3	68.8	228.2	102.0	325.0	15.2	55.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	31	.1	3.2	.1	.2	2.2	6.7	3.7	10.4	.6	1.5
INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.												
Total	**E1**	**834**	**12.2**	**231.7**	**9.3**	**17.5**	**136.2**	**467.4**	**205.2**	**669.4**	**21.9**	**97.0**
Establishments with an average of—												
1 to 4 employees	E7	542	.7	10.9	.5	1.0	6.6	27.5	12.0	39.5	.9	6.3
5 to 9 employees	E3	96	.6	10.3	.5	.9	6.2	22.2	11.0	33.0	1.0	4.1
10 to 19 employees	E1	75	1.1	17.1	.8	1.5	10.6	34.1	15.9	49.3	1.2	6.6
20 to 49 employees	–	57	1.7	28.8	1.3	2.3	16.6	57.6	23.2	80.6	1.6	10.0
50 to 99 employees	–	40	2.8	52.8	2.1	4.3	32.2	112.7	50.7	163.1	5.0	23.3
100 to 249 employees	–	20	2.8	56.7	2.4	4.6	37.4	116.9	39.8	157.6	12.3	23.0
250 to 499 employees	–	2	2.5	55.1	1.7	2.9	26.7	96.4	52.5	146.4	(D)	23.7
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	501	.8	11.2	.6	1.0	6.6	27.3	12.0	39.3	1.0	6.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3261	**Vitreous plumbing fixtures:**										
	All establishments in industry	61	8.4	216.8	7.1	13.6	173.7	658.5	236.4	902.1	14.3
3262	**Vitreous china table and kitchenware:**										
	All establishments in industry	39	5.3	118.2	4.3	8.4	82.5	239.1	81.2	315.6	15.8
3263	**Semivitreous table and kitchenware:**										
	All establishments in industry	29	.9	17.0	.8	1.8	12.8	28.6	16.7	45.2	1.5
3264	**Porcelain electrical supplies:**										
	All establishments in industry	127	9.1	261.1	6.8	14.2	168.5	565.1	272.7	827.2	31.0
3269	**Pottery products, n.e.c.:**										
	All establishments in industry	834	12.2	231.7	9.3	17.5	136.2	467.4	205.2	669.4	21.9

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years**

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3261, VITREOUS PLUMBING FIXTURES			
Total value of shipments	902.1	790.6	474.0
Primary products value of shipments	803.3	709.5	413.8
Secondary products value of shipments	(D)	29.6	42.6
Total miscellaneous receipts	(D)	51.5	17.6
Value of resales	44.6	51.4	17.6
Contract receipts	–	–	–
Other miscellaneous receipts	(D)	(Z)	–
Primary products specialization ratio	(D)	96	91
Value of primary products shipments made in all industries	807.2	714.1	419.8
Value of primary products shipments made in this industry	803.3	709.5	413.8
Value of primary products shipments made in other industries	3.9	4.6	6.0
Coverage ratio	99	99	99
INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE			
Total value of shipments	315.6	298.4	241.6
Primary products value of shipments	289.1	250.8	200.9
Secondary products value of shipments	(D)	(D)	37.2
Total miscellaneous receipts	(D)	(D)	3.5
Value of resales	(D)	(D)	3.2
Contract receipts	–	–	–
Other miscellaneous receipts	(D)	(Z)	.3
Primary products specialization ratio	(D)	(D)	84
Value of primary products shipments made in all industries	290.6	252.9	204.8
Value of primary products shipments made in this industry	289.1	250.8	200.9
Value of primary products shipments made in other industries	1.5	2.1	3.8
Coverage ratio	99	99	98

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE			
Total value of shipments	45.2	93.0	87.6
Primary products value of shipments	43.3	(D)	75.3
Secondary products value of shipments	1.7	(D)	11.3
Total miscellaneous receipts	.3	(D)	1.0
Value of resales	.3	(D)	(D)
Contract receipts	–	–	–
Other miscellaneous receipts	–	–	(D)
Primary products specialization ratio	96	(D)	87
Value of primary products shipments made in all industries	45.4	88.9	91.3
Value of primary products shipments made in this industry	43.3	(D)	75.3
Value of primary products shipments made in other industries	2.1	(D)	16.0
Coverage ratio	95	(D)	82
INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES			
Total value of shipments	827.2	714.2	528.0
Primary products value of shipments	763.1	656.8	442.5
Secondary products value of shipments	49.9	44.5	79.5
Total miscellaneous receipts	14.2	12.8	6.0
Value of resales	8.7	10.2	3.3
Contract receipts	1.3	(D)	(D)
Other miscellaneous receipts	4.2	(D)	(D)
Primary products specialization ratio	94	94	85
Value of primary products shipments made in all industries	845.4	759.1	505.8
Value of primary products shipments made in this industry	763.1	656.8	442.5
Value of primary products shipments made in other industries	82.3	102.3	63.3
Coverage ratio	90	87	87
INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.			
Total value of shipments	669.4	519.7	430.6
Primary products value of shipments	576.9	432.8	386.7
Secondary products value of shipments	42.9	54.7	8.1
Total miscellaneous receipts	49.6	32.2	35.9
Value of resales	37.0	25.1	31.8
Contract receipts	(D)	(D)	3.6
Other miscellaneous receipts	(D)	(D)	.5
Primary products specialization ratio	93	89	98
Value of primary products shipments made in all industries	601.4	494.4	450.3
Value of primary products shipments made in this industry	576.9	432.8	386.7
Value of primary products shipments made in other industries	24.4	61.6	63.6
Coverage ratio	96	88	86

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3261– —	**VITREOUS PLUMBING FIXTURES**				
	Total	**(NA)**	**807.2**	**(NA)**	**714.1**
32610	Vitreous plumbing fixtures, accessories, and fittings	(NA)	807.2	(NA)	714.1
32610 20	China plumbing fixtures[2]	12	771.2		
32610 61	China plumbing fixture accessories and fittings (including towel racks, soap cups, earthenware plumbing fixtures, etc.)	9	(D)	(NA)	709.9
32610 70	Earthenware plumbing fixtures, accessories, and fittings	2	(D)		
32610 00	Vitreous plumbing fixtures, n.s.k.[3]	(NA)	11.4	(NA)	.8
32610 02	Vitreous plumbing fixtures, n.s.k.[4]	(NA)	6.3	(NA)	3.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3262– —	**VITREOUS CHINA TABLE AND KITCHENWARE**				
	Total	**(NA)**	**290.6**	**(NA)**	**252.9**
32620	Vitreous china and porcelain table and kitchenware (including bone and feldspar) for household, hotel, or commercial use	(NA)	290.6	(NA)	252.9
32620 00	Vitreous china and porcelain table and kitchenware (including bone and feldspar) for household, hotel, or commercial use	23	288.9	(NA)	248.7
32620 02	Vitreous china table and kitchenware, n.s.k.[5]	(NA)	1.7	(NA)	4.2
3263– —	**SEMIVITREOUS TABLE AND KITCHENWARE**				
	Total	**(NA)**	**45.4**	**(NA)**	**88.9**
32630	Earthenware table and kitchenware	(NA)	45.4	(NA)	88.9
32630 00	Earthenware (semivitreous) table and kitchenware (including household, hotel, or commercial uses)	16	42.1	(NA)	81.9
32630 02	Semivitreous table and kitchenware, n.s.k.[6]	(NA)	3.2	(NA)	7.0
3264– —	**PORCELAIN ELECTRICAL SUPPLIES**				
	Total	**(NA)**	**845.4**	**(NA)**	**759.1**
32640	Porcelain, steatite, and other ceramic electrical products	(NA)	845.4	(NA)	759.1
	Porcelain electrical products:				
	Wet process voltage porcelain products shipped as complete insulators:				
32640 10	Pin-type insulators and line posts	7	24.1	5	22.6
32640 14	Suspension-type insulators, 7 1/2 inch disc and smaller	4	13.1	7	23.3
32640 15	Suspension-type insulators, larger than 7 1/2 inch disc	4	27.7	3	(D)
32640 16	Switch and bus insulators (including cap-and-pin, and post types)	7	52.7	6	31.3
32640 17	All other (including guy strain insulators and spools)	9	75.4	8	(D)
32640 18	Wet process voltage products shipped as porcelain pieces only for component parts of other electrical equipment	9	65.0	5	31.0
32640 29	All dry process electrical porcelain (including porcelain parts for wiring devices, fuses, circuit breakers, etc.)	9	148.8	10	21.8
32640 41	Steatite electrical products	12	22.6	6	23.1
	Ferrites:				
32640 51	Ceramic permanent magnets	21	105.3	(NA)	211.3
32640 55	Other ferrites	9	47.4		
32640 61	Alumina materials for electronic application	22	43.4	18	87.4
32640 98	Beryllia, titanate, and other ceramic electrical products and components for electronic applications not included above	28	171.9	21	146.4
32640 00	Porcelain electrical supplies, n.s.k.[3]	(NA)	37.7	(NA)	27.6
32640 02	Porcelain electrical supplies, n.s.k.[4]	(NA)	10.4	(NA)	26.4
3269– —	**POTTERY PRODUCTS, N.E.C.**				
	Total	**(NA)**	**601.4**	**(NA)**	**494.4**
32690	Pottery products, n.e.c. (including china decorating for the trade)	(NA)	601.4	(NA)	494.4
	Art, decorative, and novelty pottery ware (including vases, lamp bases, figures):				
32690 11	China and porcelain	50	110.2	42	100.3
32690 31	Earthenware and stoneware	112	152.7	85	151.1
32690 41	Stoneware table and kitchen articles, household and commercial (for serving, cooking, and storing food and drink)	38	77.2	7	14.6
	Other pottery products, not elsewhere classified:				
32690 61	Chemical, technical, and industrial pottery ware (including chemical stoneware and porcelain, pyrometric tubes, etc.)	17	107.9	17	91.4
32690 71	Red unglazed earthenware (flowerpots, etc.)	12	20.9	10	13.7
32690 81	All other pottery products (including pyrometric cones, veritas rings, etc.)	31	47.9	34	45.7
32690 00	Pottery products, n.e.c., n.s.k.[7]	(NA)	45.3	(NA)	39.0
32690 02	Pottery products, n.e.c., n.s.k.[5]	(NA)	39.3	(NA)	38.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Typically for establishments with less than 5 employees.
[6]Typically for establishments with less than 15 employees.
[7]Typically for establishments with 5 employees or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Not applicable]

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3261-	**Vitreous plumbing fixtures**	**807.2**	**675.1**	**741.4**	**772.5**	**811.1**	**714.1**	**419.8**	**367.8**
32610	Vitreous plumbing fixtures, accessories, and fittings	807.2	675.1	741.4	772.5	811.1	714.1	419.8	367.8
3262-	**Vitreous china table and kitchenware**	**290.6**	**341.9**	**331.8**	**318.4**	**232.4**	**252.9**	**204.8**	**140.9**
32620	Vitreous china and porcelain table and kitchenware (including bone and feldspar) for household, hotel, or commercial use	290.6	341.9	331.8	318.4	232.4	252.9	204.8	140.9
3263-	**Semivitreous table and kitchenware**	**45.4**	**29.9**	**38.8**	**39.3**	**46.0**	**88.9**	**91.3**	**90.8**
32630	Earthenware table and kitchenware	45.4	29.9	38.8	39.3	46.0	88.9	91.3	90.8
3264-	**Porcelain electrical supplies**	**845.4**	**927.4**	**936.5**	**908.7**	**786.0**	**759.1**	**505.8**	**378.9**
32640	Porcelain, steatite, and other ceramic electrical products	845.4	927.4	936.5	908.7	786.0	759.1	505.8	378.9
3269-	**Pottery products, n.e.c.**	**601.4**	**553.2**	**506.5**	**518.3**	**518.4**	**494.4**	**450.3**	**240.8**
32690	Pottery products, n.e.c. (including china decorating for the trade)	601.4	553.2	506.5	518.3	518.4	494.4	450.3	240.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3261, VITREOUS PLUMBING FIXTURES		
	Materials, ingredients, containers, and supplies	**170.0**	**182.8**
145001	Clay, ceramic, and refractory minerals	58.2	88.4
265001	Paperboard containers, boxes, and corrugated paperboard	23.4	(1)
346901	Metal stampings	(2)	(1)
970099	All other materials and components, parts, containers, and supplies	[2]84.9	[1]84.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	3.6	10.3
	INDUSTRY 3262, VITREOUS CHINA TABLE AND KITCHENWARE		
	Materials, ingredients, containers, and supplies	**56.8**	**39.6**
145001	Clay, ceramic, and refractory minerals	24.6	15.2
265001	Paperboard containers, boxes, and corrugated paperboard	4.5	(1)
346901	Metal stampings	–	(1)
970099	All other materials and components, parts, containers, and supplies	26.6	[1]23.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	1.1	.8
	INDUSTRY 3263, SEMIVITREOUS TABLE AND KITCHENWARE		
	Materials, ingredients, containers, and supplies	**14.0**	**13.1**
145001	Clay, ceramic, and refractory minerals	(4)	5.1
265001	Paperboard containers, boxes, and corrugated paperboard	.7	(1)
346901	Metal stampings	–	–
970099	All other materials and components, parts, containers, and supplies	[4]12.6	[1]4.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	.7	3.5
	INDUSTRY 3264, PORCELAIN ELECTRICAL SUPPLIES		
	Materials, ingredients, containers, and supplies	**219.1**	**199.3**
145001	Clay, ceramic, and refractory minerals	84.1	65.8
265001	Paperboard containers, boxes, and corrugated paperboard	10.2	(1)
346901	Metal stampings	30.4	20.4
970099	All other materials and components, parts, containers, and supplies	70.0	[1]92.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	24.5	20.5
	INDUSTRY 3269, POTTERY PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**155.3**	**132.1**
145001	Clay, ceramic, and refractory minerals	48.7	57.3
265001	Paperboard containers, boxes, and corrugated paperboard	11.8	(1)
346901	Metal stampings	(2)	(1)
970099	All other materials and components, parts, containers, and supplies	[2]59.0	[1]48.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	35.8	26.6

[1]For 1987, data for this material code were included with material code 970099.
[2]For 1992, material code 346901 is combined with material code 970099 to avoid disclosing data for individual companies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1992, material code 145001 is combined with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
32113 00	32113 21	32318 84	32318 81	32630 00	32630 15	32922 58	32922 51
32113 00	32113 41	32318 84	32318 83	32630 00	32630 19	32922 58	32922 55
32113 00	32113 69						
		32410 18	32410 15	32640 55	32640 52		
32114 24	32114 21	32410 18	32410 17			32927 10	32927 15
32114 24	32114 23	32410 23	32410 22	32710 34	32710 00	32927 10	32927 31
						32927 11	32927 33
		32610 20	32610 10	32721 37	32721 36	32927 11	32927 34
32293 25	32293 00	32610 61	32610 51	32721 37	32721 39	32927 12	32927 41
32293 29	32293 00	32610 70	32610 10			32927 12	32927 77
		32610 70	32610 51	32722 99	32722 41	32927 12	32927 78
32313 00	32313 21			32722 99	32722 98	32927 99	32927 14
32313 00	32313 41	32620 00	32620 15			32927 99	32927 36
32313 00	32313 69	32620 00	32620 19	32740 72	32740 00	32927 99	32927 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
32113 21	32113 00	32318 81	32318 84	32630 15	32630 00	32922 51	32922 58
32113 41	32113 00	32318 83	32318 84	32630 19	32630 00	32922 55	32922 58
32113 69	32113 00						
		32410 15	32410 18	32640 52	32640 55		
32114 21	32114 24	32410 17	32410 18			32927 14	32927 99
32114 23	32114 24	32410 22	32410 23	32710 00	32710 34	32927 15	32927 10
						32927 31	32927 10
		32610 10	32610 20	32721 36	32721 37	32927 33	32927 11
32293 00	32293 25	32610 10	32610 70	32721 39	32721 37	32927 34	32927 11
32293 00	32293 29	32610 51	32610 61			32927 36	32927 99
		32610 51	32610 70	32722 41	32722 99	32927 41	32927 12
32313 21	32313 00			32722 98	32722 99	32927 77	32927 12
32313 41	32313 00	32620 15	32620 00			32927 78	32927 12
32313 69	32313 00	32620 19	32620 00	32740 00	32740 72	32927 98	32927 99

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3211500	MQ32A, Flat Glass
3229500	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229600	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229700	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229800	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3231892	MA33L, Insulated Wire and Cable
3251011	MQ32D, Clay Construction Products
3251020	MQ32D, Clay Construction Products
3253000	MQ32D, Clay Construction Products
3255000	MA32C, Refractories
3259100	MQ32D, Clay Construction Products
3261020	MQ34E, Plumbing Fixtures
3274071	MA32C, Refractories
3295020	MA32C, Refractories
3297000	MA32C, Refractories

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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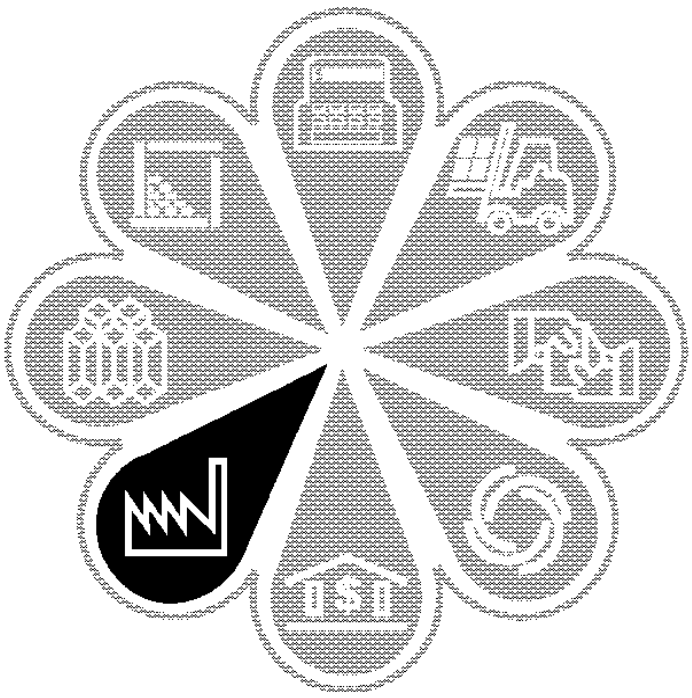
1992 Census of Manufactures

MC92-I-32D

INDUSTRY SERIES

Concrete, Plaster, and Cut Stone Products

Industries 3271, 3272, 3273, 3274, 3275, and 3281



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-32D

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3271	Concrete Block and Brick
3272	Concrete Products, N.E.C.
3273	Ready-Mixed Concrete
3274	Lime
3275	Gypsum Products
3281	Cut Stone and Stone Products

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3271, CONCRETE BLOCK AND BRICK

This industry is made up of establishments primarily engaged in manufacturing concrete building block and brick from a combination of cement and aggregate. Contractors engaged in concrete construction work are classified in Division C, Construction, and establishments primarily engaged in mixing and delivering ready-mixed concrete are classified in industry 3273.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3271, Concrete Block and Brick, had employment of 16.4 thousand. The employment figure was 12 percent below the 18.6 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, California, Texas, and Michigan. This represents a shift from 1987 when California, New Jersey, Pennsylvania, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3271 shipped $1.5 billion of concrete block and brick considered primary to the industry, $127.0 million of secondary products, and had $451.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 88 percent.

The products primary to industry 3271, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the concrete block and brick industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing concrete products, except block and brick, from a combination of cement and aggregate. Contractors engaged in concrete construction work are classified in Division C, Construction, and establishments primarily engaged in mixing and delivering ready-mixed concrete are classified in industry 3273.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3272, Concrete Products, N.E.C., had employment of 58.9 thousand. The employment figure was 16 percent below the 70.0 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, Texas, and Pennsylvania, accounting for approximately 31 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3272 shipped $5.4 billion of concrete products, not elsewhere classified, considered primary to the industry, $127.0 million of secondary products, and had $446.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3272, no matter in what industry they were produced, appear in table 6a and aggregate to $5.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the concrete products, not elsewhere classified, industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 3273, READY-MIXED CONCRETE

This industry is made up of establishments primarily engaged in manufacturing Portland cement concrete manufactured and delivered to a purchaser in a plastic and unhardened state. This industry includes production and sale of central-mixed concrete, shrink-mixed concrete, and truck-mixed concrete.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3273, Ready-Mixed Concrete, had employment of 82.4 thousand. The employment figure was 15 percent below the 96.8 thousand reported in 1987.

The leading States in employment in 1992 were California, Texas, Florida, and Ohio, accounting for approximately 28 percent of the industry's employment. This represents a shift from 1987 when California, Texas, Florida, and Arizona accounted for approximately 31 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $12.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3273 shipped $10.7 billion of ready-mixed concrete considered primary to the industry, $568.3 million of secondary products, and had $731.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3273, no matter in what industry they were produced, appear in table 6a and aggregate to $10.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ready-mixed concrete industry amounted to $6.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 21 percent of the total value of shipments.

INDUSTRY 3274, LIME

This industry is made up of establishments primarily engaged in manufacturing quicklime, hydrated lime, and ''dead-burned'' dolomite from limestone, dolomite shells, or other substances.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3274, Lime, had employment of 5.6 thousand. The employment figure was 2 percent below the 5.7 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, Ohio, Pennsylvania, and Texas. This represents a shift from 1987 when Kentucky, Missouri, Pennsylvania, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $903.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3274 shipped $800.2 million of lime considered primary to the industry, $89.0 million of secondary products, and had $14.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio also was 90 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3274, no matter in what industry they were produced, appear in table 6a and aggregate to $851.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lime industry amounted to $446.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3275, GYPSUM PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing plaster, plasterboard, and other products composed wholly or chiefly of gypsum, except articles of plaster of paris and papier mache.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3275, Gypsum Products, had employment of 10.5 thousand. The employment figure was 13 percent below the 12.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Iowa, Florida, and Texas, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when California, Indiana, Iowa, and Texas accounted for approximately 34 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3275 shipped $1.9 billion of gypsum products considered primary to the industry, $87.2 million of secondary products, and had $79.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3275, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the gypsum products industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3281, CUT STONE AND STONE PRODUCTS

This industry is made up of establishments primarily engaged in cutting, shaping, and finishing granite, marble, limestone, slate, and other stone for building and miscellaneous uses. Establishments primarily engaged in buying or selling partly finished monuments and tombstones, but performing no work on the stones other than lettering, finishing, or shaping to custom order are classified in Division F, Wholesale Trade, or Division G, Retail Trade. The cutting of grindstones, pulpstones, and whetstones at the quarry is classified in Division B, Mining.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3281, Cut Stone and Stone Products, had employment of 12.3 thousand. The employment figure was 2 percent below the 12.5 thousand reported in 1987.

The leading States in employment in 1992 were Minnesota, Georgia, and Vermont, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when Georgia, Vermont, Texas, and Minnesota were the leading States.

The total value of shipments for establishments classified in this industry was $1.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3281 shipped $921.7 million of cut stone and stone products considered primary to the industry, $17.9 million of secondary products, and had $71.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3281, no matter in what industry they were produced, appear in table 6a and aggregate to $948.5 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cut stone and stone products industry amounted to $407.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3271, CONCRETE BLOCK AND BRICK															
1992 Census	887	1 071	290	16.4	429.9	9.2	20.3	208.5	1 030.8	1 025.1	2 051.1	57.3	287.3	92	88
1991 ASM	(NA)	(NA)	(NA)	17.8	461.8	9.9	22.4	225.5	1 064.2	1 072.6	2 143.8	48.8	286.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.3	438.9	10.5	22.0	214.1	1 134.3	1 162.5	2 304.0	65.9	287.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.7	432.0	10.4	22.2	211.1	1 087.9	1 194.5	2 282.1	75.1	266.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.3	433.2	10.4	22.9	222.3	1 125.3	1 207.3	2 338.8	39.5	270.9	(NA)	(NA)
1987 Census	975	1 128	339	18.6	411.6	10.8	23.5	216.0	1 071.4	1 185.5	2 245.8	72.0	252.1	94	88
1986 ASM	(NA)	(NA)	(NA)	16.1	337.1	9.4	20.0	173.1	922.0	1 080.1	1 989.4	70.6	222.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.0	311.0	9.5	18.8	158.2	771.9	936.9	1 689.7	72.5	203.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.2	297.2	9.7	18.9	148.8	746.1	894.5	1 632.2	56.4	199.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.9	282.4	9.5	17.9	141.8	731.1	858.5	1 581.9	107.9	217.6	(NA)	(NA)
1982 Census	1 039	1 155	251	15.5	261.9	9.1	17.8	133.7	577.8	718.4	1 301.8	37.6	198.3	95	87
1981 ASM	(NA)	(NA)	(NA)	17.8	280.2	9.9	18.5	133.0	592.5	813.9	1 404.2	74.4	197.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	291.6	10.9	20.2	141.6	652.3	883.2	1 524.1	134.6	191.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.3	267.2	12.3	23.4	143.8	587.6	947.0	1 494.6	149.7	178.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.4	266.0	13.0	25.9	144.0	650.9	751.2	1 391.5	81.4	145.4	(NA)	(NA)
1977 Census	1 162	1 273	348	18.7	237.1	11.8	24.1	126.6	520.3	627.7	1 143.8	55.6	124.0	93	85
INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.															
1992 Census	2 606	3 113	888	58.9	1 513.3	42.7	90.9	947.9	3 353.5	2 581.7	5 934.2	171.9	696.4	98	96
1991 ASM	(NA)	(NA)	(NA)	61.0	1 406.8	45.0	95.4	914.4	3 226.5	2 676.7	5 917.1	153.4	698.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	68.3	1 524.4	51.5	107.6	1 019.5	3 504.2	2 876.1	6 366.5	219.9	754.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	73.0	1 572.9	54.9	114.1	1 053.6	3 687.7	2 921.4	6 554.6	260.3	725.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	71.5	1 550.3	53.4	115.0	1 048.5	3 453.3	2 736.1	6 144.8	131.5	736.5	(NA)	(NA)
1987 Census	2 687	3 154	922	70.0	1 467.2	53.1	112.7	993.2	3 313.1	2 540.9	5 828.4	194.1	686.9	97	97
1986 ASM	(NA)	(NA)	(NA)	59.7	1 181.3	46.1	93.9	798.7	2 736.7	2 227.6	4 931.2	137.4	529.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	57.4	1 109.6	43.9	89.9	754.8	2 540.7	1 990.5	4 509.8	212.2	526.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	57.4	1 061.1	43.2	87.9	704.9	2 276.8	1 991.4	4 194.2	145.1	525.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	54.2	960.0	41.3	83.8	638.0	2 099.9	1 666.9	3 719.2	112.9	482.8	(NA)	(NA)
1982 Census	2 750	3 173	729	55.7	961.7	42.5	84.8	649.2	2 006.4	1 627.7	3 649.2	127.7	443.3	97	95
1981 ASM	(NA)	(NA)	(NA)	61.7	975.3	47.4	96.8	656.7	2 066.7	1 788.8	3 839.3	197.0	445.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	62.2	909.1	47.4	96.7	607.7	2 043.4	1 708.2	3 709.4	235.1	435.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	68.0	914.2	52.4	106.9	631.5	2 033.2	1 687.4	3 674.7	172.3	431.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	63.6	808.9	49.7	99.5	555.4	1 740.9	1 478.5	3 193.9	142.2	435.7	(NA)	(NA)
1977 Census	3 475	3 916	862	61.7	734.9	48.1	96.0	494.5	1 529.3	1 234.1	2 736.2	134.4	389.7	96	95
INDUSTRY 3273, READY-MIXED CONCRETE															
1992 Census	3 248	5 254	1 362	82.4	2 291.5	60.9	129.2	1 577.7	5 342.5	6 662.4	12 009.9	313.0	424.7	95	98
1991 ASM	(NA)	(NA)	(NA)	86.1	2 243.1	62.8	138.3	1 545.7	5 169.7	6 520.7	11 681.2	263.6	429.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	91.8	2 353.2	70.4	152.7	1 685.3	5 633.5	7 197.9	12 829.6	470.8	433.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	93.0	2 279.7	70.9	148.2	1 630.0	5 792.8	7 057.6	12 860.3	491.3	407.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	93.2	2 280.3	68.8	135.2	1 609.8	5 715.2	7 179.0	12 884.0	338.0	442.7	(NA)	(NA)
1987 Census	3 749	5 319	1 531	96.8	2 287.2	73.8	154.8	1 638.6	5 728.9	7 254.7	12 966.3	479.3	438.4	95	98
1986 ASM	(NA)	(NA)	(NA)	81.6	1 874.0	62.9	133.3	1 343.5	4 553.0	6 058.0	10 614.3	378.0	363.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	83.5	1 785.7	66.2	135.0	1 292.6	4 249.0	5 843.2	10 087.9	459.4	358.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	83.3	1 728.8	65.2	133.8	1 240.7	4 041.8	5 658.6	9 675.6	398.5	355.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	83.8	1 602.0	63.1	126.6	1 092.9	3 635.0	5 394.0	9 025.7	284.5	378.9	(NA)	(NA)
1982 Census	4 161	5 379	1 239	81.4	1 475.3	60.4	118.5	1 005.3	3 282.1	4 877.6	8 163.3	282.4	333.5	95	98
1981 ASM	(NA)	(NA)	(NA)	85.8	1 603.5	69.3	137.2	1 089.4	3 641.6	5 326.3	8 983.2	393.9	347.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	92.0	1 568.8	71.2	141.2	1 032.5	3 632.5	5 195.1	8 810.1	438.1	338.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	98.0	1 541.6	76.0	151.2	1 010.8	3 744.1	5 235.3	8 962.2	479.2	271.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	92.5	1 368.6	67.4	135.8	884.7	3 281.7	4 477.7	7 756.3	523.2	259.6	(NA)	(NA)
1977 Census	4 317	5 433	1 357	87.9	1 175.8	62.0	125.3	766.6	2 693.2	3 757.0	6 440.6	353.1	231.5	93	98
INDUSTRY 3274, LIME															
1992 Census	57	88	59	5.6	171.4	4.3	9.6	121.3	461.1	446.2	903.7	47.9	104.9	90	94
1991 ASM	(NA)	(NA)	(NA)	4.4	148.0	3.3	7.4	103.4	411.5	299.8	715.4	66.4	80.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.7	148.4	3.7	8.7	111.7	422.5	300.6	719.8	43.7	81.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.5	168.6	5.0	10.3	115.9	430.9	385.0	812.2	41.7	73.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.7	150.7	4.6	9.6	113.9	418.0	413.9	830.6	28.0	73.1	(NA)	(NA)
1987 Census	56	82	56	5.7	141.9	4.5	9.4	103.6	350.4	364.5	715.5	33.0	72.6	90	90
1986 ASM	(NA)	(NA)	(NA)	5.8	136.5	4.6	9.3	101.7	318.0	351.8	670.9	38.8	72.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.8	133.2	4.6	9.6	100.4	316.5	359.2	675.8	70.1	75.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	5.6	121.1	4.5	9.2	91.0	295.1	347.6	642.3	72.9	80.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.2	109.9	4.1	8.4	81.1	250.6	305.6	557.7	20.9	72.9	(NA)	(NA)
1982 Census	59	87	59	5.6	108.6	4.4	8.5	79.4	245.0	298.2	543.2	36.0	66.4	89	92
1981 ASM	(NA)	(NA)	(NA)	6.5	116.5	5.1	10.2	85.5	298.3	359.0	653.5	56.7	62.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.4	99.9	5.0	10.2	76.2	282.9	316.9	598.8	69.7	51.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.6	98.4	5.3	11.1	75.9	284.1	322.4	604.2	38.3	53.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.5	97.0	5.4	11.2	74.4	260.2	317.7	577.3	62.7	54.2	(NA)	(NA)
1977 Census	64	94	63	5.9	75.4	4.8	9.8	59.4	218.2	264.8	484.2	29.7	47.2	92	92
INDUSTRY 3275, GYPSUM PRODUCTS															
1992 Census	80	152	95	10.5	329.0	8.3	19.0	242.0	793.3	1 283.9	2 075.9	43.8	140.7	96	99
1991 ASM	(NA)	(NA)	(NA)	10.3	311.6	8.1	17.8	228.4	759.8	1 232.6	2 008.3	34.2	145.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.5	341.0	9.1	20.5	251.5	967.0	1 404.9	2 375.1	68.1	150.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.3	332.9	9.0	20.7	248.5	1 075.3	1 332.1	2 408.0	53.6	133.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.4	313.4	9.2	21.4	235.5	1 076.9	1 300.9	2 378.5	57.0	123.0	(NA)	(NA)
1987 Census	80	152	97	12.1	324.3	9.6	22.5	242.5	1 331.4	1 347.5	2 670.9	88.1	130.2	97	98
1986 ASM	(NA)	(NA)	(NA)	11.1	290.6	8.8	20.6	219.2	1 392.4	1 221.8	2 619.0	139.3	121.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.6	262.6	8.4	19.2	199.3	1 249.5	1 263.0	2 511.7	107.7	121.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.3	241.0	8.2	18.5	185.4	1 009.3	1 173.5	2 176.4	59.4	124.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.4	211.5	7.5	16.8	164.3	722.2	974.5	1 709.7	34.5	97.8	(NA)	(NA)
1982 Census	70	139	84	9.1	186.9	7.1	15.5	138.9	492.1	809.2	1 289.2	85.5	110.4	93	98
1981 ASM	(NA)	(NA)	(NA)	9.7	184.1	7.5	16.6	137.1	512.9	801.2	1 313.9	124.6	103.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.9	180.2	7.8	17.5	135.7	584.8	763.6	1 342.1	99.4	107.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.7	185.1	8.6	19.9	143.8	790.8	773.0	1 554.7	72.8	95.4	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3275, GYPSUM PRODUCTS—Con.														
1978 ASM	(NA)	(NA)	(NA)	10.4	170.9	8.4	18.9	132.2	720.8	675.4	1 394.8	44.9	83.4	(NA)	(NA)
1977 Census	58	128	81	9.5	143.6	7.6	17.3	111.5	429.6	565.6	1 000.0	31.9	72.4	96	98
	INDUSTRY 3281, CUT STONE AND STONE PRODUCTS														
1992 Census	901	921	161	12.3	284.4	9.5	19.3	205.8	607.4	407.1	1 011.3	36.9	156.4	98	97
1991 ASM	(NA)	(NA)	(NA)	12.2	267.1	9.5	18.6	191.3	582.0	371.5	956.3	27.5	119.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.9	297.0	10.6	20.5	198.8	575.3	430.4	988.8	38.4	161.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.3	281.0	10.2	20.2	188.0	550.0	395.3	934.9	40.6	126.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.0	257.7	9.9	19.7	170.9	518.7	380.8	890.1	31.4	117.8	(NA)	(NA)
1987 Census	731	746	167	12.5	243.0	10.0	19.8	173.7	450.5	385.8	840.8	30.6	105.5	98	98
1986 ASM	(NA)	(NA)	(NA)	11.2	198.9	8.8	17.6	147.5	375.5	317.5	683.0	33.2	79.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.2	199.5	8.9	17.4	148.9	352.8	317.0	674.3	30.5	74.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.3	187.3	8.9	16.7	139.4	344.3	275.2	626.3	27.9	71.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.2	158.3	8.5	16.3	120.7	302.1	266.7	570.0	7.0	71.3	(NA)	(NA)
1982 Census	698	711	132	10.5	155.9	8.5	16.5	118.5	295.2	259.0	555.4	23.9	70.0	97	98
1981 ASM	(NA)	(NA)	(NA)	12.0	157.0	10.1	20.5	121.3	292.7	236.6	528.7	16.6	68.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.0	155.8	10.9	22.0	118.8	289.6	221.1	504.0	11.5	67.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.3	147.0	11.2	22.4	113.1	283.9	201.5	479.8	13.1	58.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.7	154.4	11.3	23.2	118.4	300.8	204.2	505.9	23.2	60.6	(NA)	(NA)
1977 Census	963	993	164	12.7	131.5	10.6	21.4	98.8	238.2	157.5	393.0	10.4	53.8	96	95

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3271, CONCRETE BLOCK AND BRICK								
1992 Census	26 213	56	2 207	10.27	50	71	62 854	42	50.78
1991 ASM	25 944	56	2 263	10.07	50	72	59 787	43	47.51
1990 ASM	23 984	57	2 095	9.73	50	70	61 984	39	51.56
1989 ASM	23 102	56	2 135	9.51	52	71	58 176	40	49.00
1988 ASM	23 672	57	2 202	9.71	52	70	61 492	38	49.14
1987 Census	22 129	58	2 176	9.19	53	71	57 602	38	45.59
1986 ASM	20 938	58	2 128	8.66	54	71	57 267	37	46.10
1985 ASM	19 438	59	1 979	8.41	55	74	48 244	40	41.06
1984 ASM	18 346	60	1 948	7.87	55	73	46 056	40	39.48
1983 ASM	17 761	60	1 884	7.92	54	72	45 981	39	40.84
1982 Census	16 897	59	1 956	7.51	55	75	37 277	45	32.46
1981 ASM	15 742	56	1 869	7.19	58	78	33 287	47	32.03
1980 ASM	15 594	58	1 853	7.01	58	77	34 882	45	32.29
1979 ASM	13 845	64	1 902	6.15	63	81	30 446	45	25.11
1978 ASM	13 039	64	1 992	5.56	54	73	31 907	41	25.13
1977 Census	12 679	63	2 042	5.25	55	76	27 824	46	21.59
	INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.								
1992 Census	25 693	72	2 129	10.43	44	69	56 935	45	36.89
1991 ASM	23 062	74	2 120	9.58	45	69	52 893	44	33.82
1990 ASM	22 319	75	2 089	9.47	45	69	51 306	44	32.57
1989 ASM	21 547	75	2 078	9.23	45	69	50 516	43	32.32
1988 ASM	21 683	75	2 154	9.12	45	70	48 298	45	30.03
1987 Census	20 960	76	2 122	8.81	44	69	47 330	44	29.40
1986 ASM	19 787	77	2 037	8.51	45	69	45 841	43	29.14
1985 ASM	19 331	76	2 048	8.40	44	69	44 263	44	28.26
1984 ASM	18 486	75	2 035	8.02	47	73	39 666	47	25.90
1983 ASM	17 712	76	2 029	7.61	45	71	38 744	46	25.06
1982 Census	17 266	76	1 995	7.66	45	71	36 022	48	23.66
1981 ASM	15 807	77	2 042	6.78	47	72	33 496	47	21.35
1980 ASM	14 616	76	2 040	6.28	46	71	32 852	44	21.13
1979 ASM	13 444	77	2 040	5.91	46	71	29 900	45	19.02
1978 ASM	12 719	78	2 002	5.58	46	72	27 373	46	17.50
1977 Census	11 911	78	1 996	5.15	45	72	24 786	48	15.93

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3273, READY-MIXED CONCRETE								
1992 Census	27 809	74	2 122	12.21	55	75	64 836	43	41.35
1991 ASM	26 052	73	2 202	11.18	56	75	60 043	43	37.38
1990 ASM	25 634	77	2 169	11.04	56	74	61 367	42	36.89
1989 ASM	24 513	76	2 090	11.00	55	73	62 288	39	39.09
1988 ASM	24 467	74	1 965	11.91	56	73	61 322	40	42.27
1987 Census	23 628	76	2 098	10.59	56	74	59 183	40	37.01
1986 ASM	22 966	77	2 119	10.08	57	75	55 797	41	34.16
1985 ASM	21 386	79	2 039	9.57	58	76	50 886	42	31.47
1984 ASM	20 754	78	2 052	9.27	58	76	48 521	43	30.21
1983 ASM	19 117	75	2 006	8.63	60	78	43 377	44	28.71
1982 Census	18 124	74	1 962	8.48	60	78	40 321	45	27.70
1981 ASM	18 689	81	1 980	7.94	59	77	42 443	44	26.54
1980 ASM	17 052	77	1 983	7.31	59	77	39 484	43	25.73
1979 ASM	15 731	78	1 989	6.69	58	76	38 205	41	24.76
1978 ASM	14 796	73	2 015	6.51	58	75	35 478	42	24.17
1977 Census	13 377	71	2 021	6.12	58	77	30 639	44	21.49
	INDUSTRY 3274, LIME								
1992 Census	30 607	77	2 233	12.64	49	68	82 339	37	48.03
1991 ASM	33 636	75	2 242	13.97	42	63	93 523	36	55.61
1990 ASM	31 574	79	2 351	12.84	42	62	89 894	35	48.56
1989 ASM	25 938	77	2 060	11.25	47	68	66 292	39	41.83
1988 ASM	26 439	81	2 087	11.86	50	68	73 333	36	43.54
1987 Census	24 895	79	2 089	11.02	51	71	61 474	40	37.28
1986 ASM	23 534	79	2 022	10.94	52	73	54 828	43	34.19
1985 ASM	22 966	79	2 087	10.46	53	73	54 569	42	32.97
1984 ASM	21 625	80	2 044	9.89	54	73	52 696	41	32.08
1983 ASM	21 135	79	2 049	9.65	55	75	48 192	44	29.83
1982 Census	19 393	79	1 932	9.34	55	75	43 750	44	28.82
1981 ASM	17 923	78	2 000	8.38	55	73	45 892	39	29.25
1980 ASM	15 609	78	2 040	7.47	53	70	44 203	35	27.74
1979 ASM	14 909	80	2 094	6.84	53	70	43 045	35	25.59
1978 ASM	14 923	83	2 074	6.64	55	72	40 031	37	23.23
1977 Census	12 780	81	2 042	6.06	55	70	36 983	35	22.27
	INDUSTRY 3275, GYPSUM PRODUCTS								
1992 Census	31 333	79	2 289	12.74	62	78	75 552	41	41.75
1991 ASM	30 252	79	2 198	12.83	61	77	73 767	41	42.69
1990 ASM	29 652	79	2 253	12.27	59	74	84 087	35	47.17
1989 ASM	29 460	80	2 300	12.00	55	69	95 159	31	51.95
1988 ASM	27 491	81	2 326	11.00	55	68	94 465	29	50.32
1987 Census	26 802	79	2 344	10.78	50	63	110 033	24	59.17
1986 ASM	26 180	79	2 341	10.64	47	58	125 441	21	67.59
1985 ASM	24 774	79	2 286	10.38	50	61	117 877	21	65.08
1984 ASM	23 398	80	2 256	10.02	54	65	97 990	24	54.56
1983 ASM	22 500	80	2 240	9.78	57	69	76 830	29	42.99
1982 Census	20 538	78	2 183	8.96	63	77	54 077	38	31.75
1981 ASM	18 979	77	2 213	8.26	61	75	52 876	36	30.90
1980 ASM	18 202	79	2 244	7.75	57	70	59 071	31	33.42
1979 ASM	17 299	80	2 314	7.23	50	62	73 907	23	39.74
1978 ASM	16 433	81	2 250	6.99	48	61	69 308	24	38.14
1977 Census	15 116	80	2 276	6.45	57	71	45 221	33	24.83
	INDUSTRY 3281, CUT STONE AND STONE PRODUCTS								
1992 Census	23 122	77	2 032	10.66	40	68	49 382	47	31.47
1991 ASM	21 893	78	1 958	10.28	39	67	47 705	46	31.29
1990 ASM	21 367	76	1 934	9.70	44	74	41 388	52	28.06
1989 ASM	21 128	77	1 980	9.31	42	72	41 353	51	27.23
1988 ASM	19 823	76	1 990	8.68	43	72	39 900	50	26.33
1987 Census	19 440	80	1 980	8.77	46	75	36 040	54	22.75
1986 ASM	17 759	79	2 000	8.38	46	76	33 527	53	21.34
1985 ASM	17 813	79	1 955	8.56	47	77	31 500	57	20.28
1984 ASM	16 575	79	1 876	8.35	44	74	30 469	54	20.62
1983 ASM	15 520	83	1 918	7.40	47	75	29 618	52	18.53
1982 Census	14 848	81	1 941	7.18	47	75	28 114	53	17.89
1981 ASM	13 083	84	2 030	5.92	45	74	24 392	54	14.28
1980 ASM	11 985	84	2 018	5.40	44	75	22 277	54	13.16
1979 ASM	11 053	84	2 000	5.05	42	73	21 346	52	12.67
1978 ASM	11 270	82	2 053	5.10	40	71	21 956	51	12.97
1977 Census	10 354	83	2 019	4.62	40	74	18 756	55	11.13

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3271, CONCRETE BLOCK AND BRICK														
United States	**E1**	**1 071**	**290**	**16.4**	**429.9**	**9.2**	**20.3**	**208.5**	**1 030.8**	**1 025.1**	**2 051.1**	**57.3**	**18.6**	**1 071.4**
Alabama	E1	23	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	.4	15.7
Arizona	–	27	12	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	F	(D)
Arkansas	–	17	2	.2	3.7	.1	.3	2.1	8.4	7.3	15.3	.3	(NA)	(NA)
California	–	74	24	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Colorado	E2	12	3	.2	4.4	.1	.2	2.0	10.3	9.0	19.5	(D)	(NA)	(D)
Connecticut	–	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	14.5
Florida	E2	71	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	E2	28	6	.4	9.2	.2	.6	4.7	23.1	21.8	45.5	.6	.9	46.8
Illinois	E1	33	10	.5	14.9	.3	.7	7.5	32.9	29.9	62.0	1.1	.5	26.7
Indiana	–	26	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	14	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(D)
Kentucky	E1	23	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.4	E	(D)
Maine	–	6	2	.1	3.3	(Z)	.1	1.1	6.6	7.6	14.2	(D)	(NA)	(NA)
Maryland	–	19	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E3	23	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	56	12	.8	20.5	.3	.7	7.1	47.3	46.9	94.0	(D)	F	(D)
Minnesota	–	34	9	.5	18.5	.4	.9	11.7	47.3	32.9	78.4	2.1	.5	26.1
Missouri	E3	20	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	20.1
Nebraska	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	E4	6	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
New Jersey	E1	28	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	F	(D)
New Mexico	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E2	58	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	37	9	.6	13.7	.3	.7	6.5	22.4	49.4	72.1	(D)	.9	46.8
Ohio	E1	49	15	.7	20.0	.4	.8	9.2	48.2	54.0	102.1	(D)	.8	50.1
Oregon	–	12	2	.1	3.8	.1	.2	2.0	11.9	12.2	24.4	.4	(NA)	(NA)
Pennsylvania	E1	91	23	1.5	35.4	1.0	2.0	19.8	93.2	79.7	173.3	4.0	1.3	73.9
South Carolina	E1	16	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	17.3
Tennessee	E1	38	14	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	44	16	.8	18.7	.4	1.0	8.5	44.8	53.5	96.9	2.5	1.0	46.2
Utah	E2	9	3	.2	4.9	.1	.3	2.9	7.9	13.9	21.4	(D)	(NA)	(NA)
Virginia	E1	32	10	.5	12.7	.3	.7	6.6	33.0	39.4	72.3	(D)	F	(D)
Washington	–	11	3	.2	5.4	.1	.2	2.7	15.6	9.8	24.3	(D)	.2	9.1
West Virginia	E3	16	3	.2	4.4	.1	.3	2.1	10.2	12.1	22.4	.5	E	(D)
Wisconsin	–	26	8	.4	13.7	.2	.6	6.3	34.0	31.3	65.4	2.6	.4	23.6
INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.														
United States	**E1**	**3 113**	**888**	**58.9**	**1 513.3**	**42.7**	**90.9**	**947.9**	**3 353.5**	**2 581.7**	**5 934.2**	**171.9**	**70.0**	**3 313.1**
Alabama	E1	81	16	1.1	22.7	.9	2.0	15.6	48.6	48.3	96.8	1.8	1.4	54.0
Arizona	–	47	15	1.1	31.0	.8	1.7	19.8	75.1	60.7	135.2	(D)	1.5	69.2
Arkansas	–	39	10	.5	10.7	.3	.8	6.4	25.4	13.5	38.4	1.2	.5	22.6
California	E1	244	94	5.8	170.1	4.3	8.9	108.1	361.8	368.5	736.1	24.3	7.4	459.8
Colorado	E1	50	16	1.4	36.8	1.1	2.3	22.3	102.5	73.4	175.5	4.0	1.4	48.3
Connecticut	E1	45	12	.8	29.4	.6	1.3	18.7	57.8	39.5	97.0	2.6	1.3	80.4
Delaware	E1	9	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
Florida	E1	234	79	5.1	120.0	3.7	8.0	74.7	253.7	204.0	459.2	13.1	7.2	286.8
Georgia	E2	118	40	2.3	50.4	1.7	3.5	32.4	120.5	82.2	201.5	5.2	2.7	100.0
Hawaii	–	16	5	.3	12.7	.2	.5	7.6	33.0	24.2	56.9	(D)	.2	16.5
Idaho	E5	14	1	.1	2.8	.1	.2	1.9	5.9	5.4	11.4	.5	(NA)	(NA)
Illinois	E1	120	35	2.3	69.1	1.6	3.4	42.7	139.6	110.6	246.0	8.7	2.3	122.7
Indiana	E1	108	19	1.4	38.3	1.0	2.1	23.9	73.7	53.4	127.1	4.3	1.3	60.0
Iowa	–	63	15	.9	22.1	.7	1.5	14.7	53.9	34.1	87.1	2.2	F	(D)
Kansas	E1	34	11	.6	14.3	.5	1.0	9.7	33.8	22.5	56.5	3.4	.7	31.3
Kentucky	E2	56	14	.8	17.9	.6	1.2	11.2	43.0	32.8	74.3	(D)	.7	28.3
Louisiana	–	48	13	1.0	22.4	.7	1.5	11.8	55.6	35.8	88.4	6.1	.9	30.6
Maine	–	17	7	.3	7.8	.2	.4	3.6	22.9	10.5	32.6	(D)	E	(D)
Maryland	–	45	12	1.0	23.4	.7	1.4	16.3	47.1	42.9	93.0	2.7	1.5	86.8
Massachusetts	E4	57	13	1.0	27.5	.7	1.5	17.5	62.9	43.2	106.5	3.8	1.5	74.9
Michigan	E2	100	22	1.4	41.2	.9	2.1	24.6	83.6	83.9	168.1	5.1	1.5	86.0
Minnesota	E1	79	21	1.6	47.4	1.1	2.3	28.1	112.4	67.1	178.7	5.4	1.3	77.0
Mississippi	–	29	12	.8	16.6	.6	1.4	11.5	47.3	35.4	83.2	(D)	F	(D)
Missouri	E1	82	17	1.2	29.2	.9	1.8	18.9	63.6	42.7	106.2	3.8	1.2	47.1
Montana	–	18	–	.1	2.8	.1	.2	2.0	6.4	5.9	12.2	.2	(NA)	(NA)
Nebraska	–	26	8	.7	16.1	.6	1.4	12.4	35.0	28.3	64.4	1.4	F	(D)
Nevada	E5	17	6	.4	14.6	.3	.8	10.0	33.2	31.6	64.1	1.5	.3	15.6
New Hampshire	–	24	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	E	(D)
New Jersey	E1	64	24	1.3	37.3	1.0	2.1	25.8	76.6	60.5	139.1	2.8	1.8	96.7
New Mexico	–	20	4	.2	6.1	.2	.4	3.8	15.6	13.1	27.7	1.0	.3	12.9
New York	E1	114	25	1.7	45.8	1.2	2.5	26.4	102.1	66.5	167.2	4.9	1.8	92.7
North Carolina	E1	87	25	1.6	34.1	1.1	2.3	20.5	77.2	51.2	127.9	2.3	G	(D)
North Dakota	–	16	5	.3	5.1	.2	.3	3.3	13.1	7.1	20.3	(D)	.2	14.0
Ohio	E2	125	37	2.4	63.0	1.7	3.7	37.7	132.5	89.0	223.4	4.7	2.9	156.8
Oklahoma	E2	43	6	.4	9.5	.3	.7	6.4	24.6	16.1	39.9	(D)	F	(D)
Oregon	E3	40	12	.6	16.2	.4	.9	10.0	42.6	29.3	72.1	2.2	.6	30.5
Pennsylvania	E1	164	48	3.1	77.3	2.3	4.7	49.8	162.5	137.1	296.0	8.8	3.4	156.3
South Carolina	E1	37	9	1.1	28.0	.7	1.5	13.7	50.1	46.7	96.7	1.6	1.4	69.5
South Dakota	–	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E2	70	23	1.1	23.1	.7	1.6	13.8	54.8	32.7	86.0	2.2	1.3	47.6

See footnotes at end of table.

TIPS [UPF] BATCH_1295 [EISS,BA_TAYLOR] MCD-SRB 4/19/95 4:41 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 4
TSF:32D_92.DAT;2 4/19/95 16:39:15 UTF:32D_93.DAT;2 4/19/95 16:39:16 META:TIPS96-16385478.DAT;1 4/19/95 16:40:59

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.—Con.														
Texas	E1	194	60	4.1	90.9	3.2	6.9	61.7	208.2	155.8	364.3	10.6	6.4	269.8
Utah	–	22	6	.6	14.4	.4	.9	9.3	26.1	24.7	50.8	1.7	.6	23.8
Vermont	E1	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	86	31	2.4	59.1	1.7	3.5	35.3	122.4	84.0	207.3	4.9	2.9	116.6
Washington	–	65	15	1.2	35.4	.9	1.8	21.8	80.5	56.6	136.3	4.1	1.3	63.6
West Virginia	E3	17	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	E1	89	23	1.3	36.2	.9	2.0	22.3	90.6	57.0	147.2	4.9	1.3	69.0
INDUSTRY 3273, READY-MIXED CONCRETE														
United States	**E2**	**5 254**	**1 362**	**82.4**	**2 291.5**	**60.9**	**129.2**	**1 577.7**	**5 342.5**	**6 662.4**	**12 009.9**	**313.0**	**96.8**	**5 728.9**
Alabama	–	89	19	1.3	29.9	1.0	2.1	20.3	82.8	87.4	170.1	7.1	1.4	65.7
Alaska	–	17	3	.2	6.5	.1	.3	4.3	16.8	18.1	35.0	(D)	E	(D)
Arizona	E1	75	28	1.8	40.9	1.3	2.6	28.7	100.9	122.1	224.6	5.5	4.3	287.4
Arkansas	E1	80	16	.9	19.6	.7	1.5	13.3	48.9	60.7	109.9	5.1	1.1	45.6
California	E2	436	153	8.5	281.9	6.2	12.5	197.6	599.5	819.5	1 420.9	21.3	9.7	744.0
Colorado	E2	70	27	1.7	52.6	1.2	2.6	32.4	121.3	146.6	267.6	6.9	1.8	99.5
Connecticut	E2	33	8	.5	19.4	.4	.9	13.0	41.3	53.5	94.9	2.0	.8	71.2
Delaware	–	13	7	.4	8.6	.3	.6	6.3	23.2	20.0	43.2	.5	E	(D)
District of Columbia	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	313	86	4.7	116.1	3.5	7.8	81.1	300.2	465.3	762.3	9.3	7.1	392.6
Georgia	E1	160	50	2.5	58.1	1.9	4.0	42.2	158.8	207.0	366.7	7.4	3.0	155.8
Hawaii	E1	15	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.1	.3	36.7
Idaho	–	40	10	.5	13.5	.4	.9	10.3	26.4	32.7	59.1	1.4	.5	22.4
Illinois	E3	215	66	3.4	118.1	2.6	5.4	84.7	247.9	310.9	558.9	14.9	3.7	262.3
Indiana	E3	140	39	2.0	60.5	1.5	3.3	43.0	154.2	168.8	323.6	13.5	1.8	125.1
Iowa	–	157	25	1.7	46.0	1.3	2.8	30.7	103.1	133.3	236.4	7.5	1.2	65.1
Kansas	E1	102	19	1.2	27.2	.9	2.0	19.3	64.3	79.7	143.9	4.8	1.3	53.0
Kentucky	–	105	29	1.7	38.3	1.2	2.5	23.5	93.6	117.5	211.1	4.9	1.6	78.6
Louisiana	E2	71	29	1.6	34.0	1.1	2.4	21.7	72.6	106.1	178.8	5.3	2.0	81.7
Maine	–	29	5	.3	9.1	.3	.7	6.7	21.9	24.3	46.7	.8	.6	30.9
Maryland	E1	63	27	1.3	40.1	1.1	2.4	31.1	87.3	114.2	202.3	4.5	1.5	99.2
Massachusetts	E4	53	20	1.2	39.8	.8	1.7	25.5	87.0	92.9	180.0	5.4	1.7	120.3
Michigan	E1	206	33	2.4	79.5	1.7	3.6	50.9	186.2	195.0	380.7	10.7	2.8	201.4
Minnesota	E2	110	28	1.5	43.2	1.1	2.2	27.2	93.1	105.1	198.5	5.2	1.6	89.1
Mississippi	E3	79	9	1.0	21.3	.8	1.6	15.0	55.0	61.9	117.1	3.4	1.1	49.1
Missouri	E1	186	34	2.2	55.7	1.7	3.4	37.2	115.0	148.1	263.1	8.5	2.8	136.8
Montana	E1	41	6	.5	11.1	.3	.7	7.5	28.8	32.0	60.8	1.9	.5	18.8
Nebraska	–	75	13	.8	17.3	.6	1.3	13.6	47.7	68.8	116.3	2.8	.7	32.6
Nevada	–	29	9	1.0	31.9	.8	1.7	26.1	64.9	76.6	141.7	5.0	.7	42.5
New Hampshire	E4	19	5	.3	9.1	.2	.5	5.6	19.8	22.3	42.2	(D)	.8	42.7
New Jersey	E4	74	25	1.4	54.1	1.0	2.0	34.2	114.1	145.8	259.9	5.9	1.7	137.4
New Mexico	E1	36	14	.8	18.1	.5	1.1	10.8	46.5	49.0	95.9	2.0	.9	43.9
New York	E3	185	45	3.0	99.9	2.0	4.3	63.5	236.8	254.9	491.1	9.8	3.2	252.4
North Carolina	E1	166	38	2.6	56.9	2.0	4.1	39.9	134.5	176.3	312.0	11.4	2.8	123.1
North Dakota	E1	37	4	.3	8.1	.2	.4	4.8	13.9	15.5	29.1	.6	.3	14.3
Ohio	E3	238	62	3.5	101.2	2.5	5.6	67.9	244.5	303.0	546.7	20.0	3.5	225.8
Oklahoma	E2	124	16	1.4	28.4	1.1	2.2	20.9	64.2	76.3	140.5	3.3	2.0	86.5
Oregon	E1	55	15	1.1	29.4	.8	1.5	20.7	54.6	72.0	126.3	4.3	1.0	45.9
Pennsylvania	E1	188	43	2.9	82.6	2.0	4.4	54.9	179.2	231.4	410.8	10.6	2.9	166.3
Rhode Island	E1	11	2	.1	4.7	.1	.2	2.4	10.7	13.4	24.1	.7	.2	14.7
South Carolina	E1	83	20	1.2	29.0	1.0	2.0	20.9	65.6	87.1	152.9	4.1	1.3	59.4
South Dakota	E3	34	1	.2	5.1	.2	.4	3.6	11.6	17.9	29.5	.8	(NA)	(D)
Tennessee	E1	103	28	1.6	36.9	1.1	2.3	22.9	88.3	108.7	196.9	6.2	1.8	95.7
Texas	E2	430	100	6.2	146.3	4.8	10.7	103.5	383.8	529.3	914.2	22.9	8.5	401.0
Utah	–	31	14	1.1	33.1	.8	2.0	24.0	78.7	89.0	168.4	3.8	1.5	73.5
Vermont	E2	13	3	.2	7.0	.1	.3	4.2	13.6	12.8	26.3	(D)	.4	26.3
Virginia	E1	118	34	1.9	49.5	1.4	3.0	33.6	131.4	144.9	276.0	10.1	2.8	169.6
Washington	–	98	37	2.1	65.7	1.6	3.2	49.7	162.7	142.4	304.5	11.3	1.9	121.8
West Virginia	E3	41	8	.5	12.8	.4	.8	8.7	33.7	36.4	70.1	1.6	.6	32.9
Wisconsin	E2	137	35	2.0	58.3	1.6	3.2	40.4	146.7	163.8	310.7	10.1	1.8	109.0
Wyoming	E1	26	5	.3	8.8	.3	.5	6.0	20.5	16.2	36.7	1.4	.4	12.9
INDUSTRY 3274, LIME														
United States	**–**	**88**	**59**	**5.6**	**171.4**	**4.3**	**9.6**	**121.3**	**461.1**	**446.2**	**903.7**	**47.9**	**5.7**	**350.4**
Alabama	–	7	6	.4	13.0	.3	.7	8.9	33.9	46.1	80.1	(D)	.3	14.5
Arizona	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E4	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nevada	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	9	7	.6	19.6	.4	.9	12.5	54.2	57.0	110.5	4.9	.5	42.5
Pennsylvania	–	8	5	.6	19.5	.5	1.1	15.6	37.1	53.0	88.5	(D)	F	(D)
Tennessee	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	6	5	.5	14.2	.3	.8	8.0	46.3	30.4	77.0	3.2	.5	21.8
Virginia	E1	7	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	E	(D)
Wisconsin	E2	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_1295 [EISS,BA_TAYLOR] MCD-SRB 4/19/95 4:41 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 5
TSF:32D_92.DAT;2 4/19/95 16:39:15 UTF:32D_93.DAT;2 4/19/95 16:39:16 META:TIPS96-16385478.DAT;1 4/19/95 16:40:59

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3275, GYPSUM PRODUCTS														
United States	**–**	**152**	**95**	**10.5**	**329.0**	**8.3**	**19.0**	**242.0**	**793.3**	**1 283.9**	**2 075.9**	**43.8**	**12.1**	**1 331.4**
Arkansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	21	13	1.2	40.8	.9	2.3	29.8	78.3	174.9	252.1	6.7	1.2	179.3
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
Florida	–	11	4	.7	22.8	.6	1.4	17.3	57.3	99.5	156.0	4.4	.8	89.5
Georgia	–	8	7	.5	15.2	.4	.8	11.1	42.1	67.6	109.6	.8	.6	59.5
Illinois	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	5	5	.6	19.5	.5	1.2	15.4	74.4	73.0	146.9	2.2	1.1	86.9
Iowa	–	6	5	.8	25.0	.6	1.5	19.1	63.2	85.6	148.8	(D)	.8	74.4
Kansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	.5	74.5
Nevada	–	4	3	.4	12.4	.3	.7	9.8	27.7	38.3	65.9	(D)	(NA)	(D)
New Hampshire	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Mexico	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	7	4	.6	20.6	.5	1.0	15.3	51.9	65.2	117.9	(D)	.7	82.8
North Carolina	–	3	3	.1	3.9	.1	.3	2.8	14.6	24.9	39.6	(D)	(NA)	(D)
Ohio	–	7	3	.5	16.1	.4	1.0	12.2	40.5	55.3	95.7	(D)	.8	63.0
Oklahoma	–	4	4	.5	13.5	.4	.9	10.0	31.2	40.5	71.7	1.0	.7	64.2
Texas	–	9	8	.7	21.5	.6	1.3	16.0	48.9	79.6	128.3	1.9	1.1	100.0
Utah	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	3	3	.3	10.0	.2	.4	6.2	26.4	43.4	70.1	(D)	.3	29.5
Wyoming	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3281, CUT STONE AND STONE PRODUCTS														
United States	**E1**	**921**	**161**	**12.3**	**284.4**	**9.5**	**19.3**	**205.8**	**607.4**	**407.1**	**1 011.3**	**36.9**	**12.5**	**450.5**
Arizona	–	13	2	.1	4.0	.1	.3	3.0	6.8	4.5	11.4	(D)	(NA)	(NA)
California	E2	86	8	.7	16.5	.6	1.2	11.9	37.9	21.6	59.6	1.6	F	(D)
Florida	E3	51	3	.3	6.5	.2	.5	4.4	11.7	10.8	22.3	.7	.2	5.9
Georgia	E1	113	26	1.5	30.2	1.2	2.3	23.2	59.6	47.3	107.6	3.2	1.8	56.7
Illinois	E2	31	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	26	14	.8	22.1	.6	1.2	16.2	31.8	25.4	57.3	.9	F	(D)
Kansas	E4	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Massachusetts	E1	23	2	.2	7.2	.2	.4	5.3	14.5	14.9	27.6	.4	E	(D)
Michigan	E7	15	3	.2	4.3	.1	.2	2.2	6.3	4.3	10.4	.4	(NA)	(NA)
Minnesota	E1	18	10	1.7	38.4	1.3	2.5	28.3	118.9	46.5	165.6	(D)	G	(D)
Missouri	E2	21	3	.1	3.3	.1	.2	2.1	4.7	3.7	8.2	(D)	(NA)	(NA)
New Hampshire	E3	5	3	.2	3.7	.1	.2	2.1	9.0	4.5	13.7	(D)	(NA)	(NA)
New York	E2	51	11	.5	13.6	.4	.8	9.3	25.8	15.2	41.2	(D)	F	(D)
North Carolina	E2	30	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	E1	36	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E4	35	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	F	(D)
South Dakota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E4	27	3	.2	4.4	.2	.3	2.9	9.3	7.7	17.0	.4	(NA)	(D)
Texas	E1	72	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	G	(D)
Vermont	–	66	16	1.1	27.5	.9	1.8	20.7	59.2	54.8	113.9	4.7	1.3	47.9
Wisconsin	E1	16	5	.2	4.0	.1	.3	2.4	7.7	5.9	13.3	.3	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Concrete block and brick (SIC 3271)	Concrete products, n.e.c. (SIC 3272)	Ready-mixed concrete (SIC 3273)	Lime (SIC 3274)	Gypsum products (SIC 3275)	Cut stone and stone products (SIC 3281)
Companies ---- number	887	2 606	3 248	57	80	901
All establishments ---- number	1 071	3 113	5 254	88	152	921
With 1 to 19 employees ---- number	781	2 225	3 892	29	57	760
With 20 to 99 employees ---- number	284	802	1 314	40	55	149
With 100 employees or more ---- number	6	86	48	19	40	12
Employment and labor costs:						
Employees ---- 1,000	16.4	58.9	82.4	5.6	10.5	12.3
Compensation, total ---- mil dol	519.5	1 906.8	2 825.5	220.0	405.1	357.8
Annual payroll ---- mil dol	429.9	1 513.3	2 291.5	171.4	329.0	284.4
Fringe benefits ---- mil dol	89.6	393.4	534.0	48.6	76.1	73.4
Social Security and other legally required payments ---- mil dol	46.7	208.0	272.7	18.4	33.8	35.4
Employer voluntary payments ---- mil dol	42.9	185.5	261.3	30.2	42.3	38.0
Production workers:						
Average for year ---- 1,000	9.2	42.7	60.9	4.3	8.3	9.5
March ---- 1,000	8.9	41.4	57.5	4.3	8.3	9.7
May ---- 1,000	9.4	43.4	62.9	4.3	8.4	9.6
August ---- 1,000	9.6	44.5	63.9	4.3	8.4	9.4
November ---- 1,000	8.9	41.8	59.7	4.3	8.3	9.2
Hours ---- millions	20.3	90.9	129.2	9.6	19.0	19.3
Wages ---- mil dol	208.5	947.9	1 577.7	121.3	242.0	205.8
Cost of materials[1] ---- mil dol	1 025.1	2 581.7	6 662.4	446.2	1 283.9	407.1
Materials, parts, containers, etc., consumed[2] ---- mil dol	634.9	2 036.2	5 964.8	194.7	1 001.1	271.5
Resales ---- mil dol	333.4	289.6	392.2	9.9	68.9	31.3
Fuels ---- mil dol	27.5	56.1	152.4	167.8	141.1	6.3
Purchased electricity ---- mil dol	24.0	49.8	83.9	57.2	68.6	18.8
Contract work ---- mil dol	5.3	150.1	69.1	16.6	4.2	79.1
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	363.3	731.9	1 275.5	1 133.6	1 194.6	286.0
Generated less sold ---- mil kWh	(D)	(D)	3.2	–	(D)	(D)
Total value of shipments ---- mil dol	2 051.1	5 934.2	12 009.9	903.7	2 075.9	1 011.3
Value added ---- mil dol	1 030.8	3 353.5	5 342.5	461.1	793.3	607.4
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	282.8	701.3	434.8	95.8	142.1	152.7
Finished goods ---- mil dol	239.7	462.7	138.6	21.7	42.5	88.4
Work in process ---- mil dol	3.1	65.9	14.1	9.5	8.9	26.6
Materials and supplies ---- mil dol	40.0	172.8	282.0	64.6	90.8	37.6
End of 1992 ---- mil dol	287.3	696.4	424.7	104.9	140.7	156.4
Finished goods ---- mil dol	245.1	470.7	135.2	24.3	43.9	90.1
Work in process ---- mil dol	2.4	58.8	12.5	10.4	8.8	28.1
Materials and supplies ---- mil dol	39.7	166.9	277.0	70.2	88.0	38.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Concrete block and brick (SIC 3271)	Concrete products, n.e.c. (SIC 3272)	Ready-mixed concrete (SIC 3273)	Lime (SIC 3274)	Gypsum products (SIC 3275)	Cut stone and stone products (SIC 3281)
Gross book value of depreciable assets:						
Total:						
Beginning of year	1 115.9	2 807.0	5 658.2	821.6	1 635.4	372.6
New capital expenditures[1]	57.3	171.9	313.0	47.9	43.8	36.9
Used capital expenditures	10.1	34.0	90.0	5.0	1.6	6.5
Retirements	12.4	69.9	185.5	27.8	14.3	12.4
End of year	1 170.9	2 943.0	5 875.7	846.8	1 666.4	403.6
Buildings and other structures:						
Beginning of year	216.6	606.0	777.4	130.8	438.3	75.6
New capital expenditures	9.0	26.2	34.7	4.0	3.1	6.7
Used capital expenditures	.7	3.9	6.1	.2	.2	.1
Retirements	2.3	6.5	12.5	1.0	.3	1.6
End of year	223.9	629.6	805.7	134.0	441.4	80.8
Machinery and equipment:						
Beginning of year	899.3	2 201.1	4 880.8	690.8	1 197.1	297.0
New capital expenditures[1]	48.3	145.6	278.3	44.0	40.6	30.2
Used capital expenditures	9.4	30.1	83.9	4.8	1.4	6.4
Retirements	10.1	63.4	173.0	26.8	14.0	10.8
End of year	946.9	2 313.3	5 070.0	712.8	1 225.0	322.8
Depreciation charges during 1992:						
Total	101.6	190.1	463.6	46.7	87.7	30.6
Buildings and other structures	19.3	30.9	52.2	5.6	14.4	4.4
Machinery and equipment	82.3	159.3	411.4	41.1	73.3	26.2
Rental payments:						
Total	24.8	85.1	147.7	7.8	5.5	11.7
Buildings and other structures	13.3	42.3	75.3	2.6	2.3	7.0
Machinery and equipment	11.5	42.8	72.4	5.2	3.2	4.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Concrete block and brick (SIC 3271)		Concrete products, n.e.c. (SIC 3272)		Ready-mixed concrete (SIC 3273)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	3.3	(X)	10.1	(X)	19.9	(X)
Response coverage ratio (percent)[2]	64.9	(X)	70.4	(X)	60.7	(X)
Machinery	41.4	(X)	77.2	(X)	179.7	(X)
Response coverage ratio (percent)[2]	66.2	(X)	70.4	(X)	63.4	(X)
Other purchased services:						
Communications	5.7	(X)	16.9	(X)	20.0	(X)
Response coverage ratio (percent)[2]	60.3	(X)	66.7	(X)	55.0	(X)
Legal	7.2	(X)	8.2	(X)	12.1	(X)
Response coverage ratio (percent)[2]	64.3	(X)	70.6	(X)	61.8	(X)
Accounting and bookkeeping	3.8	(X)	8.7	(X)	11.1	(X)
Response coverage ratio (percent)[2]	64.6	(X)	72.1	(X)	61.9	(X)
Advertising	5.5	(X)	16.6	(X)	11.8	(X)
Response coverage ratio (percent)[2]	65.3	(X)	70.8	(X)	62.1	(X)
Software and other data processing	1.1	(X)	2.2	(X)	3.2	(X)
Response coverage ratio (percent)[2]	63.5	(X)	70.5	(X)	60.2	(X)
Refuse removal, including hazardous waste	1.2	(X)	7.4	(X)	6.4	(X)
Response coverage ratio (percent)[2]	61.4	(X)	69.2	(X)	59.5	(X)
New machinery and equipment expenditures	48.3	(X)	145.6	(X)	278.3	(X)
Automobiles, trucks, etc., for highway use	9.0	15	39.3	13	180.6	6
Computers and peripheral data processing equipment	1.3	27	6.4	14	8.3	15
All other	38.0	5	99.9	6	89.4	10
Adjustment ratio[3]	1.6	(X)	1.6	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	634.9	(X)	2 036.2	(X)	5 964.8	(X)
Materials purchased or transferred from foreign sources[4]	7.3	21	17.9	15	(S)	(X)
Materials purchased or transferred from domestic sources	627.6	1	2 018.2	1	(S)	(X)
Adjustment ratio[3]	1.9	(X)	1.9	(X)	(S)	(X)

Item	Lime (SIC 3274)		Gypsum products (SIC 3275)		Cut stone and stone products (SIC 3281)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.3	(X)	1.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	87.6	(X)	(S)	(X)
Machinery	28.9	(X)	19.6	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	87.6	(X)	(S)	(X)
Other purchased services:						
Communications	2.5	(X)	1.9	(X)	(S)	(X)
Response coverage ratio (percent)[2]	86.7	(X)	83.4	(X)	(S)	(X)
Legal	4.4	(X)	.7	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	82.7	(X)	(S)	(X)
Accounting and bookkeeping	2.1	(X)	.2	(X)	(S)	(X)
Response coverage ratio (percent)[2]	86.7	(X)	83.2	(X)	(S)	(X)
Advertising	.7	(X)	.1	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	83.4	(X)	(S)	(X)
Software and other data processing	.2	(X)	.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	83.2	(X)	(S)	(X)
Refuse removal, including hazardous waste	1.5	(X)	4.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	83.2	(X)	(S)	(X)
New machinery and equipment expenditures	44.0	(X)	40.6	(X)	30.2	(X)
Automobiles, trucks, etc., for highway use	1.6	18	.3	1	3.2	43
Computers and peripheral data processing equipment	1.1	11	.8	3	2.6	62
All other	41.3	1	39.6	1	24.5	9
Adjustment ratio[3]	1.5	(X)	1.3	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	194.7	(X)	1 001.1	(X)	271.5	(X)
Materials purchased or transferred from foreign sources[4]	6.4	32	70.6	10	6.9	41
Materials purchased or transferred from domestic sources	188.3	2	930.6	1	264.7	2
Adjustment ratio[3]	1.2	(X)	1.2	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3271, CONCRETE BLOCK AND BRICK												
Total	**E1**	**1 071**	**16.4**	**429.9**	**9.2**	**20.3**	**208.5**	**1 030.8**	**1 025.1**	**2 051.1**	**57.3**	**287.3**
Establishments with an average of—												
1 to 4 employees	E6	283	.4	10.7	.3	.6	5.6	32.7	31.3	63.9	6.3	9.8
5 to 9 employees	E2	221	1.5	35.3	.9	2.0	18.9	99.2	103.3	202.0	4.8	31.9
10 to 19 employees	–	277	3.8	96.0	2.1	4.9	46.9	242.0	245.8	487.8	10.7	72.0
20 to 49 employees	E1	237	6.8	182.3	3.7	8.2	83.2	426.7	429.1	853.1	23.8	116.0
50 to 99 employees	E1	47	3.1	87.8	1.7	3.6	42.9	187.3	186.4	373.2	10.7	51.2
100 to 249 employees	–	6	.7	17.8	.5	.9	11.0	42.9	29.0	71.2	1.0	6.3
Covered by administrative records[2]	E9	249	.5	10.5	.3	.6	5.0	27.4	27.6	55.0	1.3	7.1
INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.												
Total	**E1**	**3 113**	**58.9**	**1 513.3**	**42.7**	**90.9**	**947.9**	**3 353.5**	**2 581.7**	**5 934.2**	**171.9**	**696.4**
Establishments with an average of—												
1 to 4 employees	E6	1 118	2.0	44.2	1.5	3.2	30.1	109.4	83.8	196.5	6.5	24.8
5 to 9 employees	E2	518	3.5	77.8	2.6	5.3	53.1	180.7	126.0	306.9	8.6	32.9
10 to 19 employees	E1	589	8.1	192.6	5.7	11.5	118.6	431.3	339.8	771.9	20.2	87.4
20 to 49 employees	E1	604	18.5	476.6	13.1	27.6	288.1	1 138.9	841.5	1 977.0	64.3	240.6
50 to 99 employees	E1	198	13.8	373.2	10.1	22.0	233.8	795.0	591.7	1 379.5	37.0	169.9
100 to 249 employees	E1	82	11.6	315.2	8.8	19.0	204.5	612.2	540.4	1 159.1	26.7	121.8
250 to 499 employees	–	4	1.3	33.8	1.0	2.2	19.9	86.0	58.5	143.3	8.6	18.9
Covered by administrative records[2]	E9	942	1.8	34.9	1.3	2.8	23.2	82.0	65.5	147.4	4.5	17.2
INDUSTRY 3273, READY-MIXED CONCRETE												
Total	**E2**	**5 254**	**82.4**	**2 291.5**	**60.9**	**129.2**	**1 577.7**	**5 342.5**	**6 662.4**	**12 009.9**	**313.0**	**424.7**
Establishments with an average of—												
1 to 4 employees	E4	1 422	2.9	75.8	2.3	4.8	54.9	275.2	347.3	623.1	14.9	21.7
5 to 9 employees	E2	1 169	8.0	192.0	6.0	12.8	139.0	528.7	693.6	1 223.6	28.9	40.7
10 to 19 employees	E1	1 301	18.0	467.4	13.5	28.4	333.0	1 179.1	1 496.7	2 675.5	59.3	93.5
20 to 49 employees	E1	1 112	33.3	944.2	24.1	50.8	623.5	2 128.3	2 574.6	4 702.1	126.2	161.1
50 to 99 employees	E2	202	13.4	392.8	9.7	21.1	265.0	809.0	971.9	1 783.4	54.5	64.8
100 to 249 employees	E4	46	6.8	219.4	5.2	11.2	162.2	422.1	578.3	1 002.1	29.2	42.9
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	942	2.9	58.9	2.3	5.0	42.4	143.9	186.9	330.8	10.1	11.8
INDUSTRY 3274, LIME												
Total	**–**	**88**	**5.6**	**171.4**	**4.3**	**9.6**	**121.3**	**461.1**	**446.2**	**903.7**	**47.9**	**104.9**
Establishments with an average of—												
1 to 4 employees	E4	11	(Z)	.8	(Z)	(Z)	.5	1.7	1.3	3.0	.1	.2
5 to 9 employees	–	10	.1	2.4	.1	.2	1.7	8.1	5.3	12.2	.5	2.6
10 to 19 employees	–	8	.1	2.6	.1	.2	2.0	13.3	8.9	22.2	.6	1.1
20 to 49 employees	–	19	.6	17.9	.4	1.0	12.0	58.3	56.6	114.6	3.7	14.2
50 to 99 employees	–	21	1.5	48.8	1.1	2.5	34.4	138.1	141.8	279.8	10.6	36.8
100 to 249 employees	–	18	3.3	98.9	2.6	5.7	70.8	241.7	232.2	471.9	32.5	49.9
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.4	(Z)	(Z)	.3	.7	.6	1.4	.1	.1
INDUSTRY 3275, GYPSUM PRODUCTS												
Total	**–**	**152**	**10.5**	**329.0**	**8.3**	**19.0**	**242.0**	**793.3**	**1 283.9**	**2 075.9**	**43.8**	**140.7**
Establishments with an average of—												
1 to 4 employees	E8	16	(Z)	.8	(Z)	.1	.6	2.8	3.2	6.0	.1	.6
5 to 9 employees	E6	22	.2	3.9	.1	.3	2.8	10.4	17.2	27.6	.4	1.9
10 to 19 employees	E3	19	.3	6.1	.2	.4	4.2	20.1	28.4	48.7	.4	3.0
20 to 49 employees	E2	18	.5	12.5	.4	.9	8.7	35.8	69.2	104.7	1.7	7.1
50 to 99 employees	–	37	2.9	92.4	2.3	5.1	65.5	207.7	416.2	623.2	14.0	45.3
100 to 249 employees	–	36	6.6	213.3	5.3	12.3	160.2	516.5	749.6	1 265.8	27.1	82.8
250 to 499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	20	.1	1.8	.1	.1	1.3	4.4	6.5	10.9	.2	.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3281, CUT STONE AND STONE PRODUCTS												
Total	**E1**	**921**	**12.3**	**284.4**	**9.5**	**19.3**	**205.8**	**607.4**	**407.1**	**1 011.3**	**36.9**	**156.4**
Establishments with an average of—												
1 to 4 employees	E6	434	.8	18.0	.6	1.4	13.7	37.6	32.9	70.3	1.2	10.3
5 to 9 employees	E2	176	1.2	25.2	.9	1.9	19.1	52.2	43.2	95.1	1.6	12.4
10 to 19 employees	E1	150	2.1	47.4	1.6	3.4	34.2	87.1	70.5	157.0	4.0	22.8
20 to 49 employees	E1	121	3.6	85.1	2.7	5.5	57.4	165.3	116.0	280.1	17.1	41.2
50 to 99 employees	–	28	1.9	46.9	1.5	2.9	33.9	91.4	65.1	156.7	5.2	21.6
100 to 249 employees	E2	10	2.7	61.7	2.1	4.1	47.4	173.7	79.5	252.1	7.8	48.1
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	404	.9	18.6	.8	1.6	14.3	35.1	29.5	64.5	1.3	9.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3271	**Concrete block and brick:**										
	All establishments in industry	1 071	16.4	429.9	9.2	20.3	208.5	1 030.8	1 025.1	2 051.1	57.3
3272	**Concrete products, n.e.c.:**										
	All establishments in industry	3 113	58.9	1 513.3	42.7	90.9	947.9	3 353.5	2 581.7	5 934.2	171.9
	Establishments with this product class primary:										
32721	Concrete pipe	339	10.9	299.7	8.2	17.6	195.5	743.5	539.2	1 288.2	38.8
32722	Precast concrete products	1 235	28.5	733.7	19.9	42.2	441.9	1 560.9	1 216.4	2 774.1	88.3
32723	Prestressed concrete products	176	11.2	287.8	8.7	18.6	189.5	598.9	458.5	1 056.3	21.4
3273	**Ready-mixed concrete:**										
	All establishments in industry	5 254	82.4	2 291.5	60.9	129.2	1 577.7	5 342.5	6 662.4	12 009.9	313.0
3274	**Lime:**										
	All establishments in industry	88	5.6	171.4	4.3	9.6	121.3	461.1	446.2	903.7	47.9
3275	**Gypsum products:**										
	All establishments in industry	152	10.5	329.0	8.3	19.0	242.0	793.3	1 283.9	2 075.9	43.8
	Establishments with this product class primary:										
32751	Gypsum building materials	80	8.5	271.0	6.8	15.4	199.9	639.9	1 063.6	1 702.0	38.1
32752	Other gypsum products	28	1.6	48.8	1.3	2.9	35.2	129.8	185.8	316.0	4.7
3281	**Cut stone and stone products:**										
	All establishments in industry	921	12.3	284.4	9.5	19.3	205.8	607.4	407.1	1 011.3	36.9
	Establishments with this product class primary:										
32811	Dressed dimension granite (including gneiss, syenite, diorite, and cut granite)	195	5.2	122.5	4.0	8.0	89.6	304.5	179.7	484.1	12.6
32812	Dressed dimension limestone (including dolomite, travertine, calcareous, tufa, and cut limestone)	53	1.7	43.9	1.3	2.6	31.2	70.0	50.2	119.4	2.2
32813	Dressed dimension marble and other stone	109	2.2	49.5	1.8	3.6	34.8	100.8	70.0	172.0	6.1

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3271, CONCRETE BLOCK AND BRICK			
Total value of shipments	2 051.1	2 245.8	1 301.8
Primary products value of shipments	1 472.5	1 719.6	1 024.0
Secondary products value of shipments	127.0	110.8	59.0
Total miscellaneous receipts	451.6	415.4	218.8
Value of resales	437.9	401.2	202.6
Contract receipts	7.4	3.7	(D)
Other miscellaneous receipts	6.3	10.5	(D)
Primary products specialization ratio	92	94	95
Value of primary products shipments made in all industries	1 665.7	1 950.7	1 173.2
Value of primary products shipments made in this industry	1 472.5	1 719.6	1 024.0
Value of primary products shipments made in other industries	193.3	231.1	149.2
Coverage ratio	88	88	87
INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.			
Total value of shipments	5 934.2	5 828.4	3 649.2
Primary products value of shipments	5 360.4	5 323.6	3 335.6
Secondary products value of shipments	127.8	169.2	101.1
Total miscellaneous receipts	446.0	335.6	212.5
Value of resales	345.9	253.0	134.8
Contract receipts	29.0	25.9	27.0
Other miscellaneous receipts	71.1	56.7	50.7
Primary products specialization ratio	98	97	97
Value of primary products shipments made in all industries	5 569.5	5 511.7	3 503.3
Value of primary products shipments made in this industry	5 360.4	5 323.6	3 335.6
Value of primary products shipments made in other industries	209.1	188.2	167.7
Coverage ratio	96	97	95
INDUSTRY 3273, READY-MIXED CONCRETE			
Total value of shipments	12 009.9	12 966.3	8 163.3
Primary products value of shipments	10 710.0	11 601.1	7 415.7
Secondary products value of shipments	568.3	613.3	368.7
Total miscellaneous receipts	731.6	751.9	378.9
Value of resales	539.7	610.3	269.2
Contract receipts	79.1	48.2	29.4
Other miscellaneous receipts	112.7	93.4	80.3
Receipts for installation (or construction) of products of this establishment	24.0	(NA)	38.0
Other miscellaneous receipts	73.0	(NA)	35.5
Other miscellaneous receipts, n.s.k.	15.6	(NA)	6.8
Primary products specialization ratio	95	95	95
Value of primary products shipments made in all industries	10 907.0	11 794.9	7 544.9
Value of primary products shipments made in this industry	10 710.0	11 601.1	7 415.7
Value of primary products shipments made in other industries	197.1	193.8	129.3
Coverage ratio	98	98	98
INDUSTRY 3274, LIME			
Total value of shipments	903.7	715.5	543.2
Primary products value of shipments	800.2	636.8	477.0
Secondary products value of shipments	89.0	67.2	61.7
Total miscellaneous receipts	14.4	11.5	4.5
Value of resales	10.9	9.9	2.1
Contract receipts	(D)	–	–
Other miscellaneous receipts	(D)	1.6	–
Primary products specialization ratio	90	90	89
Value of primary products shipments made in all industries	851.0	703.9	517.8
Value of primary products shipments made in this industry	800.2	636.8	477.0
Value of primary products shipments made in other industries	50.7	67.1	40.9
Coverage ratio	94	90	92
INDUSTRY 3275, GYPSUM PRODUCTS			
Total value of shipments	2 075.9	2 670.9	1 289.2
Primary products value of shipments	1 909.5	2 513.8	1 160.4
Secondary products value of shipments	87.2	88.9	88.6
Total miscellaneous receipts	79.2	68.2	40.3
Value of resales	78.4	66.1	(D)
Contract receipts	(D)	(Z)	–
Other miscellaneous receipts	(D)	2.1	(D)
Primary products specialization ratio	96	97	93
Value of primary products shipments made in all industries	1 930.0	2 563.1	1 178.2
Value of primary products shipments made in this industry	1 909.5	2 513.8	1 160.4
Value of primary products shipments made in other industries	20.5	49.3	17.8
Coverage ratio	99	98	98

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3281, CUT STONE AND STONE PRODUCTS			
Total value of shipments	1 011.3	840.8	555.4
Primary products value of shipments	921.7	796.1	513.5
Secondary products value of shipments	17.9	17.7	17.2
Total miscellaneous receipts	71.8	26.9	24.8
Value of resales	46.8	17.5	13.9
Contract receipts	11.3	6.5	(D)
Other miscellaneous receipts	13.6	3.0	(D)
Primary products specialization ratio	98	98	97
Value of primary products shipments made in all industries	948.5	808.8	526.2
Value of primary products shipments made in this industry	921.7	796.1	513.5
Value of primary products shipments made in other industries	26.8	12.6	12.8
Coverage ratio	97	98	98

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3271– —	**CONCRETE BLOCK AND BRICK**						
	Total	**(NA)**	**(X)**	**1 665.7**	**(NA)**	**(X)**	**1 950.7**
32710	Concrete brick and block	(NA)	(X)	1 665.7	(NA)	(X)	1 950.7
	Structural block:						
32710 11	Lightweight units (units made with concrete weighing less than 105 lb per cubic foot) (dry weight) mil blocks	329	(S)	483.4	317	*758.7	575.6
32710 15	Mediumweight units (units made with concrete weighing at least 105 lb but less than 125 lb per cubic foot) (dry weight)	120	(X)	148.4	156	(X)	237.1
32710 17	Normal weight units (units made with concrete weighing at least 125 lb per cubic foot) (dry weight) mil blocks	384	(S)	484.0	342	**1 110.5	549.9
32710 18	Decorative block (such as screen block, split block, slump block, shadowal block, etc.)	164	(X)	128.0	155	(X)	171.2
32710 34	Concrete pavers (including grid, interlocking, etc.)	87	(X)	104.5	(NA)	(X)	(3)
32710 51	Concrete brick	59	(X)	52.7	86	(X)	74.0
32710 00	Concrete block and brick, n.s.k.[4]	(NA)	(X)	208.9	(NA)	(X)	3233.7
32710 02	Concrete block and brick, n.s.k.[5]	(NA)	(X)	55.8	(NA)	(X)	109.2
3272– —	**CONCRETE PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**5 569.5**	**(NA)**	**(X)**	**5 511.7**
32721	Concrete pipe	(NA)	(X)	1 232.5	(NA)	(X)	1 389.4
	Culvert pipe:						
	Reinforced:						
32721 12	36 inches or more 1,000 s tons	67	**1 599.5	153.1	64	*1 143.8	131.5
32721 14	Less than 36 inches 1,000 s tons	53	*1 080.0	87.8	58	*637.0	64.4
32721 17	Nonreinforced	9	(X)	8.6	20	(X)	18.0
	Storm sewer pipe:						
	Reinforced:						
32721 21	36 inches or more 1,000 s tons	73	**2 139.1	186.9	77	*2 049.2	218.2
32721 24	Less than 36 inches 1,000 s tons	71	*1 973.1	168.4	77	*1 787.6	155.9
32721 25	Nonreinforced	6	(X)	8.3	18	(X)	27.8
	Sanitary sewer pipe:						
	Reinforced:						
32721 26	24 inches or more 1,000 s tons	44	*917.8	82.2	46	**966.8	111.3
32721 27	Less than 24 inches	23	(X)	17.3	31	(X)	34.3
32721 30	Nonreinforced	5	(X)	4.3	8	(X)	3.2
	Pressure pipe:						
32721 31	Reinforced concrete pressure pipe	5	(X)	18.3	9	(X)	32.2
32721 32	Prestressed concrete cylinder pipe	6	(X)	90.7	9	(X)	162.3
32721 37	Pretensioned concrete cylinder pipe and other pressure pipe 1,000 lin ft	4	(D)	(6)	(NA)	(D)	(7)
32721 51	Irrigation pipe and drain tile	16	(X)	22.4	16	(X)	14.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3272– —	**CONCRETE PRODUCTS, N.E.C.**—Con.						
32721	Concrete pipe—Con.						
32721 98	Other concrete pipe (such as manholes and conduits)	173	(X)	[6]317.9	144	(X)	[7]315.3
32721 00	Concrete pipe, n.s.k.	(NA)	(X)	66.3	(NA)	(X)	100.0
32722	Precast concrete products	(NA)	(X)	2 641.7	(NA)	(X)	2 241.7
	Roof and floor units:						
32722 13	Slabs and tile	51	(X)	304.7	55	(X)	266.2
32722 17	Joists and beams	19	(X)	12.7	23	(X)	21.9
32722 23	Architectural wall panels	126	(X)	290.4	115	(X)	342.5
32722 25	Piling, posts, and poles	22	(X)	27.6	25	(X)	37.8
32722 27	Cast stone products for architectural purposes (except architectural wall panels, such as window sills, ashlar, etc.)	96	(X)	61.8	68	(X)	65.4
32722 28	Prefabricated building systems, primarily concrete, sold as complete units, and shipped in panel or modular form	49	(X)	133.0	25	(X)	74.8
32722 29	Other precast concrete construction or building products (including prefabricated housing components)	225	(X)	403.8	169	(X)	345.2
	Burial vaults and boxes:						
32722 33	Vaults	300	(X)	233.0	231	(X)	194.2
32722 35	Boxes	100	(X)	58.2	70	(X)	35.5
32722 61	Septic tanks	273	(X)	151.2	206	(X)	133.1
32722 71	Dry-mixed concrete materials (including prepackaged sand, gravel, and cement, mortar and cement premixes)	227	(X)	471.3	179	(X)	306.0
32722 99	Other precast concrete products (except construction or building products)	253	(X)	286.1	(NA)	(X)	243.8
32722 00	Precast concrete products, n.s.k.	(NA)	(X)	207.8	(NA)	(X)	175.2
32723	Prestressed concrete products	(NA)	(X)	907.8	(NA)	(X)	1 048.1
32723 11	Single tees, double tees, and channels 1,000 sq ft	60	*31 728.8	147.8	78	(S)	278.3
32723 23	Piling, bearing piles, and sheet piles 1,000 lin ft	37	**7 123.4	83.7	38	(S)	93.3
32723 25	Bridge beams 1,000 lin ft	73	*3 883.4	230.5	66	*3 000.0	198.8
32723 27	Joists, girders, and beams (other than bridge beams) 1,000 lin ft	43	1 649.3	50.5	47	(S)	80.3
32723 31	Solid and hollow cored slabs and panels 1,000 sq ft	87	**50 967.2	202.0	93	*61 000.0	231.1
32723 98	Other prestressed concrete products (such as arches, columns, etc.) 1,000 s tons	53	**1 303.7	140.1	54	(S)	88.0
32723 00	Prestressed concrete products, n.s.k.	(NA)	(X)	53.0	(NA)	(X)	78.3
32720	Concrete products, n.e.c., n.s.k.	(NA)	(X)	787.5	(NA)	(X)	832.6
32720 00	Concrete products, n.e.c., n.s.k.[4]	(NA)	(X)	640.1	(NA)	(X)	640.1
32720 02	Concrete products, n.e.c., n.s.k.[5]	(NA)	(X)	147.4	(NA)	(X)	192.4
3273– —	**READY-MIXED CONCRETE**						
	Total	**(NA)**	**(X)**	**10 907.0**	**(NA)**	**(X)**	**11 794.9**
32730	Ready-mixed concrete	(NA)	(X)	10 907.0	(NA)	(X)	11 794.9
32730 00	Ready-mixed concrete mil cu yd	2 381	(S)	10 575.8	(NA)	(S)	11 204.8
32730 02	Ready-mixed concrete, n.s.k.[5]	(NA)	(X)	331.3	(NA)	(X)	590.1
3274– —	**LIME**						
	Total	**(NA)**	**(X)**	**851.0**	**(NA)**	**(X)**	**703.9**
32740	Lime (including cost of containers)	(NA)	(X)	851.0	(NA)	(X)	703.9
32740 11	Quicklime 1,000 s tons	36	*12 516.2	614.1	32	*10 348.8	508.4
32740 51	Hydrated lime 1,000 s tons	28	*1 874.2	124.5	27	*1 936.2	130.7
32740 71	Dead-burned dolomite[8] 1,000 s tons	8	396.5	28.3	6	r330.1	25.2
32740 72	Other lime 1,000 s tons	22	*571.6	37.2	(NA)	(NA)	([9])
32740 00	Lime, n.s.k.[10]	(NA)	(X)	45.5	(NA)	(X)	[9]33.3
32740 02	Lime, n.s.k.[11]	(NA)	(X)	1.4	(NA)	(X)	6.4
3275– —	**GYPSUM PRODUCTS**						
	Total	**(NA)**	**(X)**	**1 930.0**	**(NA)**	**(X)**	**2 563.1**
32751	Gypsum building materials	(NA)	(X)	1 584.1	(NA)	(X)	2 043.7
32751 12	Plaster building boards and lath 1,000 s tons	20	**18 000.1	1 378.0	20	*17 442.3	1 843.6
32751 13	Building plasters	9	(X)	202.1	5	(X)	84.7
32751 00	Gypsum building materials, n.s.k.	(NA)	(X)	4.1	(NA)	(X)	115.4
32752	Other gypsum products	(NA)	(X)	284.4	(NA)	(X)	448.6
32752 11	Industrial plasters	7	(X)	64.7	7	(X)	120.4
32752 21	Other calcined gypsum products	23	(X)	209.3	16	(X)	302.5
32752 00	Other gypsum products, n.s.k.	(NA)	(X)	10.4	(NA)	(X)	25.7
32750	Gypsum products, n.s.k.	(NA)	(X)	61.4	(NA)	(X)	70.8
32750 00	Gypsum products, n.s.k.[12]	(NA)	(X)	24.8	(NA)	(X)	21.7
32750 02	Gypsum products, n.s.k.[13]	(NA)	(X)	36.7	(NA)	(X)	49.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3281– —	**CUT STONE AND STONE PRODUCTS**						
	Total	**(NA)**	**(X)**	**948.5**	**(NA)**	**(X)**	**808.8**
32811	Dressed dimension granite (including gneiss, syenite, diorite, and cut granite)	(NA)	(X)	449.3	(NA)	(X)	404.6
32811 13	Building stone, 1,000 cubic feet	52	(S)	177.4	46	(S)	208.0
32811 35	Monumental stone, 1,000 cubic feet	140	(S)	206.3	91	(S)	143.6
32811 98	Other granite products, such as paving blocks and curbing, 1,000 cubic feet	30	(S)	55.9	22	(S)	47.1
32811 00	Dressed dimension granite (including gneiss, syenite, diorite, and cut granite), n.s.k.	(NA)	(X)	9.7	(NA)	(X)	5.8
32812	Dressed dimension limestone (including dolomite, travertine, calcareous, tufa, and cut limestone)	(NA)	(X)	123.3	(NA)	(X)	66.6
32812 13	Building stone, 1,000 cubic feet	47	**2 923.8	68.6	30	(S)	47.4
32812 98	Other limestone products, such as flagging, 1,000 cubic feet	17	(S)	31.4	6	(S)	4.6
32812 00	Dressed dimension limestone (including dolomite, travertine, calcareous, tufa, and cut limestone), n.s.k.	(NA)	(X)	23.3	(NA)	(X)	14.7
32813	Dressed dimension marble and other stone	(NA)	(X)	159.5	(NA)	(X)	146.4
32813 37	Building stone, monumental stone, and other marble products, 1,000 cubic feet	79	(S)	94.9	44	(S)	81.2
32813 98	Other stone, such as slate, sandstone, gabbro, and basalt, and other dressed dimension stone products, 1,000 cubic feet	42	(S)	49.8	33	(S)	50.4
32813 00	Dressed dimension marble and other stone, n.s.k.	(NA)	(X)	14.9	(NA)	(X)	14.8
32810	Cut stone and stone products, n.s.k.	(NA)	(X)	216.4	(NA)	(X)	191.2
32810 00	Cut stone and stone products, n.s.k.[4]	(NA)	(X)	151.8	(NA)	(X)	130.4
32810 02	Cut stone and stone products, n.s.k.[5]	(NA)	(X)	64.5	(NA)	(X)	60.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for product code 32710 34 were included with product code 32710 00.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1992, data for product code 32721 37 are included with product code 32721 98.
[7]For 1987, data for product code 32721 37 were included with product code 32721 98.
[8]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[9]For 1987, data for product code 32740 72 were included with product code 32740 00.
[10]Typically for establishments with 10 employees or more.
[11]Typically for establishments with less than 10 employees.
[12]Typically for establishments with 15 employees or more.
[13]Typically for establishments with less than 15 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
32721, CONCRETE PIPE			**32721, CONCRETE PIPE**—Con.		
United States	**1 232.5**	**1 389.4**	Kentucky	7.0	7.6
Alabama	19.5	(NA)	Louisiana	16.2	8.8
Arizona	19.1	(NA)	Maine	5.2	(NA)
Arkansas	12.0	(NA)	Maryland	40.5	44.8
California	124.7	153.4	Massachusetts	6.3	17.6
Colorado	35.7	(NA)	Michigan	49.7	51.4
Connecticut	25.7	39.6	Minnesota	53.4	55.5
Florida	58.8	84.1	Missouri	28.4	15.6
Georgia	26.6	29.6	Montana	2.4	(NA)
Illinois	75.3	64.1	Nebraska	12.7	8.5
Indiana	25.9	19.1	New Jersey	27.5	47.1
Iowa	22.4	14.9	New York	12.3	33.2
Kansas	11.2	16.9	North Carolina	29.4	27.1

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
32721, CONCRETE PIPE—Con.		
Ohio	47.8	61.3
Oklahoma	10.3	7.6
Oregon	20.9	13.7
Pennsylvania	34.8	45.4
South Carolina	12.4	25.1
Tennessee	18.4	16.9
Texas	121.4	188.0
Virginia	69.0	49.4
Washington	20.1	32.2
Wisconsin	32.2	22.0
32722, PRECAST CONCRETE PRODUCTS		
United States	**2 641.7**	**2 241.7**
Alabama	22.7	21.7
Alaska	4.1	(NA)
Arizona	61.3	42.6
Arkansas	18.0	11.6
California	458.0	434.8
Colorado	41.3	24.5
Connecticut	53.6	61.2
Delaware	4.9	(NA)
Florida	225.8	208.5
Georgia	79.3	76.0
Hawaii	16.0	7.0
Idaho	3.0	(NA)
Illinois	64.7	81.1
Indiana	55.9	30.4
Iowa	20.2	13.2
Kansas	17.9	23.2
Kentucky	26.9	19.7
Louisiana	57.2	26.4
Maine	16.6	11.0
Maryland	26.7	63.2
Massachusetts	52.4	48.3
Michigan	92.0	77.1
Minnesota	51.6	26.4
Mississippi	11.5	12.9
Missouri	43.8	37.0
Montana	5.5	(NA)
Nebraska	19.7	10.8
Nevada	16.8	4.5
New Hampshire	22.6	19.3
New Jersey	63.8	57.6
New Mexico	11.2	4.6
New York	103.1	73.4
North Carolina	59.0	48.0
North Dakota	6.5	6.3
Ohio	124.7	130.5
Oklahoma	12.6	9.7
Oregon	26.6	22.0
Pennsylvania	167.8	122.3
South Carolina	28.8	16.8
South Dakota	6.3	(NA)
Tennessee	34.8	32.9
Texas	161.6	125.9
Utah	21.2	14.1
Vermont	12.5	9.0
Virginia	75.6	78.5
Washington	62.9	40.1
West Virginia	11.8	(NA)
Wisconsin	56.6	35.3
32723, PRESTRESSED CONCRETE PRODUCTS		
United States	**907.8**	**1 048.1**
Alabama	27.1	10.2
California	28.4	84.7
Florida	68.8	113.2
Georgia	38.2	33.1
Illinois	40.6	27.4
Indiana	27.0	23.8
Iowa	13.9	(NA)
Kentucky	18.3	13.8
Louisiana	6.9	9.0
Maryland	4.8	(NA)
Massachusetts	17.0	(NA)
Michigan	8.1	13.9
Minnesota	35.5	19.6
Mississippi	29.1	33.1
Missouri	11.0	(NA)
32723, PRESTRESSED CONCRETE PRODUCTS—Con.		
New Jersey	29.5	41.4
North Carolina	19.9	17.0
Ohio	20.4	28.8
Pennsylvania	41.7	55.0
South Carolina	34.6	62.6
Tennessee	18.5	20.2
Texas	52.9	87.5
Virginia	38.8	49.5
Washington	34.4	43.9
32751, GYPSUM BUILDING MATERIALS		
United States	**1 584.1**	**2 043.7**
California	169.3	287.4
Florida	132.4	144.1
Georgia	81.3	136.4
Indiana	104.7	144.9
Iowa	132.4	130.7
Michigan	57.2	109.7
Nevada	61.8	(NA)
New York	108.8	149.5
North Carolina	36.5	(NA)
Ohio	41.2	64.9
Oklahoma	36.3	69.1
Texas	115.4	164.5
Washington	51.2	(NA)
32752, OTHER GYPSUM PRODUCTS		
United States	**284.4**	**448.6**
California	36.9	48.9
Florida	4.8	19.0
Texas	10.4	9.9
Virginia	5.5	(NA)
32811, DRESSED DIMENSION GRANITE (INCLUDING GNEISS, SYENITE, DIORITE, AND CUT GRANITE)		
United States	**449.3**	**404.6**
California	21.1	21.7
Georgia	62.7	49.4
Illinois	10.8	10.3
Kansas	2.1	(NA)
Massachusetts	19.5	20.1
New York	8.5	4.6
North Carolina	23.4	15.8
Ohio	5.2	(NA)
Pennsylvania	2.9	3.0
Texas	38.9	42.3
Vermont	79.5	63.4
Washington	3.2	(NA)
Wisconsin	4.0	(NA)
32812, DRESSED DIMENSION LIMESTONE (INCLUDING DOLOMITE, TRAVERTINE, CALCAREOUS, TUFA, AND CUT LIMESTONE)		
United States	**123.3**	**66.6**
Illinois	8.7	(NA)
Indiana	44.2	36.4
Kansas	3.3	(NA)
Minnesota	17.1	(NA)
Ohio	6.9	(NA)
Texas	6.4	3.6
Wisconsin	2.2	(NA)
32813, DRESSED DIMENSION MARBLE AND OTHER STONE		
United States	**159.5**	**146.4**
California	10.6	3.1
Florida	6.7	(NA)
Georgia	18.2	20.0
Illinois	6.6	4.3
Missouri	3.2	4.5
New Jersey	2.8	(NA)
New York	20.8	17.5
North Carolina	11.2	5.0
Ohio	13.0	15.3
Pennsylvania	12.7	11.8
Tennessee	6.8	(NA)
Texas	4.8	14.9
Vermont	11.5	(NA)
Wisconsin	3.5	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3271-	**Concrete block and brick**	**1 665.7**	**1 919.9**	**1 989.2**	**2 033.5**	**2 130.1**	**1 950.7**	**1 173.2**	**1 005.1**
32710	Concrete brick and block	1 665.7	1 919.9	1 989.2	2 033.5	2 130.1	1 950.7	1 173.2	1 005.1
3272-	**Concrete products, n.e.c.**	**5 569.5**	**5 501.5**	**6 141.2**	**6 253.1**	**5 784.3**	**5 511.7**	**3 503.3**	**2 596.1**
32721	Concrete pipe	1 232.5	1 192.9	1 354.0	1 411.8	1 401.8	1 389.4	919.0	843.8
32722	Precast concrete products	2 641.7	2 334.2	2 583.1	2 683.7	2 334.5	2 241.7	1 349.6	772.6
32723	Prestressed concrete products	907.8	1 161.6	1 284.4	1 310.5	1 218.2	1 048.1	741.9	423.6
32720	Concrete products, n.e.c., n.s.k.	787.5	812.8	919.8	847.0	829.9	832.6	492.8	556.1
3273-	**Ready-mixed concrete**	**10 907.0**	**10 611.6**	**11 735.3**	**11 771.4**	**11 833.5**	**11 794.9**	**7 544.9**	**5 679.9**
32730	Ready-mixed concrete	10 907.0	10 611.6	11 735.3	11 771.4	11 833.5	11 794.9	7 544.9	5 679.9
3274-	**Lime**	**851.0**	**691.8**	**694.4**	**766.8**	**777.9**	**703.9**	**517.8**	**473.5**
32740	Lime (including cost of containers)	851.0	691.8	694.4	766.8	777.9	703.9	517.8	473.5
3275-	**Gypsum products**	**1 930.0**	**1 898.9**	**2 257.8**	**2 237.9**	**2 269.6**	**2 563.1**	**1 178.2**	**932.1**
32751	Gypsum building materials	1 584.1	1 553.7	1 772.8	1 809.9	1 813.8	2 043.7	1 076.5	864.9
32752	Other gypsum products	284.4	277.4	307.1	363.2	405.4	448.6	85.8	54.0
32750	Gypsum products, n.s.k.	61.4	67.8	177.9	64.8	50.5	70.8	15.9	13.3
3281-	**Cut stone and stone products**	**948.5**	**903.9**	**931.1**	**876.7**	**826.9**	**808.8**	**526.2**	**385.5**
32811	Dressed dimension granite (including gneiss, syenite, diorite, and cut granite)	449.3	426.2	447.7	444.3	414.2	404.6	296.0	164.4
32812	Dressed dimension limestone (including dolomite, travertine, calcareous, tufa, and cut limestone)	123.3	75.6	64.0	65.5	62.8	66.6	42.9	53.3
32813	Dressed dimension marble and other stone	159.5	147.6	141.4	154.7	140.0	146.4	96.2	83.6
32810	Cut stone and stone products, n.s.k.	216.4	254.5	278.0	212.2	209.8	191.2	91.1	84.2

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3271, CONCRETE BLOCK AND BRICK		
	Materials, ingredients, containers, and supplies	**634.9**	**819.5**
	Stone, clay, glass, and concrete products:		
324101	Portland cement	137.3	219.5
327300	Ready-mixed concrete	5.1	6.6
320040	Other stone, clay, glass, and concrete products	36.1	(1)
	Mining and quarrying of nonmetallic minerals, except fuels:		
142011	Crushed or broken stone (including cement rock, limestone, etc.)	34.6	63.5
144201	Sand and gravel	78.1	96.7
140080	Other mining and quarrying of nonmetallic minerals, except fuels	20.1	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel shapes and forms:		
331059	Wire strand and bars or rods, high strength, stress relieved	.8	1.8
331092	Welded wire concrete reinforcing mesh	1.0	2.5
331009	Concrete reinforcing bars	1.6	7.5
331060	Other steel shapes and forms	.6	(1)
336002	Other shapes and forms (except castings, forgings, and fabricated metal products)	1.3	(1)
970099	All other materials and components, parts, containers, and supplies	109.9	[1]154.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	208.3	266.4
	INDUSTRY 3272, CONCRETE PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**2 036.2**	**2 045.9**
	Stone, clay, glass, and concrete products:		
324101	Portland cement	327.8	398.2
327300	Ready-mixed concrete	66.8	57.5
320040	Other stone, clay, glass, and concrete products	27.7	(1)
	Mining and quarrying of nonmetallic minerals, except fuels:		
142011	Crushed or broken stone (including cement rock, limestone, etc.)	43.9	59.3
144201	Sand and gravel	165.4	179.0
140080	Other mining and quarrying of nonmetallic minerals, except fuels	3.7	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel shapes and forms:		
331059	Wire strand and bars or rods, high strength, stress relieved	121.1	132.1
331092	Welded wire concrete reinforcing mesh	94.5	93.0
331009	Concrete reinforcing bars	69.8	68.0
331060	Other steel shapes and forms	44.1	(1)
336002	Other shapes and forms (except castings, forgings, and fabricated metal products)	33.1	(1)
970099	All other materials and components, parts, containers, and supplies	478.9	[1]467.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	559.3	590.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3273, READY-MIXED CONCRETE		
	Materials, ingredients, containers, and supplies	**5 964.8**	**6 517.5**
	Mining and quarrying of nonmetallic minerals, except fuels:		
144201	Sand and gravel	974.6	1 222.9
	Crushed and broken stone, including riprap:		
142200	Limestone (including dolomite, cement rock, marl, travertine, and calcareous tufa)	225.5	251.9
142300	Granite (including gneiss, syenite, and diorite)	47.4	35.2
142900	Other crushed and broken stone (riprap, slate, marble, trap rock, sandstone, quartz, and miscellaneous types of stone)	74.2	45.5
140065	Other mining and quarrying of nonmetallic minerals, except fuels	4.1	(1)
190008	Fly ash	.8	(1)
281001	Ready-mixed concrete chemical processing preparations and materials	230.2	97.2
	Stone, clay, glass, and concrete products:		
324102	Portland and blended cements	1 576.5	1 951.5
329520	Lightweight aggregate (including vermiculite, perlite, expanded clays, shale, and slag)	1.6	(1)
320099	Other stone, clay, glass, and concrete products	73.9	(1)
970099	All other materials and components, parts, containers, and supplies	398.0	[1]392.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	2 358.0	2 520.9
	INDUSTRY 3274, LIME		
	Materials, ingredients, containers, and supplies	**194.7**	**156.9**
	Paper and allied products:		
263112	Paperboard liners	(D)	(1)
267420	Paper shipping sacks and multiwall bags	8.4	7.3
260080	Other paper and allied products	.8	(1)
	Stone, clay, glass, and concrete products:		
320591	Refractories, clay or nonclay	20.6	4.2
324103	Cement clinker	–	–
329509	Minerals and earths, ground or otherwise treated	2.0	9.3
320020	Other stone, clay, glass, and concrete products	(D)	(1)
142011	Crushed and broken stone (including cement rock, limestone, etc.)	62.7	42.3
970099	All other materials and components, parts, containers, and supplies	89.4	[1]74.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	8.1	19.1
	INDUSTRY 3275, GYPSUM PRODUCTS		
	Materials, ingredients, containers, and supplies	**1 001.1**	**1 067.1**
	Paper and allied products:		
263112	Paperboard liners	108.2	203.4
267420	Paper shipping sacks and multiwall bags	(D)	6.2
260080	Other paper and allied products	208.6	(1)
	Stone, clay, glass, and concrete products:		
320591	Refractories, clay or nonclay	.6	4.7
324103	Cement clinker	(D)	(1)
329509	Minerals and earths, ground or otherwise treated	93.3	199.6
320020	Other stone, clay, glass, and concrete products	29.8	(1)
142011	Crushed and broken stone (including cement rock, limestone, etc.)	122.2	40.5
970099	All other materials and components, parts, containers, and supplies	401.5	[1]503.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	27.5	108.9
	INDUSTRY 3281, CUT STONE AND STONE PRODUCTS		
	Materials, ingredients, containers, and supplies	**271.5**	**301.8**
141101	Rough blocks used to produce dressed stone	83.5	83.4
329104	Abrasives and abrasive products	4.8	12.0
342301	Stonecutting tools and accessories (including blades)	12.5	29.1
970099	All other materials and components, parts, containers, and supplies	32.7	48.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	138.0	129.0

[1]For 1987, data for this material code were included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

Table 8. **Employees Engaged in Transportation: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting transportation employees			
				Total		Engaged in transportation	
		Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)
3273	Ready-mixed concrete	82.4	2 291.5	37.8	1 071.9	21.9	539.7

Note: Establishments in selected industries were instructed to report number of employees included in total employment that were engaged in delivery of products sold by that establishment and utilized as a separate work force.

TIPS [UPF] BATCH_1295 [EISS,BA_TAYLOR] MCD-SRB 4/19/95 4:41 PM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 17
TSF:32D_92.DAT;2 4/19/95 16:39:15 UTF:32D_93.DAT;2 4/19/95 16:39:16 META:TIPS96-16385478.DAT;1 4/19/95 16:40:59

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
32113 00	32113 21	32318 84	32318 81	32630 00	32630 15	32922 58	32922 51
32113 00	32113 41	32318 84	32318 83	32630 00	32630 19	32922 58	32922 55
32113 00	32113 69						
		32410 18	32410 15	32640 55	32640 52		
32114 24	32114 21	32410 18	32410 17			32927 10	32927 15
32114 24	32114 23	32410 23	32410 22	32710 34	32710 00	32927 10	32927 31
						32927 11	32927 33
		32610 20	32610 10	32721 37	32721 36	32927 11	32927 34
32293 25	32293 00	32610 61	32610 51	32721 37	32721 39	32927 12	32927 41
32293 29	32293 00	32610 70	32610 10			32927 12	32927 77
		32610 70	32610 51	32722 99	32722 41	32927 12	32927 78
32313 00	32313 21			32722 99	32722 98	32927 99	32927 14
32313 00	32313 41	32620 00	32620 15			32927 99	32927 36
32313 00	32313 69	32620 00	32620 19	32740 72	32740 00	32927 99	32927 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
32113 21	32113 00	32318 81	32318 84	32630 15	32630 00	32922 51	32922 58
32113 41	32113 00	32318 83	32318 84	32630 19	32630 00	32922 55	32922 58
32113 69	32113 00						
		32410 15	32410 18	32640 52	32640 55		
32114 21	32114 24	32410 17	32410 18			32927 14	32927 99
32114 23	32114 24	32410 22	32410 23	32710 00	32710 34	32927 15	32927 10
						32927 31	32927 10
		32610 10	32610 20	32721 36	32721 37	32927 33	32927 11
32293 00	32293 25	32610 10	32610 70	32721 39	32721 37	32927 34	32927 11
32293 00	32293 29	32610 51	32610 61			32927 36	32927 99
		32610 51	32610 70	32722 41	32722 99	32927 41	32927 12
32313 21	32313 00			32722 98	32722 99	32927 77	32927 12
32313 41	32313 00	32620 15	32620 00			32927 78	32927 12
32313 69	32313 00	32620 19	32620 00	32740 00	32740 72	32927 98	32927 99

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3211500	MQ32A, Flat Glass
3229500	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229600	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229700	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229800	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3231892	MA33L, Insulated Wire and Cable
3251011	MQ32D, Clay Construction Products
3251020	MQ32D, Clay Construction Products
3253000	MQ32D, Clay Construction Products
3255000	MA32C, Refractories
3259100	MQ32D, Clay Construction Products
3261020	MQ34E, Plumbing Fixtures
3274071	MA32C, Refractories
3295020	MA32C, Refractories
3297000	MA32C, Refractories

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PPGB 1/23/95 1:01 PM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-13002777.DAT;1 1/23/95 13:00:35 UTF:TIPS93-13002777.DAT;1 1/23/95 13:00:36 META:TIPS96-13002777.DAT;1 1/23/95 13:01:04

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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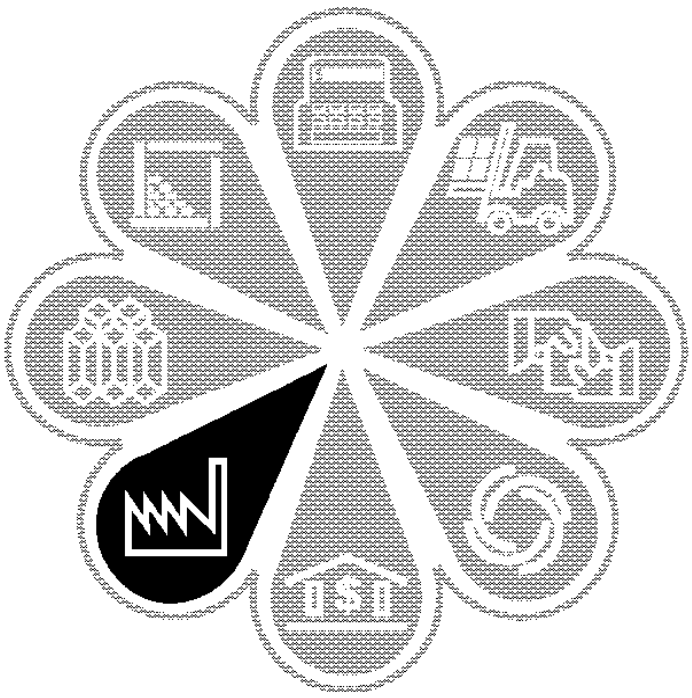
1992 Census of Manufactures

MC92-I-32E

INDUSTRY SERIES

Abrasive, Asbestos, and Miscellaneous Nonmetallic Mineral Products

Industries 3291, 3292, 3295, 3296, 3297, and 3299



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-32E

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4810.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3291	Abrasive Products
3292	Asbestos Products
3295	Minerals, Ground or Treated
3296	Mineral Wool
3297	Nonclay Refractories
3299	Nonmetallic Mineral Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3291, ABRASIVE PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing abrasive grinding wheels of natural or synthetic materials, abrasive-coated products, and other abrasive products. The cutting of grindstones, pulpstones, and whetstones at the quarry is classified in Division B, Mining.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3291, Abrasive Products, had employment of 21.5 thousand. The employment figure was 8 percent below the 23.4 thousand reported in 1987.

The leading States in employment in 1992 were Massachusetts, Ohio, and New York, accounting for approximately 36 percent of the industry's employment. The leading states in 1987 were Massachusetts, New York, Ohio, and Minnesota.

The total value of shipments for establishments classified in this industry was $3.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3291 shipped $3.0 billion of abrasive products considered primary to the industry, $546.7 million of secondary products, and had $158.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 82 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3291, no matter in what industry they were produced, appear in table 6a and

aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the abrasive products industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3292, ASBESTOS PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing asbestos textiles, asbestos building materials, except asbestos paper, insulating materials for covering boilers and pipes, and other products composed wholly or chiefly of asbestos. Establishments primarily engaged in manufacturing asbestos paper are classified in industry 2621, and those manufacturing gaskets and packing are classified in industry 3053.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3292, Asbestos Products, had employment of .7 thousand. The employment figure was 82 percent below the 4.0 thousand reported in 1987. As of 1992, Federal Legislation has prohibited production of some asbestos products and severely restricted production of others. The Annual Survey of Manufacturers (ASM) sample and other factors tended to maintain the data for this industry at too high a level for 1988 through 1991. Applying the change shown from 1991 to 1992 over the entire 1987 to 1992 period would provide more accurate data for the decrease in this industry.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3292 shipped 41.0 million of asbestos products considered primary to the industry.

The total value of shipments for establishments classified in this industry was $74.0 million.

Establishments in this industry also accounted for 56 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3292, no matter in what industry they were produced, appear in table 6a and aggregate to $72.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the asbestos products industry amounted to $30.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3295, MINERALS, GROUND OR TREATED

This industry is made up of establishments operating without a mine or quarry and primarily engaged in crushing, grinding, pulverizing, or otherwise preparing clay ceramic and refractory minerals; barite; and miscellaneous nonmetallic minerals, except fuels. These minerals are the crude products mined by establishments of industry groups 145 and 149, and by those of industry 1479 mining barite. Also included are establishments primarily crushing slag and preparing roofing granules. The beneficiation or preparation of other minerals and metallic ores, and the cleaning and grading of coal, are classified in Division B, Mining, whether or not the operation is associated with a mine.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3295, Minerals, Ground or Treated, had employment of 9.5 thousand. The employment figure was 8 percent above the 8.8 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Georgia, Ohio, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3295 shipped $1.6 billion of minerals, ground or treated considered primary to the industry, $60.8 million of secondary products, and had $78.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3295, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the minerals, ground or treated industry amounted to $690.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 3296, MINERAL WOOL

This industry is made up of establishments primarily engaged in manufacturing mineral wool and mineral wool insulation products made of such siliceous materials as rock, slag, and glass, or combination thereof. Establishments primarily engaged in manufacturing asbestos insulation products are classified in industry 3292, and those manufacturing textile glass fibers are classified in industry 3229.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3296, Mineral Wool, had employment of 19.1 thousand. The employment figure was 11 percent below the 21.5 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Georgia, California, and Pennsylvania, accounting for approximately 42 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3296 shipped $3.1 billion of mineral wool considered primary to the industry, $132.6 million of secondary products, and had $48.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3296, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the mineral wool industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3297, NONCLAY REFRACTORIES

This industry is made up of establishments primarily engaged in manufacturing refractories and crucibles made of materials other than clay. This industry includes establishments primarily engaged in manufacturing all graphite refractories, whether of carbon bond or ceramic bond. Establishments primarily engaged in manufacturing clay refractories are classified in industry 3255. Products of this industry also are collected in the Current Industrial Report (CIR) MA-32C, Refractories. For information regarding the CIR, see contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3297, Nonclay Refractories, had employment of 8.1 thousand. The employment figure was 5 percent above the 7.7 thousand reported in 1987. Compared with 1991, employment decreased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Pennsylvania, New York, and Illinois, accounting for approximately 53 percent of the industry's employment. This represents a shift from 1987 when Ohio, Pennsylvania, New York, and Michigan accounted for approximately 57 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3297 shipped $1.1 billion of nonclay refractories considered primary to the industry, $86.7 million of secondary products, and had $46.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3297, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonclay refractories industry amounted to $541.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in the factory production of goods made of plaster of paris and papier mache, and in manufacturing sand lime products and other nonmetallic mineral products, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3299, Nonmetallic Mineral Products, N.E.C., had employment of 7.1 thousand. The employment figure was 7 percent below the 7.6 thousand reported in 1987. Compared with 1991, employment increased 20 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, New York, and Florida, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when California, Texas, Ohio, and New York accounted for approximately 39 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $716.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3299 shipped $643.4 million of nonmetallic mineral products, not elsewhere classified considered primary to the industry, $37.0 million of secondary products, and had $35.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3299, no matter in what industry they were produced, appear in table 6a and aggregate to $724.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonmetallic mineral products, not elsewhere classified industry amounted to $257.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 20 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3291, ABRASIVE PRODUCTS															
1992 Census	367	414	189	21.5	651.7	15.1	31.1	378.2	2 030.6	1 674.3	3 731.1	121.5	585.1	85	95
1991 ASM	(NA)	(NA)	(NA)	23.5	703.3	16.3	32.4	404.0	2 104.3	1 675.1	3 763.0	119.2	657.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.2	765.9	16.4	33.6	404.4	2 130.6	1 746.3	3 898.4	135.4	636.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.2	700.4	16.4	33.8	395.7	2 192.9	1 646.8	3 822.7	97.8	651.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.9	680.7	16.4	33.5	379.4	2 250.9	1 834.2	4 050.6	102.2	639.8	(NA)	(NA)
1987 Census	359	405	178	23.4	624.2	15.5	31.2	349.9	2 001.2	1 656.3	3 621.4	113.5	596.7	82	94
1986 ASM	(NA)	(NA)	(NA)	24.8	607.6	16.7	33.5	338.3	1 738.9	1 640.5	3 383.5	95.2	540.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	25.5	604.4	17.1	33.2	337.8	1 833.0	1 805.0	3 675.3	143.1	545.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.0	594.7	17.5	34.8	336.7	1 943.2	1 879.7	3 781.8	137.8	612.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.8	535.4	16.5	31.6	305.2	1 698.6	1 482.1	3 195.9	78.3	536.9	(NA)	(NA)
1982 Census	326	374	177	26.0	531.8	17.0	31.6	305.1	1 451.8	1 277.2	2 750.7	96.9	563.1	83	95
1981 ASM	(NA)	(NA)	(NA)	31.3	588.3	21.1	40.9	351.1	1 592.7	1 539.4	3 104.4	81.9	527.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	523.6	21.0	40.4	305.8	1 462.3	1 336.8	2 769.6	123.4	464.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	32.4	506.3	23.0	43.7	313.1	1 378.5	1 303.6	2 614.0	95.0	441.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.4	454.8	21.6	41.6	289.8	1 197.5	1 071.2	2 198.1	61.7	367.5	(NA)	(NA)
1977 Census	353	410	178	28.3	392.3	20.1	38.5	241.2	1 097.7	914.4	1 955.8	48.7	317.7	90	97
INDUSTRY 3292, ASBESTOS PRODUCTS															
1992 Census	12	12	6	.7	21.8	.5	1.0	13.7	43.0	30.0	74.0	2.1	9.8	(D)	56
1991 ASM	(NA)	(NA)	(NA)	2.7	75.7	2.0	3.8	46.8	187.9	130.5	319.8	11.1	55.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.1	87.0	2.3	4.5	55.0	198.7	154.2	352.6	18.9	60.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	3.4	88.6	2.5	5.2	56.6	198.2	143.9	344.4	14.0	53.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.4	84.9	2.5	5.1	58.9	210.5	141.0	348.2	8.5	50.2	(NA)	(NA)
1987 Census	50	54	22	4.0	98.7	3.1	6.3	70.3	202.6	185.2	386.5	14.9	49.6	94	90
1986 ASM	(NA)	(NA)	(NA)	5.1	121.8	3.9	7.6	82.8	260.6	219.5	485.9	23.6	74.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.8	152.9	5.2	10.5	105.5	318.4	280.3	607.5	24.1	114.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.1	156.2	5.5	11.1	110.2	345.8	304.2	641.8	21.1	127.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.6	173.7	6.7	13.5	119.2	385.5	376.0	750.0	21.2	134.8	(NA)	(NA)
1982 Census	77	96	53	9.7	179.8	7.4	14.6	126.6	397.4	429.3	842.8	31.3	148.0	92	91
1981 ASM	(NA)	(NA)	(NA)	9.6	191.2	7.6	15.4	136.1	466.0	440.4	890.2	33.7	161.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	177.7	7.9	16.0	128.1	421.6	454.6	877.1	33.6	151.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.2	208.8	10.1	20.8	155.7	510.5	516.8	1 024.4	46.6	182.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.2	204.3	11.4	23.6	157.0	491.8	496.4	974.9	36.2	177.8	(NA)	(NA)
1977 Census	86	123	76	13.9	179.9	11.0	22.6	137.4	439.3	448.7	882.1	26.0	168.0	92	81
INDUSTRY 3295, MINERALS, GROUND OR TREATED															
1992 Census	247	368	127	9.5	299.1	7.1	15.2	194.1	1 081.2	690.6	1 774.4	47.1	220.0	96	96
1991 ASM	(NA)	(NA)	(NA)	8.7	237.5	6.6	13.6	159.1	845.5	666.2	1 523.3	53.9	274.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.0	241.6	6.8	14.0	160.8	848.7	661.7	1 499.8	50.7	247.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.7	226.7	6.5	13.2	155.2	824.8	583.8	1 401.0	53.2	209.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.4	242.6	7.0	14.8	162.2	901.4	628.1	1 524.4	38.8	222.1	(NA)	(NA)
1987 Census	239	381	108	8.8	218.4	6.4	12.9	149.8	834.4	563.9	1 406.2	53.2	190.7	96	95
1986 ASM	(NA)	(NA)	(NA)	8.2	201.6	6.0	11.6	128.8	731.3	510.7	1 261.4	54.3	150.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.8	183.5	5.6	11.0	115.1	676.3	490.2	1 170.5	72.0	164.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.8	187.7	6.4	12.8	118.9	680.0	585.3	1 259.0	48.9	174.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.7	225.7	8.0	16.3	155.0	723.8	696.0	1 423.6	47.9	225.7	(NA)	(NA)
1982 Census	279	437	143	10.0	190.3	7.5	14.4	129.6	639.4	627.8	1 269.9	75.0	193.8	97	93
1981 ASM	(NA)	(NA)	(NA)	11.3	191.6	9.2	18.4	140.8	691.4	601.9	1 282.9	98.4	149.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.0	172.8	9.2	19.4	131.2	667.1	575.6	1 224.6	104.2	127.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.7	230.6	11.3	24.0	175.2	744.8	621.9	1 357.2	78.0	131.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.9	179.9	9.3	19.4	129.3	620.2	584.6	1 197.5	70.6	140.5	(NA)	(NA)
1977 Census	318	466	151	11.5	156.3	8.9	18.1	111.8	479.4	480.6	957.3	50.2	116.3	96	90
INDUSTRY 3296, MINERAL WOOL															
1992 Census	162	225	119	19.1	628.6	15.5	32.2	478.5	1 915.6	1 311.9	3 231.7	115.1	246.6	96	99
1991 ASM	(NA)	(NA)	(NA)	17.6	552.8	14.2	29.2	424.2	1 666.1	1 177.7	2 852.2	110.1	203.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.0	582.5	15.6	31.8	452.0	1 807.7	1 286.7	3 099.8	130.2	215.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.5	595.2	15.9	33.2	468.0	1 943.8	1 350.8	3 284.5	134.7	237.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.8	620.4	16.8	34.4	484.5	2 065.8	1 312.1	3 376.2	184.9	248.8	(NA)	(NA)
1987 Census	173	231	109	21.5	619.4	17.4	36.6	483.6	1 985.6	1 268.8	3 260.3	177.6	242.5	96	98
1986 ASM	(NA)	(NA)	(NA)	21.9	624.2	17.7	36.8	481.6	2 021.5	1 300.9	3 314.7	160.9	244.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.3	583.1	17.0	35.8	447.2	1 823.0	1 277.9	3 100.6	161.7	229.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	21.4	542.8	17.3	36.5	419.3	1 733.6	1 241.1	2 964.4	131.1	217.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.5	476.2	15.6	32.9	364.6	1 440.7	1 082.0	2 517.6	56.4	194.4	(NA)	(NA)
1982 Census	130	179	94	19.7	438.9	15.5	31.9	334.2	1 236.7	1 041.5	2 281.1	67.0	180.1	97	97
1981 ASM	(NA)	(NA)	(NA)	21.8	448.9	17.0	35.2	344.4	1 245.1	1 106.7	2 338.6	91.4	201.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.0	418.4	17.7	37.2	323.0	1 215.5	1 031.8	2 235.4	109.2	186.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.1	412.2	19.6	40.8	323.9	1 221.4	962.3	2 180.1	116.3	172.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	24.1	371.2	19.7	41.1	289.0	1 161.6	874.6	2 019.1	209.4	149.3	(NA)	(NA)
1977 Census	95	153	90	22.6	313.8	18.6	38.3	244.5	1 053.7	738.6	1 790.5	85.9	121.5	93	96
INDUSTRY 3297, NONCLAY REFRACTORIES															
1992 Census	101	142	83	8.1	249.2	5.7	11.4	154.6	650.4	541.4	1 203.5	44.9	217.1	93	89
1991 ASM	(NA)	(NA)	(NA)	8.3	241.3	5.7	11.2	144.6	496.8	500.6	1 009.2	26.5	208.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.4	239.9	6.0	12.0	152.6	573.4	499.0	1 077.6	30.3	224.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.5	232.6	6.3	12.3	149.4	628.1	480.4	1 113.3	36.3	207.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.3	209.6	6.2	11.4	139.4	615.8	470.7	1 078.1	18.0	199.9	(NA)	(NA)
1987 Census	99	135	79	7.7	202.5	5.6	11.2	130.8	510.9	443.5	954.5	16.3	189.8	90	85
1986 ASM	(NA)	(NA)	(NA)	6.4	162.7	4.6	9.1	102.7	399.2	372.1	768.5	13.7	160.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.3	152.0	4.5	8.8	99.2	377.1	369.2	755.3	32.5	157.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.5	147.5	4.8	9.1	95.5	361.3	347.1	701.4	24.7	177.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.6	129.5	4.1	7.7	84.8	288.3	312.8	588.9	20.8	195.9	(NA)	(NA)
1982 Census	77	119	66	6.8	148.4	4.6	8.7	93.0	333.1	343.3	691.0	48.5	222.9	86	82
1981 ASM	(NA)	(NA)	(NA)	9.6	196.5	6.8	13.0	130.3	556.3	484.7	1 020.9	69.7	234.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	177.4	7.0	13.6	120.0	488.9	482.3	975.9	47.2	204.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.3	172.5	7.6	15.0	120.7	520.9	434.6	934.9	24.4	192.8	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_1590 [MCD_SRB,BA_TAYLOR] MCD-SRB 5/ 9/ 95 4:20 PM MACHINE: EPCV22 DATA:NONE TAPE: NOreel FRAME: 1
TSF:32E_92.DAT;4 5/ 9/ 95 16:19:47 UTF:32E_93.DAT;5 5/ 9/ 95 16:19:48 META:TIPS96-16194273.DAT;1 5/ 9/ 95 16:20:41

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3297, NONCLAY REFRACTORIES—Con.														
1978 ASM	(NA)	(NA)	(NA)	10.5	162.7	8.0	15.7	115.5	443.9	434.9	864.2	43.1	185.3	(NA)	(NA)
1977 Census	74	109	66	9.1	134.3	6.8	13.5	92.5	352.1	336.4	680.2	37.1	159.5	92	83
	INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.														
1992 Census	503	510	99	7.1	172.8	5.2	10.5	103.2	458.3	257.5	716.1	20.4	107.9	95	89
1991 ASM	(NA)	(NA)	(NA)	5.9	134.7	4.6	8.8	89.1	329.7	255.8	590.0	11.9	85.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.1	145.3	5.5	9.8	90.2	376.6	303.8	667.2	18.8	109.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.3	138.5	5.5	10.8	86.8	379.3	287.0	659.0	13.6	97.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.3	146.9	6.3	12.0	93.3	375.2	235.2	614.4	11.1	77.0	(NA)	(NA)
1987 Census	534	543	89	7.6	134.6	5.7	10.8	84.9	351.8	248.4	597.1	13.0	86.4	90	87
1986 ASM	(NA)	(NA)	(NA)	8.0	152.9	6.1	12.4	106.8	420.1	209.7	626.2	24.0	94.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.1	153.6	7.1	14.0	108.8	395.2	218.2	606.9	33.0	97.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.0	124.0	6.1	12.3	85.3	373.5	217.5	582.3	28.2	77.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.4	84.8	3.7	7.8	63.9	232.9	166.0	392.3	23.5	62.8	(NA)	(NA)
1982 Census	569	583	67	6.5	94.5	4.8	10.0	63.9	240.3	177.7	422.3	38.3	60.6	95	87
1981 ASM	(NA)	(NA)	(NA)	9.6	124.3	7.2	15.4	83.4	304.2	197.6	500.7	25.3	40.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	122.6	7.2	15.1	78.4	331.8	219.8	536.1	127.3	61.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.9	121.3	7.8	15.3	88.5	320.8	191.8	508.0	31.4	43.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.0	95.5	6.4	12.7	63.0	266.4	169.4	434.8	36.8	45.0	(NA)	(NA)
1977 Census	681	696	70	7.7	87.2	6.2	11.4	59.1	224.1	166.6	387.3	28.7	46.9	93	89

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3291, ABRASIVE PRODUCTS								
1992 Census	30 312	70	2 060	12.16	45	62	94 447	32	65.29
1991 ASM	29 928	69	1 988	12.47	45	63	89 545	33	64.95
1990 ASM	31 649	68	2 049	12.04	45	64	88 041	36	63.41
1989 ASM	28 942	68	2 061	11.71	43	61	90 616	32	64.88
1988 ASM	27 337	66	2 043	11.33	45	62	90 398	30	67.19
1987 Census	26 675	66	2 013	11.21	46	63	85 521	31	64.14
1986 ASM	24 500	67	2 006	10.10	48	66	70 117	35	51.91
1985 ASM	23 702	67	1 942	10.17	49	66	71 882	33	55.21
1984 ASM	22 873	67	1 989	9.68	50	65	74 738	31	55.84
1983 ASM	21 589	67	1 915	9.66	46	63	68 492	32	53.75
1982 Census	20 454	65	1 859	9.66	46	66	55 838	37	45.94
1981 ASM	18 796	67	1 938	8.58	50	69	50 885	37	38.94
1980 ASM	16 890	68	1 924	7.57	48	67	47 171	36	36.20
1979 ASM	15 627	71	1 900	7.16	50	69	42 546	37	31.54
1978 ASM	14 961	71	1 926	6.97	49	69	39 391	38	28.79
1977 Census	13 862	71	1 915	6.26	47	67	38 788	36	28.51
	INDUSTRY 3292, ASBESTOS PRODUCTS								
1992 Census	31 143	71	2 000	13.70	41	70	61 429	51	43.00
1991 ASM	28 037	74	1 900	12.32	41	64	69 593	40	49.45
1990 ASM	28 065	74	1 957	12.22	44	68	64 097	44	44.16
1989 ASM	26 059	74	2 080	10.88	42	68	58 294	45	38.12
1988 ASM	24 971	74	2 040	11.55	40	65	61 912	40	41.27
1987 Census	24 675	78	2 032	11.16	48	73	50 650	49	32.16
1986 ASM	23 882	76	1 949	10.89	45	70	51 098	47	34.29
1985 ASM	22 485	76	2 019	10.05	46	71	46 824	48	30.32
1984 ASM	22 000	77	2 018	9.93	47	72	48 704	45	31.15
1983 ASM	20 198	78	2 015	8.83	50	73	44 826	45	28.56
1982 Census	18 536	76	1 973	8.67	51	72	40 969	45	27.22
1981 ASM	19 917	79	2 026	8.84	49	71	48 542	41	30.26
1980 ASM	18 320	81	2 025	8.01	52	72	43 464	42	26.35
1979 ASM	17 115	83	2 059	7.49	50	71	41 844	41	24.54
1978 ASM	14 387	80	2 070	6.65	51	72	34 634	42	20.84
1977 Census	12 942	79	2 055	6.08	51	71	31 604	41	19.44

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3295, MINERALS, GROUND OR TREATED								
1992 Census	31 484	75	2 141	12.77	39	56	113 811	28	71.13
1991 ASM	27 299	76	2 061	11.70	44	59	97 184	28	62.17
1990 ASM	26 844	76	2 059	11.49	44	60	94 300	28	60.62
1989 ASM	26 057	75	2 031	11.76	42	58	94 805	27	62.48
1988 ASM	25 809	74	2 114	10.96	41	57	95 894	27	60.91
1987 Census	24 818	73	2 016	11.61	40	56	94 818	26	64.68
1986 ASM	24 585	73	1 933	11.10	40	56	89 183	28	63.04
1985 ASM	23 526	72	1 964	10.46	42	58	86 705	27	61.48
1984 ASM	21 330	73	2 000	9.29	46	61	77 273	28	53.13
1983 ASM	21 093	75	2 037	9.51	49	65	67 645	31	44.40
1982 Census	19 030	75	1 920	9.00	49	64	63 940	30	44.40
1981 ASM	16 956	81	2 000	7.65	47	62	61 186	28	37.58
1980 ASM	15 709	84	2 109	6.76	47	61	60 645	26	34.39
1979 ASM	16 832	82	2 124	7.30	46	63	54 365	31	31.03
1978 ASM	15 118	78	2 086	6.66	49	64	52 118	29	31.97
1977 Census	13 591	77	2 034	6.18	50	67	41 687	33	26.49
	INDUSTRY 3296, MINERAL WOOL								
1992 Census	32 911	81	2 077	14.86	41	60	100 293	33	59.49
1991 ASM	31 409	81	2 056	14.53	41	61	94 665	33	57.06
1990 ASM	30 658	82	2 038	14.21	42	60	95 142	32	56.85
1989 ASM	30 523	82	2 088	14.10	41	59	99 682	31	58.55
1988 ASM	29 827	81	2 048	14.08	39	57	99 317	30	60.05
1987 Census	28 809	81	2 103	13.21	39	58	92 353	31	54.25
1986 ASM	28 502	81	2 079	13.09	39	58	92 306	31	54.93
1985 ASM	27 376	80	2 106	12.49	41	60	85 587	32	50.92
1984 ASM	25 364	81	2 110	11.49	42	60	81 009	31	47.50
1983 ASM	24 421	80	2 109	11.08	43	62	73 882	33	43.79
1982 Census	22 279	79	2 058	10.48	46	65	62 777	35	38.77
1981 ASM	20 592	78	2 071	9.78	47	67	57 115	36	35.37
1980 ASM	19 018	80	2 102	8.68	46	65	55 250	34	32.67
1979 ASM	17 104	81	2 082	7.94	44	63	50 681	34	29.94
1978 ASM	15 402	82	2 086	7.03	43	62	48 199	32	28.26
1977 Census	13 885	82	2 059	6.38	41	59	46 624	30	27.51
	INDUSTRY 3297, NONCLAY REFRACTORIES								
1992 Census	30 765	70	2 000	13.56	45	66	80 296	38	57.05
1991 ASM	29 072	69	1 965	12.91	50	74	59 855	49	44.36
1990 ASM	28 560	71	2 000	12.72	46	69	68 262	42	47.78
1989 ASM	27 365	74	1 952	12.15	43	64	73 894	37	51.07
1988 ASM	25 253	75	1 839	12.23	44	63	74 193	34	54.02
1987 Census	26 299	73	2 000	11.68	46	68	66 351	40	45.62
1986 ASM	25 422	72	1 978	11.29	48	70	62 375	41	43.87
1985 ASM	24 127	71	1 956	11.27	49	69	59 857	40	42.85
1984 ASM	22 692	74	1 896	10.49	49	71	55 585	41	39.70
1983 ASM	23 125	73	1 878	11.01	53	75	51 482	45	37.44
1982 Census	21 824	68	1 891	10.69	50	71	48 985	45	38.29
1981 ASM	20 469	71	1 912	10.02	47	67	57 948	35	42.79
1980 ASM	18 289	72	1 943	8.82	49	68	50 402	36	35.95
1979 ASM	16 748	74	1 974	8.05	46	65	50 573	33	34.73
1978 ASM	15 495	76	1 963	7.36	50	69	42 276	37	28.27
1977 Census	14 758	75	1 985	6.85	49	69	38 692	38	26.08
	INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.								
1992 Census	24 338	73	2 019	9.83	36	60	64 549	38	43.65
1991 ASM	22 831	78	1 913	10.13	43	66	55 881	41	37.47
1990 ASM	20 465	77	1 782	9.20	46	67	53 042	39	38.43
1989 ASM	18 973	75	1 964	8.04	44	65	51 959	37	35.12
1988 ASM	17 699	76	1 905	7.78	38	62	45 205	39	31.27
1987 Census	17 711	75	1 895	7.86	42	64	46 289	38	32.57
1986 ASM	19 113	76	2 033	8.61	33	58	52 513	36	33.88
1985 ASM	16 879	78	1 972	7.77	36	61	43 429	39	28.23
1984 ASM	15 500	76	2 016	6.93	37	59	46 688	33	30.37
1983 ASM	19 273	84	2 108	8.19	42	64	52 932	36	29.86
1982 Census	14 538	74	2 083	6.39	42	64	36 969	39	24.03
1981 ASM	12 948	75	2 139	5.42	39	64	31 688	41	19.75
1980 ASM	12 639	74	2 097	5.19	41	64	34 206	37	21.97
1979 ASM	12 253	79	1 962	5.78	38	62	32 404	38	20.97
1978 ASM	11 938	80	1 984	4.96	39	61	33 300	36	20.98
1977 Census	11 325	81	1 839	5.18	43	66	29 104	39	19.66

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3291, ABRASIVE PRODUCTS														
United States	–	**414**	**189**	**21.5**	**651.7**	**15.1**	**31.1**	**378.2**	**2 030.6**	**1 674.3**	**3 731.1**	**121.5**	**23.4**	**2 001.2**
Alabama	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	43	16	1.0	25.7	.6	1.2	11.6	59.0	38.4	98.0	4.0	F	(D)
Connecticut	–	11	5	.4	12.6	.3	.6	6.9	29.8	27.3	59.6	1.5	.4	23.7
Florida	–	7	4	.2	5.8	.1	.3	1.9	9.9	7.3	17.3	(D)	(NA)	(NA)
Georgia	–	7	4	.4	9.9	.3	.6	5.4	26.3	24.0	50.2	(D)	(NA)	(D)
Illinois	–	39	23	2.0	58.5	1.4	2.9	33.8	170.8	86.7	260.1	5.0	2.0	148.9
Indiana	–	11	4	.2	5.8	.2	.4	3.4	13.8	7.2	21.0	.5	(NA)	(D)
Iowa	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	28	13	2.9	93.7	1.9	3.7	54.2	237.1	162.6	394.6	(D)	(NA)	(D)
Michigan	–	47	16	1.0	29.7	.6	1.4	17.6	86.9	71.5	159.5	3.0	1.0	73.8
Minnesota	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	16	5	.2	6.4	.2	.3	4.1	15.0	7.9	22.9	(D)	.5	28.1
New York	E1	34	15	2.4	77.0	1.5	3.0	41.2	187.9	179.6	368.5	18.5	2.9	156.7
North Carolina	–	18	9	.7	14.9	.4	.8	7.1	44.1	36.7	80.8	1.6	E	(D)
Ohio	–	36	22	2.5	84.1	1.8	3.3	42.3	184.0	169.9	361.2	12.0	2.7	173.6
Pennsylvania	–	29	15	.7	21.1	.5	1.0	11.8	53.7	41.0	93.8	2.1	.7	43.5
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E9	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	16	4	1.2	20.4	1.0	2.3	15.2	36.8	93.3	128.5	1.6	F	(D)
Virginia	E1	5	4	.4	10.9	.3	.7	6.3	31.4	34.9	65.2	1.7	E	(D)
Washington	–	6	3	.2	3.7	.1	.3	2.0	8.7	7.0	15.7	.5	.2	9.5
Wisconsin	–	9	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3292, ASBESTOS PRODUCTS														
United States	–	**12**	**6**	**.7**	**21.8**	**.5**	**1.0**	**13.7**	**43.0**	**30.0**	**74.0**	**2.1**	**4.0**	**202.6**
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3295, MINERALS, GROUND OR TREATED														
United States	**E1**	**368**	**127**	**9.5**	**299.1**	**7.1**	**15.2**	**194.1**	**1 081.2**	**690.6**	**1 774.4**	**47.1**	**8.8**	**834.4**
Arkansas	E8	7	2	.2	5.1	.1	.3	3.0	26.4	13.9	40.5	.4	.2	19.4
California	E1	36	17	.8	25.9	.6	1.4	17.7	57.1	60.5	118.0	2.7	F	(D)
Florida	E2	12	5	.3	9.1	.3	.5	5.6	28.2	19.8	50.1	1.0	.3	26.8
Georgia	–	12	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	88.3
Illinois	E1	22	10	.6	17.3	.4	.9	10.2	46.8	54.1	99.5	3.8	.5	34.7
Indiana	–	14	4	.4	17.2	.3	.7	12.7	30.8	17.8	45.5	(D)	E	(D)
Kentucky	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E1	11	2	.4	12.6	.3	.7	7.7	59.0	29.3	93.6	(D)	.3	21.3
Michigan	–	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	.4	59.6
Montana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E3	12	5	.3	9.1	.2	.4	5.0	27.3	30.8	57.9	2.0	.3	29.1
New Mexico	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	E2	10	2	.1	3.5	.1	.2	2.0	11.6	8.4	20.0	(D)	(NA)	(NA)
Ohio	E1	34	11	.6	19.1	.4	.9	10.6	58.5	70.5	128.9	3.5	.5	44.5
Oregon	–	10	1	.2	4.8	.2	.3	3.2	23.5	11.6	34.6	.6	(NA)	(NA)
Pennsylvania	E2	28	14	1.0	27.0	.7	1.5	17.5	86.8	45.2	134.5	7.1	.9	64.4
South Carolina	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(D)
Tennessee	–	9	2	.2	5.5	.2	.3	4.3	34.0	13.0	46.7	(D)	(NA)	(D)
Texas	E1	26	6	.3	7.8	.2	.5	4.8	28.3	26.0	52.7	1.1	E	(D)
West Virginia	E3	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	(NA)	(D)
INDUSTRY 3296, MINERAL WOOL														
United States	–	**225**	**119**	**19.1**	**628.6**	**15.5**	**32.2**	**478.5**	**1 915.6**	**1 311.9**	**3 231.7**	**115.1**	**21.5**	**1 985.6**
Alabama	–	8	6	.8	23.8	.6	1.3	17.9	58.4	66.7	126.5	4.1	F	(D)
California	–	21	11	1.7	56.5	1.4	2.8	43.7	186.8	122.8	311.0	11.8	2.0	198.8
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	13	6	1.8	63.5	1.4	2.8	48.3	201.9	125.9	331.9	10.7	2.3	265.3
Illinois	E2	7	4	.3	6.9	.2	.4	4.5	30.1	17.5	48.0	1.1	E	(D)
Indiana	–	10	9	1.4	46.5	1.1	2.1	31.4	101.3	91.7	192.0	8.2	1.8	142.7
Kansas	–	4	4	1.5	56.3	1.2	2.5	45.9	186.4	99.9	284.1	12.2	G	(D)
Kentucky	E9	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	5	4	.1	4.4	.1	.1	1.2	9.0	5.1	14.3	(D)	(NA)	(D)
Michigan	E2	5	3	.6	13.2	.5	1.0	10.8	47.7	37.6	85.3	4.4	.6	30.8
Minnesota	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	4	4	.8	22.6	.7	1.6	17.8	82.2	70.0	151.3	(D)	F	(D)
New Jersey	E3	9	3	.5	16.2	.4	.7	13.0	28.5	30.3	58.5	2.3	1.1	109.9

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3296, MINERAL WOOL—Con.														
New York	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	7	4	.2	3.8	.1	.3	2.3	8.6	11.3	19.8	.6	E	(D)
Ohio	–	23	14	3.1	107.2	2.6	5.4	86.0	347.1	202.2	551.4	15.3	(NA)	(D)
Oregon	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	15	7	1.5	52.4	1.3	2.6	40.8	124.1	87.9	211.4	16.9	1.9	172.3
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	20	8	1.1	36.3	.8	1.7	25.1	109.8	80.8	190.6	6.7	1.3	135.3
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3297, NONCLAY REFRACTORIES														
United States	**E1**	**142**	**83**	**8.1**	**249.2**	**5.7**	**11.4**	**154.6**	**650.4**	**541.4**	**1 203.5**	**44.9**	**7.7**	**510.9**
California	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	–	5	3	.2	6.0	.2	.4	3.7	12.5	12.1	25.0	.6	.2	5.0
Illinois	E3	12	7	.6	19.6	.4	.8	9.5	44.5	41.0	88.0	1.1	E	(D)
Indiana	E1	6	3	.2	6.6	.2	.3	4.4	15.0	23.3	39.3	(D)	E	(D)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	7	4	.6	18.0	.4	.8	11.4	47.4	32.1	80.4	(D)	F	(D)
New Jersey	E5	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E4	7	5	.7	26.1	.5	1.0	15.2	62.5	36.5	98.4	3.5	F	(D)
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E1	31	19	1.6	46.3	1.1	2.0	25.4	127.2	121.4	250.9	4.3	1.6	117.0
Pennsylvania	–	20	14	1.4	43.2	1.1	2.2	29.0	146.5	103.5	250.0	15.1	1.5	106.3
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Utah	E3	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.														
United States	**E2**	**510**	**99**	**7.1**	**172.8**	**5.2**	**10.5**	**103.2**	**458.3**	**257.5**	**716.1**	**20.4**	**7.6**	**351.8**
Arizona	E5	12	2	.1	2.3	.1	.2	1.4	5.7	5.1	10.9	.2	(NA)	(NA)
California	E3	84	19	1.2	30.7	.9	1.8	17.4	67.5	40.6	108.4	(D)	G	(D)
Colorado	E6	9	3	.1	2.0	.1	.2	1.3	3.3	3.5	6.9	(D)	(NA)	(D)
Florida	E5	49	5	.4	7.4	.3	.6	4.2	15.8	12.7	28.5	.6	.5	20.6
Illinois	–	22	6	.9	18.1	.7	1.4	12.1	40.5	19.7	58.4	1.1	.5	20.8
Indiana	–	5	3	.1	3.8	.1	.2	2.6	8.2	11.6	19.7	.7	(NA)	(NA)
Kentucky	E1	12	3	.2	4.2	.1	.2	1.7	10.3	5.6	15.8	.3	(NA)	(NA)
Massachusetts	E1	16	5	.2	6.5	.2	.4	4.8	17.7	7.3	25.3	4.6	E	(D)
Michigan	E1	16	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E4	16	4	.2	2.8	.1	.2	1.7	5.1	3.3	8.3	.2	E	(D)
New Jersey	E2	16	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
New Mexico	E2	9	3	.2	4.6	.1	.2	1.8	8.9	7.0	15.9	(D)	(NA)	(NA)
New York	–	20	4	.5	14.8	.4	.8	8.7	45.2	25.3	71.0	.5	.5	23.0
North Carolina	–	12	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E1	22	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	E2	11	3	.1	3.5	.1	.2	2.3	12.4	9.8	23.0	.3	.2	9.6
Pennsylvania	E3	22	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	8.8
Tennessee	E7	13	3	.2	3.0	.1	.3	2.0	6.5	5.1	11.1	.2	(NA)	(NA)
Texas	E2	37	3	.3	6.8	.2	.5	4.4	22.6	12.7	35.8	(D)	F	(D)
Virginia	–	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Abrasive products (SIC 3291)	Asbestos products (SIC 3292)	Minerals, ground or treated (SIC 3295)	Mineral wool (SIC 3296)	Nonclay refractories (SIC 3297)	Nonmetallic mineral products, n.e.c. (SIC 3299)
Companies ---- number	367	12	247	162	101	503
All establishments ---- number	414	12	368	225	142	510
With 1 to 19 employees ---- number	225	6	241	106	59	411
With 20 to 99 employees ---- number	147	4	112	70	59	89
With 100 employees or more ---- number	42	2	15	49	24	10
Employment and labor costs:						
Employees ---- 1,000	21.5	.7	9.5	19.1	8.1	7.1
Compensation, total ---- mil dol	846.0	29.5	372.1	804.5	329.9	219.6
Annual payroll ---- mil dol	651.7	21.8	299.1	628.6	249.2	172.8
Fringe benefits ---- mil dol	194.3	7.7	73.0	175.9	80.7	46.8
Social Security and other legally required payments ---- mil dol	62.3	3.8	30.3	68.9	31.2	19.7
Employer voluntary payments ---- mil dol	132.0	3.9	42.8	107.0	49.5	27.2
Production workers:						
Average for year ---- 1,000	15.1	.5	7.1	15.5	5.7	5.2
March ---- 1,000	15.1	.5	7.1	15.4	5.8	5.3
May ---- 1,000	15.2	.5	7.2	15.6	5.8	5.2
August ---- 1,000	15.2	.5	7.2	15.6	5.8	5.1
November ---- 1,000	14.9	.5	6.9	15.3	5.4	5.1
Hours ---- millions	31.1	1.0	15.2	32.2	11.4	10.5
Wages ---- mil dol	378.2	13.7	194.1	478.5	154.6	103.2
Cost of materials[1] ---- mil dol	1 674.3	30.0	690.6	1 311.9	541.4	257.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 491.5	24.8	533.3	1 005.1	455.6	201.3
Resales ---- mil dol	104.2	(D)	10.5	39.7	31.7	23.1
Fuels ---- mil dol	23.7	.9	71.5	102.3	18.8	13.5
Purchased electricity ---- mil dol	42.0	2.0	61.7	149.3	23.9	14.1
Contract work ---- mil dol	13.0	(D)	13.6	15.5	11.4	5.5
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	814.9	24.9	1 267.6	3 214.8	377.5	221.1
Generated less sold ---- mil kWh	(D)	–	(D)	(D)	(D)	–
Total value of shipments ---- mil dol	3 731.1	74.0	1 774.4	3 231.7	1 203.5	716.1
Value added ---- mil dol	2 030.6	43.0	1 081.2	1 915.6	650.4	458.3
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	607.8	10.6	227.8	247.4	224.1	108.7
Finished goods ---- mil dol	238.2	5.8	72.7	148.7	109.5	53.2
Work in process ---- mil dol	227.2	1.9	40.8	14.0	32.6	18.1
Materials and supplies ---- mil dol	142.5	3.0	114.3	84.7	81.9	37.5
End of 1992 ---- mil dol	585.1	9.8	220.0	246.6	217.1	107.9
Finished goods ---- mil dol	235.1	5.1	75.2	143.8	101.6	53.3
Work in process ---- mil dol	204.0	1.6	35.6	14.8	28.8	17.8
Materials and supplies ---- mil dol	145.9	3.2	109.1	88.1	86.7	36.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Abrasive products (SIC 3291)	Asbestos products (SIC 3292)	Minerals, ground or treated (SIC 3295)	Mineral wool (SIC 3296)	Nonclay refractories (SIC 3297)	Nonmetallic mineral products, n.e.c. (SIC 3299)
Gross book value of depreciable assets:						
Total:						
Beginning of year	1 311.3	61.8	975.4	2 236.4	545.8	320.5
New capital expenditures[1]	121.5	2.1	47.1	115.1	44.9	20.4
Used capital expenditures	6.3	(D)	6.0	3.3	3.3	(D)
Retirements	22.6	(D)	17.5	45.0	19.2	(D)
End of year	1 416.5	63.8	1 011.0	2 309.8	574.8	341.3
Buildings and other structures:						
Beginning of year	282.4	10.5	161.9	455.8	117.2	78.4
New capital expenditures	9.1	(D)	5.8	20.4	8.1	(D)
Used capital expenditures	(D)	(D)	1.3	.1	.3	(D)
Retirements	(D)	(D)	1.7	5.6	.8	(D)
End of year	290.3	10.6	167.2	470.7	124.9	81.8
Machinery and equipment:						
Beginning of year	1 028.9	51.2	813.6	1 780.6	428.6	242.1
New capital expenditures[1]	112.4	(D)	41.3	94.7	36.8	(D)
Used capital expenditures	(D)	(D)	4.7	3.2	2.9	(D)
Retirements	(D)	(D)	15.8	39.4	18.4	(D)
End of year	1 126.2	53.2	843.8	1 839.0	449.9	259.5
Depreciation charges during 1992:						
Total	106.3	3.0	82.8	116.5	103.6	22.5
Buildings and other structures	23.9	.8	8.3	19.3	15.9	3.5
Machinery and equipment	82.4	2.1	74.5	97.3	87.7	19.0
Rental payments:						
Total	20.0	.6	17.5	19.6	8.6	13.2
Buildings and other structures	11.4	.1	9.8	12.7	5.6	4.7
Machinery and equipment	8.6	.5	7.7	6.9	3.0	8.5

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Abrasive products (SIC 3291)		Asbestos products (SIC 3292)		Minerals, ground or treated (SIC 3295)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.2	(X)	(Z)	(X)	1.2	(X)
Response coverage ratio (percent)[2]	88.3	(X)	100.0	(X)	77.3	(X)
Machinery	47.4	(X)	.8	(X)	26.5	(X)
Response coverage ratio (percent)[2]	95.4	(X)	100.0	(X)	73.1	(X)
Other purchased services:						
Communications	10.7	(X)	.2	(X)	1.9	(X)
Response coverage ratio (percent)[2]	95.4	(X)	100.0	(X)	67.7	(X)
Legal	6.6	(X)	–	(X)	1.3	(X)
Response coverage ratio (percent)[2]	92.5	(X)	100.0	(X)	76.9	(X)
Accounting and bookkeeping	3.1	(X)	(Z)	(X)	1.6	(X)
Response coverage ratio (percent)[2]	91.7	(X)	100.0	(X)	76.4	(X)
Advertising	6.8	(X)	–	(X)	1.0	(X)
Response coverage ratio (percent)[2]	95.4	(X)	100.0	(X)	76.8	(X)
Software and other data processing	7.5	(X)	.5	(X)	.2	(X)
Response coverage ratio (percent)[2]	85.9	(X)	100.0	(X)	74.4	(X)
Refuse removal, including hazardous waste	35.5	(X)	.9	(X)	1.3	(X)
Response coverage ratio (percent)[2]	95.4	(X)	100.0	(X)	74.1	(X)
New machinery and equipment expenditures	112.4	(X)	(D)	(X)	41.3	(X)
Automobiles, trucks, etc., for highway use	1.4	46	(D)	(X)	(S)	(X)
Computers and peripheral data processing equipment	6.3	29	(D)	(X)	(S)	(X)
All other	104.7	3	(D)	(X)	(S)	(X)
Adjustment ratio[3]	1.1	(X)	(D)	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	1 491.5	(X)	24.8	(X)	533.3	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	2.7	1	74.7	41
Materials purchased or transferred from domestic sources	(S)	(X)	22.0	1	458.5	8
Adjustment ratio[3]	(S)	(X)	1.5	(X)	1.8	(X)

Item	Mineral wool (SIC 3296)		Nonclay refractories (SIC 3297)		Nonmetallic mineral products, n.e.c. (SIC 3299)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.2	(X)	1.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	85.2	(X)	84.1	(X)	(S)	(X)
Machinery	48.9	(X)	14.0	(X)	(S)	(X)
Response coverage ratio (percent)[2]	87.1	(X)	91.9	(X)	(S)	(X)
Other purchased services:						
Communications	3.9	(X)	3.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	84.9	(X)	86.2	(X)	(S)	(X)
Legal	1.8	(X)	3.7	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.8	(X)	91.9	(X)	(S)	(X)
Accounting and bookkeeping	1.0	(X)	2.6	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.8	(X)	91.9	(X)	(S)	(X)
Advertising	2.1	(X)	1.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	88.1	(X)	91.9	(X)	(S)	(X)
Software and other data processing	3.4	(X)	1.0	(X)	(S)	(X)
Response coverage ratio (percent)[2]	85.3	(X)	84.1	(X)	(S)	(X)
Refuse removal, including hazardous waste	10.1	(X)	2.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	90.9	(X)	85.6	(X)	(S)	(X)
New machinery and equipment expenditures	94.7	(X)	36.8	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	.4	1	.5	36	(D)	(X)
Computers and peripheral data processing equipment	5.1	1	2.0	23	(D)	(X)
All other	89.2	1	34.3	1	(D)	(X)
Adjustment ratio[3]	1.3	(X)	1.0	(X)	(D)	(X)
Cost of materials, components, parts, etc., used	1 005.1	(X)	455.6	(X)	201.3	(X)
Materials purchased or transferred from foreign sources[4]	16.4	3	78.8	15	23.5	55
Materials purchased or transferred from domestic sources	988.7	1	376.8	4	177.8	8
Adjustment ratio[3]	1.5	(X)	1.1	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3291, ABRASIVE PRODUCTS												
Total	**–**	**414**	**21.5**	**651.7**	**15.1**	**31.1**	**378.2**	**2 030.6**	**1 674.3**	**3 731.1**	**121.5**	**585.1**
Establishments with an average of—												
1 to 4 employees	E8	92	.2	3.9	.1	.2	2.0	10.8	9.2	20.4	.7	3.2
5 to 9 employees	E7	49	.3	8.7	.2	.5	4.8	21.9	17.8	39.5	1.2	5.9
10 to 19 employees	E2	84	1.2	30.6	.8	1.6	16.0	68.2	48.8	117.4	6.5	18.7
20 to 49 employees	E1	96	2.9	75.8	2.0	4.0	40.9	177.0	133.9	309.9	8.2	46.6
50 to 99 employees	–	51	3.8	99.8	2.7	5.4	57.8	263.2	203.1	459.6	8.8	68.5
100 to 249 employees	–	25	3.9	113.2	2.8	5.6	65.8	261.9	325.2	587.6	14.2	112.5
250 to 499 employees	–	10	3.2	101.8	2.2	4.9	60.4	371.4	431.9	818.3	16.9	122.9
500 to 999 employees	–	5	6.2	217.9	4.3	8.8	130.5	856.2	504.3	1 378.6	65.0	206.7
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	126	.4	9.5	.3	.6	4.8	23.3	19.9	43.2	1.6	6.9
INDUSTRY 3292, ASBESTOS PRODUCTS												
Total	**–**	**12**	**.7**	**21.8**	**.5**	**1.0**	**13.7**	**43.0**	**30.0**	**74.0**	**2.1**	**9.8**
Establishments with an average of—												
1 to 4 employees	E9	5	(Z)	.4	(Z)	(Z)	.2	.8	.9	1.6	.1	.3
5 to 9 employees	E9	1	.7	21.4	.5	1.0	13.5	42.2	29.1	72.4	(D)	9.5
20 to 49 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	(D)
50 to 99 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.5	(Z)	(Z)	.3	1.0	1.2	2.2	.1	.4
INDUSTRY 3295, MINERALS, GROUND OR TREATED												
Total	**E1**	**368**	**9.5**	**299.1**	**7.1**	**15.2**	**194.1**	**1 081.2**	**690.6**	**1 774.4**	**47.1**	**220.0**
Establishments with an average of—												
1 to 4 employees	E5	83	.2	3.9	.1	.2	2.5	15.4	12.5	28.4	.8	4.7
5 to 9 employees	E1	61	.4	11.7	.3	.7	7.7	44.0	42.5	86.0	1.8	14.1
10 to 19 employees	E1	97	1.3	36.1	1.0	2.0	22.3	119.6	113.6	235.1	4.2	36.8
20 to 49 employees	E1	84	2.4	71.8	1.8	3.8	46.2	268.1	207.7	475.3	12.4	55.9
50 to 99 employees	E2	28	1.9	63.9	1.4	3.2	40.8	153.9	172.5	325.2	13.0	69.7
100 to 249 employees	E1	11	1.5	47.7	1.2	2.6	31.3	133.7	66.9	202.3	7.9	20.0
250 to 499 employees	–	3	1.7	63.9	1.2	2.6	43.3	346.6	74.8	422.0	7.0	18.8
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	59	.1	2.7	.1	.2	1.8	8.7	7.2	15.8	.6	2.8
INDUSTRY 3296, MINERAL WOOL												
Total	**–**	**225**	**19.1**	**628.6**	**15.5**	**32.2**	**478.5**	**1 915.6**	**1 311.9**	**3 231.7**	**115.1**	**246.6**
Establishments with an average of—												
1 to 4 employees	E7	49	.1	2.2	.1	.1	1.7	7.7	6.8	14.5	.5	1.1
5 to 9 employees	E4	26	.2	4.7	.1	.3	3.4	14.6	11.0	25.7	.9	2.1
10 to 19 employees	E5	31	.4	10.2	.3	.7	7.1	28.5	22.9	51.1	1.5	4.2
20 to 49 employees	E1	45	1.5	37.5	1.1	2.2	21.6	101.0	85.5	186.0	3.9	17.9
50 to 99 employees	E1	25	1.9	52.0	1.4	3.0	35.2	179.6	144.6	320.2	7.6	25.4
100 to 249 employees	–	23	3.5	99.9	2.9	6.1	76.4	319.7	235.5	554.1	16.7	50.4
250 to 499 employees	–	21	7.5	268.4	6.1	12.9	211.3	845.3	556.5	1 408.9	60.3	96.5
500 to 999 employees	–	4	4.1	153.8	3.4	6.9	121.9	419.3	249.1	671.1	23.7	49.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	57	.2	4.5	.2	.3	3.6	12.4	8.2	20.6	.9	1.6
INDUSTRY 3297, NONCLAY REFRACTORIES												
Total	**E1**	**142**	**8.1**	**249.2**	**5.7**	**11.4**	**154.6**	**650.4**	**541.4**	**1 203.5**	**44.9**	**217.1**
Establishments with an average of—												
1 to 4 employees	E9	26	(Z)	1.4	(Z)	.1	.8	3.7	2.9	6.5	.2	1.3
5 to 9 employees	E2	17	.1	2.8	.1	.2	1.7	11.6	10.7	22.3	.2	2.4
10 to 19 employees	E3	16	.2	5.7	.2	.3	3.1	14.6	15.8	30.4	1.6	7.0
20 to 49 employees	E1	33	1.0	26.9	.7	1.5	17.1	91.6	87.8	181.9	3.7	25.0
50 to 99 employees	E1	26	1.9	55.5	1.4	2.7	32.9	128.2	115.3	244.9	7.0	50.6
100 to 249 employees	E1	19	3.1	99.4	2.1	4.3	58.9	267.0	217.3	490.2	22.7	96.1
250 to 499 employees	–	5	1.6	57.5	1.2	2.4	40.1	133.7	91.5	227.3	9.5	34.6
Covered by administrative records[2]	E9	36	.1	3.2	.1	.2	1.9	6.8	5.5	12.2	.3	2.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.												
Total	**E2**	**510**	**7.1**	**172.8**	**5.2**	**10.5**	**103.2**	**458.3**	**257.5**	**716.1**	**20.4**	**107.9**
Establishments with an average of—												
1 to 4 employees	E8	236	.4	8.0	.3	.5	5.2	20.2	17.6	37.6	1.0	6.8
5 to 9 employees	E7	93	.6	11.0	.5	.9	7.3	23.8	18.1	41.9	1.2	7.0
10 to 19 employees	E3	82	1.1	22.4	.7	1.4	13.0	44.1	33.7	77.8	1.7	12.8
20 to 49 employees	E2	76	2.4	57.1	1.7	3.5	33.3	141.3	88.9	231.2	8.4	36.2
50 to 99 employees	–	13	.9	28.2	.6	1.2	14.6	71.6	41.4	113.9	2.7	16.9
100 to 249 employees	–	9	1.8	46.2	1.4	2.9	29.7	157.3	57.9	213.6	5.4	28.1
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	311	1.1	18.5	.8	1.5	12.0	40.1	33.8	73.9	2.1	13.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3291	**Abrasive products:**										
	All establishments in industry	414	21.5	651.7	15.1	31.1	378.2	2 030.6	1 674.3	3 731.1	121.5
	Establishments with this product class primary:										
32915	Nonmetallic sized grains, powders, and flour abrasives (including graded products only)	32	3.1	113.0	2.2	4.1	60.7	274.5	322.5	580.4	17.8
32916	Nonmetallic abrasive products (including diamond abrasives)	121	7.2	209.7	4.8	9.6	117.1	488.6	266.0	769.9	21.6
32917	Nonmetallic coated abrasive products and buffing wheels, polishing wheels, and laps	63	8.0	241.2	5.7	12.4	146.4	1 032.1	903.6	1 950.8	(D)
32918	Metal abrasives (including scouring pads)	19	1.7	53.2	1.3	2.9	33.9	154.0	123.9	290.9	8.0
3292	**Asbestos products:**										
	All establishments in industry	12	.7	21.8	.5	1.0	13.7	43.0	30.0	74.0	2.1
	Establishments with this product class primary:										
32922	Asbestos friction materials	4	.6	19.1	.4	.9	12.1	40.2	24.8	65.4	(D)
32927	Other asbestos products	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3295	**Minerals, ground or treated:**										
	All establishments in industry	368	9.5	299.1	7.1	15.2	194.1	1 081.2	690.6	1 774.4	47.1
3296	**Mineral wool:**										
	All establishments in industry	225	19.1	628.6	15.5	32.2	478.5	1 915.6	1 311.9	3 231.7	115.1
	Establishments with this product class primary:										
32961	Mineral wool for thermal and acoustical envelope insulation (for insulating homes, commercial and industrial buildings)	73	13.4	463.5	11.0	22.8	361.1	1 425.1	962.4	2 395.1	94.8
32962	Mineral wool for industrial, equipment, and appliance insulation	52	4.6	137.8	3.6	7.6	96.4	406.2	295.3	697.9	14.5
3297	**Nonclay refractories:**										
	All establishments in industry	142	8.1	249.2	5.7	11.4	154.6	650.4	541.4	1 203.5	44.9
3299	**Nonmetallic mineral products, n.e.c.:**										
	All establishments in industry	510	7.1	172.8	5.2	10.5	103.2	458.3	257.5	716.1	20.4

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3291, ABRASIVE PRODUCTS			
Total value of shipments	3 731.1	3 621.4	2 750.7
Primary products value of shipments	3 026.4	2 691.4	2 034.9
Secondary products value of shipments	546.7	582.3	420.4
Total miscellaneous receipts	158.0	347.7	295.4
Value of resales	143.3	337.5	285.7
Contract receipts	6.5	8.8	3.9
Other miscellaneous receipts	8.2	1.4	5.8
Primary products specialization ratio	85	82	83
Value of primary products shipments made in all industries	3 193.7	2 871.6	2 135.7
Value of primary products shipments made in this industry	3 026.4	2 691.4	2 034.9
Value of primary products shipments made in other industries	167.3	180.2	100.9
Coverage ratio	95	94	95
INDUSTRY 3292, ASBESTOS PRODUCTS			
Total value of shipments	74.0	386.5	842.8
Primary products value of shipments	41.0	346.9	762.0
Secondary products value of shipments	(D)	21.1	65.2
Total miscellaneous receipts	(D)	18.5	15.6
Value of resales	(D)	(D)	15.4
Contract receipts	–	(D)	–
Other miscellaneous receipts	(D)	(D)	.2
Primary products specialization ratio	(D)	94	92
Value of primary products shipments made in all industries	72.7	385.4	841.0
Value of primary products shipments made in this industry	41.0	346.9	762.0
Value of primary products shipments made in other industries	31.7	38.5	79.0
Coverage ratio	56	90	91
INDUSTRY 3295, MINERALS, GROUND OR TREATED			
Total value of shipments	1 774.4	1 406.2	1 269.9
Primary products value of shipments	1 635.4	1 283.8	1 166.1
Secondary products value of shipments	60.8	60.0	38.7
Total miscellaneous receipts	78.2	62.4	65.1
Value of resales	15.0	16.7	13.5
Contract receipts	30.9	22.7	(D)
Other miscellaneous receipts	32.4	23.0	(D)
Sales of scrap and refuse	28.4	(NA)	5.7
Receipts for research and development	–	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	5.3
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	96	96	97
Value of primary products shipments made in all industries	1 701.4	1 344.8	1 252.9
Value of primary products shipments made in this industry	1 635.4	1 283.8	1 166.1
Value of primary products shipments made in other industries	66.0	61.0	86.8
Coverage ratio	96	95	93
INDUSTRY 3296, MINERAL WOOL			
Total value of shipments	3 231.7	3 260.3	2 281.1
Primary products value of shipments	3 050.8	3 070.9	2 144.2
Secondary products value of shipments	132.6	126.1	67.9
Total miscellaneous receipts	48.3	63.3	69.0
Value of resales	47.5	57.2	62.5
Contract receipts	(D)	(D)	5.4
Other miscellaneous receipts	(D)	(D)	1.1
Primary products specialization ratio	96	96	97
Value of primary products shipments made in all industries	3 061.3	3 137.6	2 215.2
Value of primary products shipments made in this industry	3 050.8	3 070.9	2 144.2
Value of primary products shipments made in other industries	10.5	66.7	71.0
Coverage ratio	99	98	97
INDUSTRY 3297, NONCLAY REFRACTORIES			
Total value of shipments	1 203.5	954.5	691.0
Primary products value of shipments	1 070.3	829.5	588.7
Secondary products value of shipments	86.7	87.7	94.9
Total miscellaneous receipts	46.6	37.3	7.4
Value of resales	40.0	34.3	6.3
Contract receipts	(D)	(D)	.7
Other miscellaneous receipts	(D)	(D)	.4
Primary products specialization ratio	93	90	86
Value of primary products shipments made in all industries	1 200.9	972.4	715.8
Value of primary products shipments made in this industry	1 070.3	829.5	588.7
Value of primary products shipments made in other industries	130.6	142.9	127.1
Coverage ratio	89	85	82

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.			
Total value of shipments	716.1	597.1	422.3
Primary products value of shipments	643.4	520.1	393.6
Secondary products value of shipments	37.0	56.2	20.8
Total miscellaneous receipts	35.7	20.8	7.9
Value of resales	32.4	16.5	6.4
Contract receipts	1.3	(D)	.9
Other miscellaneous receipts	2.0	(D)	.6
Primary products specialization ratio	95	90	95
Value of primary products shipments made in all industries	724.9	597.6	453.8
Value of primary products shipments made in this industry	643.4	520.1	393.6
Value of primary products shipments made in other industries	81.5	77.5	60.2
Coverage ratio	89	87	87

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3291– —	**ABRASIVE PRODUCTS**						
	Total	**(NA)**	**(X)**	**3 193.7**	**(NA)**	**(X)**	**2 871.6**
32915	Nonmetallic sized grains, powders, and flour abrasives (including graded products only)	(NA)	(X)	548.0	(NA)	(X)	413.2
32915 17	Silicon carbide, 1,000 s tons	11	(S)	72.7	7	(S)	65.2
32915 19	Aluminum oxide, 1,000 s tons	16	(S)	154.6	8	(S)	100.2
32915 29	Other artificial sized grains, powders, and flour (including combinations thereof)	17	(X)	298.9	12	(X)	187.7
32915 48	Natural sized grains, powders, and flours	8	(X)	17.9	13	(X)	50.1
32915 00	Nonmetallic sized grains, powders, and flour abrasives (including graded products only), n.s.k.	(NA)	(X)	4.0	(NA)	(X)	9.9
32916	Nonmetallic abrasive products (including diamond abrasives)	(NA)	(X)	758.1	(NA)	(X)	657.2
	Artificial and natural bonded abrasives:						
32916 31	Vitrified bond	25	(X)	190.1	21	(X)	182.8
32916 37	Resinoid and shellac bond, reinforced	32	(X)	118.1	24	(X)	115.7
32916 42	Resinoid and shellac bond, nonreinforced	28	(X)	132.9	24	(X)	106.6
32916 44	Rubber bond	12	(X)	29.4	8	(X)	16.6
32916 65	Other bonded abrasives	17	(X)	46.0	7	(X)	10.6
	Diamond wheels:						
32916 72	Metal bond	38	(X)	76.6	30	(X)	79.9
32916 74	Other bond	30	(X)	62.2	25	(X)	43.0
32916 76	Cubic boron nitride wheels, all bonds, 1,000 carats	19	(S)	24.0	11	(S)	13.5
32916 98	Other artificial and natural nonmetallic abrasive products (except coated abrasives)	16	(X)	65.6	7	(X)	23.9
32916 00	Nonmetallic abrasive products (including diamond abrasives), n.s.k.	(NA)	(X)	13.2	(NA)	(X)	64.6
32917	Nonmetallic coated abrasive products and buffing wheels, polishing wheels, and laps	(NA)	(X)	1 460.4	(NA)	(X)	1 286.2
	Coated or impregnated with any natural or artificial abrasive material:						
	Cloth-glue bond:						
32917 12	Belts	10	(X)	9.8	5	(X)	9.1
32917 14	Other shapes	12	(X)	141.3	9	(X)	74.5
	Cloth-resin and waterproof bond:						
32917 16	Belts	17	(X)	309.0	13	(X)	236.2
32917 18	Other shapes	18	(X)	385.4	10	(X)	(D)
32917 23	Paper-glue bond	14	(X)	(D)	14	(X)	(D)
32917 40	Other (paper-cloth or vulcanized fiber-cloth combinations, vulcanized fibers, paper-resin, waterproof bond, etc.)	17	(X)	(D)	13	(X)	255.1
32917 71	Buffing and polishing wheels and laps of cloth, leather, felt, etc. but containing no abrasive grains, powders, or flour	16	(X)	51.2	11	(X)	45.1
32917 00	Nonmetallic coated abrasive products and buffing wheels, polishing wheels, and laps, n.s.k.	(NA)	(X)	25.5	(NA)	(X)	30.7

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3291– —	**ABRASIVE PRODUCTS**—Con.						
32918	Metal abrasives (including scouring pads)	(NA)	(X)	291.6	(NA)	(X)	204.2
32918 11	Steel and iron grit, shot, and sand, 1,000 s tons	10	*308.0	127.5	9	*237.7	80.4
32918 31	Steel wool, 1,000 s tons	5	*42.7	43.8	3	16.9	30.3
32918 90	Other metal abrasives and scouring pads (including metal pads with soaps)	14	(X)	120.3	9	(X)	93.4
32918 00	Metal abrasives (including scouring pads), n.s.k.	(NA)	(X)	–	(NA)	(X)	–
32910	Abrasive products, n.s.k.	(NA)	(X)	135.5	(NA)	(X)	310.8
32910 00	Abrasive products, n.s.k.[3]	(NA)	(X)	92.3	(NA)	(X)	103.7
32910 02	Abrasive products, n.s.k.[4]	(NA)	(X)	43.2	(NA)	(X)	207.1

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3292– —	**ASBESTOS PRODUCTS**				
	Total	**(NA)**	**72.7**	**(NA)**	**385.4**
32922	Asbestos friction materials	(NA)	61.1	(NA)	270.8
	Brake lining:				
32922 11	Woven, containing asbestos yarn, tape, or cloth	1	(D)	4	(D)
32922 15	Molded (including all nonwoven types)	4	31.6	7	80.1
32922 21	Disc brake pads	4	25.3	6	87.7
32922 58	Clutch facings (nonwoven, woven, and molded)	–	(D)	(NA)	(D)
32922 00	Asbestos friction materials, n.s.k.	(NA)	–	(NA)	2.2
32927	Other asbestos products	(NA)	9.4	(NA)	74.2
32927 10	Asbestos textiles, all types (yarn, cord, thread, rope, tape, lap, roving, wick, carded fibers, etc.)	1	(D)	(NA)	(D)
32927 11	Asbestos felts, all kinds (roofing, asphalt, tar saturated, etc.)	–	(D)	(NA)	(D)
32927 12	Asbestos-cement products, all kinds, including flat sheet, wallboard, shingles, clapboard, pipe, conduits, ducts, etc.	3	8.0	(NA)	(D)
32927 99	Other asbestos products (vinyl asbestos floor tile, pipe and block insulation, asphalt floor tile, millboard, etc.)	1	(D)	(NA)	(D)
32927 00	Other asbestos products, n.s.k.	(NA)	–	(NA)	.1
32920	Asbestos products, n.s.k.	(NA)	2.2	(NA)	40.5
32920 00	Asbestos products, n.s.k.[5]	(NA)	–	(NA)	14.1
32920 02	Asbestos products, n.s.k.[6]	(NA)	2.2	(NA)	26.3

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3295– —	**MINERALS, GROUND OR TREATED**						
	Total	**(NA)**	**(X)**	**1 701.4**	**(NA)**	**(X)**	**1 344.8**
32950	Minerals and earths, ground or otherwise treated	(NA)	(X)	1 701.4	(NA)	(X)	1 344.8
32950 11	Lightweight aggregate (diatomaceous earth, expanded clay, expanded slag, cinders, perlite, haydite, pumice, etc.)	54	(X)	224.9	51	(X)	121.0
	Exfoliated vermiculite:						
32950 13	Aggregate, mil cu ft	8	(S)	59.0	13	(D)	(D)
32950 15	Other (such as loose fill insulation, acoustical, etc.), mil cu ft	5	17.1	19.3	5	**22.2	20.0
32950 20	Dead-burned magnesia or magnesite[7]	9	(X)	98.9	9	(X)	98.6
32950 31	Crushed slag	24	(X)	150.0	20	(X)	106.0
32950 61	Crushed and ground uncalcined gypsum (including gypsite and anhydrite), 1,000 s tons	8	*515.8	18.3	7	296.5	7.4
32950 81	Natural graphite: ground, refined, or blended, 1,000 s tons	9	(S)	75.9	4	(S)	35.3
32950 84	Ground crude fire clay, high alumina clay, and silica fire clay	15	(X)	35.5	12	(X)	39.0
32950 85	Clays, artificially activated with acid or other materials, 1,000 s tons	11	257.3	75.6	10	*646.4	136.5
32950 86	Mica, ground or treated, 1,000 s tons	4	(D)	(D)	7	(S)	5.6
32950 94	Talc, steatite, soapstone, and pyrophyllite, ground or otherwise treated	4	(X)	(D)	3	(X)	(D)
32950 98	Other minerals and earths, ground or otherwise treated (including feldspar, roofing granules, and ground barite)	58	(X)	755.8	62	(X)	495.6
32950 00	Minerals, ground or treated, n.s.k.[5]	(NA)	(X)	105.3	(NA)	(X)	140.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3295– —	**MINERALS, GROUND OR TREATED**—Con.						
32950	Minerals and earths, ground or otherwise treated—Con.						
32950 02	Minerals, ground or treated, n.s.k.[6]	(NA)	(X)	15.8	(NA)	(X)	19.1

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3296– —	**MINERAL WOOL**				
	Total	**(NA)**	**3 061.3**	**(NA)**	**3 137.6**
32961	Mineral wool for thermal and acoustical envelope insulation (for insulating homes, commercial and industrial buildings)	(NA)	2 037.8	(NA)	2 171.8
32961 11	Loose fiber (blowing and pouring) (shipped as such) and granulated fiber	17	200.9	8	95.5
	Building batts, blankets, and rolls (in thermal resistance (R) values):				
32961 31	R-19.0 or more	12	555.9	12	641.4
32961 35	R-11.0 to R-18.9	11	368.5	12	421.4
32961 38	R-10.9 or less	11	69.7	7	56.4
32961 51	Board (such as roof insulation)	9	160.2	6	117.1
32961 61	Acoustical, such as wall and ceiling (sold as acoustical insulation)	17	610.3	13	600.9
32961 98	Other mineral wool for thermal insulation	10	45.3	10	133.5
32961 00	Mineral wool for thermal and acoustical envelope insulation (for homes, commercial and industrial buildings), n.s.k.	(NA)	27.1	(NA)	105.8
32962	Mineral wool for industrial, equipment, and appliance insulation	(NA)	884.6	(NA)	786.8
	Blankets (flexible) (including fabricated pieces, rolls, and batts):				
32962 31	Plain	13	130.3	12	96.0
32962 34	Coated	6	73.4	5	38.6
32962 36	Faced and metal meshed	8	24.6	7	8.2
32962 45	Special-purpose insulation pieces (special-purpose automotive, appliance, aerospace items, and original equipment parts)	24	218.6	16	282.8
32962 51	Other blocks and boards	7	40.3	5	(D)
32962 61	Pipe insulation	10	160.8	7	117.4
32962 83	Acoustical (including pads, boards, patches, etc.)	10	25.5	5	(D)
32962 98	Other mineral wool (including air duct, loose fiber, granulated fiber, insulating and finishing cements, etc.)	16	198.4	10	152.7
32962 00	Mineral wool for industrial, equipment, and appliance insulation, n.s.k.	(NA)	12.5	(NA)	40.1
32960	Mineral wool, n.s.k.	(NA)	138.9	(NA)	179.0
32960 00	Mineral wool, n.s.k.[8]	(NA)	118.3	(NA)	141.4
32960 02	Mineral wool, n.s.k.[9]	(NA)	20.6	(NA)	37.6
3297– —	**NONCLAY REFRACTORIES**				
	Total	**(NA)**	**1 200.9**	**(NA)**	**972.4**
32970	Nonclay refractories (except dead-burned magnesia)	(NA)	1 200.9	(NA)	972.4
32970 00	Nonclay refractories (except dead-burned magnesia)[7]	77	1 188.6	64	940.0
32970 02	Nonclay refractories, n.s.k.[9]	(NA)	12.2	(NA)	32.4
3299– —	**NONMETALLIC MINERAL PRODUCTS, N.E.C.**				
	Total	**(NA)**	**724.9**	**(NA)**	**597.6**
32990	Other nonmetallic mineral products, n.e.c.	(NA)	724.9	(NA)	597.6
	Mica products:				
32990 53	Built-up sheet mica products	4	(D)	6	13.5
32990 55	Other sheet mica products	3	(D)	7	9.4
32990 56	Mica products, other than sheet	8	13.4	11	10.5
32990 81	Statuary and art goods (factory production)	47	126.3	28	76.2
32990 94	Other nonmetallic mineral products (magnesite floor composition, stucco, artificial graphite, synthetic stones, etc.)	97	421.5	76	303.4
32990 00	Nonmetallic mineral products, n.e.c., n.s.k.[3]	(NA)	75.7	(NA)	97.7
32990 02	Nonmetallic mineral products, n.e.c., n.s.k.[4]	(NA)	73.9	(NA)	86.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]Additional detail is collected for this product code in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[8]Typically for establishments with 15 employees or more.
[9]Typically for establishments with less than 15 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
32915, NONMETALLIC SIZED GRAINS, POWDERS, AND FLOUR ABRASIVES (INCLUDING GRADED PRODUCTS ONLY)		
United States	**548.0**	**413.2**
New York	127.2	98.7
Pennsylvania	14.0	11.9
Texas	4.6	(NA)
32916, NONMETALLIC ABRASIVE PRODUCTS (INCLUDING DIAMOND ABRASIVES)		
United States	**758.1**	**657.2**
California	27.1	12.9
Connecticut	32.5	21.2
Florida	11.3	(NA)
Illinois	89.6	73.8
Indiana	15.2	(NA)
Michigan	44.9	36.1
New Jersey	17.1	20.4
New York	28.5	44.6
Ohio	72.6	66.6
Pennsylvania	24.7	22.4
32917, NONMETALLIC COATED ABRASIVE PRODUCTS AND BUFFING WHEELS, POLISHING WHEELS, AND LAPS		
United States	**1 460.4**	**1 286.2**
California	41.8	16.0
Illinois	21.8	(NA)
Massachusetts	16.6	20.5
North Carolina	57.9	27.5
Ohio	38.4	45.2
Pennsylvania	11.7	(NA)
32918, METAL ABRASIVES (INCLUDING SCOURING PADS)		
United States	**291.6**	**204.2**
Illinois	73.4	(NA)
Ohio	56.4	44.7
32922, ASBESTOS FRICTION MATERIALS		
United States	**61.1**	**270.8**
32927, OTHER ASBESTOS PRODUCTS		
United States	**9.4**	**74.2**
32961, MINERAL WOOL FOR THERMAL AND ACOUSTICAL ENVELOPE INSULATION (FOR INSULATING HOMES, COMMERCIAL AND INDUSTRIAL BUILDINGS)		
United States	**2 037.8**	**2 171.8**
Alabama	119.1	(NA)
California	240.1	242.8
Georgia	296.1	319.3
Illinois	31.3	(NA)
Indiana	89.4	148.1
Kansas	239.1	230.1
Mississippi	129.7	(NA)
Pennsylvania	163.2	221.5
Texas	95.6	146.3
32962, MINERAL WOOL FOR INDUSTRIAL, EQUIPMENT, AND APPLIANCE INSULATION		
United States	**884.6**	**786.8**
California	61.5	63.0
Georgia	29.4	25.0
Indiana	87.4	84.9
Kansas	33.9	(NA)
Massachusetts	7.9	(NA)
Ohio	304.5	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3291-	**Abrasive products**	**3 193.7**	**3 062.1**	**3 156.3**	**3 084.3**	**3 089.4**	**2 871.6**	**2 135.7**	**1 721.8**
32915	Nonmetallic sized grains, powders, and flour abrasives (including graded products only)	548.0	445.5	471.6	457.7	511.4	413.2	409.7	(NA)
32916	Nonmetallic abrasive products (including diamond abrasives)	758.1	619.1	674.9	719.1	750.5	657.2	610.8	797.9
32917	Nonmetallic coated abrasive products and buffing wheels, polishing wheels, and laps	1 460.4	1 364.6	1 369.2	1 320.1	1 291.9	1 286.2	843.1	627.8
32918	Metal abrasives (including scouring pads)	291.6	292.6	290.3	270.2	226.1	204.2	173.9	176.8
32910	Abrasive products, n.s.k.	135.5	340.2	350.3	317.2	309.5	310.8	98.3	119.2
3292-	**Asbestos products**	**72.7**	**293.4**	**328.2**	**335.8**	**349.1**	**385.4**	**841.0**	**960.1**
32922	Asbestos friction materials	61.1	195.4	213.2	226.4	227.3	270.8	276.5	271.7
32927	Other asbestos products	9.4	51.1	63.1	64.3	82.2	74.2	544.2	661.2
32920	Asbestos products, n.s.k.	2.2	47.0	51.9	45.1	39.6	40.5	20.3	27.0
3295-	**Minerals, ground or treated**	**1 701.4**	**1 460.6**	**1 437.5**	**1 341.5**	**1 526.5**	**1 344.8**	**1 252.9**	**911.0**
32950	Minerals and earths, ground or otherwise treated	1 701.4	1 460.6	1 437.5	1 341.5	1 526.5	1 344.8	1 252.9	911.0
3296-	**Mineral wool**	**3 061.3**	**2 777.0**	**3 046.0**	**3 220.0**	**3 223.7**	**3 137.6**	**2 215.2**	**1 684.0**
32961	Mineral wool for thermal and acoustical envelope insulation (for insulating homes, commercial and industrial buildings)	2 037.8	1 966.0	2 182.3	2 415.3	2 353.6	2 171.8	1 556.0	1 098.9
32962	Mineral wool for industrial, equipment, and appliance insulation	884.6	573.9	628.0	655.1	629.0	786.8	625.7	568.9
32960	Mineral wool, n.s.k.	138.9	237.2	235.7	149.7	241.1	179.0	33.4	16.0
3297-	**Nonclay refractories**	**1 200.9**	**1 139.9**	**1 220.4**	**1 202.1**	**1 130.0**	**972.4**	**715.8**	**734.0**
32970	Nonclay refractories (except dead-burned magnesia)	1 200.9	1 139.9	1 220.4	1 202.1	1 130.0	972.4	715.8	734.0
3299-	**Nonmetallic mineral products, n.e.c.**	**724.9**	**521.0**	**599.1**	**614.6**	**601.6**	**597.6**	**453.8**	**391.1**
32990	Other nonmetallic mineral products, n.e.c.	724.9	521.0	599.1	614.6	601.6	597.6	453.8	391.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3291, ABRASIVE PRODUCTS		
	Materials, ingredients, containers, and supplies	**1 491.5**	**1 384.1**
149941	Natural abrasive materials, except diamonds	127.1	29.8
190039	Diamonds	43.0	26.9
220101	Cotton and manmade fiber fabrics, broadwoven and narrow woven	110.0	105.0
260001	Paper and paperboard products	89.0	113.6
	Chemicals and allied products:		
	Industrial inorganic chemicals:		
281950	Synthetic aluminum oxide	74.0	103.7
281962	Alumina zirconia	(D)	23.4
281992	Synthetic silicon carbide	38.4	51.3
281920	Other industrial inorganic chemicals	(D)	(1)
289101	Glues and adhesives	42.2	39.3
280050	Other chemicals and allied products	54.2	(1)
970099	All other materials and components, parts, containers, and supplies	781.9	1753.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	77.5	137.9
	INDUSTRY 3292, ASBESTOS PRODUCTS		
	Materials, ingredients, containers, and supplies	**24.8**	**157.4**
149971	Asbestos, crude (including fiber)	4.7	16.6
262190	Building paper and board	(D)	(D)
	Chemicals and allied products:		
280023	Pigments, organic and inorganic	–	(D)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(D)	(D)
282202	Synthetic rubber	(D)	(D)
280060	Other chemicals and allied products	(D)	(1)
324101	Portland cement	(D)	3.3
970099	All other materials and components, parts, containers, and supplies	16.4	1114.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	1.1	13.2
	INDUSTRY 3295, MINERALS, GROUND OR TREATED		
	(Material data were not collected for this industry.)		
	INDUSTRY 3296, MINERAL WOOL		
	Materials, ingredients, containers, and supplies	**1 005.1**	**951.1**
	Mining and quarrying of nonmetallic minerals, except fuels:		
145501	Kaolin and ball clay	9.3	8.4
147900	Chemical and fertilizer minerals (including barite, borate, potash, fluorspar, and rocksalt)	44.2	(D)
140001	Other mining and quarrying of nonmetallic minerals, except fuels	111.8	(1)
220101	Cotton and manmade fiber fabrics, broadwoven and narrow woven	21.4	20.0
	Paper and allied products:		
	Converted paper and paperboard products:		
267420	Shipping sacks and multiwall bags, all materials	13.0	(D)
267004	Other converted paper and paperboard products	37.0	53.1
260080	Other paper and allied products	51.6	
	Chemicals and allied products:		
281000	Industrial inorganic chemicals	33.6	55.8
282102	Plastics materials and resins	81.1	33.3
289101	Glues and adhesives	24.5	34.3
280075	Other chemical and allied products	35.8	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	48.6	48.2
322931	Glass fiber (both textile type, bonded mat type, etc.)	81.4	69.0
331212	Crude blast furnace slag	30.3	34.0
335351	Aluminum sheet, plate, foil, and welded tubings	9.9	12.2
349702	Converted aluminum foil	11.0	22.2
970099	All other materials and components, parts, containers, and supplies	279.3	1311.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	81.2	104.8
	INDUSTRY 3297, NONCLAY REFRACTORIES		
	Materials, ingredients, containers, and supplies	**455.6**	**367.5**
145001	Clay, ceramic, and refractory minerals	143.9	105.8
	Stone, clay, glass, and concrete products:		
329502	Dead-burned magnesia or magnesite	54.4	38.4
320591	Refractories, clay or nonclay	60.4	41.4
320015	Other stone, clay, glass, and concrete products	(3)	(1)
280001	Industrial chemicals	19.4	10.1
970099	All other materials and components, parts, containers, and supplies	3113.4	1117.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	64.1	54.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3299, NONMETALLIC MINERAL PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**201.3**	[4]**201.7**
	Mining of nonmetallic minerals, except fuels:		
145501	Kaolin and ball clay	(D)	(NA)
147900	Chemical and fertilizer minerals (including barite, borate, potash, fluorspar, and rocksalt)		
140001	Other mining and quarrying of nonmetallic minerals, except fuels		
220101	Cotton and manmade fiber fabrics, broadwoven and narrow woven	.4	(NA)
	Paper and allied products:		
	Converted paper and paperboard products:		
267420	Shipping sacks and multiwall bags, all materials	1.4	(NA)
267004	Other converted paper and paperboard products	1.8	(NA)
260080	Other paper and allied products	.4	(NA)
	Chemicals and allied products:		
281000	Industrial inorganic chemicals	(D)	(NA)
282102	Plastics materials and resins		
289101	Glues and adhesives		
280075	Other chemical and allied products		
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes		
322931	Glass fiber (both textile type, bonded mat type, etc.)	4.1	(NA)
331212	Crude blast furnace slag	–	(NA)
335351	Aluminum sheet, plate, foil, and welded tubings	(D)	(NA)
349702	Converted aluminum foil	–	(NA)
970099	All other materials and components, parts, containers, and supplies	83.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	85.6	(NA)

[1]For 1987, data for this material code were included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1992, data for this material code were included with material code 970099.
[4]Detailed materials were not collected for this industry in 1987.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
32113 00	32113 21	32318 84	32318 81	32630 00	32630 15	32922 58	32922 51
32113 00	32113 41	32318 84	32318 83	32630 00	32630 19	32922 58	32922 55
32113 00	32113 69						
		32410 18	32410 15	32640 55	32640 52		
32114 24	32114 21	32410 18	32410 17			32927 10	32927 15
32114 24	32114 23	32410 23	32410 22	32710 34	32710 00	32927 10	32927 31
						32927 11	32927 33
		32610 20	32610 10	32721 37	32721 36	32927 11	32927 34
32293 25	32293 00	32610 61	32610 51	32721 37	32721 39	32927 12	32927 41
32293 29	32293 00	32610 70	32610 10			32927 12	32927 77
		32610 70	32610 51	32722 99	32722 41	32927 12	32927 78
32313 00	32313 21			32722 99	32722 98	32927 99	32927 14
32313 00	32313 41	32620 00	32620 15			32927 99	32927 36
32313 00	32313 69	32620 00	32620 19	32740 72	32740 00	32927 99	32927 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
32113 21	32113 00	32318 81	32318 84	32630 15	32630 00	32922 51	32922 58
32113 41	32113 00	32318 83	32318 84	32630 19	32630 00	32922 55	32922 58
32113 69	32113 00						
		32410 15	32410 18	32640 52	32640 55		
32114 21	32114 24	32410 17	32410 18			32927 14	32927 99
32114 23	32114 24	32410 22	32410 23	32710 00	32710 34	32927 15	32927 10
						32927 31	32927 10
		32610 10	32610 20	32721 36	32721 37	32927 33	32927 11
32293 00	32293 25	32610 10	32610 70	32721 39	32721 37	32927 34	32927 11
32293 00	32293 29	32610 51	32610 61			32927 36	32927 99
		32610 51	32610 70	32722 41	32722 99	32927 41	32927 12
32313 21	32313 00			32722 98	32722 99	32927 77	32927 12
32313 41	32313 00	32620 15	32620 00			32927 78	32927 12
32313 69	32313 00	32620 19	32620 00	32740 00	32740 72	32927 98	32927 99

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3211500	MQ32A, Flat Glass
3229500	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229600	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229700	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3229800	MA32E, Consumer, Scientific, Technical, and Industrial Glassware
3231892	MA33L, Insulated Wire and Cable
3251011	MQ32D, Clay Construction Products
3251020	MQ32D, Clay Construction Products
3253000	MQ32D, Clay Construction Products
3255000	MA32C, Refractories
3259100	MQ32D, Clay Construction Products
3261020	MQ34E, Plumbing Fixtures
3274071	MA32C, Refractories
3295020	MA32C, Refractories
3297000	MA32C, Refractories

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PPGB 1/23/95 1:01 PM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-13002777.DAT;1 1/23/95 13:00:35 UTF:TIPS93-13002777.DAT;1 1/23/95 13:00:36 META:TIPS96-13002777.DAT;1 1/23/95 13:01:04

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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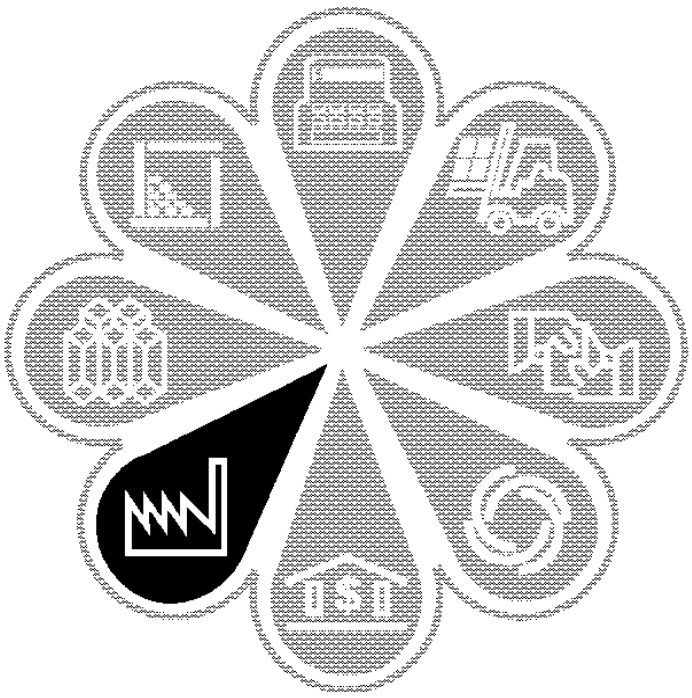
1992 Census of Manufactures

MC92-I-33A

INDUSTRY SERIES

Blast Furnaces, Steel Works, and Rolling and Finishing Mills

Industries 3312, 3313, 3315, 3316, and 3317



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-33A

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3312	Blast Furnaces and Steel Mills
3313	Electrometallurgical Products
3315	Steel Wire and Related Products
3316	Cold Finishing of Steel Shapes
3317	Steel Pipe and Tubes

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS

This industry is made up of establishments primarily engaged in the manufacturing of hot metal, pig iron, and silvery pig iron from iron ore and iron and steel scrap; converting pig iron, scrap iron, and scrap steel into steel; and in hot-rolling iron and steel into basic shapes, such as plates, sheets, strips, rods, bars, and tubing. Merchant blast furnaces and byproduct or beehive coke ovens are also included in this industry. Certain products primary to industry 3312 also are primary to Industries 3315, Steel Wire and Related Products; 3316, Cold Finishing of Steel Shapes; 3317, Steel Pipe and Tubes; and 3462, Iron and Steel Forgings. Products of this industry also are collected in the Current Industrial Report (CIR) MA-33B, Steel Mill Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3312, Blast Furnaces and Steel Mills, had employment of 170.6 thousand. The employment figure was 10 percent below the 188.1 thousand reported in 1987. Compared with 1991, employment decreased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Indiana, Ohio, and Illinois, accounting for approximately 63 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $42.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3312 shipped $41.1 billion of products considered primary to the industry, $675.5 million of secondary products, and had $444.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 97 percent.

The products primary to industry 3312, no matter in what industry they were produced, appear in table 6a and aggregate to $42.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the blast furnace and steel mill industry amounted to $25.4 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS

This industry is made up of establishments primarily engaged in the manufacturing of ferro and nonferrous metal additive alloys by electrometallurgical or metallothermic processes, including high percentage ferroalloys and high percentage nonferrous additive alloys.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3313, Electrometallurgical Products, had employment of 4.9 thousand. The employment figure was 25 percent above the 3.9 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, West Virginia, New Jersey, and New York, accounting for approximately 73 percent of the industry's employment. This represents a shift from 1987 when Ohio, West Virginia, New Jersey, and South Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3313 shipped $964.9 million of products considered primary to the industry, $110.7 million of secondary products, and had $188.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3313, no matter in what industry they were produced, appear in table 6a and aggregate to $971.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electrometallurgical products industry amounted to $816.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS

This industry is made up of establishments primarily engaged in the drawing of wire from purchased iron or steel rods, bars, or wire and which may be engaged in the further manufacture of products made from wire. Establishments primarily engaged in manufacturing steel nails and spikes from purchased materials are also included in this industry. Certain products primary to industry 3315 also are primary to industries 3496 and 3312. Establishments primarily engaged in the manufacture of fabricated wire products from purchased wire are classified in industry 3496. Rolling mills engaged in the production of ferrous wire from wire rods or hot-rolled bars produced in the same establishments are classified in industry 3312. Establishments primarily engaged in drawing nonferrous wire are classified in industry group 335. Products of this industry also are collected in the Current Industrial Report (CIR) MA-33B, Steel Mill Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3315, Steel Wire and Related Products, had employment of 24.7 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were Pennsylvania, Illinois, Ohio, and Georgia. This represents a shift from 1987 when Illinois, Pennsylvania, Texas, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3315 shipped $3.9 billion of products considered primary to the industry, $162.2 million of secondary products, and had $129.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 88 percent.

The products primary to industry 3315, no matter in what industry they were produced, appear in table 6a and aggregate to $4.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the steel wire and related products industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES

This industry is made up of establishments primarily engaged in: (1) cold-rolling steel sheets and strip from purchased hot-rolled sheets; (2) cold-drawing steel bars and steel shapes from purchased hot-rolled steel bars; and (3) producing other cold finished steel. Certain products primary to industry 3316 also are primary to industry 3312. Establishments primarily engaged in the production of steel, including hot-rolled steel sheets, and further cold-rolling such sheets are classified in industry 3312. Products of this industry also are collected in the Current Industrial Report (CIR) MA-33B, Steel Mill Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3316, Cold Finishing of Steel Shapes, had employment of 15.3 thousand. The employment figure was 7 percent below the 16.4 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Pennsylvania, Illinois, and California. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3316 shipped $4.3 billion of products considered primary to the industry, $1.1 billion of secondary products, and had $104.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 80 percent (specialization ratio). In 1987, the specialization ratio also was 80 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3316, no matter in what industry they were produced, appear in table 6a and aggregate to $4.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cold finishing of steel shapes industry amounted to $3.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3317, STEEL PIPE AND TUBES

This industry is made up of establishments primarily engaged in the production of welded or seamless steel pipe and tubes and heavy riveted steel pipe from purchased materials. Certain products primary to industry 3317 also are primary to industry 3312. Establishments

primarily engaged in the production of steel including steel skelp or steel blanks, tube rounds, or pierced billets are classified in industry 3312. Products of this industry also are collected in the Current Industrial Report (CIR) MA-33B, Steel Mill Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3317, Steel Pipe and Tubes, had employment of 23.7 thousand. The employment figure was 21 percent above the 19.6 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Pennsylvania, Illinois, and California, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3317 shipped $4.8 billion of products considered primary to the industry, $241.2 million of secondary products, and had $229.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3317, no matter in what industry they were produced, appear in table 6a and aggregate to $4.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the steel pipe and tubes industry amounted to $3.5 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS															
1992 Census	136	217	197	170.6	7 035.7	131.4	277.0	5 261.6	16 569.1	25 392.2	42 215.2	2 210.5	7 281.1	98	97
1991 ASM	(NA)	(NA)	(NA)	177.3	6 939.5	135.3	278.7	5 087.7	14 567.5	25 770.7	40 775.3	2 986.3	7 616.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	188.5	7 328.4	146.0	314.7	5 467.1	18 283.0	27 959.6	45 950.4	2 554.1	8 187.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	190.6	7 160.8	148.8	347.7	5 359.7	19 337.8	28 958.6	47 853.4	2 498.4	8 151.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	195.2	7 033.5	151.2	324.3	5 337.6	19 555.7	28 826.9	47 589.6	1 893.0	7 639.1	(NA)	(NA)
1987 Census	271	342	221	188.1	6 421.6	147.0	305.7	4 842.4	15 804.7	22 870.9	38 568.6	1 220.3	6 365.7	98	[9]97
1986 ASM	(NA)	(NA)	(NA)	192.2	6 281.5	147.7	294.5	4 701.5	12 453.0	21 677.5	34 924.9	924.9	6 349.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	217.9	6 984.6	167.7	330.6	5 182.6	12 763.5	24 719.8	38 080.4	2 044.3	7 483.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	247.3	7 467.2	190.0	375.6	5 481.0	14 563.2	25 807.3	40 335.2	1 691.5	8 685.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	249.2	7 353.3	186.1	349.3	5 292.8	12 380.5	23 639.9	36 449.7	1 986.9	8 749.3	(NA)	(NA)
1982 Census	211	301	223	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2	10 043.6	98	[9]99
1981 ASM	(NA)	(NA)	(NA)	390.3	11 461.8	301.7	572.4	8 621.5	20 100.2	37 788.5	57 472.9	2 808.6	10 983.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	402.9	10 493.4	312.6	577.5	7 898.2	18 632.2	31 863.3	50 303.9	2 632.5	10 381.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	451.2	10 989.5	361.4	700.7	8 530.9	21 039.0	35 143.9	55 695.8	2 320.3	10 178.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	443.5	9 842.6	353.7	699.2	7 605.6	19 085.7	30 603.2	49 055.4	2 178.0	9 081.0	(NA)	(NA)
1977 Census	395	504	250	441.9	8 725.7	350.2	668.7	6 653.0	15 331.9	26 715.0	41 998.2	2 143.0	8 471.6	97	(NA)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS															
1992 Census	31	37	28	4.9	171.2	3.5	7.2	112.3	414.2	816.9	1 263.8	36.9	279.6	90	99
1991 ASM	(NA)	(NA)	(NA)	5.0	165.2	3.4	7.4	106.5	373.9	743.7	1 145.6	26.4	300.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.2	168.6	3.6	7.8	107.8	431.2	734.4	1 180.4	37.0	276.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.3	170.7	3.8	8.6	113.9	519.7	782.6	1 269.4	40.5	293.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.1	154.9	3.6	7.8	104.0	508.4	769.1	1 275.8	41.0	256.4	(NA)	(NA)
1987 Census	25	30	24	3.9	112.6	2.8	5.9	74.7	295.6	511.1	843.8	24.7	205.8	95	83
1986 ASM	(NA)	(NA)	(NA)	3.6	99.4	2.6	5.5	66.7	207.1	433.1	667.9	33.0	217.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.4	117.3	3.3	6.7	80.6	313.9	481.9	783.1	32.4	268.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.9	126.5	3.6	7.6	89.7	331.5	525.7	835.8	18.6	286.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.4	100.9	3.3	6.8	70.8	192.5	428.8	661.5	11.8	311.6	(NA)	(NA)
1982 Census	32	41	26	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	371.0	97	90
1981 ASM	(NA)	(NA)	(NA)	8.0	168.4	6.3	13.0	124.4	375.9	856.2	1 161.9	119.0	411.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.5	169.9	6.7	13.4	128.4	412.0	854.7	1 249.3	34.2	311.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.3	172.9	7.6	15.2	135.5	428.8	916.3	1 356.6	24.6	345.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.5	141.8	6.8	13.5	108.4	248.3	767.1	1 078.0	52.0	334.1	(NA)	(NA)
1977 Census	28	42	31	8.9	139.2	7.0	14.3	103.9	274.6	687.0	930.6	53.2	403.8	(D)	90
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS															
1992 Census	269	349	208	24.7	691.6	19.0	39.9	487.3	1 727.1	2 455.1	4 206.4	124.5	575.1	96	88
1991 ASM	(NA)	(NA)	(NA)	25.2	655.0	19.9	40.8	470.0	1 597.5	2 331.5	3 944.3	111.2	673.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.7	679.6	21.4	44.5	492.5	1 723.4	2 462.1	4 179.7	208.3	751.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	26.8	680.6	21.3	44.4	481.1	1 651.1	2 497.8	4 123.3	207.9	747.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.0	678.7	20.7	44.0	464.8	1 696.7	2 357.0	4 019.9	98.5	706.0	(NA)	(NA)
1987 Census	274	343	206	24.7	592.0	18.7	40.1	407.5	1 422.9	1 901.5	3 330.3	73.2	569.2	96	[9]88
1986 ASM	(NA)	(NA)	(NA)	21.1	488.7	15.8	32.5	335.3	1 007.7	1 612.6	2 624.6	63.6	477.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	20.9	470.8	15.9	31.6	325.5	998.5	1 542.1	2 549.8	80.5	462.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.3	491.9	17.2	34.0	342.6	1 131.0	1 578.0	2 689.6	95.2	509.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.5	461.5	17.1	32.6	317.4	981.6	1 494.8	2 490.9	74.6	525.7	(NA)	(NA)
1982 Census	252	311	186	22.2	444.5	16.4	31.3	298.4	941.8	1 436.7	2 420.9	61.4	498.6	97	[9]77
1981 ASM	(NA)	(NA)	(NA)	32.2	614.0	24.5	48.5	419.1	1 268.5	1 857.6	3 066.5	83.7	568.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.5	563.4	24.3	48.7	381.6	1 175.2	1 753.6	2 927.0	83.8	507.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.8	556.3	25.7	52.3	384.4	1 217.3	1 722.7	2 923.9	89.5	506.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.0	497.0	25.6	51.4	349.1	1 067.4	1 505.8	2 542.4	80.8	494.8	(NA)	(NA)
1977 Census	262	335	223	31.7	436.6	24.3	49.0	304.9	924.4	1 341.2	2 258.6	79.4	422.8	95	(NA)
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES															
1992 Census	161	190	86	15.3	551.2	11.0	22.8	383.1	1 725.1	3 779.9	5 510.7	115.6	1 039.8	80	95
1991 ASM	(NA)	(NA)	(NA)	15.8	538.7	11.0	22.8	362.7	1 599.2	3 786.6	5 451.5	94.9	1 001.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.3	554.6	11.4	24.0	378.6	1 620.8	4 173.6	5 842.2	148.8	1 131.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.6	549.7	11.9	24.9	377.9	1 798.7	4 522.3	6 311.9	117.0	1 108.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.3	566.8	12.3	25.5	394.4	2 051.4	4 430.6	6 323.4	163.3	1 147.5	(NA)	(NA)
1987 Census	156	191	101	16.4	524.1	11.7	24.6	369.8	1 617.3	3 605.6	5 216.3	290.4	858.4	80	[9]94
1986 ASM	(NA)	(NA)	(NA)	13.1	387.0	9.4	18.7	271.1	1 108.5	2 377.6	3 514.5	51.2	643.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.8	383.2	9.8	19.4	261.9	1 030.7	2 341.3	3 432.3	57.1	698.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.7	404.1	10.8	21.1	285.5	1 346.1	2 677.6	3 992.1	60.7	707.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.8	396.9	10.8	20.9	272.9	996.4	2 267.3	3 310.9	41.8	652.7	(NA)	(NA)
1982 Census	146	192	106	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2	682.8	92	[9]97
1981 ASM	(NA)	(NA)	(NA)	18.3	444.8	13.4	25.7	309.6	840.0	2 605.7	3 403.1	74.4	524.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.4	407.2	13.4	25.6	279.9	759.2	2 306.5	3 077.4	71.6	463.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.3	421.2	15.2	31.1	300.8	1 097.1	2 552.9	3 610.5	53.4	512.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.5	380.2	15.6	31.2	274.4	999.2	2 195.1	3 180.4	58.4	478.9	(NA)	(NA)
1977 Census	118	155	94	19.4	334.6	14.6	28.7	238.8	799.6	1 936.8	2 713.2	49.6	436.6	95	(NA)
INDUSTRY 3317, STEEL PIPE AND TUBES															
1992 Census	166	233	181	23.7	739.5	17.9	38.3	508.0	1 714.4	3 512.1	5 250.2	114.3	847.6	95	97
1991 ASM	(NA)	(NA)	(NA)	22.7	677.8	17.3	37.3	469.2	1 547.0	3 450.3	5 010.6	144.8	851.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.1	654.3	17.1	36.7	450.5	1 707.7	3 266.7	4 968.5	99.6	902.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.5	589.3	16.8	34.5	411.5	1 761.3	2 991.6	4 765.5	137.4	856.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.2	581.4	16.7	33.5	419.0	1 914.5	3 051.4	4 850.2	67.5	862.4	(NA)	(NA)
1987 Census	155	221	161	19.6	515.4	15.4	31.2	368.6	1 345.7	2 522.7	3 856.3	59.0	671.9	91	[9]98
1986 ASM	(NA)	(NA)	(NA)	19.1	469.5	14.6	28.7	327.0	1 085.3	1 953.9	3 055.1	72.2	592.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.0	510.6	16.0	30.8	357.0	1 092.8	2 116.7	3 291.9	60.3	671.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.7	537.1	18.3	36.0	373.1	1 178.3	2 313.7	3 522.2	77.8	760.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.1	537.1	17.5	32.0	369.8	959.9	2 047.3	3 057.0	134.4	791.9	(NA)	(NA)
1982 Census	170	223	167	27.0	648.1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5	906.4	94	[9]94
1981 ASM	(NA)	(NA)	(NA)	28.6	675.2	22.3	43.4	495.8	1 970.1	3 121.4	5 020.2	122.9	878.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.6	580.7	21.3	40.9	417.5	1 363.3	2 548.0	3 929.3	119.7	749.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.8	573.9	23.4	46.8	420.7	1 385.5	2 420.1	3 722.1	105.2	800.3	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 3317, STEEL PIPE AND TUBES—Con.														
1978 ASM	(NA)	(NA)	(NA)	28.8	514.3	22.8	46.3	384.6	1 135.2	2 192.7	3 278.9	76.3	659.2	(NA)	(NA)
1977 Census	130	180	142	27.8	449.4	21.8	43.7	330.6	987.9	1 731.9	2 681.4	117.5	571.6	95	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Prior year coverage ratio for an industry with products primary to more than one industry was recalculated and confined exclusively to that industry.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS								
1992 Census	41 241	77	2 108	18.99	60	77	97 123	42	59.82
1991 ASM	39 140	76	2 060	18.26	63	80	82 163	48	52.27
1990 ASM	38 877	77	2 155	17.37	61	77	96 992	40	58.10
1989 ASM	37 570	78	2 337	15.41	61	75	101 458	37	55.62
1988 ASM	36 032	77	2 145	16.46	61	75	100 183	36	60.30
1987 Census	34 139	78	2 080	15.84	59	76	84 023	41	51.70
1986 ASM	32 682	77	1 994	15.96	62	80	64 792	50	42.29
1985 ASM	32 054	77	1 971	15.68	65	83	58 575	55	38.61
1984 ASM	30 195	77	1 977	14.59	64	82	58 889	51	38.77
1983 ASM	29 508	75	1 877	15.15	65	85	49 681	59	35.44
1982 Census	29 337	73	1 746	16.45	64	88	39 768	74	31.31
1981 ASM	29 367	77	1 897	15.06	66	86	51 499	57	35.12
1980 ASM	26 045	78	1 847	13.68	63	84	46 245	56	32.26
1979 ASM	24 356	80	1 939	12.17	63	83	46 629	52	30.03
1978 ASM	22 193	80	1 977	10.88	62	82	43 034	52	27.30
1977 Census	19 746	79	1 909	9.95	64	84	34 695	57	22.93
	INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS								
1992 Census	34 939	71	2 057	15.60	65	78	84 531	41	57.53
1991 ASM	33 040	68	2 176	14.39	65	79	74 780	44	50.53
1990 ASM	32 423	69	2 167	13.82	62	76	82 923	39	55.28
1989 ASM	32 208	72	2 263	13.24	62	75	98 057	33	60.43
1988 ASM	30 373	71	2 167	13.33	60	72	99 686	30	65.18
1987 Census	28 872	72	2 107	12.66	61	74	75 795	38	50.10
1986 ASM	27 611	72	2 115	12.13	65	80	57 528	48	37.65
1985 ASM	26 659	75	2 030	12.03	62	77	71 341	37	46.85
1984 ASM	25 816	73	2 111	11.80	63	78	67 653	38	43.62
1983 ASM	22 932	75	2 061	10.41	65	80	43 750	52	28.31
1982 Census	23 302	74	1 795	12.21	70	87	34 019	68	25.76
1981 ASM	21 050	79	2 063	9.57	74	88	46 988	45	28.92
1980 ASM	19 988	79	2 000	9.58	68	82	48 471	41	30.75
1979 ASM	18 591	82	2 000	8.91	68	80	46 108	40	28.21
1978 ASM	16 682	80	1 985	8.03	71	84	29 212	57	18.39
1977 Census	15 640	79	2 043	7.27	74	89	30 854	51	19.20
	INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS								
1992 Census	28 000	77	2 100	12.21	58	75	69 923	40	43.29
1991 ASM	25 992	79	2 050	11.52	59	76	63 393	41	39.15
1990 ASM	25 453	80	2 079	11.07	59	75	64 547	39	38.73
1989 ASM	25 396	79	2 085	10.84	61	77	61 608	41	37.19
1988 ASM	25 137	77	2 126	10.56	59	76	62 841	40	38.56
1987 Census	23 968	76	2 144	10.16	57	75	57 607	42	35.48
1986 ASM	23 161	75	2 057	10.32	61	80	47 758	48	31.01
1985 ASM	22 526	76	1 987	10.30	60	79	47 775	47	31.60
1984 ASM	22 058	77	1 977	10.08	59	77	50 717	43	33.26
1983 ASM	20 511	76	1 906	9.74	60	79	43 627	47	30.11
1982 Census	20 023	74	1 909	9.53	59	78	42 423	47	30.09
1981 ASM	19 068	76	1 980	8.64	61	81	39 394	48	26.15
1980 ASM	17 335	75	2 004	7.84	60	79	36 160	48	24.13
1979 ASM	16 459	76	2 035	7.35	59	78	36 015	46	23.28
1978 ASM	15 061	78	2 008	6.79	59	79	32 345	47	20.77
1977 Census	13 773	77	2 016	6.22	59	79	29 161	47	18.87

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES								
1992 Census	36 026	72	2 073	16.80	69	79	112 752	32	75.66
1991 ASM	34 095	70	2 073	15.91	69	79	101 215	34	70.14
1990 ASM	34 025	70	2 105	15.78	71	81	99 436	34	67.53
1989 ASM	33 114	72	2 092	15.18	72	80	108 355	31	72.24
1988 ASM	32 763	71	2 073	15.47	70	79	118 578	28	80.45
1987 Census	31 957	71	2 103	15.03	69	79	98 616	32	65.74
1986 ASM	29 542	72	1 989	14.50	68	79	84 618	35	59.28
1985 ASM	27 768	71	1 980	13.50	68	79	74 688	37	53.13
1984 ASM	27 490	73	1 954	13.53	67	77	91 571	30	63.80
1983 ASM	26 818	73	1 935	13.06	68	80	67 324	40	47.67
1982 Census	23 890	71	1 807	12.47	78	90	40 474	59	31.64
1981 ASM	24 306	73	1 918	12.05	77	90	45 902	53	32.68
1980 ASM	22 130	73	1 910	10.93	75	88	41 261	54	29.66
1979 ASM	20 749	75	2 046	9.67	71	82	54 044	38	35.28
1978 ASM	18 546	76	2 000	8.79	69	81	48 741	38	32.03
1977 Census	17 247	75	1 966	8.32	71	84	41 216	42	27.86
	INDUSTRY 3317, STEEL PIPE AND TUBES								
1992 Census	31 203	76	2 140	13.26	67	81	72 338	43	44.76
1991 ASM	29 859	76	2 156	12.58	69	82	68 150	44	41.47
1990 ASM	29 606	77	2 146	12.28	66	79	77 271	38	46.53
1989 ASM	27 409	78	2 054	11.93	63	75	81 921	33	51.05
1988 ASM	27 425	79	2 006	12.51	63	75	90 307	30	57.15
1987 Census	26 296	79	2 026	11.81	65	79	68 658	38	43.13
1986 ASM	24 581	76	1 966	11.39	64	79	56 822	43	37.82
1985 ASM	24 314	76	1 925	11.59	64	80	52 038	47	35.48
1984 ASM	22 662	77	1 967	10.36	66	81	49 717	46	32.73
1983 ASM	23 251	76	1 829	11.56	67	85	41 554	56	30.00
1982 Census	24 004	75	1 852	12.25	65	82	44 915	53	32.25
1981 ASM	23 608	78	1 946	11.42	62	76	68 885	34	45.39
1980 ASM	21 040	77	1 920	10.21	65	80	49 395	43	33.33
1979 ASM	19 258	79	2 000	8.99	65	80	46 493	41	29.60
1978 ASM	17 858	79	2 031	8.31	67	83	39 417	45	24.52
1977 Census	16 165	78	2 005	7.57	65	81	35 536	45	22.61

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS														
United States	–	**217**	**197**	**170.6**	**7 035.7**	**131.4**	**277.0**	**5 261.6**	**16 569.1**	**25 392.2**	**42 215.2**	**2 210.5**	**188.1**	**15 804.7**
Alabama	–	11	11	6.3	238.6	5.0	10.9	182.9	694.1	1 104.5	1 798.6	44.9	(NA)	(D)
Arkansas	–	5	5	1.4	57.8	1.0	2.5	44.3	243.9	305.2	551.1	12.4	E	(D)
California	–	7	4	1.5	57.9	1.2	2.9	43.6	62.2	524.2	604.9	32.4	1.8	185.3
Colorado	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	17	16	12.8	505.0	10.0	21.1	366.1	1 002.9	1 737.7	2 734.5	78.2	14.6	1 140.8
Indiana	–	12	12	32.5	1 442.7	24.3	50.2	1 053.7	4 010.0	4 482.9	8 445.2	545.1	(NA)	(D)
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	8	8	5.0	182.6	4.0	7.7	140.5	471.3	501.7	1 023.8	(D)	(NA)	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	5	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	10	9	9.7	436.3	7.4	16.2	318.1	885.6	1 853.5	2 754.9	(D)	12.9	1 072.2
Minnesota	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nebraska	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	9	8	3.5	134.1	2.5	5.0	95.3	429.4	443.6	906.0	22.3	(NA)	(D)
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	25	23	28.1	1 169.0	22.6	49.0	939.2	3 431.8	4 219.2	7 660.2	426.9	30.2	2 836.5
Oklahoma	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	43.3
Oregon	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992 All establishments Total (no.)	1992 All establishments With 20 employees or more (no.)	1992 All employees Number[2] (1,000)	1992 All employees Payroll (million dollars)	1992 Production workers Number (1,000)	1992 Production workers Hours (millions)	1992 Production workers Wages (million dollars)	1992 Value added by manufacture (million dollars)	1992 Cost of materials (million dollars)	1992 Value of shipments (million dollars)	1992 New capital expenditures (million dollars)	1987 All employees[2] (1,000)	1987 Value added by manufacture (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.														
Pennsylvania	–	47	45	34.9	1 416.8	27.0	55.0	1 044.7	2 453.1	4 770.2	7 313.8	361.2	39.1	2 029.6
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	6	5	1.7	67.4	1.2	2.9	53.0	112.6	409.9	514.6	52.7	G	(D)
Tennessee	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	12	10	5.0	192.5	3.7	8.1	131.0	504.9	953.0	1 464.8	54.8	(NA)	(D)
Utah	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	E1	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
West Virginia	–	4	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS														
United States	**–**	**37**	**28**	**4.9**	**171.2**	**3.5**	**7.2**	**112.3**	**414.2**	**816.9**	**1 263.8**	**36.9**	**3.9**	**295.6**
California	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	9	7	2.0	72.8	1.5	3.1	51.1	153.4	310.1	483.8	13.0	G	(D)
Pennsylvania	–	4	2	.2	7.4	.2	.4	4.9	32.9	13.6	46.7	(D)	(NA)	(D)
South Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
West Virginia	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS														
United States	**–**	**349**	**208**	**24.7**	**691.6**	**19.0**	**39.9**	**487.3**	**1 727.1**	**2 455.1**	**4 206.4**	**124.5**	**24.7**	**1 422.9**
Alabama	–	5	4	.5	12.9	.4	.9	10.5	27.5	42.8	69.7	(D)	E	(D)
Arkansas	–	8	7	.7	20.0	.6	1.1	16.8	77.6	83.9	163.1	(D)	E	(D)
California	–	32	15	1.2	37.6	.9	1.9	23.6	82.0	156.2	237.4	5.0	G	(D)
Connecticut	–	17	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	15	9	.9	28.5	.7	1.5	16.8	73.2	115.9	193.5	2.7	1.0	87.4
Georgia	–	7	6	1.6	37.8	1.3	2.7	31.1	109.7	101.1	212.4	(D)	F	(D)
Illinois	–	31	17	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	153.5
Indiana	E2	17	11	1.1	32.3	.8	1.7	22.6	73.8	112.7	185.9	(D)	F	(D)
Iowa	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)
Kentucky	–	5	4	1.1	29.9	.9	1.9	24.4	75.5	87.2	172.3	4.3	1.0	38.5
Maryland	–	5	4	.5	14.8	.4	.9	10.9	31.6	49.8	81.1	(D)	F	(D)
Massachusetts	–	19	9	.5	13.0	.3	.7	8.3	27.1	50.4	77.1	(D)	F	(D)
Michigan	–	13	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
Minnesota	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	9	7	1.3	36.6	1.0	2.2	25.6	103.1	160.6	264.4	(D)	.8	64.3
New Hampshire	E2	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	10	5	.5	14.4	.4	.9	9.7	29.1	41.1	71.0	1.2	.7	32.5
New York	E2	13	6	.4	9.1	.3	.5	5.8	17.7	35.7	54.8	(D)	(NA)	(D)
North Carolina	–	14	9	.7	16.4	.5	1.0	10.0	33.3	66.5	99.3	1.2	E	(D)
Ohio	–	15	9	1.6	53.1	1.3	2.3	36.4	161.1	165.7	326.3	2.7	G	(D)
Oklahoma	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	22.6
Pennsylvania	–	22	17	2.2	60.0	1.7	3.7	40.8	146.4	166.3	313.1	6.9	2.4	121.8
Rhode Island	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	8	5	.6	15.5	.5	.9	10.7	26.6	65.8	94.8	4.7	E	(D)
Tennessee	–	8	7	.7	18.3	.5	1.2	14.4	79.5	142.0	224.0	8.1	E	(D)
Texas	–	20	14	1.3	28.8	.9	1.8	19.1	68.5	155.8	222.1	4.4	G	(D)
Virginia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES														
United States	–	**190**	**86**	**15.3**	**551.2**	**11.0**	**22.8**	**383.1**	**1 725.1**	**3 779.9**	**5 510.7**	**115.6**	**16.4**	**1 617.3**
California	–	16	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	–	10	6	1.0	43.1	.8	1.7	30.3	–5.5	279.2	278.2	2.9	1.4	58.1
Illinois	–	17	10	1.7	61.4	1.2	2.6	41.4	243.9	550.0	804.1	6.7	G	(D)
Indiana	–	6	5	1.1	34.5	.9	1.4	25.1	87.5	193.3	284.9	(D)	F	(D)
Maryland	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	17	6	.9	35.4	.7	1.5	27.7	72.3	457.4	514.6	4.7	1.4	105.3
Missouri	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
New York	–	6	4	.8	29.3	.5	1.1	17.3	82.1	149.5	224.5	5.6	F	(D)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	35	21	3.8	137.1	2.7	5.5	91.9	407.0	771.3	1 157.5	50.0	3.4	280.0
Pennsylvania	–	15	9	2.6	88.6	1.9	3.9	71.6	497.1	518.0	1 033.7	16.9	(NA)	(D)
South Carolina	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	6	3	.3	8.9	.2	.5	5.9	26.4	74.4	100.5	(D)	(NA)	(D)
INDUSTRY 3317, STEEL PIPE AND TUBES														
United States	–	**233**	**181**	**23.7**	**739.5**	**17.9**	**38.3**	**508.0**	**1 714.4**	**3 512.1**	**5 250.2**	**114.3**	**19.6**	**1 345.7**
Alabama	–	7	4	.4	12.4	.3	.6	8.9	22.7	52.0	71.6	(D)	(NA)	(NA)
Arizona	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Arkansas	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	23.6
California	–	24	15	1.9	58.6	1.4	3.0	39.9	95.5	464.1	566.6	13.1	G	(D)
Colorado	E4	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	E3	7	4	.2	5.9	.2	.4	3.9	21.4	38.3	59.6	.4	(NA)	(D)
Illinois	–	19	17	2.2	84.5	1.4	3.1	48.3	187.8	493.9	683.6	10.4	1.4	111.1
Indiana	–	15	13	1.2	34.6	.9	1.9	23.5	100.2	145.3	246.4	4.9	F	(D)
Kentucky	E2	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	18	14	1.6	49.7	1.3	2.8	35.8	103.8	131.5	234.9	9.9	1.6	92.1
Minnesota	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	10	6	.5	15.1	.3	.7	9.6	29.6	59.6	91.4	2.5	.7	53.7
New York	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	E	(D)
North Carolina	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	25	21	3.9	124.2	3.0	6.6	93.7	311.7	506.7	808.5	14.4	4.0	307.7
Oklahoma	–	6	6	.7	18.9	.5	1.2	12.4	43.1	97.9	141.9	5.2	E	(D)
Oregon	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	20	19	3.5	115.0	2.7	5.8	86.7	309.5	533.4	831.4	(D)	3.3	277.3
Tennessee	–	8	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	10	9	1.0	28.8	.7	1.6	19.3	48.8	138.9	201.1	8.3	F	(D)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
West Virginia	–	4	4	.3	6.8	.2	.4	4.5	12.9	60.9	78.1	(D)	(NA)	(D)
Wisconsin	E1	6	6	.9	26.6	.6	1.2	16.6	71.4	101.7	173.4	4.1	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)					Electrometallurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)
	Total	Fully integrated (SIC 3312-11)	Partially integrated with blast furnaces (SIC 3312-12)	Partially integrated without blast furnaces (SIC 3312-13)	Nonintegrated (SIC 3312-14)				
Companies—number	136	(NA)	(NA)	(NA)	(NA)	31	269	161	166
All establishments—number	217	17	8	79	113	37	349	190	233
With 1 to 19 employees—number	20	–	–	–	20	9	141	104	52
With 20 to 99 employees—number	42	1	–	1	40	10	139	45	94
With 100 employees or more—number	155	16	8	78	53	18	69	41	87

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)					Electro-metallurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)
	Total	Fully integrated (SIC 3312-11)	Partially integrated with blast furnaces (SIC 3312-12)	Partially integrated without blast furnaces (SIC 3312-13)	Nonintegrated (SIC 3312-14)				
Employment and labor costs:									
Employees, 1,000	170.6	72.5	15.2	55.6	27.2	4.9	24.7	15.3	23.7
Compensation, total, mil dol	9 952.0	4 559.1	887.2	3 025.1	1 480.6	228.7	898.6	737.4	966.5
Annual payroll, mil dol	7 035.7	3 143.2	619.1	2 239.4	1 034.0	171.2	691.6	551.2	739.5
Fringe benefits, mil dol	2 916.3	1 415.9	268.1	785.7	446.6	57.5	207.0	186.2	227.0
Social Security and other legally required payments, mil dol	777.2	313.9	83.7	255.0	124.7	24.5	88.0	67.3	91.4
Employer voluntary payments, mil dol	2 139.0	1 102.0	184.4	530.7	321.9	33.0	119.1	118.9	135.6
Production workers:									
Average for year, 1,000	131.4	55.7	12.0	42.1	21.5	3.5	19.0	11.0	17.9
March, 1,000	133.4	56.6	12.5	42.4	22.0	3.4	18.9	10.7	18.0
May, 1,000	133.0	56.7	12.0	42.9	21.5	3.4	19.1	10.8	18.1
August, 1,000	131.3	55.3	11.9	42.5	21.6	3.5	19.1	11.7	18.0
November, 1,000	127.8	54.3	11.8	40.8	20.9	3.4	18.9	10.8	17.8
Hours, millions	277.0	117.2	26.4	88.3	45.1	7.2	39.9	22.8	38.3
Wages, mil dol	5 261.6	2 370.9	489.5	1 639.4	761.7	112.3	487.3	383.1	508.0
Cost of materials[1], mil dol	25 392.2	9 043.1	2 673.3	8 594.7	5 081.1	816.9	2 455.1	3 779.9	3 512.1
Materials, parts, containers, etc., consumed[2], mil dol	20 513.3	6 775.7	2 026.7	7 154.4	4 556.5	596.5	2 201.7	3 518.4	3 174.5
Resales, mil dol	35.5	.5	.2	25.4	9.4	(D)	106.4	25.9	132.8
Fuels, mil dol	1 575.0	780.8	292.1	307.5	194.7	28.6	32.5	43.6	34.6
Purchased electricity, mil dol	1 717.7	483.0	157.0	878.5	199.2	111.2	89.8	91.0	74.3
Contract work, mil dol	1 550.8	1 003.1	197.4	229.0	121.3	(D)	24.9	100.9	95.8
Quantity of electric energy used for heat and power:									
Purchased, mil kWh	42 762.5	11 109.4	3 444.8	23 473.9	4 734.4	3 922.6	1 685.7	1 578.4	1 108.2
Generated less sold, mil kWh	4 930.8	4 562.6	5.4	(D)	(D)	(D)	(S)	(D)	(S)
Total value of shipments, mil dol	42 215.2	16 435.9	4 705.5	13 479.5	7 594.3	1 263.8	4 206.4	5 510.7	5 250.2
Value added, mil dol	16 569.1	7 296.6	2 035.0	4 774.1	2 463.4	414.2	1 727.1	1 725.1	1 714.4
Inventories by stage of fabrication:									
Beginning of 1992, mil dol	7 704.9	3 204.6	712.1	2 403.9	1 384.4	311.1	619.8	967.8	889.0
Finished goods, mil dol	2 410.8	1 086.3	200.9	725.2	398.5	139.8	246.6	263.5	314.4
Work in process, mil dol	2 696.1	1 049.3	199.0	969.3	478.5	71.5	127.9	438.1	253.3
Materials and supplies, mil dol	2 598.0	1 069.0	312.2	709.4	507.4	99.8	245.4	266.2	321.3
End of 1992, mil dol	7 281.1	3 057.2	669.8	2 266.5	1 287.6	279.6	575.1	1 039.8	847.6
Finished goods, mil dol	2 418.7	1 087.2	217.1	700.4	414.0	119.2	229.6	254.2	307.3
Work in process, mil dol	2 434.3	952.2	185.7	883.3	413.1	59.3	120.7	441.7	236.7
Materials and supplies, mil dol	2 428.1	1 017.9	267.0	682.7	460.5	101.0	224.8	343.9	303.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)	Electrometallurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)
Gross book value of depreciable assets:					
Total:					
Beginning of year	36 724.8	684.0	1 845.8	1 945.4	1 674.0
New capital expenditures[1]	2 210.5	36.9	124.5	115.6	114.3
Used capital expenditures	54.8	3.2	13.5	5.4	11.7
Retirements	954.9	8.3	38.6	33.1	37.0
End of year	38 035.2	715.8	1 945.2	2 033.3	1 763.0
Buildings and other structures:					
Beginning of year	3 548.4	95.9	412.8	292.7	357.7
New capital expenditures	131.9	5.8	23.8	11.1	17.9
Used capital expenditures	9.3	.1	2.5	.5	4.6
Retirements	56.0	.4	2.9	7.0	.5
End of year	3 633.6	101.3	436.1	297.3	379.7
Machinery and equipment:					
Beginning of year	33 176.4	588.1	1 433.1	1 652.7	1 316.3
New capital expenditures[1]	2 078.6	31.1	100.7	104.5	96.4
Used capital expenditures	45.4	3.1	11.0	4.9	7.1
Retirements	898.8	7.8	35.6	26.1	36.5
End of year	34 401.6	614.5	1 509.1	1 736.0	1 383.2
Depreciation charges during 1992:					
Total	1 639.4	33.4	118.4	117.8	92.1
Buildings and other structures	105.9	4.1	18.5	12.5	13.7
Machinery and equipment	1 533.5	29.3	100.0	105.3	78.4
Rental payments:					
Total	244.9	7.7	25.6	18.4	28.4
Buildings and other structures	71.6	3.7	14.3	8.8	16.5
Machinery and equipment	173.3	4.0	11.2	9.6	11.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)		Electrometallurgical products (SIC 3313)		Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	109.6	(X)	2.3	(X)	7.2	(X)	13.7	(X)	5.2	(X)
Response coverage ratio (percent)[2]	90.7	(X)	75.1	(X)	88.2	(X)	90.8	(X)	85.8	(X)
Machinery	1 265.6	(X)	18.4	(X)	51.8	(X)	55.5	(X)	60.2	(X)
Response coverage ratio (percent)[2]	88.9	(X)	80.4	(X)	88.2	(X)	77.0	(X)	87.5	(X)
Other purchased services:										
Communications	35.7	(X)	1.5	(X)	6.8	(X)	7.4	(X)	5.7	(X)
Response coverage ratio (percent)[2]	86.6	(X)	80.4	(X)	87.9	(X)	85.1	(X)	77.2	(X)
Legal	47.7	(X)	2.3	(X)	5.4	(X)	4.5	(X)	7.8	(X)
Response coverage ratio (percent)[2]	90.6	(X)	80.4	(X)	84.9	(X)	86.4	(X)	87.5	(X)
Accounting and bookkeeping	8.9	(X)	.5	(X)	6.2	(X)	2.0	(X)	4.1	(X)
Response coverage ratio (percent)[2]	87.0	(X)	68.0	(X)	84.9	(X)	84.8	(X)	85.2	(X)
Advertising	16.8	(X)	.5	(X)	4.1	(X)	1.7	(X)	5.7	(X)
Response coverage ratio (percent)[2]	92.0	(X)	73.4	(X)	84.5	(X)	85.7	(X)	82.6	(X)
Software and other data processing	58.4	(X)	.7	(X)	5.5	(X)	3.8	(X)	2.5	(X)
Response coverage ratio (percent)[2]	86.6	(X)	75.1	(X)	83.3	(X)	85.7	(X)	83.0	(X)
Refuse removal, including hazardous waste	154.4	(X)	2.3	(X)	10.3	(X)	15.4	(X)	7.4	(X)
Response coverage ratio (percent)[2]	93.6	(X)	80.4	(X)	84.8	(X)	88.6	(X)	84.5	(X)
New machinery and equipment expenditures	2 078.6	(X)	31.1	(X)	100.7	(X)	104.5	(X)	96.4	(X)
Automobiles, trucks, etc., for highway use	6.0	3	.6	39	1.1	33	.4	4	2.5	20
Computers and peripheral data processing equipment	35.2	2	2.1	7	4.4	28	8.4	4	2.9	3
All other	2 037.4	1	28.4	2	95.1	2	95.7	1	90.9	1
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.2	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	20 513.3	(X)	596.5	(X)	2 201.7	(X)	3 518.4	(X)	3 174.5	(X)
Materials purchased or transferred from foreign sources[4]	2 107.0	1	(S)	(X)	338.8	16	666.9	4	169.0	9
Materials purchased or transferred from domestic sources	18 406.3	1	(S)	(X)	1 862.9	4	2 851.5	1	3 005.5	1
Adjustment ratio[3]	1.6	(X)	(S)	(X)	1.3	(X)	1.5	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS												
Total	**–**	**217**	**170.6**	**7 035.7**	**131.4**	**277.0**	**5 261.6**	**16 569.1**	**25 392.2**	**42 215.2**	**2 210.5**	**7 281.1**
Establishments with an average of–												
1 to 4 employees	–	11	(Z)	.6	(Z)	(Z)	.3	2.1	9.3	11.4	.9	1.0
5 to 9 employees	–	3	.1	3.4	.1	.2	2.0	5.6	25.6	30.7	(D)	6.0
10 to 19 employees	E1	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(D)
20 to 49 employees	E1	18	.5	18.0	.4	.8	11.0	67.0	92.1	157.1	3.4	35.2
50 to 99 employees	–	24	1.7	54.8	1.3	2.7	36.6	152.6	313.6	469.2	11.0	95.2
100 to 249 employees	E1	38	6.5	231.7	5.0	10.7	163.4	484.3	1 380.3	1 901.9	53.1	287.5
250 to 499 employees	–	48	17.9	682.9	14.0	29.9	509.9	1 597.7	3 426.2	5 024.1	219.7	794.7
500 to 999 employees	–	27	18.1	748.5	13.8	30.0	578.4	1 878.5	3 740.6	5 635.3	201.6	905.3
1,000 to 2,499 employees	–	23	38.5	1 462.2	30.0	61.8	1 107.1	4 169.5	5 280.1	9 528.2	282.9	1 437.8
2,500 employees or more	–	19	87.2	3 833.6	66.9	140.9	2 852.7	8 211.9	11 124.4	19 457.3	1 437.6	3 718.4
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS												
Total	**–**	**37**	**4.9**	**171.2**	**3.5**	**7.2**	**112.3**	**414.2**	**816.9**	**1 263.8**	**36.9**	**279.6**
Establishments with an average of–												
1 to 4 employees	E8	2	(Z)	1.0	(Z)	(Z)	.6	1.7	4.7	6.6	.2	1.5
5 to 9 employees	E2	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	E1	3	(Z)	1.2	(Z)	.1	.6	11.5	5.2	16.3	.4	1.9
20 to 49 employees	E6	5	.1	4.0	.1	.2	2.6	16.1	13.0	30.0	(D)	4.5
50 to 99 employees	–	5	.4	12.5	.3	.7	8.8	26.0	57.9	77.4	4.6	24.8
100 to 249 employees	–	13	1.9	66.6	1.3	2.7	42.1	188.6	363.4	563.0	13.6	125.4
250 to 499 employees	–	3	2.4	85.9	1.7	3.5	57.6	170.2	372.8	570.5	18.1	121.5
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS												
Total	**–**	**349**	**24.7**	**691.6**	**19.0**	**39.9**	**487.3**	**1 727.1**	**2 455.1**	**4 206.4**	**124.5**	**575.1**
Establishments with an average of—												
1 to 4 employees	E9	70	.1	2.9	.1	.2	2.1	6.0	9.1	15.1	.3	2.5
5 to 9 employees	E8	40	.3	6.6	.2	.4	4.7	12.7	17.1	29.7	.6	4.9
10 to 19 employees	E1	31	.5	11.3	.3	.7	7.7	26.2	38.5	64.6	1.5	7.9
20 to 49 employees	–	62	2.1	54.8	1.5	3.2	34.5	149.0	256.1	405.3	11.3	64.9
50 to 99 employees	–	77	5.7	149.2	4.2	8.7	98.4	421.2	721.1	1 149.7	31.8	142.4
100 to 249 employees	–	53	8.3	239.5	6.6	14.1	170.8	595.1	939.4	1 536.6	48.8	190.4
250 to 499 employees	–	9	3.1	86.6	2.2	4.7	57.1	190.3	183.5	373.1	13.4	83.1
500 to 999 employees	–	7	4.7	140.8	3.9	7.8	112.1	326.7	290.3	632.3	16.7	79.1
Covered by administrative records[2]	E9	96	.4	8.4	.3	.6	6.0	13.1	19.5	32.7	.8	5.5
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES												
Total	**–**	**190**	**15.3**	**551.2**	**11.0**	**22.8**	**383.1**	**1 725.1**	**3 779.9**	**5 510.7**	**115.6**	**1 039.8**
Establishments with an average of—												
1 to 4 employees	E8	44	.1	2.3	.1	.1	1.6	5.9	13.6	19.6	.3	3.8
5 to 9 employees	E4	28	.2	5.3	.1	.3	3.4	11.8	26.7	38.8	.5	12.0
10 to 19 employees	E2	32	.5	12.1	.3	.7	7.9	36.4	86.7	124.8	1.8	23.0
20 to 49 employees	–	26	.9	27.2	.7	1.4	17.2	50.4	224.6	280.4	4.5	49.7
50 to 99 employees	–	19	1.3	40.8	1.0	2.1	25.3	91.8	244.8	338.5	7.2	62.6
100 to 249 employees	–	24	3.8	130.8	2.8	5.9	87.7	332.7	834.1	1 161.0	25.3	204.2
250 to 499 employees	–	11	3.6	136.9	2.6	5.0	92.1	329.2	932.3	1 224.1	21.3	285.2
500 to 999 employees	–	4	4.9	195.8	3.5	7.4	147.7	866.9	1 417.0	2 323.5	54.7	399.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	38	.1	2.3	.1	.1	1.6	5.1	11.8	16.9	.3	3.4
INDUSTRY 3317, STEEL PIPE AND TUBES												
Total	**–**	**233**	**23.7**	**739.5**	**17.9**	**38.3**	**508.0**	**1 714.4**	**3 512.1**	**5 250.2**	**114.3**	**847.6**
Establishments with an average of—												
1 to 4 employees	E6	17	(Z)	.7	(Z)	.1	.6	4.0	8.2	12.5	4.8	1.3
5 to 9 employees	–	13	.1	2.7	.1	.1	1.5	7.5	9.2	16.2	(D)	3.1
10 to 19 employees	–	22	.3	8.4	.2	.5	5.4	32.3	45.2	75.2	2.1	15.6
20 to 49 employees	–	42	1.4	37.9	1.1	2.3	25.0	103.4	199.6	298.5	11.4	51.3
50 to 99 employees	–	52	3.7	118.0	2.9	6.3	79.9	297.2	708.4	996.1	13.7	175.5
100 to 249 employees	–	64	9.9	293.1	7.4	15.4	198.4	698.1	1 305.2	2 047.7	45.5	286.6
250 to 499 employees	–	21	8.3	278.8	6.3	13.6	197.2	571.9	1 236.3	1 804.0	36.7	314.1
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3312	**Blast furnaces and steel mills:**										
	All establishments in industry	217	170.6	7 035.7	131.4	277.0	5 261.6	16 569.1	25 392.2	42 215.2	2 210.5
	Establishments with this product class primary:										
33121	Coke oven and blast furnace products, including ferroalloys	22	8.6	334.4	7.3	15.7	276.9	831.8	1 293.2	2 127.8	193.4
33122	Steel ingot and semifinished shapes	30	11.9	459.2	9.2	19.0	344.4	1 118.0	1 923.7	3 086.4	100.5
33123	Hot-rolled sheet and strip, including tin mill products	40	85.4	3 722.8	65.4	139.2	2 780.7	9 761.4	13 532.7	23 353.5	1 332.5
33124	Hot-rolled bars and bar shapes, plates, structural shapes, and piling	84	41.7	1 606.4	32.5	68.1	1 225.8	3 065.3	6 300.4	9 435.5	419.1
33126	Steel pipe and tubes (made in steel mills)	11	5.3	193.0	4.1	8.5	139.4	778.1	521.7	1 317.0	80.6
33127	Cold-rolled steel sheet and strip (made in steel mills)	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33128	Cold-finished steel bars and bar shapes (made in steel mills)	6	5.0	199.2	3.4	6.8	126.3	319.8	513.0	859.9	(D)
3312A	Seamless rolled ring forgings, ferrous (made in steel mills)	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3312B	Open die or smith forgings (hammer or press), ferrous (made in steel mills)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3312C	Other steel mill products, including steel rails, except wire products	6	4.9	161.3	3.7	7.6	122.8	289.5	392.4	691.2	11.6
3313	**Electrometallurgical products:**										
	All establishments in industry	37	4.9	171.2	3.5	7.2	112.3	414.2	816.9	1 263.8	36.9
	Establishments with this product class primary:										
33132	Ferrochromium	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33133	Ferrosilicon	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33134	Other ferroalloys	18	3.0	105.6	2.0	4.1	67.2	252.3	536.9	811.2	20.1
3315	**Steel wire and related products:**										
	All establishments in industry	349	24.7	691.6	19.0	39.9	487.3	1 727.1	2 455.1	4 206.4	124.5
	Establishments with this product class primary:										
33151	Noninsulated ferrous wire rope, cable, and strand (made in wiredrawing plants)	39	5.8	156.8	4.4	9.6	111.5	391.1	505.8	906.0	45.3
33152	Steel nails, staples, tacks, spikes, and brads	37	4.2	121.8	3.4	6.9	92.9	307.8	293.3	608.1	20.3
33155	Steel wire (not made in steel mills)	90	8.0	237.1	6.1	12.5	164.3	597.1	1 136.3	1 736.9	39.5
33156	Fencing and fence gates (made in wiredrawing plants)	17	1.3	36.7	.9	1.9	20.5	108.0	111.5	220.9	(D)
33157	Ferrous wire cloth and other ferrous woven wire products (made in wiredrawing plants)	5	.6	14.7	.4	1.0	9.5	34.1	34.3	69.4	(D)
33159	Other fabricated ferrous wire products (except springs) (made in wiredrawing plants)	37	3.8	99.8	3.0	6.5	71.7	255.8	297.9	554.0	10.4
3316	**Cold finishing of steel shapes:**										
	All establishments in industry	190	15.3	551.2	11.0	22.8	383.1	1 725.1	3 779.9	5 510.7	115.6
	Establishments with this product class primary:										
33167	Cold-rolled steel sheet and strip (not made in steel mills)	60	10.4	400.3	7.3	15.3	280.2	1 293.6	2 897.5	4 200.8	92.8
33168	Cold-finished steel bars and bar shapes (not made in steel mills)	49	4.1	130.9	3.1	6.3	88.8	388.0	807.3	1 192.0	15.1
3317	**Steel pipe and tubes:**										
	All establishments in industry	233	23.7	739.5	17.9	38.3	508.0	1 714.4	3 512.1	5 250.2	114.3

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS			
Total value of shipments	42 215.2	38 568.6	36 824.4
Primary products value of shipments	41 095.7	37 343.5	35 075.4
Secondary products value of shipments	675.5	771.1	877.7
Total miscellaneous receipts	444.0	453.9	871.3
Value of resales	35.0	118.9	334.7
Contract receipts	160.4	111.6	35.6
Other miscellaneous receipts	248.5	223.4	501.0
Primary products specialization ratio	98	98	98
Value of primary products shipments made in all industries	42 220.9	38 456.6	35 456.8
Value of primary products shipments made in this industry	41 095.7	37 343.5	35 075.4
Value of primary products shipments made in other industries	1 125.2	1 113.1	381.4
Coverage ratio	97	97	99

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS			
Total value of shipments	1 263.8	843.8	707.5
Primary products value of shipments	964.9	699.7	653.1
Secondary products value of shipments	110.7	39.4	17.5
Total miscellaneous receipts	188.2	104.7	37.0
Value of resales	(D)	19.5	7.3
Contract receipts	88.0	79.6	(D)
Other miscellaneous receipts	(D)	5.6	(D)
Primary products specialization ratio	90	95	97
Value of primary products shipments made in all industries	971.9	840.6	728.0
Value of primary products shipments made in this industry	964.9	699.7	653.1
Value of primary products shipments made in other industries	6.9	140.9	74.9
Coverage ratio	99	83	90
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS			
Total value of shipments	4 206.4	3 330.3	2 420.9
Primary products value of shipments	3 914.4	3 058.0	2 279.3
Secondary products value of shipments	162.2	135.5	67.5
Total miscellaneous receipts	129.8	136.8	74.2
Value of resales	114.3	129.3	65.9
Contract receipts	10.0	2.5	.7
Other miscellaneous receipts	5.4	5.0	7.6
Primary products specialization ratio	96	96	97
Value of primary products shipments made in all industries	4 440.7	3 483.6	2 967.7
Value of primary products shipments made in this industry	3 914.4	3 058.0	2 279.3
Value of primary products shipments made in other industries	526.3	425.6	688.4
Coverage ratio	88	88	77
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES			
Total value of shipments	5 510.7	5 216.3	3 005.1
Primary products value of shipments	4 342.5	4 119.3	2 711.6
Secondary products value of shipments	1 063.7	1 004.9	246.5
Total miscellaneous receipts	104.5	92.1	47.0
Value of resales	31.5	35.8	12.4
Contract receipts	41.5	27.4	7.0
Other miscellaneous receipts	31.5	28.9	27.6
Primary products specialization ratio	80	80	92
Value of primary products shipments made in all industries	4 580.4	4 366.1	2 803.4
Value of primary products shipments made in this industry	4 342.5	4 119.3	2 711.6
Value of primary products shipments made in other industries	237.9	246.8	91.8
Coverage ratio	95	94	97
INDUSTRY 3317, STEEL PIPE AND TUBES			
Total value of shipments	5 250.2	3 856.3	3 762.2
Primary products value of shipments	4 779.9	3 452.8	3 419.9
Secondary products value of shipments	241.2	335.3	220.3
Total miscellaneous receipts	229.2	68.2	122.0
Value of resales	175.3	43.0	60.0
Contract receipts	5.7	12.2	5.5
Other miscellaneous receipts	48.2	13.0	56.5
Primary products specialization ratio	95	91	94
Value of primary products shipments made in all industries	4 903.7	3 751.5	3 657.1
Value of primary products shipments made in this industry	4 779.9	3 452.8	3 419.9
Value of primary products shipments made in other industries	123.8	298.7	237.2
Coverage ratio	97	98	94

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3312– —	**BLAST FURNACES AND STEEL MILLS**								
	Total	**(NA)**	**(X)**	**(X)**	**42 220.9**	**(NA)**	**(X)**	**(X)**	**38 456.6**
33121	Coke oven and blast furnace products, including ferroalloys	(NA)	(X)	(X)	1 740.4	(NA)	(X)	(X)	1 283.9
	Coke oven products:								
33121 11	Coke, except screenings and breeze, 1,000 s tons	16	19 893.8	12 436.0	1 168.1	18	22 190.9	9 334.1	785.6
33121 12	Screenings and breeze, 1,000 s tons	19	1 697.8	1 751.9	81.3	19	2 829.6	1 222.9	50.5
33121 31	Coke oven gas, bil cu ft	4	(D)	(D)	(D)	6	29 104.1	(D)	(D)
33121 51	Crude tar, mil gal	17	210.4	197.7	85.1	17	323.2	502.7	83.2
33121 71	Crude light oil, mil gal	17	59.2	52.6	35.7	13	(S)	(S)	43.4
33121 97	Other coke oven products (including tar derivatives, ammonia, and light oil derivations)[3]	13	(X)	(X)	15.4	(NA)	(X)	(X)	(D)
	Blast furnace products (except ferroalloys):								
33121 91	Pig iron (including pig iron with silicon content up to and including 6 percent silicon), 1,000 s tons	3	(D)	(D)	(D)	5	42 418.0	521.3	81.2
33121 92	Slag, 1,000 s tons	6	3 674.0	*983.1	5.4	6	(NA)	(S)	2.6
33121 93	Sinter from ore, flue dust, and other materials, 1,000 s tons	2	(D)	(D)	(D)	1	(D)	(D)	(D)
33121 94	Blast furnace gas, bil cu ft	2	(D)	(D)	(D)	2	(D)	(D)	(D)
33121 98	Other blast furnace products, 1,000 s tons	6	330.1	*369.5	10.9	2	(D)	(D)	(D)
33121 00	Coke oven and blast furnace products, including ferroalloys, n.s.k.	(NA)	(X)	(X)	96.8	(NA)	(X)	(X)	137.5
33122	Steel ingot and semifinished shapes	(NA)	(X)	(X)	3 663.0	(NA)	(X)	(X)	3 397.8
33122 00	Ingots and semifinished shapes and forms[4]	73	(X)	(X)	3 663.0	61	(X)	(X)	3 397.8
33123	Hot-rolled sheet and strip, including tin mill products	(NA)	(X)	(X)	17 570.6	(NA)	(X)	(X)	16 087.3
33123 00	Tinplate, blackplate, terneplate, tin free steel, and hot-rolled sheet and strip[4]	45	(X)	(X)	17 570.6	41	(X)	(X)	16 087.3
33124	Hot-rolled bars and bar shapes, plates, structural shapes, and piling	(NA)	(X)	(X)	9 786.6	(NA)	(X)	(X)	8 584.8
33124 00	Plates, structural shapes, piling, hot-rolled bars and bar shapes (including concrete reinforcing and tool steel bars)[4]	81	(X)	(X)	9 786.6	79	(X)	(X)	8 584.8
33125	Steel wire (made in steel mills)	(NA)	(X)	(X)	370.7	(NA)	(X)	(X)	398.8
33125 00	Wire, including galvanized and other coated wire (made in plants producing wire rods or hot-rolled bars)	15	(X)	(X)	370.7	18	(X)	(X)	398.8
33126	Steel pipe and tubes (made in steel mills)	(NA)	(X)	(X)	1 701.3	(NA)	(X)	(X)	1 640.7
33126 00	Pipe and tubes (made in plants producing semifinished shapes or plate)	19	(X)	(X)	1 701.3	22	(X)	(X)	1 640.7
33127	Cold-rolled steel sheet and strip (made in steel mills)	(NA)	(X)	(X)	6 151.0	(NA)	(X)	(X)	5 735.4
33127 00	Cold-rolled sheet and strip (made in plants producing hot-rolled sheet or strip)	26	(X)	(X)	6 151.0	19	(X)	(X)	5 735.4
33128	Cold-finished steel bars and bar shapes (made in steel mills)	(NA)	(X)	(X)	658.0	(NA)	(X)	(X)	530.0
33128 00	Cold finished bars and bar shapes (made in plants producing hot-rolled bars and bar shapes)	13	(X)	(X)	658.0	13	(X)	(X)	530.0
3312A	Seamless rolled ring forgings, ferrous (made in steel mills)	(NA)	(X)	(X)	77.3	(NA)	(X)	(X)	(D)
3312A 17	Carbon steel and alloy steel (excluding stainless and hi-temp)[3]	5	(X)	(X)	46.9	(NA)	(X)	(X)	(D)
3312A 26	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)[3]	3	(X)	(X)	30.4	(NA)	(X)	(X)	(D)
3312A 00	Seamless rolled ring forgings, ferrous (made in steel mills), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	31.1
3312B	Open die or smith forgings (hammer or press), ferrous (made in steel mills)	(NA)	(X)	(X)	114.0	(NA)	(X)	(X)	(D)
3312B 62	Carbon steel and alloy steel (excluding stainless and hi-temp)[3]	5	(X)	(X)	107.7	(NA)	(X)	(X)	115.5
3312B 66	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)[3]	5	(X)	(X)	6.4	(NA)	(X)	(X)	(D)
3312B 00	Open die or smith forgings (hammer or press), ferrous (made in steel mills), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
3312C	Other steel mill products, including steel rails, except wire products	(NA)	(X)	(X)	382.8	(NA)	(X)	(X)	277.5
3312C 00	Other steel mill products (including steel rails, except wire products)[4]	10	(X)	(X)	382.8	14	(X)	(X)	277.5
33120	Blast furnaces and steel mills, n.s.k.	(NA)	(X)	(X)	5.2	(NA)	(X)	(X)	313.3
33120 00	Blast furnaces and steel mills, n.s.k.	(NA)	(X)	(X)	5.2	(NA)	(X)	(X)	313.3
33120 02	Blast furnaces and steel mills, n.s.k.[5]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3313– —	**ELECTROMETALLURGICAL PRODUCTS**								
	Total	**(NA)**	**(X)**	**(X)**	**971.9**	**(NA)**	**(X)**	**(X)**	**840.6**
33132	Ferrochromium	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	40.8
33132 00	Ferrochromium (including briquets), ferrochromium silicon, exothermic chromium additives, and other chromium alloys—1,000 s tons	4	(D)	(D)	(D)	6	23.0	28.6	40.8
33133	Ferrosilicon	(NA)	(X)	(X)	287.2	(NA)	(X)	(X)	317.2
33133 00	Ferrosilicon (including briquets) and other silicon alloys—1,000 s tons	9	336.4	*463.3	287.2	8	627.8	559.3	317.2
33134	Other ferroalloys	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	440.5
33134 08	Ferromanganese (including briquets), manganese metal, and silicomanganese[3]—1,000 s tons	3	(D)	(D)	(D)	4	(D)	(D)	(D)
33134 15	Superalloys (these superior heat and creep resistant alloys should be excluded from alloy categories listed elsewhere)—1,000 s tons	5	25.4	24.9	225.7	5	26.6	23.5	187.3
33134 89	Other ferroalloys (including silvery iron and spiegeleisen)—1,000 s tons	6	236.8	*239.1	101.6	2	(D)	(D)	(D)
33134 98	Other products made in electric and other furnaces—1,000 s tons	11	12 274.3	50.7	147.4	11	(S)	(S)	118.3
33134 00	Other ferroalloys, n.s.k.	(NA)	(X)	(X)	16.8	(NA)	(X)	(X)	6.6
33130	Electrometallurgical products, n.s.k.	(NA)	(X)	(X)	8.1	(NA)	(X)	(X)	42.2
33130 00	Electrometallurgical products, n.s.k.[6]	(NA)	(X)	(X)	7.7	(NA)	(X)	(X)	40.2
33130 02	Electrometallurgical products, n.s.k.[7]	(NA)	(X)	(X)	.4	(NA)	(X)	(X)	2.0

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3315– —	**STEEL WIRE AND RELATED PRODUCTS**						
	Total	**(NA)**	**(X)**	**4 440.7**	**(NA)**	**(X)**	**3 483.6**
33151	Noninsulated ferrous wire rope, cable, and strand (made in wiredrawing plants)	(NA)	(X)	981.6	(NA)	(X)	637.9
33151 13	Rope and cable made from steel wire (excluding fabricated wire rope assemblies)[4]	18	(X)	455.5	11	(X)	239.2
33151 15	Fabricated wire rope assemblies (including lifting slings)	7	(X)	46.4	3	(X)	13.6
33151 25	Wire forms (excluding rope assemblies) and composite rope and cable[3]	4	(X)	53.0	(NA)	(X)	353.6
33151 34	Steel wire strand (including strand for prestressed concrete, composite wire strand except ACSR, and guard rail cable)[3 4]	21	(X)	426.4			
33151 00	Noninsulated ferrous wire rope, cable, and strand (made in wiredrawing plants), n.s.k.	(NA)	(X)	.3	(NA)	(X)	31.5
33152	Steel nails, staples, tacks, spikes, and brads	(NA)	(X)	648.5	(NA)	(X)	557.6
33152 01	Round wire nails, collated, prepackaged—1,000 s tons	12	720.0	181.1	11	(S)	133.7
	Round wire nails, not collated, smooth shank: Coated, plated, or painted:						
33152 03	Galvanized—1,000 s tons	8	74.9	60.7	8	85.4	66.6
33152 05	Vinyl, resin, or cement coated—1,000 s tons	5	100.9	47.1	5	80.5	37.6
33152 07	Other—1,000 s tons	6	(S)	18.9	7	*5.4	4.7
33152 09	Not coated, plated, or painted—1,000 s tons	6	59.2	31.7	6	76.0	40.2
	Round wire nails, not collated, other than smooth shank: Coated, plated, or painted:						
33152 10	Galvanized—1,000 s tons	3	(D)	(D)	6	24.8	27.3
33152 13	Other (including vinyl, resin, or cement coated)[3]—1,000 s tons	4	(D)	(D)	(NA)	(NA)	5.5
33152 16	Not coated, plated, or painted—1,000 s tons	5	10.4	9.3	5	7.0	7.7
33152 22	Steel cut nails (including horseshoe nails)	7	(X)	79.2	8	(X)	39.9
33152 23	Steel wire staples	17	(X)	163.7	11	(X)	81.2
33152 25	Steel tacks (wire and cut)	4	(X)	7.5	10	(X)	77.1
33152 30	Steel spikes and brads (including track spikes)	7	(X)	14.2	4	(X)	17.8
33152 00	Steel nails, staples, tacks, spikes, and brads, n.s.k.	(NA)	(X)	11.0	(NA)	(X)	18.4
33155	Steel wire (not made in steel mills)	(NA)	(X)	1 652.2	(NA)	(X)	1 131.8
33155 00	Wire, including galvanized and other coated wire (made in plants not producing wire rods or hot-rolled bars)	92	(X)	1 652.2	90	(X)	1 131.8

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3315– —	**STEEL WIRE AND RELATED PRODUCTS—** Con.						
33156	Fencing and fence gates (made in wiredrawing plants)	(NA)	(X)	359.0	(NA)	(X)	258.7
33156 13	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)[3]	8	(X)	91.2	(NA)	(X)	83.4
33156 21	Woven and welded fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)[3]	11	(X)	209.3	10	(X)	101.5
33156 35	Fence gates, posts, and fittings	9	(X)	53.7			
33156 71	Ornamental lawn fence (excluding posts, gates, and fittings)	2	(X)	(D)	10	(X)	31.0
33156 00	Fencing and fence gates (made in wiredrawing plants), n.s.k.	(NA)	(X)	(D)	(NA)	(X)	42.8
33157	Ferrous wire cloth and other ferrous woven wire products (made in wiredrawing plants)	(NA)	(X)	105.7	(NA)	(X)	60.4
33157 00	Ferrous wire cloth and other ferrous woven wire products[3 4]	12	(X)	105.7	(NA)	(X)	60.4
33159	Other fabricated ferrous wire products (except springs) (made in wiredrawing plants)	(NA)	(X)	591.9	(NA)	(X)	644.1
33159 42	Wire chain (including tire chain, stud-link, and welded-link)[3]	1	(X)	(D)	(NA)	(X)	([8])
33159 51	Barbed and twisted wire[4]	9	(X)	146.6	6	(X)	47.1
33159 55	Wire bale ties[4]	10	(X)	43.9	6	(X)	18.5
33159 63	Welded steel wire fabrics (including concrete reinforcing mesh)[3]	10	(X)	112.4	(NA)	(X)	[8]363.9
33159 71	Wire garment hangers	4	(X)	121.2	5	(X)	85.9
33159 73	Wire carts (including household, grocery, and industrial)	2	(X)	(D)	(NA)	(X)	–
33159 75	Steel wire cages	(NA)	(X)	–	(NA)	(X)	–
33159 99	Other wire products (guards, baskets, florists' designs, paperclips, kitchenware, wire shelving, wire rack, etc.)	19	(X)	109.7	14	(X)	101.6
33159 00	Other fabricated ferrous wire products (except springs) (made in wiredrawing plants), n.s.k.	(NA)	(X)	–	(NA)	(X)	27.1
33150	Steel wire and related products, n.s.k.	(NA)	(X)	101.8	(NA)	(X)	193.1
33150 00	Steel wire and related products, n.s.k.[9]	(NA)	(X)	69.0	(NA)	(X)	140.2
33150 02	Steel wire and related products, n.s.k.[10]	(NA)	(X)	32.8	(NA)	(X)	52.8

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3316– —	**COLD-FINISHING OF STEEL SHAPES**				
	Total	**(NA)**	**4 580.4**	**(NA)**	**4 366.1**
33167	Cold-rolled steel sheet and strip (not made in steel mills)	(NA)	3 318.5	(NA)	3 145.4
33167 00	Cold-rolled sheet and strip (made in plants not producing hot-rolled sheet or strip)[4]	62	3 318.5	52	3 145.4
33168	Cold-finished steel bars and bar shapes (not made in steel mills)	(NA)	1 171.4	(NA)	974.8
33168 00	Cold-finished bars and bar shapes (made in plants not producing hot-rolled bars and bar shapes)[4]	52	1 171.4	40	974.8
33160	Cold-finishing of steel shapes, n.s.k.	(NA)	90.5	(NA)	245.9
33160 00	Cold-finishing of steel shapes, n.s.k.[11]	(NA)	73.5	(NA)	171.1
33160 02	Cold-finishing of steel shapes, n.s.k.[12]	(NA)	16.9	(NA)	74.8
3317– —	**STEEL PIPE AND TUBES**				
	Total	**(NA)**	**4 903.7**	**(NA)**	**3 751.5**
33170	Steel pipe and tubes (not made in steel mills)	(NA)	4 903.7	(NA)	3 751.5
33170 00	Pipe and tubes (made in plants not producing semifinished shapes or plate)[4]	172	4 903.7	160	3 751.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Additional detail is collected for this product in the Current Industrial Report. For the survey number and title, see appendix C, part 3.
[5]There were no administrative-record cases for this industry.
[6]Typically for establishments with 5 employees or more.
[7]Typically for establishments with less than 5 employees.
[8]For 1987, product codes were combined to avoid disclosing data for individual companies.
[9]Typically for establishments with 15 employees or more.
[10]Typically for establishments with less than 15 employees.
[11]Typically for establishments with 10 employees or more.
[12]Typically for establishments with less than 10 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Steel wire	(NA)	2 022.8	(NA)	1 530.6
33125 00	Made in steel mills	15	370.7	18	398.8
33155 00	Not made in steel mills	92	1 652.2	90	1 131.8
	Steel pipe and tubes	(NA)	6 605.0	(NA)	5 392.2
33126 00	Made in steel mills	19	1 701.3	22	1 640.7
33170 00	Not made in steel mills	172	4 903.7	160	3 751.5
	Cold-rolled steel sheet and strip	(NA)	9 469.5	(NA)	8 880.8
33127 00	Made in steel mills	26	6 151.0	19	5 735.4
33167 00	Not made in steel mills	62	3 318.5	52	3 145.4
	Cold-finished steel bars and bar shapes	(NA)	1 829.4	(NA)	1 504.8
33128 00	Made in steel mills	13	658.0	13	530.0
33168 00	Not made in steel mills	52	1 171.4	40	974.8
	Seamless rolled ring forgings, ferrous	(NA)	275.4	(NA)	(D)
3312A	Made in steel mills	(NA)	77.3	(NA)	(D)
34627	Not made in steel mills	(NA)	198.1	(NA)	181.2
	Carbon and alloy steel, excluding stainless and hi-temp	(NA)	123.1	(NA)	(D)
3312A 17	Made in steel mills	5	46.9	(NA)	(D)
34627 12	Not made in steel mills	20	76.2	(NA)	90.2
	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)	(NA)	152.3	(NA)	(D)
3312A 26	Made in steel mills	3	30.4	(NA)	(D)
34627 16	Not made in steel mills	15	121.9	(NA)	88.7
	Seamless rolled ring forgings, ferrous, n.s.k.	(NA)	(Z)	(NA)	33.5
3312A 00	Made in steel mills	(NA)	–	(NA)	31.1
34627 00	Not made in steel mills	(NA)	(Z)	(NA)	2.4
	Open die or smith forgings (hammer or press), ferrous	(NA)	444.2	(NA)	(D)
3312B	Made in steel mills	(NA)	114.0	(NA)	(D)
34628	Not made in steel mills	(NA)	330.1	(NA)	271.8
	Carbon and alloy steel (excluding stainless and hi-temp)	(NA)	399.3	(NA)	325.4
3312B 62	Made in steel mills	5	107.7	(NA)	115.5
34628 12	Not made in steel mills	41	291.6	(NA)	209.9
	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)	(NA)	44.6	(NA)	(D)
3312B 66	Made in steel mills	5	6.4	(NA)	(D)
34628 16	Not made in steel mills	21	38.2	(NA)	40.2
	Open die or smith forgings (hammer or press), ferrous, n.s.k.	(NA)	.3	(NA)	21.7
3312B 00	Made in steel mills	(NA)	–	(NA)	–
34628 00	Not made in steel mills	(NA)	.3	(NA)	21.7
	Noninsulated ferrous wire rope, cable, and strand	(NA)	1 429.5	(NA)	987.7
33151	Made in wiredrawing plants	(NA)	981.6	(NA)	637.9
34961	Not made in wiredrawing plants	(NA)	447.9	(NA)	349.8
	Rope and cable made from steel wire (excluding fabricated wire rope assemblies)	(NA)	550.8	(NA)	339.1
33151 13	Made in wiredrawing plants	18	455.5	11	239.2
34961 13	Not made in wiredrawing plants	44	95.3	39	99.9
	Fabricated wire rope assemblies (including lifting slings)	(NA)	143.4	(NA)	78.7
33151 15	Made in wiredrawing plants	7	46.4	3	13.6
34961 15	Not made in wiredrawing plants	56	97.0	42	65.1
	Wire forms (excluding rope assemblies) and composite rope and cable	(NA)	236.4	(NA)	(D)
33151 25	Made in wiredrawing plants	4	53.0	(NA)	(D)
34961 52	Not made in wiredrawing plants	77	183.4	(NA)	(D)
	Steel wire strand (including strand for prestressed concrete, composite wire strand except ACSR, and guard rail cable)	(NA)	498.6	(NA)	(D)
33151 34	Made in wiredrawing plants	21	426.4	(NA)	(D)
34961 34	Not made in wiredrawing plants	17	72.2	(NA)	(D)
	Noninsulated ferrous wire rope, cable, and strand, n.s.k.	(NA)	.3	(NA)	71.1
33151 00	Made in wiredrawing plants	(NA)	.3	(NA)	31.5
34961 00	Not made in wiredrawing plants	(NA)	–	(NA)	39.6
	Fencing and fence gates	(NA)	499.4	(NA)	389.3
33156	Made in wiredrawing plants	(NA)	359.0	(NA)	258.7
34966	Not made in wiredrawing plants	(NA)	140.3	(NA)	130.6
	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)	(NA)	138.5	(NA)	136.4
33156 13	Made in wiredrawing plants	8	91.2	(NA)	83.4
34966 13	Not made in wiredrawing plants	25	47.2	(NA)	53.0
	Woven and welded fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)	(NA)	218.4	(NA)	115.6
33156 21	Made in wiredrawing plants	11	209.3	10	101.5
34966 21	Not made in wiredrawing plants	12	9.1	(NA)	14.1
	Fence gates, posts, and fittings	(NA)	123.5	(NA)	86.7
33156 35	Made in wiredrawing plants	9	53.7	10	(D)
34966 35	Not made in wiredrawing plants	29	69.8	(NA)	(D)
	Ornamental lawn fence, excluding posts, gates, and fittings	(NA)	(D)	(NA)	.6
33156 71	Made in wiredrawing plants	2	(D)	(NA)	(D)
34966 71	Not made in wiredrawing plants	8	11.0	(NA)	(D)
	Fencing and fence gates, n.s.k.	(NA)	(D)	(NA)	50.0
33156 00	Made in wiredrawing plants	(NA)	(D)	(NA)	42.8
34966 00	Not made in wiredrawing plants	(NA)	3.1	(NA)	7.2
	Ferrous wire cloth and other ferrous woven wire products	(NA)	285.3	(NA)	182.8
33157 00	Made in wiredrawing plants	12	105.7	(NA)	60.4
34964 00	Not made in wiredrawing plants	48	179.6	(NA)	122.4
	Other fabricated ferrous wire products, except springs	(NA)	2 915.1	(NA)	2 135.6
33159	Made in wiredrawing plants	(NA)	591.9	(NA)	644.1
34968	Other fabricated wire products (except springs) not produced by wire drawers	(NA)	2 323.2	(NA)	1 491.5
	Wire chain, including tire chain, stud-link, and welded-link	(NA)	(D)	(NA)	(D)
33159 42	Made in wiredrawing plants	1	(D)	(NA)	(D)
34968 42	Not made in wiredrawing plants	22	106.8	(NA)	(D)

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Other fabricated ferrous wire products, except springs—Con.				
	Barbed and twisted wire	(NA)	164.7	(NA)	78.9
33159 51	Made in wiredrawing plants	9	146.6	6	47.1
34968 51	Not made in wiredrawing plants	9	18.0	10	31.8
	Wire bale ties	(NA)	72.2	(NA)	48.0
33159 55	Made in wiredrawing plants	10	43.9	6	18.5
34968 55	Not made in wiredrawing plants	7	28.3	7	29.5
	Welded steel wire fabrics, including concrete reinforcing mesh	(NA)	253.2	(NA)	405.2
33159 63	Made in wiredrawing plants	10	112.4	(NA)	(D)
34968 63	Not made in wiredrawing plants	44	140.8	(NA)	(D)
	Wire garment hangers	(NA)	214.1	(NA)	140.5
33159 71	Made in wiredrawing plants	4	121.2	5	85.9
34968 71	Not made in wiredrawing plants	12	92.9	6	54.6
	Wire carts, including household, grocery, and industrial	(NA)	(D)	(NA)	80.5
33159 73	Made in wiredrawing plants	2	(D)	(NA)	–
34968 73	Not made in wiredrawing plants	27	131.4	20	80.5
	Steel wire cages	(NA)	107.9	(NA)	58.3
33159 75	Made in wiredrawing plants	–	–	(NA)	–
34968 75	Not made in wiredrawing plants	42	107.9	33	58.3
	Other wire products (guards, baskets, florists' designs, paperclips, kitchenware, wire shelving, wire racks, etc.)	(NA)	1 779.0	(NA)	(D)
33159 99	Made in wiredrawing plants	19	109.7	14	101.6
	Not made in wiredrawing plants	(NA)	1 669.3	167	(D)
34968 81	Wire baskets	69	126.5	41	65.9
34968 83	Wire shelving, including oven, refrigerator, closet, and barbeque grills	64	396.2	50	245.4
34968 85	Wire racks, including shoe, bottle, display, and point of purchase	117	241.7	93	136.4
34968 98	Other wire products, including guards, florists' designs, and paper clips	274	904.9	(NA)	(D)
	Other fabricated ferrous wire products, except springs, n.s.k.	(NA)	27.8	(NA)	140.7
33159 00	Made in wiredrawing plants	–	–	(NA)	27.1
34968 00	Other fabricated wire products (except springs) not produced by wire drawers	(NA)	27.8	(NA)	113.6

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33121, COKE OVEN AND BLAST FURNACE PRODUCTS, INCLUDING FERROALLOYS		
United States	**1 740.4**	**1 283.9**
Alabama	247.3	188.0
Indiana	63.2	68.6
Ohio	199.0	(NA)
Pennsylvania	750.5	383.1
33122, STEEL INGOT AND SEMIFINISHED SHAPES		
United States	**3 663.0**	**3 397.8**
Alabama	17.0	(NA)
Illinois	287.8	236.4
Indiana	19.3	145.3
Ohio	802.5	808.9
Pennsylvania	475.1	551.0
Texas	300.5	(NA)
33123, HOT-ROLLED SHEET AND STRIP, INCLUDING TIN MILL PRODUCTS		
United States	**17 570.6**	**16 087.3**
Illinois	1 184.2	1 237.9
Indiana	4 905.4	4 117.4
Michigan	1 887.3	1 722.9
Ohio	3 734.4	3 270.5
Pennsylvania	2 223.2	2 162.7
33124, HOT-ROLLED BARS AND BAR SHAPES, PLATES, STRUCTURAL SHAPES, AND PILING		
United States	**9 786.6**	**8 584.8**
Alabama	426.4	389.4
Illinois	804.9	772.1
Indiana	1 183.0	1 373.0
Kentucky	275.6	(NA)
Michigan	301.1	(NA)
New York	340.1	378.7
Ohio	919.4	783.3
Pennsylvania	1 485.2	1 532.0
Texas	820.0	651.7
33125, STEEL WIRE (MADE IN STEEL MILLS)		
United States	**370.7**	**398.8**
Illinois	86.6	99.8
33126, STEEL PIPE AND TUBES (MADE IN STEEL MILLS)		
United States	**1 701.3**	**1 640.7**
Ohio	702.1	(NA)
Pennsylvania	87.3	281.8

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33127, COLD-ROLLED STEEL SHEET AND STRIP (MADE IN STEEL MILLS)		
United States	**6 151.0**	**5 735.4**
Indiana	2 123.1	1 615.2
Ohio	1 270.4	1 483.3
Pennsylvania	1 497.7	1 208.6
33128, COLD-FINISHED STEEL BARS AND BAR SHAPES (MADE IN STEEL MILLS)		
United States	**658.0**	**530.0**
3312A, SEAMLESS ROLLED RING FORGINGS, FERROUS (MADE IN STEEL MILLS)		
United States	**77.3**	**(D)**
3312B, OPEN DIE OR SMITH FORGINGS (HAMMER OR PRESS), FERROUS (MADE IN STEEL MILLS)		
United States	**114.0**	**(D)**
3312C, OTHER STEEL MILL PRODUCTS, INCLUDING STEEL RAILS, EXCEPT WIRE PRODUCTS		
United States	**382.8**	**277.5**
33132, FERROCHROMIUM		
United States	**(D)**	**40.8**
33133, FERROSILICON		
United States	**287.2**	**317.2**
33134, OTHER FERROALLOYS		
United States	**(D)**	**440.5**
Ohio	241.4	(NA)
Pennsylvania	28.2	(NA)
33151, NONINSULATED FERROUS WIRE ROPE, CABLE, AND STRAND (MADE IN WIREDRAWING PLANTS)		
United States	**981.6**	**637.9**
Arkansas	90.9	(NA)
Pennsylvania	71.3	71.7
Texas	54.3	(NA)
33152, STEEL NAILS, STAPLES, TACKS, SPIKES, AND BRADS		
United States	**648.5**	**557.6**
Illinois	170.5	188.7
Indiana	6.8	(NA)
North Carolina	17.0	9.9
Texas	20.5	(NA)
33155, STEEL WIRE (NOT MADE IN STEEL MILLS)		
United States	**1 652.2**	**1 131.8**
Alabama	58.6	42.6
California	119.5	85.2
Connecticut	116.0	74.0
Florida	25.0	37.8
Illinois	105.8	156.6
Indiana	131.4	(NA)
Massachusetts	46.2	32.9
Michigan	86.5	70.2
Missouri	99.5	74.5
North Carolina	57.2	(NA)
Ohio	126.1	109.4
Pennsylvania	71.3	57.5
Tennessee	126.6	78.7
Texas	75.1	50.6
33156, FENCING AND FENCE GATES (MADE IN WIREDRAWING PLANTS)		
United States	**359.0**	**258.7**
California	38.3	(NA)
Illinois	96.0	53.8
Oklahoma	32.5	(NA)
Texas	27.8	41.3
33157, FERROUS WIRE CLOTH AND OTHER FERROUS WOVEN WIRE PRODUCTS (MADE IN WIREDRAWING PLANTS)		
United States	**105.7**	**60.4**
Illinois	18.8	(NA)
33159, OTHER FABRICATED FERROUS WIRE PRODUCTS (EXCEPT SPRINGS) (MADE IN WIREDRAWING PLANTS)		
United States	**591.9**	**644.1**
Florida	27.3	43.4
Illinois	84.2	102.2
Indiana	19.8	(NA)
Ohio	44.3	39.5
Pennsylvania	93.2	102.2
Texas	19.5	(NA)
33167, COLD-ROLLED STEEL SHEET AND STRIP (NOT MADE IN STEEL MILLS)		
United States	**3 318.5**	**3 145.4**
Connecticut	287.8	288.4
Michigan	387.2	496.7
New York	197.4	(NA)
Ohio	705.9	561.8
Pennsylvania	742.5	480.6
33168, COLD-FINISHED STEEL BARS AND BAR SHAPES (NOT MADE IN STEEL MILLS)		
United States	**1 171.4**	**974.8**
Illinois	170.4	208.9
Massachusetts	10.8	(NA)
Michigan	99.8	72.1
Ohio	257.5	181.4
Pennsylvania	92.6	123.8
Wisconsin	88.4	56.2

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3312-	**Blast furnaces and steel mills**	**42 220.9**	**40 687.9**	**45 996.3**	**47 902.1**	**47 706.3**	**38 456.6**	**35 456.8**	**39 368.0**
33121	Coke oven and blast furnace products, including ferroalloys	1 740.4	1 558.8	1 770.5	1 732.4	1 605.5	1 283.9	1 873.1	3 032.2
33122	Steel ingot and semifinished shapes	3 663.0	3 547.5	3 906.0	4 197.1	4 336.9	3 397.8	3 082.0	4 039.3
33123	Hot-rolled sheet and strip, including tin mill products	17 570.6	16 656.5	18 798.1	19 576.1	19 236.0	16 087.3	11 913.5	11 057.8
33124	Hot-rolled bars and bar shapes, plates, structural shapes, and piling	9 786.6	9 762.4	10 950.2	11 142.3	11 428.2	8 584.8	8 199.2	9 140.9
33125	Steel wire (made in steel mills)	370.7	400.6	426.1	448.0	435.9	398.8	392.4	606.3
33126	Steel pipe and tubes (made in steel mills)	1 701.3	2 030.6	2 166.2	1 894.9	2 212.4	1 640.7	3 561.5	3 000.4
33127	Cold-rolled steel sheet and strip (made in steel mills)	6 151.0	5 336.3	6 142.3	7 169.6	6 766.4	5 735.4	5 162.6	6 953.9
33128	Cold-finished steel bars and bar shapes (made in steel mills)	658.0	691.1	726.7	762.6	750.2	530.0	358.5	421.9
3312A	Seamless rolled ring forgings, ferrous (made in steel mills)	77.3	(D)	(D)	(D)	(D)	(D)	(D)	93.6
3312B	Open die or smith forgings (hammer or press), ferrous (made in steel mills)	114.0	(D)	(D)	(D)	(D)	(D)	(D)	288.9
3312C	Other steel mill products, including steel rails, except wire products	382.8	341.7	357.6	368.7	396.0	277.5	395.6	561.1
33120	Blast furnaces and steel mills, n.s.k.	5.2	109.7	478.7	332.5	300.8	313.3	108.5	171.7
3313-	**Electrometallurgical products**	**971.9**	**837.7**	**880.9**	**956.5**	**949.5**	**840.6**	**728.0**	**944.1**
33132	Ferrochromium	(D)	(D)	38.0	49.4	50.7	40.8	75.1	163.5
33133	Ferrosilicon	287.2	291.5	307.3	355.7	407.7	317.2	243.0	327.4
33134	Other ferroalloys	(D)	(D)	479.2	499.2	447.4	440.5	366.6	290.2
33130	Electrometallurgical products, n.s.k.	8.1	24.5	56.4	52.2	43.7	42.2	43.3	3.9
3315-	**Steel wire and related products**	**4 440.7**	**3 978.1**	**4 180.4**	**4 168.2**	**4 021.1**	**3 483.6**	**2 967.7**	**2 697.5**
33151	Noninsulated ferrous wire rope, cable, and strand (made in wiredrawing plants)	981.6	886.9	845.2	809.1	738.3	637.9	522.0	439.1
33152	Steel nails, staples, tacks, spikes, and brads	648.5	505.2	544.0	583.2	580.1	557.6	434.4	447.1
33155	Steel wire (not made in steel mills)	1 652.2	1 390.4	1 483.1	1 484.5	1 426.7	1 131.8	1 000.6	729.8
33156	Fencing and fence gates (made in wiredrawing plants)	359.0	265.4	263.4	243.8	278.0	258.7	301.6	280.3
33157	Ferrous wire cloth and other ferrous woven wire products (made in wiredrawing plants)	105.7	65.7	97.7	77.5	72.7	60.4	68.0	84.5
33159	Other fabricated ferrous wire products (except springs) (made in wiredrawing plants)	591.9	627.1	691.5	730.8	685.6	644.1	547.2	639.5
33150	Steel wire and related products, n.s.k.	101.8	237.4	255.6	239.2	239.8	193.1	(NA)	(NA)
3316-	**Cold-finishing of steel shapes**	**4 580.4**	**4 527.9**	**4 926.0**	**5 278.6**	**5 215.5**	**4 366.1**	**2 803.4**	**2 562.8**
33167	Cold-rolled steel sheet and strip (not made in steel mills)	3 318.5	3 233.5	3 531.8	3 856.6	3 857.7	3 145.4	1 815.3	1 628.5
33168	Cold-finished steel bars and bar shapes (not made in steel mills)	1 171.4	1 093.0	1 166.5	1 216.5	1 102.5	974.8	905.8	909.2
33160	Cold-finishing of steel shapes, n.s.k.	90.5	201.4	227.7	205.5	255.3	245.9	82.4	25.1
3317-	**Steel pipe and tubes**	**4 903.7**	**4 773.7**	**4 962.5**	**4 755.8**	**4 771.9**	**3 751.5**	**3 657.1**	**2 620.3**
33170	Steel pipe and tubes (not made in steel mills)	4 903.7	4 773.7	4 962.5	4 755.8	4 771.9	3 751.5	3 657.1	2 620.3

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS					
	Materials, ingredients, containers, and supplies		**(X)**	**20 513.3**	**(X)**	**18 550.3**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Ferrous:					
	Steel:					
331084	Rod for wiredrawing	1,000 s tons	(D)	(D)	(NA)	(NA)
331070	Wire for redrawing	1,000 s tons	(D)	(D)	(NA)	(NA)
331074	All other steel shapes and forms	1,000 s tons	(S)	3 055.3	(D)	(D)
331051	Pig iron, excluding silvery iron	1,000 s tons	(D)	(D)	2 896.7	408.0
	Ferroalloys:					
331313	Ferromanganese, silicomanganese, and manganese	1,000 s tons	714.7	403.6	584.6	239.4
331320	Ferrochromium	1,000 s tons	663.8	221.2	365.5	199.4
331331	Ferrosilicon (more than 8 percent silicon)	1,000 s tons	235.5	126.8	233.7	121.8
331310	Other ferroalloys (including silvery iron, ferrotungsten, ferromolybdenum, ferronickel, and ferrovanadium)	1,000 s tons	286.9	342.1	(NA)	292.1
330055	All other ferrous shapes and forms	1,000 s tons	41.5	80.8	(NA)	(NA)
	Nonferrous:					
333402	Aluminum and aluminum-base alloy	1,000 s tons	*136.8	171.4	192.0	181.9
333971	Nickel, excluding ferronickel	1,000 s tons	43.3	281.6	54.2	229.0
333975	Tin	1,000 s tons	*8.1	44.1	(S)	59.6
333978	Zinc and zinc-base alloy	1,000 s tons	168.4	199.6	192.0	159.5
333945	All other nonferrous shapes and forms	1,000 s tons	**60.4	89.6	(NA)	(NA)
	Castings:					
332161	Gray iron ingot molds and stools	1,000 s tons	**503.4	83.3	583.9	130.4
332031	All other iron and steel castings		(X)	226.1	(X)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.				
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	235.6	(X)	296.0
329701	Nonclay refractories	(X)	216.0	(X)	189.4
	Fluxes:				
329503	Limestone, 1,000 s tons	(S)	71.5	6 223.0	70.8
327410	Lime, including quicklime, 1,000 s tons	3 307.8	257.2	4 912.3	249.6
327420	Dead-burned dolomite, 1,000 s tons	(S)	105.1	–	–
329505	Fluorspar	(X)	11.3	(X)	16.6
329506	Other fluxes	(X)	134.0	(X)	77.1
320059	All other stone, clay, glass, and concrete products	(X)	36.6	(X)	(NA)
	Chemicals and allied products:				
280005	Industrial chemicals (except sulfuric acid and oxygen)	(X)	93.9	(X)	109.6
281361	Oxygen (including high and low purity) (liquid oxygen should be converted to its gaseous equivalent), mil cu ft	(S)	377.3	235 288.3	253.6
281930	Sulfuric acid, 1,000 s tons	(S)	13.0	*373.8	16.3
280055	All other chemicals and allied products	(X)	32.4	(X)	(NA)
	Metal mining:				
	Iron ore, including pelletized and manganiferrous:				
101130	Crude and concentrates (gross weight), 1,000 s tons	*25 153.0	1 216.9	14 918.7	394.3
101125	Agglomerates (gross weight), 1,000 s tons	*44 092.6	1 520.9	51 928.8	1 690.9
106102	Manganese ore (including 10 percent manganese) and ferroalloy ore	(X)	9.6	(X)	(D)
100010	All other metal mining	(X)	(D)	(X)	(NA)
120001	Coal used in the production of coke, 1,000 s tons	*35 164.3	1 756.5	(S)	1 860.0
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	44 894.0	4 099.9	42 224.6	3 739.1
291103	Lubricating oils and greases and other petroleum products	(X)	142.6	(X)	104.8
354402	Industrial dies, molds, jigs, and fixtures	(X)	60.4	(X)	22.5
362411	Carbon and graphite electrodes	(X)	246.7	(X)	255.1
970099	All other materials and components, parts, containers, and supplies	(X)	3 853.6	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	219.4	(X)	995.1
	INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**596.5**	**(X)**	**350.7**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
	Steel:				
331084	Rod for wiredrawing, 1,000 s tons	–	–	(NA)	(NA)
331070	Wire for redrawing, 1,000 s tons	–	–	(NA)	(NA)
331074	All other steel shapes and forms, 1,000 s tons	(D)	(D)	(NA)	(NA)
331051	Pig iron, excluding silvery iron, 1,000 s tons	(D)	(D)	(NA)	(NA)
	Ferroalloys:				
331313	Ferromanganese, silicomanganese, and manganese, 1,000 s tons	(D)	(D)	(D)	(D)
331320	Ferrochromium, 1,000 s tons	5.9	3.7	–	–
331331	Ferrosilicon (more than 8 percent silicon), 1,000 s tons	(D)	(D)	–	–
331310	Other ferroalloys (including silvery iron, ferrotungsten, ferromolybdenum, ferronickel, and ferrovanadium), 1,000 s tons	(D)	(D)	–	–
330055	All other ferrous shapes and forms, 1,000 s tons	(D)	(D)	(NA)	(NA)
	Nonferrous:				
333402	Aluminum and aluminum-base alloy, 1,000 s tons	(S)	18.3	(NA)	(NA)
333971	Nickel, excluding ferronickel, 1,000 s tons	3.0	21.4	(NA)	(NA)
333975	Tin, 1,000 s tons	–	–	(NA)	(NA)
333978	Zinc and zinc-base alloy, 1,000 s tons	–	–	(NA)	(NA)
333945	All other nonferrous shapes and forms, 1,000 s tons	142.6	41.2	(NA)	(NA)
	Castings:				
332161	Gray iron ingot molds and stools, 1,000 s tons	(D)	(D)	(NA)	(NA)
332031	All other iron and steel castings	(X)	.6	(X)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	2.7	(X)	2.5
329701	Nonclay refractories	(X)	6.3	(X)	1.5
	Fluxes:				
329503	Limestone, 1,000 s tons	(D)	(D)	(D)	(D)
327410	Lime, including quicklime, 1,000 s tons	(D)	(D)	(D)	(D)
327420	Dead-burned dolomite, 1,000 s tons	(D)	(D)	–	–
329505	Fluorspar	(X)	(D)	(X)	(NA)
329506	Other fluxes	(X)	1.2	(X)	(NA)
320059	All other stone, clay, glass, and concrete products	(X)	(D)	(X)	(NA)
	Chemicals and allied products:				
280005	Industrial chemicals (except sulfuric acid and oxygen)	(X)	10.5	(X)	(NA)
281361	Oxygen (including high and low purity) (liquid oxygen should be converted to its gaseous equivalent), mil cu ft	(D)	(D)	(NA)	(NA)
281930	Sulfuric acid, 1,000 s tons	(S)	2.8	(NA)	(NA)
280055	All other chemicals and allied products	(X)	4.0	(X)	(NA)
	Metal mining:				
	Iron ore, including pelletized and manganiferrous:				
101130	Crude and concentrates (gross weight), 1,000 s tons	(D)	(D)	(NA)	(NA)
101125	Agglomerates (gross weight), 1,000 s tons	–	–	(NA)	(NA)
106102	Manganese ore (including 10 percent manganese) and ferroalloy ore	(X)	(D)	(X)	[3]
100010	All other metal mining	(X)	–	(X)	(NA)
120001	Coal used in the production of coke, 1,000 s tons	(S)	12.8	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	335.0	34.8	(NA)	[3]29.2
291103	Lubricating oils and greases and other petroleum products	(X)	.9	(X)	(NA)
354402	Industrial dies, molds, jigs, and fixtures	(X)	.7	(X)	(D)
362411	Carbon and graphite electrodes	(X)	23.7	(X)	16.4
970099	All other materials and components, parts, containers, and supplies	(X)	237.3	(X)	(D)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS—Con.					
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	18.7	(X)	37.9
	INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS					
	Materials, ingredients, containers, and supplies		**(X)**	**2 201.7**	**(X)**	**1 660.1**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Ferrous:					
	Steel:					
331084	Rod for wiredrawing	1,000 s tons	3 788.5	1 263.8	*2 731.4	938.9
331070	Wire for redrawing	1,000 s tons	(S)	284.5	(NA)	70.4
331074	All other steel shapes and forms	1,000 s tons	(S)	169.2	(D)	(4)
331051	Pig iron, excluding silvery iron	1,000 s tons	–	–	(NA)	(NA)
	Ferroalloys:					
331313	Ferromanganese, silicomanganese, and manganese	1,000 s tons	–	–	(NA)	(NA)
331320	Ferrochromium	1,000 s tons	(D)	(D)	(NA)	(NA)
331331	Ferrosilicon (more than 8 percent silicon)	1,000 s tons	–	–	(NA)	(NA)
331310	Other ferroalloys (including silvery iron, ferrotungsten, ferromolybdenum, ferronickel, and ferrovanadium)	1,000 s tons	–	–	(NA)	(NA)
330055	All other ferrous shapes and forms	1,000 s tons	(D)	(D)	(NA)	(NA)
	Nonferrous:					
333402	Aluminum and aluminum-base alloy	1,000 s tons	(D)	(D)	(NA)	(NA)
333971	Nickel, excluding ferronickel	1,000 s tons	*.4	3.7	(NA)	(NA)
333975	Tin	1,000 s tons	(D)	(D)	(D)	(4)
333978	Zinc and zinc-base alloy	1,000 s tons	*20.4	24.6	17.3	14.5
333945	All other nonferrous shapes and forms	1,000 s tons	(S)	22.8	(S)	45.8
	Castings:					
332161	Gray iron ingot molds and stools	1,000 s tons	–	–	(NA)	(NA)
332031	All other iron and steel castings		(X)	(D)	(X)	(NA)
	Stone, clay, glass, and concrete products:					
325501	Clay refractories		(X)	(D)	(X)	(NA)
329701	Nonclay refractories		(X)	–	(X)	(NA)
	Fluxes:					
329503	Limestone	1,000 s tons	–	–	(NA)	(NA)
327410	Lime, including quicklime	1,000 s tons	(S)	.1	(NA)	(NA)
327420	Dead-burned dolomite	1,000 s tons	–	–	(NA)	(NA)
329505	Fluorspar		(X)	–	(X)	(NA)
329506	Other fluxes		(X)	(D)	(X)	(NA)
320059	All other stone, clay, glass, and concrete products		(X)	–	(X)	(NA)
	Chemicals and allied products:					
280005	Industrial chemicals (except sulfuric acid and oxygen)		(X)	9.3	(X)	(NA)
281361	Oxygen (including high and low purity) (liquid oxygen should be converted to its gaseous equivalent)	mil cu ft	(D)	(D)	(NA)	(NA)
281930	Sulfuric acid	1,000 s tons	6.1	.5	6.0	.4
280055	All other chemicals and allied products		(X)	10.5	(X)	(NA)
	Metal mining:					
	Iron ore, including pelletized and manganiferrous:					
101130	Crude and concentrates (gross weight)	1,000 s tons	–	–	(NA)	(NA)
101125	Agglomerates (gross weight)	1,000 s tons	–	–	(NA)	(NA)
106102	Manganese ore (including 10 percent manganese) and ferroalloy ore		(X)	–	(X)	(NA)
100010	All other metal mining		(X)	–	(X)	(NA)
120001	Coal used in the production of coke	1,000 s tons	–	–	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap	1,000 s tons	(D)	(D)	(NA)	(NA)
291103	Lubricating oils and greases and other petroleum products		(X)	5.8	(X)	(NA)
354402	Industrial dies, molds, jigs, and fixtures		(X)	9.0	(X)	(NA)
362411	Carbon and graphite electrodes		(X)	–	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies		(X)	304.5	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	75.1	(X)	283.2
	INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES					
	Materials, ingredients, containers, and supplies		**(X)**	**3 518.4**	**(X)**	**3 348.0**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Ferrous:					
	Steel:					
331084	Rod for wiredrawing	1,000 s tons	*164.1	76.8	(NA)	(NA)
331070	Wire for redrawing	1,000 s tons	(D)	(D)	(NA)	(NA)
331074	All other steel shapes and forms	1,000 s tons	(S)	2 411.9	(NA)	(NA)
331051	Pig iron, excluding silvery iron	1,000 s tons	–	–	(NA)	(NA)
	Ferroalloys:					
331313	Ferromanganese, silicomanganese, and manganese	1,000 s tons	–	–	(NA)	(NA)
331320	Ferrochromium	1,000 s tons	–	–	(NA)	(NA)
331331	Ferrosilicon (more than 8 percent silicon)	1,000 s tons	–	–	(NA)	(NA)
331310	Other ferroalloys (including silvery iron, ferrotungsten, ferromolybdenum, ferronickel, and ferrovanadium)	1,000 s tons	(D)	(D)	(NA)	(NA)
330055	All other ferrous shapes and forms	1,000 s tons	(D)	(D)	(NA)	(NA)
	Nonferrous:					
333402	Aluminum and aluminum-base alloy	1,000 s tons	(D)	(D)	(NA)	(NA)
333971	Nickel, excluding ferronickel	1,000 s tons	(D)	(D)	(NA)	(NA)
333975	Tin	1,000 s tons	(D)	(D)	(NA)	(NA)
333978	Zinc and zinc-base alloy	1,000 s tons	(D)	(D)	(NA)	(NA)
333945	All other nonferrous shapes and forms	1,000 s tons	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES—Con.				
	Castings:				
332161	Gray iron ingot molds and stools ---- 1,000 s tons	–	–	(NA)	(NA)
332031	All other iron and steel castings	(X)	3.5	(X)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	(D)	(X)	(NA)
329701	Nonclay refractories	(X)	–	(X)	(NA)
	Fluxes:				
329503	Limestone ---- 1,000 s tons	–	–	(NA)	(NA)
327410	Lime, including quicklime ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
327420	Dead-burned dolomite ---- 1,000 s tons	–	–	(NA)	(NA)
329505	Fluorspar	(X)	–	(X)	(NA)
329506	Other fluxes	(X)	–	(X)	(NA)
320059	All other stone, clay, glass, and concrete products	(X)	–	(X)	(NA)
	Chemicals and allied products:				
280005	Industrial chemicals (except sulfuric acid and oxygen)	(X)	10.5	(X)	(NA)
281361	Oxygen (including high and low purity) (liquid oxygen should be converted to its gaseous equivalent) ---- mil cu ft	(D)	(D)	(NA)	(NA)
281930	Sulfuric acid ---- 1,000 s tons	*2.5	.2	(NA)	(NA)
280055	All other chemicals and allied products	(X)	1.7	(X)	(NA)
	Metal mining:				
	Iron ore, including pelletized and manganiferrous:				
101130	Crude and concentrates (gross weight) ---- 1,000 s tons	–	–	(NA)	(NA)
101125	Agglomerates (gross weight) ---- 1,000 s tons	–	–	(NA)	(NA)
106102	Manganese ore (including 10 percent manganese) and ferroalloy ore	(X)	–	(X)	(NA)
100010	All other metal mining	(X)	–	(X)	(NA)
120001	Coal used in the production of coke ---- 1,000 s tons	–	–	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
291103	Lubricating oils and greases and other petroleum products	(X)	11.8	(X)	(NA)
354402	Industrial dies, molds, jigs, and fixtures	(X)	1.2	(X)	(NA)
362411	Carbon and graphite electrodes	(X)	–	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	759.6	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	94.2	(X)	(NA)
	INDUSTRY 3317, STEEL PIPE AND TUBES				
	Materials, ingredients, containers, and supplies	**(X)**	**3 174.5**	**(X)**	**2 367.4**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
	Steel:				
331084	Rod for wiredrawing ---- 1,000 s tons	–	–	(NA)	(NA)
331070	Wire for redrawing ---- 1,000 s tons	–	–	(NA)	(NA)
331074	All other steel shapes and forms ---- 1,000 s tons	(S)	2 147.0	(NA)	(NA)
331051	Pig iron, excluding silvery iron ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
	Ferroalloys:				
331313	Ferromanganese, silicomanganese, and manganese ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
331320	Ferrochromium ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
331331	Ferrosilicon (more than 8 percent silicon) ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
331310	Other ferroalloys (including silvery iron, ferrotungsten, ferromolybdenum, ferronickel, and ferrovanadium) ---- 1,000 s tons	–	–	(NA)	(NA)
330055	All other ferrous shapes and forms ---- 1,000 s tons	(S)	41.9	(NA)	(NA)
	Nonferrous:				
333402	Aluminum and aluminum-base alloy ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
333971	Nickel, excluding ferronickel ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
333975	Tin ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
333978	Zinc and zinc-base alloy ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
333945	All other nonferrous shapes and forms ---- 1,000 s tons	*57.8	32.2	(NA)	(NA)
	Castings:				
332161	Gray iron ingot molds and stools ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
332031	All other iron and steel castings	(X)	(D)	(X)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	(D)	(X)	(NA)
329701	Nonclay refractories	(X)	(D)	(X)	(NA)
	Fluxes:				
329503	Limestone ---- 1,000 s tons	–	–	(NA)	(NA)
327410	Lime, including quicklime ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
327420	Dead-burned dolomite ---- 1,000 s tons	–	–	(NA)	(NA)
329505	Fluorspar	(X)	–	(X)	(NA)
329506	Other fluxes	(X)	(Z)	(X)	(NA)
320059	All other stone, clay, glass, and concrete products	(X)	(D)	(X)	(NA)
	Chemicals and allied products:				
280005	Industrial chemicals (except sulfuric acid and oxygen)	(X)	5.6	(X)	(NA)
281361	Oxygen (including high and low purity) (liquid oxygen should be converted to its gaseous equivalent) ---- mil cu ft	*.6	.1	(NA)	(NA)
281930	Sulfuric acid ---- 1,000 s tons	(S)	.9	(NA)	(NA)
280055	All other chemicals and allied products	(X)	(D)	(X)	(NA)
	Metal mining:				
	Iron ore, including pelletized and manganiferrous:				
101130	Crude and concentrates (gross weight) ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
101125	Agglomerates (gross weight) ---- 1,000 s tons	–	–	(NA)	(NA)
106102	Manganese ore (including 10 percent manganese) and ferroalloy ore	(X)	–	(X)	(NA)
100010	All other metal mining	(X)	–	(X)	(NA)
120001	Coal used in the production of coke ---- 1,000 s tons	–	–	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
291103	Lubricating oils and greases and other petroleum products	(X)	5.1	(X)	(NA)
354402	Industrial dies, molds, jigs, and fixtures	(X)	6.1	(X)	(NA)
362411	Carbon and graphite electrodes	(X)	(D)	(X)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3317, STEEL PIPE AND TUBES—Con.				
970099	All other materials and components, parts, containers, and supplies	(X)	409.8	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	490.6	(X)	(NA)

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes were combined to avoid disclosing data for individual companies.
[4]For 1987, material codes were combined to avoid disclosing data for individual companies.

Table 8. **Employees Engaged in Construction and Value of Work Done: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting construction employees[1]					Response coverage ratio (col C ÷ col A)
				Total		Engaged in construction[2]			
		Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Value of work done (millions)	
		A	B	C	D	E	F	G	H
		1992							
3312	Blast furnaces and steel mills	170.6	7 035.7	41.0	1 689.5	6.0	246.7	347.8	24
3315	Steel wire and related products	24.7	691.6	3.6	103.6	.3	8.3	10.2	15
3316	Cold finishing of steel shapes	15.3	551.5	4.4	171.5	.4	1.2	27.7	29
3317	Steel pipe and tubes	23.7	739.5	3.7	129.3	.4	14.9	11.2	16
		1987							
3312	Blast furnaces and steel mills	188.9	6 450.8	42.4	1 493.9	5.1	158.2	254.3	22
3315	Steel wire and related products	24.7	592.1	3.5	85.4	.3	7.5	12.4	14
3316	Cold finishing of steel shapes	16.4	524.1	5.0	172.0	.4	14.3	14.1	30
3317	Steel pipe and tubes	19.6	515.4	3.2	88.7	.3	8.8	11.2	16

[1]Data exclude government-owned, contractor-operated plants.
[2]Establishments in selected industries were instructed to report number of employees, included in total employment, that were engaged in construction, maintenance, or repair of the plant and utilized as a separate work force. Coverage ratio (col. H) indicates proportion of industry employment represented by establishments that reported construction employees. Coverage ratio excludes (a) construction workers not employed by establishment (working under contract or provided by another establishment of the company), (b) establishments that reported having no construction employees, (c) establishments that did not respond to inquiry, and (d) establishments that were not mailed a form or from which a form had not been received at the time data were tabulated.

Table 9. **Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1992 and 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Department	Production-worker hours (millions)						Production-worker wages (million dollars)					
	Total	Fully integrated works[1]	Partially integrated works[1]			Nonintegrated works[1]	Total	Fully integrated works[1]	Partially integrated works[1]			Nonintegrated works[1]
			Total	With	Without				Total	With	Without	
1992												
All departments	**277.0**	**117.2**	**114.7**	**26.4**	**88.3**	**45.1**	**5 261.6**	**2 370.9**	**2 128.9**	**489.5**	**1 639.4**	**761.7**
Coke ovens	11.2	6.6	–	–	–	4.5	202.3	130.2	–	–	–	72.2
Blast furnaces	9.2	5.4	2.2	2.2	–	1.6	175.0	111.0	38.9	38.9	–	27.8
Electric arc furnaces and basic oxygen furnaces	42.4	17.2	20.1	5.2	14.8	5.0	936.6	326.7	403.7	93.4	310.3	94.4
Steel department (furnaces)												
Rolling and finishing mills:												
Sheet and strip mills	36.8	20.1	12.4	6.5	5.9	4.3	736.3	399.3	266.0	120.8	145.2	76.0
Tin mills	5.8	3.7	–	–	–	2.1	123.9	75.1	–	–	–	48.8
Bar mills, including rebars	11.5	.7	8.7	1.3	7.3	2.1	215.9	15.1	169.6	21.2	148.4	29.1
Wiredrawing mills	3.4	–	3.2	.1	3.1	.2	57.9	–	54.1	.6	53.5	3.8
Pipe mills	4.5	.2	4.1	2.2	1.9	.2	85.1	3.2	75.5	41.2	34.3	3.9
Other mills, including semifinishing, plate, and structural	14.2	4.2	8.0	2.1	5.9	1.9	269.9	85.6	139.3	36.8	102.5	43.4
Foundry (iron or steel)	.2	.1	.1	(Z)	.1	–	3.3	1.5	1.8	.3	1.5	–
Forging (presses, hammers, or upsetters)	1.1	–	.6	–	.6	.5	19.0	–	11.0	–	11.0	8.0
Other manufacturing or fabricating departments (nuts, bolts, containers, etc.)	9.1	–	6.6	–	6.6	21.2	4.2	1 380.5	672.5	624.2	133.1	491.1
Service or auxiliary operations and all other activities	65.0	32.9	27.9	6.7	21.2	4.2	1 380.5'–	113.4	–	113.4	42.6	
Unspecified	62.8	25.9	20.9	.2	20.7	15.9	899.8	550.8	231.4	3.2	228.2	224.8

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Table 9. Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1992 and 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Department	Production-worker hours (millions)						Production-worker wages (million dollars)					
	Total	Fully integrated works[1]	Partially integrated works[1]			Nonintegrated works[1]	Total	Fully integrated works[1]	Partially integrated works[1]			Nonintegrated works[1]
			Total	With	Without				Total	With	Without	
1987												
All departments	**307.1**	**145.9**	**118.0**	**17.1**	**100.9**	**43.2**	**4 861.4**	**2 412.3**	**1 834.8**	**256.3**	**1 578.5**	**614.3**
Coke ovens	17.2	10.9	–	–	–	6.4	262.8	176.3	–	–	–	86.5
Blast furnaces	11.1	9.6	1.3	1.3	–	.2	172.9	150.9	19.4	19.4	–	2.5
Electric arc furnaces and basic oxygen furnaces	42.7	20.9	21.7	2.7	19.0	.1	704.0	351.8	350.5	42.2	308.3	1.7
Steel department (furnaces)												
Rolling and finishing mills:												
Sheet and strip mills	48.2	33.5	7.6	3.6	4.0	7.0	794.7	547.4	142.6	56.0	86.6	104.8
Tin mills	7.0	5.7	.3	.3	–	1.0	102.7	82.1	4.6	4.6	–	15.9
Bar mills, including rebars	18.5	2.6	11.6	.6	11.0	4.2	274.2	45.9	173.7	9.9	163.8	54.6
Wiredrawing mills	3.3	.1	2.9	–	2.9	.4	52.0	.8	45.2	–	45.2	6.0
Pipe mills	4.2	(Z)	3.2	1.2	2.0	.9	66.9	.2	53.4	18.8	34.6	13.3
Other mills, including semifinishing, plate, and structural	28.2	11.9	13.8	1.0	12.8	2.5	458.7	191.6	226.7	16.9	209.8	40.4
Foundry (iron or steel)	1.1	1.0	.1	–	.1	–	18.5	16.6	2.0	–	2.0	–
Forging (presses, hammers, or upsetters)	1.6	1.0	.5	–	.5	.2	25.0	15.4	7.4	–	7.4	2.2
Other manufacturing or fabricating departments (nuts, bolts, containers, etc.)	12.5	.7	9.4	2.8	6.6	2.3	194.6	16.0	145.6	29.7	115.9	32.9
Service or auxiliary operations and all other activities	87.1	48.0	35.7	3.6	32.1	3.4	1 488.6	817.4	596.6	58.8	537.8	74.6
Unspecified	24.4	–	9.9	–	9.9	14.6	245.8	–	67.1	–	67.1	178.8

[1]For definition, see Description of Industries in text.

Table 10. Steel Wire Mills, Cold Finishing Mills, and Pipe and Tube Mills—Department Operations: 1992 and 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Department	Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	Production-worker hours (millions)	Production-worker wages (million dollars)	Production-worker hours (millions)	Production-worker wages (million dollars)	Production-worker hours (millions)	Production-worker wages (million dollars)
1992						
All departments	**39.9**	**487.3**	**22.8**	**383.1**	**38.3**	**508.0**
Rolling and finishing mills:						
Sheet and strip mills	.1	.7	10.0	221.1	.2	1.2
Tin mills	–	–	.4	3.8	–	–
Bar mills, including rebars	(Z)	.8	2.2	15.5	.2	2.3
Wiredrawing mills	10.4	131.7	.4	5.6	.2	2.3
Pipe mills	.1	1.2	–	–	10.5	152.1
Other mills, including semifinishing, plate, and structural	1.0	4.9	(Z)	.2	3.2	48.3
Other manufacturing or fabricating departments (nuts, bolts, containers, etc.)	12.2	156.0	1.4	22.5	6.7	81.2
Service or auxiliary operations and all other activities	3.1	38.1	3.7	55.8	2.2	28.7
Unspecified	13.1	154.0	4.6	58.5	15.3	194.2
1987						
All departments	**40.1**	**407.5**	**24.6**	**369.8**	**31.2**	**368.6**
Rolling and finishing mills:						
Sheet and strip mills	–	–	11.6	219.9	(Z)	.3
Tin mills	–	–	1.0	17.8	–	–
Bar mills, including rebars	–	–	2.1	28.0	–	–
Wiredrawing mills	16.2	171.3	.6	7.4	(Z)	.4
Pipe mills	.1	1.2	.2	3.0	11.2	136.5
Other mills, including semifinishing, plate, and structural	1.1	12.5	1.3	17.8	2.7	35.8
Other manufacturing or fabricating departments (nuts, bolts, containers, etc.)	8.8	96.9	.3	4.5	4.0	46.4
Service or auxiliary operations and all other activities	3.7	37.1'.8	10.0	2.7	37.8	
Unspecified	10.2	88.5	6.8	64.9	10.6	111.4

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
33121 97	33121 41	33157 00	33157 21	33412 24	33412 20	33551 00	33551 11
33121 97	33121 81	33157 00	33157 22	33412 24	33412 23	33551 00	33551 51
33121 97	33121 86	33157 00	33157 23			33551 00	33551 61
		33157 00	33157 41	33413 99	33413 71	33551 00	33551 65
3312A 17	3312A 11	33157 00	33157 42	33413 99	33413 98		
3312A 17	3312A 23	33157 00	33157 43			33563 86	33563 85
3312A 26	3312A 25					33563 86	33563 87
3312A 26	3312A 27	33159 42	33159 41				
		33159 42	33159 44	33414 34	33414 10	33569 57	33569 55
3312B 62	3312B 61	33159 42	33159 45	33414 34	33414 14	33569 57	33569 59
3312B 62	3312B 63	33159 42	33159 48	33414 34	33414 17	33569 93	33562 78
3312B 66	3312B 65	33159 63	33159 61	33414 44	33414 20	33569 93	33569 91
3312B 66	3312B 67	33159 63	33159 65	33414 44	33414 23	33569 97	33569 71
				33414 44	33414 26	33569 97	33569 98
33134 08	33131	33212 40	33212 32				
33134 08	33131 00	33212 40	33212 34			33571 00	33571 11
		33212 40	33212 39			33571 00	33571 51
33151 25	33151 22			33415 25	33415 11	33571 00	33571 61
33151 25	33151 51	33312 30	33312 20	33415 25	33415 81	33571 00	33571 65
33151 34	33151 23	33312 30	33312 23	33415 35	33415 31		
33151 34	33151 33	33312 30	33312 26	33415 35	33415 71	33572 81	33572 21
33151 34	33151 35			33415 45	33415 51		
		33392 34	33392 31	33415 45	33415 89	33575 00	33575 17
33152 13	33152 12	33392 34	33392 37			33575 00	33575 57
33152 13	33152 14	33392 34	33392 39			33575 00	33575 65
		33392 44	33392 41	33416 33	33416 21		
33156 13	33156 15	33392 44	33392 43	33416 33	33416 61	33660 26	33660 23
33156 13	33156 17	33392 44	33392 49	33416 35	33416 31		
33156 21	33156 22			33416 35	33416 69	33690 23	33690 21
33156 21	33156 24	33412 24	33412 17	33416 97	33416 43	33690 23	33690 25
				33416 97	33416 99	33690 85	33690 98
						33690 97	33690 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
33121 41	33121 97	33157 21	33157 00	33412 20	33412 24	33551 65	33551 00
33121 81	33121 97	33157 22	33157 00	33412 23	33412 24		
33121 86	33121 97	33157 23	33157 00			33562 78	33569 93
		33157 41	33157 00	33413 71	33413 99		
3312A 11	3312A 17	33157 42	33157 00	33413 98	33413 99	33563 85	33563 86
3312A 23	3312A 17	33157 43	33157 00			33563 87	33563 86
3312A 25	3312A 26			33414 10	33414 34		
3312A 27	3312A 26	33159 41	33159 42	33414 14	33414 34	33569 55	33569 57
		33159 44	33159 42	33414 17	33414 34	33569 59	33569 57
3312B 61	3312B 62	33159 45	33159 42	33414 20	33414 44	33569 71	33569 97
3312B 63	3312B 62	33159 48	33159 42	33414 23	33414 44	33569 91	33569 93
3312B 65	3312B 66	33159 61	33159 63	33414 26	33414 44	33569 98	33569 97
3312B 67	3312B 66	33159 65	33159 63				
				33415 11	33415 25	33571 11	33571 00
33131	33134 08	33212 32	33212 40	33415 31	33415 35	33571 51	33571 00
33131 00	33134 08	33212 34	33212 40	33415 51	33415 45	33571 61	33571 00
		33212 39	33212 40	33415 71	33415 35	33571 65	33571 00
33151 22	33151 25			33415 81	33415 25		
33151 23	33151 34	33312 20	33312 30	33415 89	33415 45	33572 21	33572 81
33151 33	33151 34	33312 23	33312 30				
33151 35	33151 34	33312 26	33312 30	33416 21	33416 33	33575 17	33575 00
33151 51	33151 25			33416 31	33416 35	33575 57	33575 00
		33392 31	33392 34	33416 43	33416 97	33575 65	33575 00
33152 12	33152 13	33392 37	33392 34	33416 61	33416 33		
33152 14	33152 13	33392 39	33392 34	33416 69	33416 35	33660 23	33660 26
		33392 41	33392 44	33416 99	33416 97		
33156 15	33156 13	33392 43	33392 44			33690 21	33690 23
33156 17	33156 13	33392 49	33392 44	33551 11	33551 00	33690 25	33690 23
33156 22	33156 21			33551 51	33551 00	33690 98	33690 85
33156 24	33156 21	33412 17	33412 24	33551 61	33551 00	33690 98	33690 97

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3312200	MA33B, Steel Mill Products	3316700	MA33B, Steel Mill Products
3312300	MA33B, Steel Mill Products	3316800	MA33B, Steel Mill Products
3312400	MA33B, Steel Mill Products	3317000	MA33B, Steel Mill Products
3312C00	MA33B, Steel Mill Products	3357600	MA33L, Insulated Wire and Cable
3315113	MA33B, Steel Mill Products	3357700	MA33L, Insulated Wire and Cable
		3357800	MA33L, Insulated Wire and Cable
3315134	MA33B, Steel Mill Products	3357900	MA33L, Insulated Wire and Cable
3315500	MA33B, Steel Mill Products	3357A00	MA33L, Insulated Wire and Cable
3315621	MA33B, Steel Mill Products	3357B00	MA33L, Insulated Wire and Cable
3315771	MA33B, Steel Mill Products	3357C00	MA33L, Insulated Wire and Cable
3315951	MA33B, Steel Mill Products	3357D00	MA33L, Insulated Wire and Cable
3315955	MA33B, Steel Mill Products	3357E00	MA33L, Insulated Wire and Cable

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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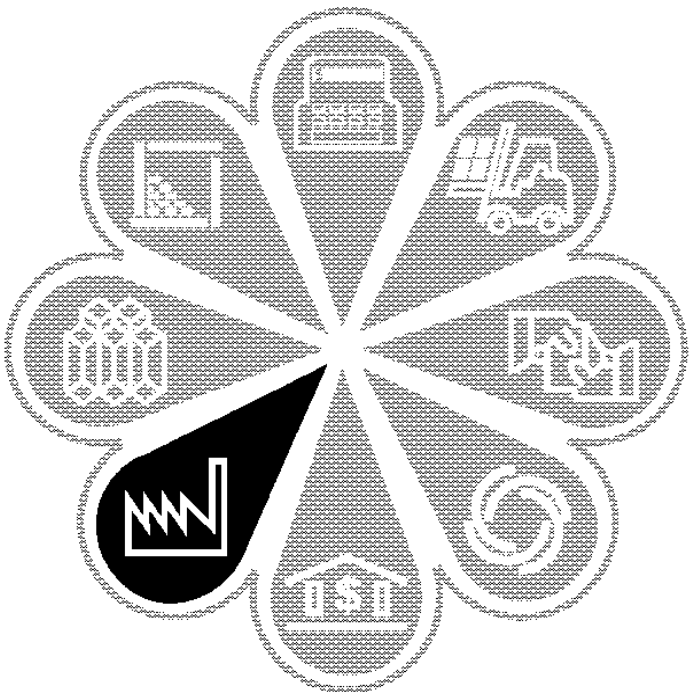
1992 Census of Manufactures

MC92-I-33B

INDUSTRY SERIES

Ferrous and Nonferrous Foundries

Industries 3321, 3322, 3324, 3325, 3363, 3364, 3365, 3366, and 3369



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-33B

INDUSTRY SERIES

Ferrous and Nonferrous Foundries

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3321	Gray and Ductile Iron Foundries
3322	Malleable Iron Foundries
3324	Steel Investment Foundries
3325	Steel Foundries, N.E.C.
3363	Aluminum Die-Castings
3364	Nonferrous Die-Castings, Except Aluminum
3365	Aluminum Foundries
3366	Copper Foundries
3369	Nonferrous Foundries, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES

This industry is made up of establishments primarily engaged in manufacturing gray and ductile iron castings, including cast iron pressure and soil pipes and fittings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a special product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3321, Gray and Ductile Iron Foundries, had employment of 77.1 thousand. The employment figure was 6 percent below the 82.4 thousand reported in 1987.

The leading States in employment in 1992 were Indiana, Michigan, Ohio, and Wisconsin, accounting for approximately 46 percent of the industry's employment. This represents a shift from 1987 when Alabama, Indiana, Michigan, and Ohio accounted for approximately 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.8 billion.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3321 shipped $7.3 billion of products considered primary to the industry, $256.1 million of secondary products, and had $242.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3321, no matter in what industry they were produced, appear in table 6a and aggregate to $7.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the gray and ductile iron foundries industry amounted to $3.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3322, MALLEABLE IRON FOUNDRIES

This industry is made up of establishments primarily engaged in manufacturing malleable iron castings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3322, Malleable Iron Foundries, had employment of 2.8 thousand. The employment figure was 33 percent below the 4.2 thousand reported in 1987. Compared with 1991, employment decreased 39 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Pennsylvania, Wisconsin, and Iowa, accounting for approximately 83 percent of the industry's employment. This represents a shift from 1987 when Michigan, Ohio, Pennsylvania, and Wisconsin were the leading States.

The total value of shipments for establishments classified in this industry was $247.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3322 shipped $231.7 million of products considered primary to the industry.

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 77 percent.

The products primary to industry 3322, no matter in what industry they were produced, appear in table 6a and aggregate to $301.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the malleable iron foundries industry amounted to $102.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES

This industry is made up of establishments primarily engaged in manufacturing malleable iron castings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other

industries and operate foundry departments for the production of castings for incorporation, in the same establishments, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3324, Steel Investment Foundries, had employment of 20.8 thousand. The employment figure was 2 percent above the 20.3 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Oregon, Ohio, and Michigan, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when California, Michigan, New Jersey, and Oregon were the leading States.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3324 shipped $1.6 billion products considered primary to the industry, $148.4 million of secondary products, and had $29.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3324, no matter in what industry they were produced, appear in table 6a and aggregate to $1.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the steel investment foundries industry amounted to $605.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing steel investment castings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3325, Steel Foundries, N.E.C., had employment of 22.2 thousand. The employment figure was 3 percent below the 22.9 thousand reported in 1987. Compared with 1991, employment decreased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Wisconsin, Pennsylvania, and Texas, accounting for approximately 45 percent of the industry's employment. This represents a shift from 1987 when Ohio, Pennsylvania, Washington, and Wisconsin were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3325 shipped $1.9 billion products considered primary to the industry, $119.2 million of secondary products, and had $37.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3325, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the, steel foundries, not elsewhere classified industry amounted to $817.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

INDUSTRY 3363, ALUMINUM DIE-CASTINGS

This industry is made up of establishments primarily engaged in manufacturing die-castings of aluminum (including alloys). These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3363, Aluminum Die-Castings, had employment of 27.1 thousand. The employment figure was 4 percent below the 28.1 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Michigan, Illinois, and Ohio, accounting for approximately 45 percent of the industry's employment. This represents a shift from 1987 when Wisconsin, Ohio, Illinois, and California accounted for approximately 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3363 shipped $2.5 billion of products considered primary to the industry, $281.6 million of secondary products, and had $79.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3363, no matter in what industry they were produced, appear in table 6a and aggregate to $2.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aluminum die-casting industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM

This industry is made up of establishments primarily engaged in manufacturing nonferrous metal die-castings, except aluminum. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3364, Nonferrous Die-Castings, Except Aluminum, had employment of 11.1 thousand. The employment figure was 14 percent below the 12.9 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Illinois, California, and Ohio, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3364 shipped $902.8 million of products considered primary to the industry, $93.0 million of secondary products, and had $25.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3364, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonferrous die-castings, except aluminum,| industry amounted to $481.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3365, ALUMINUM FOUNDRIES

This industry is made up of establishments primarily engaged in manufacturing aluminum (including alloys) castings, except die-castings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3365, Aluminum Foundries, had employment of 22.9 thousand. The employment figure was 13 percent below the 26.3 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, Wisconsin, and Iowa, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when Ohio, California, Michigan, and Wisconsin accounted for approximately 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3365 shipped $1.7 billion of products considered primary to the industry, $202.6 million of secondary products, and had $47.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio also was 89 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3365, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aluminum foundries industry amounted to $812.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3366, COPPER FOUNDRIES

This industry is made up of establishments primarily engaged in manufacturing copper (including alloys) castings, except die-castings. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in manufacturing and rolling of steel and also making steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3366, Copper Foundries, had employment of 8.7 thousand. The employment figure was 6 percent above the 8.2 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Pennsylvania, and Indiana, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when California, Illinois, Michigan, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $744.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3366 shipped $661.5 million of products considered primary to the industry, $56.4 million of secondary products, and had $26.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3366, no matter in what industry they were produced, appear in table 6a and aggregate to $750.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the copper foundries industry amounted to $332.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing nonferrous metal castings (including alloys), except all die-castings and other castings of aluminum or copper. These establishments generally operate on a job or order basis, manufacturing castings for sale to others or for interplant transfer. Establishments that produce iron and steel castings and are also engaged in fabricating operations, such as machining and assembling, in manufacturing a specified product are classified in the industry of the specified product. Iron and steel castings are made, to a considerable extent, by establishments that are classified in other industries and operate foundry departments for the production of castings for incorporation, in the same establishment, into such products as stoves, furnaces, plumbing fixtures, and motor vehicles. Establishments primarily engaged in the manufacture and rolling of steel castings are classified in industry 3312. Establishments primarily engaged in manufacturing nonferrous castings are classified in industry group 336.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3369, Nonferrous Foundries, N.E.C., had employment of 4.2 thousand. The employment figure was 4 percent above the 4.0 thousand reported in 1987. Compared with 1991, employment decreased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Oregon, Iowa, and Michigan, accounting for approximately 72 percent of the industry's employment. This represents a shift from 1987 when California, Iowa, Ohio, and Oregon were the leading States.

The total value of shipments for establishments classified in this industry was $412.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3369 shipped $379.2 million of products considered primary to the industry, $24.7 million of secondary products, and had $8.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 3369, no matter in what industry they were produced, appear in table 6a and aggregate to $462.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonferrous foundries, not elsewhere classified, industry amounted to $155.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES															
1992 Census	641	713	427	77.1	2 461.4	63.2	130.4	1 890.5	4 331.6	3 483.6	7 789.2	339.3	823.0	97	98
1991 ASM	(NA)	(NA)	(NA)	75.7	2 262.3	61.4	123.7	1 715.7	3 674.6	3 388.4	7 078.8	316.2	776.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	81.0	2 428.2	66.4	136.2	1 871.0	4 111.2	3 697.8	7 825.3	347.0	793.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	84.2	2 472.3	69.8	144.5	1 926.7	4 219.1	3 823.8	8 027.4	406.5	769.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	87.3	2 529.9	72.8	154.2	2 016.4	4 473.9	3 861.0	8 277.1	359.5	774.2	(NA)	(NA)
1987 Census	692	774	493	82.4	2 289.9	67.9	140.2	1 776.2	4 044.4	3 198.9	7 213.1	357.0	690.5	96	96
1986 ASM	(NA)	(NA)	(NA)	81.1	2 180.4	65.9	132.2	1 682.5	3 769.0	3 119.7	6 919.1	393.2	645.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	88.6	2 312.9	72.5	146.1	1 789.9	3 989.7	3 285.8	7 295.7	329.8	695.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	98.4	2 429.0	81.1	162.4	1 898.0	4 432.2	3 522.6	7 959.6	273.9	743.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	91.8	2 072.2	74.8	143.5	1 573.9	3 465.9	3 006.9	6 498.3	223.1	748.9	(NA)	(NA)
1982 Census	801	925	635	97.3	1 965.0	78.2	139.8	1 463.0	3 310.5	2 840.4	6 202.2	338.0	750.0	94	91
1981 ASM	(NA)	(NA)	(NA)	128.5	2 581.6	105.5	202.2	1 973.1	4 166.1	4 330.6	8 471.7	741.2	857.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	131.0	2 410.1	106.6	203.6	1 835.6	4 211.6	3 612.2	7 825.3	653.5	778.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	152.1	2 677.9	126.9	249.9	2 107.7	4 708.3	4 333.8	8 979.1	626.7	796.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	149.2	2 531.6	125.8	252.4	2 023.7	4 597.3	4 045.3	8 658.4	610.8	686.8	(NA)	(NA)
1977 Census	865	984	683	138.8	2 146.0	116.8	236.1	1 703.2	4 070.7	3 355.5	7 388.7	503.1	654.4	96	88
INDUSTRY 3322, MALLEABLE IRON FOUNDRIES															
1992 Census	24	24	11	2.8	100.9	2.4	4.8	84.8	144.3	102.3	247.7	3.8	19.4	(D)	77
1991 ASM	(NA)	(NA)	(NA)	4.6	144.0	3.3	6.2	90.3	156.0	121.1	276.5	10.6	30.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.9	160.3	3.5	6.8	101.7	196.8	124.8	320.6	16.2	30.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.3	145.1	3.8	7.3	97.6	233.3	130.5	363.9	4.5	25.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.4	111.3	3.3	6.5	85.8	202.4	111.1	314.3	7.1	18.7	(NA)	(NA)
1987 Census	27	28	19	4.2	121.4	3.0	5.9	77.4	181.6	102.6	283.4	3.6	22.5	93	77
1986 ASM	(NA)	(NA)	(NA)	6.0	156.6	4.2	8.0	98.0	221.3	172.2	396.7	15.6	29.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.3	159.8	4.5	8.5	102.8	264.6	168.2	432.9	16.9	34.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.0	157.5	4.7	9.2	103.7	270.1	165.4	431.9	22.1	35.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.4	125.2	4.0	7.1	78.6	213.3	111.9	324.0	6.6	25.2	(NA)	(NA)
1982 Census	46	50	31	6.5	135.7	4.8	8.2	89.3	206.3	112.9	323.2	11.9	25.3	89	77
1981 ASM	(NA)	(NA)	(NA)	9.3	190.2	7.2	13.9	134.9	307.8	177.7	479.0	28.1	35.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.7	209.9	8.7	16.4	144.1	306.6	211.9	521.2	20.5	43.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	271.2	11.7	22.5	195.0	436.4	293.5	727.6	36.3	49.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.1	287.2	13.7	26.7	210.0	481.9	284.1	764.8	43.2	46.1	(NA)	(NA)
1977 Census	58	66	53	18.2	273.0	14.6	27.9	202.5	458.8	265.7	721.9	28.9	43.6	86	93
INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES															
1992 Census	139	153	106	20.8	574.7	16.0	33.1	398.0	1 164.6	605.8	1 783.1	52.8	302.3	92	98
1991 ASM	(NA)	(NA)	(NA)	19.5	509.3	14.8	30.9	353.5	1 052.5	520.5	1 585.0	47.0	272.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.8	503.7	15.1	30.7	349.1	1 033.5	563.5	1 592.1	51.2	280.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.5	507.7	16.1	32.5	343.1	952.6	565.7	1 515.8	51.5	276.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.8	488.0	16.4	33.0	333.0	941.2	532.6	1 469.4	58.4	274.5	(NA)	(NA)
1987 Census	120	135	95	20.3	470.6	15.6	31.1	320.6	988.8	495.7	1 450.8	36.5	255.7	91	98
1986 ASM	(NA)	(NA)	(NA)	18.6	418.5	13.9	27.7	276.2	884.6	489.3	1 359.3	45.2	230.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.5	394.9	14.1	29.4	271.0	798.5	477.4	1 262.9	51.4	218.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.2	352.8	13.4	26.9	235.3	727.7	421.2	1 124.5	25.0	201.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.2	291.9	11.3	22.2	190.9	589.0	354.9	939.6	21.5	165.5	(NA)	(NA)
1982 Census	117	132	108	16.8	299.4	12.6	24.4	197.2	635.7	363.3	1 024.6	32.9	162.6	91	96
1981 ASM	(NA)	(NA)	(NA)	15.8	257.8	11.9	24.1	171.8	588.0	340.3	912.7	20.3	164.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.2	251.2	12.6	26.2	168.6	553.5	352.3	898.5	33.9	154.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.1	213.8	11.9	24.7	150.9	466.5	287.4	728.6	25.4	137.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.0	152.0	9.5	19.4	109.2	325.3	177.6	487.3	10.1	89.2	(NA)	(NA)
1977 Census	80	92	68	10.5	128.7	8.1	16.5	85.9	267.4	144.8	407.5	10.9	65.6	93	86
INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.															
1992 Census	271	288	166	22.2	610.2	17.6	36.3	426.9	1 253.4	817.4	2 059.3	71.7	271.2	94	97
1991 ASM	(NA)	(NA)	(NA)	25.6	664.0	20.3	41.0	478.8	1 310.8	918.1	2 231.4	71.1	281.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.7	688.5	21.5	43.3	485.4	1 350.0	959.6	2 326.5	69.2	287.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.3	673.5	21.9	44.3	474.7	1 374.4	1 008.4	2 372.7	54.9	310.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.8	607.3	20.0	41.1	441.8	1 229.8	795.3	2 005.6	37.1	304.8	(NA)	(NA)
1987 Census	270	294	176	22.9	544.1	17.9	35.5	377.4	1 004.9	685.7	1 680.4	37.8	268.8	93	94
1986 ASM	(NA)	(NA)	(NA)	19.7	457.3	15.3	29.4	315.5	774.8	629.9	1 424.5	43.4	216.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.8	507.9	17.8	34.6	365.0	920.3	680.8	1 618.2	48.0	250.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.0	575.5	19.7	38.9	416.5	1 067.2	748.6	1 799.4	61.1	293.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.4	540.8	19.0	35.1	374.8	815.5	676.1	1 518.4	45.3	287.6	(NA)	(NA)
1982 Census	290	331	228	36.9	713.0	28.4	49.6	498.8	1 209.0	826.3	2 091.4	99.6	313.2	90	92
1981 ASM	(NA)	(NA)	(NA)	53.9	1 000.8	43.5	82.4	753.5	1 839.2	1 240.9	3 084.0	133.6	360.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	60.8	1 071.5	49.6	93.8	822.2	2 040.1	1 376.8	3 392.1	168.5	433.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	61.7	1 027.7	51.3	101.8	807.7	1 998.4	1 226.4	3 222.0	146.4	394.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	57.3	878.7	46.7	91.4	666.9	1 608.6	997.1	2 592.2	112.7	357.5	(NA)	(NA)
1977 Census	287	323	229	54.8	781.5	44.2	87.3	591.0	1 439.8	882.3	2 312.1	115.9	341.3	87	91
INDUSTRY 3363, ALUMINUM DIE-CASTINGS															
1992 Census	301	333	217	27.1	744.5	22.3	45.9	546.5	1 536.1	1 290.9	2 817.4	122.5	208.0	90	96
1991 ASM	(NA)	(NA)	(NA)	27.0	714.1	22.0	44.0	531.9	1 306.6	1 302.9	2 628.0	100.5	196.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.8	749.1	23.6	47.6	558.8	1 326.6	1 448.4	2 779.5	96.1	216.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.0	756.5	24.5	49.8	568.8	1 416.1	1 625.4	3 044.0	152.2	232.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	28.9	736.6	23.4	47.9	550.5	1 373.9	1 534.1	2 888.9	94.8	222.9	(NA)	(NA)
1987 Census	390	412	231	28.1	696.8	22.7	46.4	516.2	1 267.8	1 216.8	2 468.8	94.8	183.6	89	93

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM															
1992 Census	253	263	120	11.1	272.6	8.8	17.9	182.1	541.7	481.2	1 020.8	33.5	97.9	91	83
1991 ASM	(NA)	(NA)	(NA)	12.1	287.5	9.7	19.7	194.3	559.1	603.0	1 165.2	26.0	120.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.2	302.3	10.5	20.8	196.8	598.2	715.5	1 317.9	26.7	129.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.5	296.6	10.7	21.8	195.2	638.0	694.0	1 320.7	34.2	129.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.8	266.7	10.1	20.4	176.8	575.5	534.2	1 109.3	32.5	117.3	(NA)	(NA)
1987 Census	293	304	156	12.9	260.3	10.4	20.7	176.4	534.0	482.9	1 009.6	26.0	104.3	89	85
INDUSTRY 3365, ALUMINUM FOUNDRIES															
1992 Census	566	591	255	22.9	581.7	18.1	37.1	402.5	1 153.0	812.2	1 965.0	65.6	172.7	89	92
1991 ASM	(NA)	(NA)	(NA)	22.3	538.6	18.0	34.9	364.4	950.7	825.9	1 783.3	52.5	156.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.6	564.8	19.0	38.7	394.5	980.7	929.0	1 919.1	65.0	174.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.7	586.9	20.8	42.1	410.8	1 108.5	1 022.8	2 130.4	60.7	172.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.4	578.7	21.7	43.5	421.4	1 133.2	1 108.1	2 218.7	76.6	211.4	(NA)	(NA)
1987 Census	557	583	255	26.3	571.5	21.7	43.4	422.1	1 035.9	840.9	1 871.7	52.1	166.5	89	91
INDUSTRY 3366, COPPER FOUNDRIES															
1992 Census	324	329	127	8.7	205.1	6.8	13.3	138.0	413.3	332.6	744.3	19.8	74.5	92	88
1991 ASM	(NA)	(NA)	(NA)	8.6	193.8	6.5	13.4	127.7	362.3	324.8	685.6	20.1	67.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.0	187.7	7.3	14.7	132.8	353.1	325.5	677.8	27.3	66.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.1	199.9	7.5	14.2	146.2	378.5	321.0	709.9	(D)	64.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.7	184.9	6.9	13.6	131.3	366.6	312.0	673.5	(D)	65.0	(NA)	(NA)
1987 Census	330	334	122	8.2	175.3	6.5	12.8	124.4	341.9	285.3	625.2	13.2	58.3	90	82
INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.															
1992 Census	113	118	25	4.2	121.2	3.0	5.9	74.6	249.7	155.4	412.6	10.8	87.3	94	82
1991 ASM	(NA)	(NA)	(NA)	4.9	139.3	3.5	7.3	82.1	275.0	148.3	430.6	11.6	100.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.2	149.8	4.0	7.9	93.0	289.5	187.2	465.0	13.0	97.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.6	127.9	3.6	6.8	82.5	234.8	184.0	412.5	(D)	95.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.4	115.5	3.3	6.7	72.9	217.1	159.7	366.8	(D)	90.3	(NA)	(NA)
1987 Census	53	56	26	4.0	101.3	2.9	5.6	63.6	214.9	127.8	339.9	9.0	80.8	89	78

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES									
1992 Census	31 925	82	2 063	14.50	45	76	56 182	57	33.22
1991 ASM	29 885	81	2 015	13.87	48	80	48 542	62	29.71
1990 ASM	29 978	82	2 051	13.74	47	78	50 756	59	30.19
1989 ASM	29 362	83	2 070	13.33	48	78	50 108	59	29.20
1988 ASM	28 979	83	2 118	13.08	47	77	51 247	57	29.01
1987 Census	27 790	82	2 065	12.67	44	76	49 083	57	28.85
1986 ASM	26 885	81	2 006	12.73	45	77	46 473	58	28.51
1985 ASM	26 105	82	2 015	12.25	45	77	45 030	58	27.31
1984 ASM	24 685	82	2 002	11.69	44	75	45 043	55	27.29
1983 ASM	22 573	81	1 918	10.97	46	78	37 755	60	24.15
1982 Census	20 195	80	1 788	10.46	46	77	34 024	59	23.68
1981 ASM	20 090	82	1 917	9.76	51	82	32 421	62	20.60
1980 ASM	18 398	81	1 910	9.02	46	77	32 150	57	20.69
1979 ASM	17 606	83	1 969	8.43	48	78	30 955	57	18.84
1978 ASM	16 968	84	2 006	8.02	47	76	30 813	55	18.21
1977 Census	15 461	84	2 021	7.21	45	74	29 328	53	17.24

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3322, MALLEABLE IRON FOUNDRIES									
1992 Census	36 036	86	2 000	17.67	41	82	51 536	70	30.06
1991 ASM	31 304	72	1 879	14.56	44	96	33 913	92	25.16
1990 ASM	32 714	71	1 943	14.96	39	89	40 163	81	28.94
1989 ASM	27 377	72	1 921	13.37	36	76	44 019	62	31.96
1988 ASM	25 295	75	1 970	13.20	35	71	46 000	55	31.14
1987 Census	28 905	71	1 967	13.12	36	79	43 238	67	30.78
1986 ASM	26 100	70	1 905	12.25	43	83	36 883	71	27.66
1985 ASM	25 365	71	1 889	12.09	39	76	42 000	60	31.13
1984 ASM	26 250	78	1 957	11.27	38	75	45 017	58	29.36
1983 ASM	23 185	74	1 775	11.07	35	73	39 500	59	30.04
1982 Census	20 877	74	1 708	10.89	35	77	31 738	66	25.16
1981 ASM	20 452	77	1 931	9.71	37	77	33 097	62	22.14
1980 ASM	17 940	74	1 885	8.79	41	81	26 205	68	18.70
1979 ASM	17 725	76	1 923	8.67	40	78	28 523	62	19.40
1978 ASM	16 795	80	1 949	7.87	37	75	28 181	60	18.05
1977 Census	15 000	80	1 911	7.26	37	75	25 209	60	16.44
INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES									
1992 Census	27 630	77	2 069	12.02	34	66	55 990	49	35.18
1991 ASM	26 118	76	2 088	11.44	33	65	53 974	48	34.06
1990 ASM	25 439	76	2 033	11.37	35	67	52 197	49	33.66
1989 ASM	24 766	79	2 019	10.56	37	71	46 468	53	29.31
1988 ASM	23 462	79	2 012	10.09	36	69	45 250	52	28.52
1987 Census	23 182	77	1 994	10.31	34	67	48 709	48	31.79
1986 ASM	22 500	75	1 993	9.97	36	67	47 559	47	31.94
1985 ASM	21 346	76	2 085	9.22	38	69	43 162	49	27.16
1984 ASM	20 512	78	2 007	8.75	37	69	42 308	48	27.05
1983 ASM	19 204	74	1 965	8.60	38	69	38 750	50	26.53
1982 Census	17 821	75	1 937	8.08	35	65	37 839	47	26.05
1981 ASM	16 316	75	2 025	7.13	37	66	37 215	44	24.40
1980 ASM	15 506	78	2 079	6.44	39	67	34 167	45	21.13
1979 ASM	14 159	79	2 076	6.11	39	69	30 894	46	18.89
1978 ASM	12 667	79	2 042	5.63	36	68	27 108	47	16.77
1977 Census	12 257	77	2 037	5.21	36	67	25 467	48	16.21
INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.									
1992 Census	27 486	79	2 063	11.76	40	69	56 459	49	34.53
1991 ASM	25 938	79	2 020	11.68	41	71	51 203	51	31.97
1990 ASM	25 787	81	2 014	11.21	41	71	50 562	51	31.18
1989 ASM	24 670	80	2 023	10.72	43	71	50 344	49	31.02
1988 ASM	24 488	81	2 055	10.75	40	70	49 589	49	29.92
1987 Census	23 760	78	1 983	10.63	41	73	43 882	54	28.31
1986 ASM	23 213	78	1 922	10.73	44	76	39 330	59	26.35
1985 ASM	22 276	78	1 944	10.55	42	73	40 364	55	26.60
1984 ASM	23 020	79	1 975	10.71	42	74	42 688	54	27.43
1983 ASM	21 291	75	1 847	10.68	45	80	32 106	66	23.23
1982 Census	19 322	77	1 746	10.06	40	74	32 764	59	24.38
1981 ASM	18 568	81	1 894	9.14	40	73	34 122	54	22.32
1980 ASM	17 623	82	1 891	8.77	41	72	33 554	53	21.75
1979 ASM	16 656	83	1 984	7.93	38	70	32 389	51	19.63
1978 ASM	15 335	82	1 957	7.30	38	72	28 073	55	17.60
1977 Census	14 261	81	1 975	6.77	38	72	26 274	54	16.49
INDUSTRY 3363, ALUMINUM DIE-CASTINGS									
1992 Census	27 472	82	2 058	11.91	46	72	56 683	48	33.47
1991 ASM	26 448	81	2 000	12.09	50	77	48 393	55	29.70
1990 ASM	26 010	82	2 017	11.74	52	79	46 063	56	27.87
1989 ASM	25 217	82	2 033	11.42	53	78	47 203	53	28.44
1988 ASM	25 488	81	2 047	11.49	53	79	47 540	54	28.68
1987 Census	24 797	81	2 044	11.13	49	78	45 117	55	27.32
INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM									
1992 Census	24 559	79	2 034	10.17	47	74	48 802	50	30.26
1991 ASM	23 760	80	2 031	9.86	52	76	46 207	51	28.38
1990 ASM	22 902	80	1 981	9.46	54	77	45 318	51	28.76
1989 ASM	21 970	79	2 037	8.95	53	75	47 259	46	29.27
1988 ASM	20 836	79	2 020	8.67	48	72	44 961	46	28.21
1987 Census	20 178	81	1 990	8.52	48	74	41 395	49	25.80
INDUSTRY 3365, ALUMINUM FOUNDRIES									
1992 Census	25 402	79	2 050	10.85	41	71	50 349	50	31.08
1991 ASM	24 152	81	1 939	10.44	46	77	42 632	57	27.24
1990 ASM	23 932	81	2 037	10.19	48	78	41 555	58	25.34
1989 ASM	22 837	81	2 024	9.76	48	76	43 132	53	26.33
1988 ASM	21 920	82	2 005	9.69	50	76	42 924	51	26.05
1987 Census	21 730	83	2 000	9.73	45	75	39 388	55	23.87
INDUSTRY 3366, COPPER FOUNDRIES									
1992 Census	23 575	78	1 956	10.38	45	72	47 506	50	31.08
1991 ASM	22 535	76	2 062	9.53	47	76	42 128	53	27.04
1990 ASM	20 856	81	2 014	9.03	48	76	39 233	53	24.02
1989 ASM	21 967	82	1 893	10.30	45	73	41 593	53	26.65
1988 ASM	21 253	79	1 971	9.65	46	74	42 138	50	26.96
1987 Census	21 378	79	1 969	9.72	46	74	41 695	51	26.71

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.								
1992 Census	28 857	71	1 967	12.64	38	67	59 452	49	42.32
1991 ASM	28 429	71	2 086	11.25	34	67	56 122	51	37.67
1990 ASM	28 808	77	1 975	11.77	40	72	55 673	52	36.65
1989 ASM	27 804	78	1 889	12.13	45	76	51 043	54	34.53
1988 ASM	26 250	75	2 030	10.88	44	75	49 341	53	32.40
1987 Census	25 325	73	1 931	11.36	38	67	53 725	47	38.38

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES														
United States	**–**	**713**	**427**	**77.1**	**2 461.4**	**63.2**	**130.4**	**1 890.5**	**4 331.6**	**3 483.6**	**7 789.2**	**339.3**	**82.4**	**4 044.4**
Alabama	–	37	30	6.8	203.6	5.5	11.7	144.9	359.8	500.9	833.0	28.9	7.3	396.5
Arkansas	–	6	4	.3	6.5	.3	.6	5.1	10.6	10.4	21.2	(D)	(NA)	(D)
California	E1	39	18	1.6	42.3	1.2	2.3	27.3	89.9	78.9	167.5	11.2	2.6	110.0
Connecticut	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(D)
Florida	–	11	3	.3	9.7	.2	.5	5.9	16.9	13.4	30.9	.5	E	(D)
Georgia	–	16	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	36	23	4.6	168.8	3.6	6.9	125.6	269.3	196.4	469.4	13.8	(NA)	(D)
Indiana	–	43	31	6.9	239.8	5.7	12.4	186.9	429.8	300.0	731.0	18.0	6.9	331.7
Iowa	–	12	9	1.8	69.5	1.4	2.9	52.7	106.6	100.3	203.7	(D)	G	(D)
Kansas	–	11	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Maryland	E8	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E3	18	8	.6	15.5	.4	.9	10.6	23.2	17.4	41.4	.8	F	(D)
Michigan	–	54	29	8.3	297.8	6.8	13.1	234.4	457.5	299.7	757.7	39.1	9.5	461.1
Minnesota	–	17	11	.8	22.7	.7	1.4	16.5	46.5	26.7	73.3	3.4	1.1	42.8
Missouri	–	14	6	1.0	27.1	.8	1.8	20.5	69.9	34.7	104.6	(D)	G	(D)
Nebraska	E4	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	10	6	.9	29.2	.6	1.5	19.0	86.0	89.2	182.1	4.7	G	(D)
New York	E1	17	6	.5	11.7	.3	.7	7.9	21.5	13.6	35.4	.7	F	(D)
North Carolina	–	19	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	84	55	11.9	486.6	10.2	21.1	404.9	762.2	552.0	1 317.4	80.3	12.3	788.5
Oklahoma	E1	11	9	.9	21.6	.7	1.4	16.5	33.4	36.7	70.1	1.8	.8	30.0
Oregon	E4	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	10.1
Pennsylvania	–	65	43	4.5	123.2	3.7	7.5	91.6	254.4	167.0	416.6	18.1	5.2	208.1
South Carolina	E1	9	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	23	12	3.1	83.3	2.7	5.4	62.8	135.0	137.9	273.4	11.7	(NA)	(D)
Texas	–	30	19	4.7	125.0	3.9	7.9	93.2	202.7	150.5	353.1	11.7	(NA)	(D)
Utah	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	16	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	7	6	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(D)
West Virginia	E4	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	42	35	8.0	238.1	6.6	13.5	182.7	460.5	376.4	834.0	32.5	6.7	311.2
INDUSTRY 3322, MALLEABLE IRON FOUNDRIES														
United States	**–**	**24**	**11**	**2.8**	**100.9**	**2.4**	**4.8**	**84.8**	**144.3**	**102.3**	**247.7**	**3.8**	**4.2**	**181.6**
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	E2	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	18.2

See footnotes at end of table.

TIPS [UPF] BATCH_1319 [EISS,BA_TAYLOR] MCD-SRB 5/ 2/ 95 8:58 AM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 4
TSF:33B_92.DAT;9 5/ 2/ 95 08:56:42 UTF:33B_93.DAT;9 5/ 2/ 95 08:56:42 META:TIPS96-08563580.DAT;1 5/ 2/ 95 08:57:57

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES														
United States	–	**153**	**106**	**20.8**	**574.7**	**16.0**	**33.1**	**398.0**	**1 164.6**	**605.8**	**1 783.1**	**52.8**	**20.3**	**988.8**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	25	17	2.5	64.9	2.0	4.5	42.8	123.3	68.1	188.2	12.4	(NA)	(D)
Connecticut	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	14	8	1.8	53.4	1.2	2.3	33.5	99.1	59.3	170.6	(D)	(NA)	(D)
Minnesota	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
Nevada	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	E8	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	17	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oklahoma	–	4	3	.1	3.0	.1	.3	2.3	6.7	3.9	10.6	.2	(NA)	(NA)
Oregon	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	9	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	7	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	11	8	1.5	38.5	1.2	2.7	26.3	76.8	48.3	129.5	(D)	G	(D)
Utah	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	E3	9	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	49.6
INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.														
United States	**E1**	**288**	**166**	**22.2**	**610.2**	**17.6**	**36.3**	**426.9**	**1 253.4**	**817.4**	**2 059.3**	**71.7**	**22.9**	**1 004.9**
Alabama	–	12	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	25	8	.7	19.4	.6	1.2	14.2	40.3	16.8	58.8	1.3	F	(D)
Illinois	E4	11	7	.7	20.1	.6	1.3	14.8	57.1	48.4	105.1	(D)	F	(D)
Indiana	E1	9	7	1.1	25.8	.9	1.6	17.3	45.7	22.8	67.5	(D)	F	(D)
Iowa	E3	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	F	(D)
Kansas	–	5	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E3	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Massachusetts	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	E3	23	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	G	(D)
Minnesota	–	6	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E2	10	7	.5	12.8	.4	.9	8.4	28.2	16.2	43.6	(D)	F	(D)
Nebraska	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E5	6	2	.1	3.4	.1	.2	2.4	6.8	4.5	11.3	.3	(NA)	(NA)
Ohio	E1	24	15	2.9	87.2	2.4	4.9	67.9	173.6	109.8	285.1	8.1	3.8	154.8
Oklahoma	E7	5	3	.4	6.8	.3	.6	4.8	14.7	9.8	24.5	.8	E	(D)
Oregon	E1	8	7	1.5	47.9	1.0	1.9	26.5	80.4	48.5	124.3	(D)	G	(D)
Pennsylvania	–	32	15	2.4	54.1	1.9	3.7	38.5	110.1	79.4	190.8	4.5	3.0	125.6
Tennessee	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E2	18	14	1.9	45.8	1.5	3.1	31.6	88.5	55.3	143.6	(D)	G	(D)
Washington	–	16	11	.9	27.0	.8	1.6	20.0	60.5	37.4	97.9	12.1	G	(D)
West Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	18	18	2.8	76.1	2.1	4.5	51.4	143.4	92.3	233.4	6.9	2.5	120.6
INDUSTRY 3363, ALUMINUM DIE-CASTINGS														
United States	–	**333**	**217**	**27.1**	**744.5**	**22.3**	**45.9**	**546.5**	**1 536.1**	**1 290.9**	**2 817.4**	**122.5**	**28.1**	**1 267.8**
Alabama	E1	7	2	.2	4.7	.2	.4	4.0	12.8	13.5	27.2	.5	.4	13.6
Arkansas	–	7	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	50	30	1.7	43.3	1.3	2.5	28.7	64.2	59.3	123.4	2.7	2.8	99.7
Connecticut	E4	5	4	.3	8.6	.3	.5	6.4	14.6	9.1	23.7	(D)	(NA)	(D)
Florida	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E1	32	22	2.9	73.1	2.3	5.0	48.4	151.2	107.3	258.4	8.3	3.1	125.8
Indiana	–	12	7	2.0	75.6	1.7	2.7	61.0	95.9	153.9	248.5	(D)	G	(D)
Iowa	–	5	3	.2	6.2	.2	.3	3.8	7.9	3.7	11.4	(D)	.3	12.7
Kentucky	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	8	3	.6	13.7	.4	1.0	8.1	28.3	16.1	44.2	.7	E	(D)
Michigan	–	35	25	3.0	85.3	2.4	4.9	62.0	195.4	162.7	357.7	9.5	2.8	144.4
Minnesota	–	8	7	.9	27.6	.7	1.4	18.1	52.9	32.1	85.5	(D)	G	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	10	7	1.1	22.1	.9	2.0	16.5	46.0	27.7	73.2	(D)	F	(D)
Nevada	E8	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
New Jersey	–	8	4	.2	5.0	.1	.2	3.2	8.2	6.6	14.8	.2	E	(D)
New York	–	8	4	.6	20.2	.5	.9	15.8	15.2	20.5	35.6	(D)	G	(D)
North Carolina	–	4	3	.2	4.9	.2	.3	3.0	13.4	7.2	20.3	(D)	(NA)	(D)
Ohio	–	31	23	2.7	75.9	2.2	4.4	57.5	195.2	132.8	327.2	24.3	3.2	175.7

See footnotes at end of table.

TIPS [UPF] BATCH_1319 [EISS,BA_TAYLOR] MCD-SRB 5/ 2/ 95 8:58 AM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 5
TSF:33B_92.DAT;9 5/ 2/ 95 08:56:42 UTF:33B_93.DAT;9 5/ 2/ 95 08:56:42 META:TIPS96-08563580.DAT;1 5/ 2/ 95 08:57:57

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3363, ALUMINUM DIE-CASTINGS—Con.														
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	15	11	1.5	41.9	1.3	2.6	33.5	88.4	60.2	149.4	1.7	1.3	61.2
South Carolina	–	4	3	.5	9.9	.4	.9	8.0	27.1	15.9	42.5	1.5	(NA)	(NA)
Tennessee	–	7	6	.8	20.0	.7	1.5	14.9	43.1	35.6	75.5	3.8	.6	27.7
Texas	–	13	9	.7	14.4	.6	1.3	10.7	24.9	21.3	45.1	2.7	F	(D)
Washington	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	22	18	3.4	97.9	2.7	5.5	70.2	196.5	215.3	411.0	17.8	3.5	186.3
INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM														
United States	**–**	**263**	**120**	**11.1**	**272.6**	**8.8**	**17.9**	**182.1**	**541.7**	**481.2**	**1 020.8**	**33.5**	**12.9**	**534.0**
Alabama	E4	6	4	.2	4.4	.2	.5	3.0	8.9	7.9	16.8	(D)	(NA)	(NA)
California	–	34	14	1.2	31.4	1.0	2.1	21.6	67.6	50.8	117.8	1.9	F	(D)
Connecticut	–	8	5	.2	5.0	.2	.4	3.6	10.1	6.8	17.0	.3	E	(D)
Illinois	–	24	16	1.5	39.4	1.2	2.8	26.4	73.4	54.0	127.0	6.9	1.8	71.9
Indiana	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	E2	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	27	16	1.7	40.2	1.3	2.5	24.1	69.3	97.2	166.4	2.4	2.5	97.8
Minnesota	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E1	8	4	.2	4.2	.1	.3	2.8	8.4	5.3	13.7	.1	E	(D)
New York	–	23	10	.6	16.7	.5	1.0	11.6	36.3	28.6	64.4	.7	F	(D)
North Carolina	–	6	2	.1	2.5	.1	.2	1.5	8.1	9.2	17.3	(D)	(NA)	(NA)
Ohio	–	20	13	1.0	24.2	.8	1.6	16.8	48.7	55.4	103.5	4.2	1.4	68.1
Oregon	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	12	4	.7	18.1	.4	.9	9.5	27.5	14.5	42.6	2.9	F	(D)
Tennessee	–	6	3	.3	7.2	.3	.5	5.4	10.3	15.5	25.7	(D)	F	(D)
Texas	E1	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E4	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3365, ALUMINUM FOUNDRIES														
United States	**–**	**591**	**255**	**22.9**	**581.7**	**18.1**	**37.1**	**402.5**	**1 153.0**	**812.2**	**1 965.0**	**65.6**	**26.3**	**1 035.9**
Alabama	E1	12	6	.4	8.6	.3	.7	5.2	17.0	15.8	33.1	.8	.4	4.7
Arizona	E1	7	4	.3	7.1	.2	.4	3.6	14.4	5.8	20.3	.4	(NA)	(NA)
California	–	82	32	2.2	51.4	1.8	3.2	32.0	110.1	45.0	157.3	2.5	3.6	142.2
Florida	E1	13	4	.2	4.3	.1	.3	2.6	6.0	5.1	11.4	.1	(NA)	(D)
Illinois	–	32	11	.7	15.6	.5	1.0	9.8	29.1	15.9	44.8	1.0	F	(D)
Indiana	–	35	18	2.0	55.4	1.6	3.4	42.0	116.0	145.4	260.4	10.9	1.8	77.8
Iowa	E1	14	3	.3	7.7	.3	.6	5.5	15.0	9.9	24.5	.2	(NA)	(NA)
Kansas	E8	7	1	.2	2.5	.1	.2	1.7	3.9	3.7	7.6	(D)	(NA)	(NA)
Massachusetts	–	15	1	.2	5.5	.1	.3	3.6	8.6	4.6	13.4	.2	F	(D)
Michigan	–	31	17	1.7	48.4	1.3	2.9	36.2	105.6	83.2	187.3	7.8	G	(D)
Minnesota	–	17	11	1.7	48.4	1.3	2.6	31.5	85.8	52.2	139.4	4.0	G	(D)
Missouri	–	17	6	1.0	27.3	.8	2.1	21.1	46.9	30.9	80.0	5.1	G	(D)
New Hampshire	–	10	7	.4	10.3	.3	.6	6.2	20.2	6.6	27.1	.3	.5	22.5
New Jersey	E2	13	6	.4	11.2	.3	.6	6.9	18.1	7.3	25.5	.1	F	(D)
New Mexico	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E2	29	13	.8	20.4	.7	1.1	14.7	40.9	16.9	57.0	1.0	F	(D)
North Carolina	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	70	32	3.3	84.4	2.6	5.3	58.1	155.8	102.5	257.9	5.6	3.8	157.5
Oregon	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	46	23	1.6	38.0	1.3	2.7	26.0	85.5	39.8	124.3	3.6	1.9	71.1
Tennessee	–	10	7	1.1	26.3	.9	1.6	19.3	69.3	66.9	135.5	(D)	.8	36.2
Texas	–	24	11	.7	15.1	.5	1.1	9.8	29.9	19.6	49.8	1.3	F	(D)
Washington	E2	8	5	.4	11.3	.3	.6	8.2	22.9	18.1	40.8	(D)	E	(D)
Wisconsin	–	32	16	2.0	54.8	1.6	3.5	39.5	101.5	82.0	181.4	7.6	1.9	75.5
INDUSTRY 3366, COPPER FOUNDRIES														
United States	**E1**	**329**	**127**	**8.7**	**205.1**	**6.8**	**13.3**	**138.0**	**413.3**	**332.6**	**744.3**	**19.8**	**8.2**	**341.9**
Alabama	E2	4	3	.1	2.5	.1	.2	1.8	4.6	4.0	8.6	(D)	(NA)	(NA)
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	41	16	1.0	23.6	.8	1.6	16.0	44.1	31.9	76.1	2.3	G	(D)
Illinois	E1	30	15	1.1	26.7	.9	1.8	17.9	46.3	41.5	87.5	2.4	F	(D)
Indiana	–	11	8	.6	13.2	.5	.9	9.2	29.5	21.7	51.3	1.9	.5	24.5
Massachusetts	E1	12	1	.1	3.4	.1	.2	2.3	7.2	3.5	10.6	.2	(NA)	(NA)
Michigan	–	17	8	.6	15.9	.5	1.0	9.9	32.1	23.0	55.6	1.0	F	(D)
Missouri	–	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
New Jersey	E3	7	5	.2	4.9	.1	.3	3.5	8.0	7.8	15.8	.4	E	(D)
New York	–	15	3	.3	6.1	.2	.4	3.8	10.7	5.8	16.8	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3366, COPPER FOUNDRIES—Con.														
Ohio	–	23	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	E6	6	4	.2	4.0	.1	.3	2.6	7.3	5.8	13.1	(D)	(NA)	(NA)
Oregon	E1	9	3	.1	2.9	.1	.2	2.2	5.9	2.7	8.7	.3	(NA)	(NA)
Pennsylvania	E1	24	12	.7	18.1	.5	1.0	11.4	40.1	40.2	79.9	3.0	.9	39.9
South Carolina	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	18	4	.2	5.1	.2	.3	3.4	10.3	7.5	16.8	.2	(NA)	(D)
Virginia	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
West Virginia	E1	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	13	7	.6	14.6	.4	.8	9.3	32.1	30.6	62.6	(D)	.4	14.0
Wyoming	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.														
United States	**–**	**118**	**25**	**4.2**	**121.2**	**3.0**	**5.9**	**74.6**	**249.7**	**155.4**	**412.6**	**10.8**	**4.0**	**214.9**
California	E2	9	2	.2	5.6	.1	.3	3.4	9.2	4.9	14.3	.8	E	(D)
Illinois	E1	11	5	.2	6.7	.1	.3	3.4	10.6	9.2	19.9	.7	(NA)	(D)
Indiana	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	11	3	.2	7.0	.2	.4	4.9	13.4	7.1	20.2	.4	(NA)	(NA)
New Jersey	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	E1	11	2	.2	6.2	.1	.3	4.0	10.7	13.0	23.5	(D)	(NA)	(NA)
Rhode Island	E5	17	1	.1	2.9	.1	.2	1.7	4.8	3.9	8.8	.2	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gray and ductile iron foundries (SIC 3321)	Malleable iron foundries (SIC 3322)	Steel investment foundries (SIC 3324)	Steel foundries, n.e.c. (SIC 3325)	Aluminum die-castings (SIC 3363)	Nonferrous die-castings, except aluminum (SIC 3364)	Aluminum foundries (SIC 3365)	Copper foundries (SIC 3366)	Nonferrous foundries, n.e.c. (SIC 3369)
Companies ---- number	641	24	139	271	301	253	566	324	113
All establishments ---- number	713	24	153	288	333	263	591	329	118
With 1 to 19 employees ---- number	286	13	47	122	116	143	336	202	93
With 20 to 99 employees ---- number	251	4	61	99	128	89	194	114	17
With 100 employees or more ---- number	176	7	45	67	89	31	61	13	8
Employment and labor costs:									
Employees ---- 1,000	77.1	2.8	20.8	22.2	27.1	11.1	22.9	8.7	4.2
Compensation, total ---- mil dol	3 336.0	141.4	751.7	792.8	956.7	345.0	735.5	263.0	156.0
Annual payroll ---- mil dol	2 461.4	100.9	574.7	610.2	744.5	272.6	581.7	205.1	121.2
Fringe benefits ---- mil dol	874.6	40.5	177.0	182.7	212.2	72.4	153.8	57.9	34.7
Social Security and other legally required payments ---- mil dol	287.9	13.7	74.7	80.5	86.6	32.3	71.9	24.3	13.5
Employer voluntary payments ---- mil dol	586.7	26.7	102.3	102.2	125.7	40.1	81.8	33.6	21.3
Production workers:									
Average for year ---- 1,000	63.2	2.4	16.0	17.6	22.3	8.8	18.1	6.8	3.0
March ---- 1,000	62.9	2.4	16.4	17.4	22.1	8.7	17.9	6.8	3.4
May ---- 1,000	62.9	2.4	15.8	17.5	22.3	8.9	18.2	6.8	3.0
August ---- 1,000	63.7	2.5	16.2	17.6	22.6	8.8	18.3	6.8	3.0
November ---- 1,000	63.5	2.4	15.8	17.6	22.4	8.8	17.9	6.6	2.7
Hours ---- millions	130.4	4.8	33.1	36.3	45.9	17.9	37.1	13.3	5.9
Wages ---- mil dol	1 890.5	84.8	398.0	426.9	546.5	182.1	402.5	138.0	74.6
Cost of materials[1] ---- mil dol	3 483.6	102.3	605.8	817.4	1 290.9	481.2	812.2	332.6	155.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	2 637.4	72.6	457.0	605.4	1 033.7	365.2	631.4	271.3	131.2
Resales ---- mil dol	229.3	(D)	13.5	21.2	36.0	10.8	23.6	14.4	4.1
Fuels ---- mil dol	196.0	8.1	16.3	30.9	45.5	9.8	28.3	7.7	2.8
Purchased electricity ---- mil dol	347.1	18.7	44.7	87.4	61.5	19.6	45.0	22.5	7.8
Contract work ---- mil dol	73.7	(D)	74.3	72.6	114.1	75.8	83.9	16.8	9.6
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	6 936.2	441.6	767.6	1 716.0	1 182.4	294.7	742.2	357.2	141.3
Generated less sold ---- mil kWh	(D)	–	(D)	–	(D)	(D)	(D)	–	–

See footnotes at end of table.

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TSF:33B_92.DAT;9 5/ 2/ 95 08:56:42 UTF:33B_93.DAT;9 5/ 2/ 95 08:56:42 META:TIPS96-08563580.DAT;1 5/ 2/ 95 08:57:57

Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gray and ductile iron foundries (SIC 3321)	Malleable iron foundries (SIC 3322)	Steel investment foundries (SIC 3324)	Steel foundries, n.e.c. (SIC 3325)	Aluminum die-castings (SIC 3363)	Nonferrous die-castings, except aluminum (SIC 3364)	Aluminum foundries (SIC 3365)	Copper foundries (SIC 3366)	Nonferrous foundries, n.e.c. (SIC 3369)
Total value of shipments ---- mil dol	7 789.2	247.7	1 783.1	2 059.3	2 817.4	1 020.8	1 965.0	744.3	412.6
Value added ---- mil dol	4 331.6	144.3	1 164.6	1 253.4	1 536.1	541.7	1 153.0	413.3	249.7
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	795.5	21.6	325.7	263.8	194.8	94.3	167.6	74.0	103.6
Finished goods ---- mil dol	357.8	4.6	40.8	77.4	45.5	32.2	42.4	25.1	3.5
Work in process ---- mil dol	162.6	9.5	196.5	99.4	70.6	33.2	67.1	21.6	63.8
Materials and supplies ---- mil dol	275.1	7.5	88.4	86.9	78.7	28.9	58.1	27.3	36.3
End of 1992 ---- mil dol	823.0	19.4	302.3	271.2	208.0	97.9	172.7	74.5	87.3
Finished goods ---- mil dol	385.7	3.8	41.6	82.6	54.6	33.0	39.5	26.7	3.6
Work in process ---- mil dol	160.6	9.1	183.0	105.7	71.0	34.5	70.2	21.6	56.2
Materials and supplies ---- mil dol	276.8	6.4	77.7	82.8	82.4	30.4	63.0	26.3	27.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gray and ductile iron foundries (SIC 3321)	Malleable iron foundries (SIC 3322)	Steel investment foundries (SIC 3324)	Steel foundries, n.e.c. (SIC 3325)	Aluminum die-castings (SIC 3363)	Nonferrous die-castings, except aluminum (SIC 3364)	Aluminum foundries (SIC 3365)	Copper foundries (SIC 3366)	Nonferrous foundries, n.e.c. (SIC 3369)
Gross book value of depreciable assets:									
Total:									
Beginning of year	5 961.2	166.2	739.7	1 170.3	1 530.4	378.9	823.8	279.1	172.4
New capital expenditures[1]	339.3	3.8	52.8	71.7	122.5	33.5	65.6	19.8	10.8
Used capital expenditures	23.8	(D)	2.9	11.1	11.5	3.0	6.3	3.8	.4
Retirements	159.3	(D)	17.7	24.0	25.5	6.5	12.2	5.8	1.6
End of year	6 165.0	168.7	777.8	1 229.1	1 638.9	409.0	883.5	296.9	182.0
Buildings and other structures:									
Beginning of year	1 531.0	28.7	167.4	255.2	316.2	84.7	186.2	59.6	33.4
New capital expenditures	31.7	.2	8.7	21.1	28.4	5.8	12.5	3.2	1.4
Used capital expenditures	2.3	(D)	.3	1.1	.8	.3	.5	.8	.1
Retirements	33.4	(D)	2.2	2.2	1.6	.1	3.2	.6	.1
End of year	1 531.6	28.8	174.1	275.2	343.7	90.6	196.0	63.0	34.8
Machinery and equipment:									
Beginning of year	4 430.2	137.5	572.3	915.1	1 214.2	294.3	637.6	219.5	139.0
New capital expenditures[1]	307.7	3.7	44.1	50.6	94.2	27.8	53.1	16.6	9.4
Used capital expenditures	21.5	(D)	2.7	10.0	10.8	2.7	5.8	3.0	.3
Retirements	126.0	(D)	15.4	21.7	23.9	6.4	9.0	5.2	1.5
End of year	4 633.4	139.9	603.7	953.9	1 295.3	318.3	687.4	233.9	147.2
Depreciation charges during 1992:									
Total	340.0	5.4	44.1	64.1	98.7	32.0	58.5	20.0	12.3
Buildings and other structures	51.6	.7	6.1	9.6	10.9	3.8	7.5	2.7	1.2
Machinery and equipment	288.4	4.7	38.0	54.5	87.8	28.2	51.0	17.3	11.1
Rental payments:									
Total	27.4	.3	10.8	13.9	20.7	13.2	23.0	6.8	2.4
Buildings and other structures	12.3	.2	6.4	7.9	11.1	6.8	11.4	3.8	1.3
Machinery and equipment	15.0	.1	4.4	6.0	9.6	6.5	11.6	2.9	1.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Gray and ductile iron foundries (SIC 3321)		Malleable iron foundries (SIC 3322)		Steel investment foundries (SIC 3324)		Steel foundries, n.e.c. (SIC 3325)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	20.4	(X)	.7	(X)	5.2	(X)	3.3	(X)
Response coverage ratio (percent)[2]	86.5	(X)	96.3	(X)	91.1	(X)	81.2	(X)
Machinery	196.3	(X)	1.5	(X)	24.7	(X)	24.2	(X)
Response coverage ratio (percent)[2]	90.5	(X)	96.3	(X)	91.1	(X)	82.2	(X)
Other purchased services:								
Communications	9.8	(X)	(S)	(X)	3.1	(X)	3.9	(X)
Response coverage ratio (percent)[2]	84.4	(X)	(S)	(X)	89.6	(X)	85.4	(X)
Legal	15.0	(X)	.7	(X)	3.5	(X)	4.6	(X)
Response coverage ratio (percent)[2]	91.2	(X)	96.3	(X)	89.6	(X)	85.5	(X)
Accounting and bookkeeping	5.1	(X)	.1	(X)	10.0	(X)	2.5	(X)
Response coverage ratio (percent)[2]	84.0	(X)	96.3	(X)	91.1	(X)	85.5	(X)
Advertising	3.7	(X)	.1	(X)	.8	(X)	2.4	(X)
Response coverage ratio (percent)[2]	88.4	(X)	96.3	(X)	89.5	(X)	85.5	(X)
Software and other data processing	5.4	(X)	(Z)	(X)	13.0	(X)	3.2	(X)
Response coverage ratio (percent)[2]	86.1	(X)	96.3	(X)	89.5	(X)	85.5	(X)
Refuse removal, including hazardous waste	39.8	(X)	1.0	(X)	17.6	(X)	8.6	(X)
Response coverage ratio (percent)[2]	88.1	(X)	96.3	(X)	91.1	(X)	85.5	(X)
New machinery and equipment expenditures	307.7	(X)	3.7	(X)	44.1	(X)	50.6	(X)
Automobiles, trucks, etc., for highway use	3.4	15	(Z)	(X)	.9	34	1.0	50
Computers and peripheral data processing equipment	10.8	21	(Z)	(X)	3.5	5	1.0	24
All other	293.5	1	3.6	1	39.8	1	48.6	2
Adjustment ratio[3]	1.1	(X)	1.0	(X)	1.2	(X)	.9	(X)
Cost of materials, components, parts, etc., used	2 637.4	(X)	72.6	(X)	457.0	(X)	605.4	(X)
Materials purchased or transferred from foreign sources[4]	12.3	4	.6	13	5.7	6	9.5	32
Materials purchased or transferred from domestic sources	2 625.1	1	72.0	1	451.3	1	595.8	1
Adjustment ratio[3]	1.3	(X)	1.2	(X)	1.6	(X)	1.9	(X)

Item	Aluminum die-castings (SIC 3363)		Nonferrous die-castings, except aluminum (SIC 3364)		Aluminum foundries (SIC 3365)		Copper foundries (SIC 3366)		Nonferrous foundries, n.e.c. (SIC 3369)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	6.0	(X)	2.3	(X)	4.1	(X)	.9	(X)	2.8	(X)
Response coverage ratio (percent)[2]	81.2	(X)	78.2	(X)	85.6	(X)	90.1	(X)	87.9	(X)
Machinery	47.3	(X)	24.4	(X)	25.3	(X)	5.1	(X)	5.9	(X)
Response coverage ratio (percent)[2]	84.7	(X)	86.1	(X)	86.8	(X)	92.8	(X)	87.9	(X)
Other purchased services:										
Communications	3.7	(X)	2.7	(X)	4.3	(X)	1.2	(X)	.6	(X)
Response coverage ratio (percent)[2]	78.7	(X)	83.7	(X)	84.7	(X)	92.5	(X)	87.5	(X)
Legal	3.7	(X)	2.5	(X)	12.9	(X)	1.0	(X)	.1	(X)
Response coverage ratio (percent)[2]	86.6	(X)	83.4	(X)	88.3	(X)	92.1	(X)	87.9	(X)
Accounting and bookkeeping	2.8	(X)	2.1	(X)	6.9	(X)	1.8	(X)	.3	(X)
Response coverage ratio (percent)[2]	83.9	(X)	85.7	(X)	88.0	(X)	92.4	(X)	87.9	(X)
Advertising	1.7	(X)	1.9	(X)	3.7	(X)	1.0	(X)	.1	(X)
Response coverage ratio (percent)[2]	86.1	(X)	79.9	(X)	87.2	(X)	80.5	(X)	60.1	(X)
Software and other data processing	2.1	(X)	.6	(X)	13.5	(X)	.3	(X)	1.6	(X)
Response coverage ratio (percent)[2]	85.2	(X)	79.6	(X)	81.6	(X)	92.4	(X)	87.9	(X)
Refuse removal, including hazardous waste	5.1	(X)	7.5	(X)	6.7	(X)	1.3	(X)	9.5	(X)
Response coverage ratio (percent)[2]	86.1	(X)	81.6	(X)	84.3	(X)	89.9	(X)	87.9	(X)
New machinery and equipment expenditures	94.2	(X)	27.8	(X)	53.1	(X)	16.6	(X)	9.4	(X)
Automobiles, trucks, etc., for highway use	1.3	13	.4	56	2.6	35	–	(X)	–	(X)
Computers and peripheral data processing equipment	2.6	8	.9	26	3.4	19	.9	51	.7	1
All other	90.3	1	26.5	2	47.1	3	15.6	4	8.7	1
Adjustment ratio[3]	1.2	(X)	.6	(X)	1.4	(X)	1.8	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	1 033.7	(X)	365.2	(X)	631.4	(X)	271.3	(X)	131.2	(X)
Materials purchased or transferred from foreign sources[4]	1.4	8	13.2	57	16.9	61	.2	39	–	(X)
Materials purchased or transferred from domestic sources	1 032.3	1	351.9	3	614.5	3	271.1	1	131.2	1
Adjustment ratio[3]	1.4	(X)	.8	(X)	1.5	(X)	1.9	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. Industry Statistics by Employment Size of Establishment: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES												
Total	**–**	**713**	**77.1**	**2 461.4**	**63.2**	**130.4**	**1 890.5**	**4 331.6**	**3 483.6**	**7 789.2**	**339.3**	**823.0**
Establishments with an average of—												
1 to 4 employees	E9	138	.2	5.6	.2	.3	4.3	9.8	8.7	18.4	.5	2.0
5 to 9 employees	E4	59	.4	10.7	.3	.6	8.1	31.0	18.4	49.0	1.3	3.9
10 to 19 employees	E5	89	1.2	28.0	1.0	2.0	20.5	51.3	35.2	86.7	2.1	7.4
20 to 49 employees	–	151	5.0	118.6	4.0	8.2	85.8	207.4	149.6	358.2	9.7	31.0
50 to 99 employees	E1	100	7.4	178.5	6.1	12.5	129.4	319.4	241.1	566.6	24.0	47.8
100 to 249 employees	–	104	15.9	424.5	12.9	26.6	309.4	920.2	669.4	1 585.1	51.0	152.0
250 to 499 employees	–	44	15.1	439.4	12.2	25.5	325.1	903.6	741.3	1 638.3	89.4	159.3
500 to 999 employees	–	20	13.8	480.3	11.2	24.6	367.6	845.3	696.2	1 539.3	76.5	171.4
1,000 to 2,499 employees	–	4	5.9	201.1	4.9	9.0	155.1	325.2	231.8	556.7	84.9	59.6
2,500 employees or more	–	4	12.1	574.8	10.4	20.9	485.1	718.4	692.0	1 390.9	(D)	188.7
Covered by administrative records[2]	E9	205	1.0	22.9	.9	1.7	17.8	34.7	31.4	66.0	1.9	6.7
INDUSTRY 3322, MALLEABLE IRON FOUNDRIES												
Total	**–**	**24**	**2.8**	**100.9**	**2.4**	**4.8**	**84.8**	**144.3**	**102.3**	**247.7**	**3.8**	**19.4**
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.4	(Z)	(Z)	.3	.7	.5	1.2	(Z)	.1
5 to 9 employees	E9	1	.1	1.2	(Z)	.1	.8	1.6	1.5	3.1	.1	.3
10 to 19 employees	E2	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	2	.2	4.3	.1	.3	3.1	7.1	5.0	12.0	.5	1.4
50 to 99 employees	E9	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	4	2.5	95.0	2.2	4.4	80.7	134.9	95.3	231.4	1.9	17.5
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	11	(Z)	.8	(Z)	.1	.6	1.4	1.0	2.3	.1	.3
INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES												
Total	**–**	**153**	**20.8**	**574.7**	**16.0**	**33.1**	**398.0**	**1 164.6**	**605.8**	**1 783.1**	**52.8**	**302.3**
Establishments with an average of—												
1 to 4 employees	E8	19	(Z)	.9	(Z)	.1	.6	2.2	1.1	3.3	.1	.6
5 to 9 employees	E6	11	.1	1.9	.1	.1	1.3	4.1	3.3	7.5	.1	1.3
10 to 19 employees	E3	17	.3	5.1	.2	.4	3.7	10.6	4.8	15.5	.2	2.3
20 to 49 employees	E1	32	1.1	24.1	.9	1.8	15.8	50.5	22.4	73.0	1.6	7.7
50 to 99 employees	–	29	2.0	50.7	1.6	3.5	32.0	90.0	52.5	142.5	2.3	24.5
100 to 249 employees	–	24	4.0	109.3	3.1	6.7	76.3	207.6	116.5	323.6	18.7	60.6
250 to 499 employees	E3	10	3.1	86.2	2.5	5.3	61.3	182.7	79.9	261.2	6.5	36.8
500 to 999 employees	–	7	5.2	145.1	3.8	7.6	98.2	304.7	147.8	462.3	11.4	70.0
1,000 to 2,499 employees	–	4	5.0	151.4	3.8	7.5	108.8	312.2	177.4	494.3	11.8	98.6
Covered by administrative records[2]	E9	32	.2	3.8	.1	.3	2.6	7.3	3.8	11.1	.4	2.0
INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.												
Total	**E1**	**288**	**22.2**	**610.2**	**17.6**	**36.3**	**426.9**	**1 253.4**	**817.4**	**2 059.3**	**71.7**	**271.2**
Establishments with an average of—												
1 to 4 employees	E9	45	.1	1.5	.1	.1	1.1	3.0	2.0	4.9	.2	.6
5 to 9 employees	E7	29	.2	5.0	.2	.3	3.5	10.4	6.9	17.3	1.2	2.2
10 to 19 employees	E2	48	.7	16.5	.5	1.1	12.0	55.4	45.5	101.1	1.7	7.1
20 to 49 employees	E2	64	2.0	48.3	1.6	3.5	33.4	98.8	63.6	161.0	5.8	18.3
50 to 99 employees	E1	35	2.3	63.9	1.8	3.8	42.0	110.6	66.0	176.9	5.2	16.6
100 to 249 employees	E2	44	6.9	189.1	5.4	11.3	132.7	421.5	314.1	726.4	26.7	101.0
250 to 499 employees	E1	18	6.2	181.0	5.2	11.1	134.6	360.2	225.4	585.9	23.3	78.2
500 to 999 employees	–	4	3.8	104.8	2.8	5.1	67.7	193.6	93.9	285.7	7.7	47.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	87	.5	10.7	.4	.8	7.6	19.7	13.2	32.9	1.0	4.3
INDUSTRY 3363, ALUMINUM DIE-CASTINGS												
Total	**–**	**333**	**27.1**	**744.5**	**22.3**	**45.9**	**546.5**	**1 536.1**	**1 290.9**	**2 817.4**	**122.5**	**208.0**
Establishments with an average of—												
1 to 4 employees	E4	34	.1	2.2	.1	.1	1.6	4.1	5.6	10.6	.2	.4
5 to 9 employees	E8	31	.2	5.2	.2	.4	3.8	8.9	9.2	18.1	.6	1.3
10 to 19 employees	E5	51	.7	16.0	.6	1.2	11.8	31.8	29.9	61.8	1.5	4.3
20 to 49 employees	–	70	2.1	50.2	1.7	3.3	34.4	105.0	93.6	199.6	18.9	13.6
50 to 99 employees	E1	58	4.3	107.5	3.5	7.3	77.0	221.5	163.1	383.5	14.8	28.6
100 to 249 employees	–	67	9.9	254.6	8.0	16.9	178.0	537.0	420.4	949.5	38.9	65.1
250 to 499 employees	–	18	6.4	193.1	5.3	11.2	143.1	384.6	345.9	731.0	35.7	59.0
500 to 999 employees	–	3	3.4	115.8	3.0	5.4	96.8	243.3	223.3	463.3	12.2	35.5
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	78	.6	11.7	.5	1.0	8.9	16.5	19.0	35.4	1.2	2.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM												
Total	**–**	**263**	**11.1**	**272.6**	**8.8**	**17.9**	**182.1**	**541.7**	**481.2**	**1 020.8**	**33.5**	**97.9**
Establishments with an average of—												
1 to 4 employees	E8	60	.1	2.6	.1	.2	1.8	5.1	6.6	11.7	.2	1.1
5 to 9 employees	E6	42	.3	6.5	.2	.4	4.2	12.2	12.4	24.5	.5	2.1
10 to 19 employees	E2	41	.6	13.9	.4	.9	8.2	27.3	25.5	52.6	.8	4.6
20 to 49 employees	–	52	1.7	40.2	1.3	2.8	25.9	84.5	73.5	158.5	1.9	14.8
50 to 99 employees	E1	37	2.6	64.4	2.1	4.4	42.1	146.6	133.3	279.4	7.5	23.1
100 to 249 employees	–	24	3.8	91.4	3.0	6.2	62.1	176.7	174.9	350.3	15.4	36.8
250 to 499 employees	–	7	2.1	53.7	1.6	3.1	37.8	89.5	55.1	143.9	7.2	15.5
Covered by administrative records[2]	E9	88	.3	6.7	.3	.5	4.4	12.3	15.2	27.5	.5	2.6
INDUSTRY 3365, ALUMINUM FOUNDRIES												
Total	**–**	**591**	**22.9**	**581.7**	**18.1**	**37.1**	**402.5**	**1 153.0**	**812.2**	**1 965.0**	**65.6**	**172.7**
Establishments with an average of—												
1 to 4 employees	E8	122	.2	4.5	.2	.3	3.1	8.3	7.8	16.1	.4	1.5
5 to 9 employees	E6	109	.8	16.3	.6	1.2	11.3	26.8	21.0	47.7	.9	4.5
10 to 19 employees	E1	105	1.5	33.4	1.1	2.2	22.0	67.3	38.8	104.7	1.3	8.8
20 to 49 employees	–	143	4.5	112.0	3.5	7.2	73.0	211.4	140.4	352.6	6.4	30.2
50 to 99 employees	–	51	3.7	91.7	3.0	6.2	61.5	185.8	112.5	299.5	9.3	26.1
100 to 249 employees	–	47	7.2	184.9	5.6	11.2	129.1	391.8	245.6	638.9	19.6	52.3
250 to 499 employees	–	14	5.0	138.9	4.1	8.9	102.4	261.6	246.1	505.6	27.7	49.3
Covered by administrative records[2]	E9	204	.8	16.1	.7	1.3	11.2	24.9	23.9	48.8	1.3	4.5
INDUSTRY 3366, COPPER FOUNDRIES												
Total	**E1**	**329**	**8.7**	**205.1**	**6.8**	**13.3**	**138.0**	**413.3**	**332.6**	**744.3**	**19.8**	**74.5**
Establishments with an average of—												
1 to 4 employees	E8	79	.2	3.5	.1	.3	2.6	6.4	4.7	11.1	.6	1.0
5 to 9 employees	E1	46	.3	7.1	.3	.5	5.5	12.4	9.5	21.9	.5	1.8
10 to 19 employees	E1	77	1.1	24.4	.9	1.7	17.4	43.4	30.0	73.3	1.4	6.3
20 to 49 employees	–	80	2.5	61.3	1.9	3.8	39.2	115.3	102.2	217.4	6.0	23.0
50 to 99 employees	E1	34	2.5	59.7	2.0	3.9	41.2	109.6	96.4	204.8	6.8	21.1
100 to 249 employees	–	13	2.1	49.1	1.6	3.1	32.0	126.1	89.8	215.8	4.6	21.3
Covered by administrative records[2]	E9	72	.2	3.5	.1	.3	2.6	6.5	4.9	11.4	.7	1.1
INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.												
Total	**–**	**118**	**4.2**	**121.2**	**3.0**	**5.9**	**74.6**	**249.7**	**155.4**	**412.6**	**10.8**	**87.3**
Establishments with an average of—												
1 to 4 employees	E8	56	.1	2.7	.1	.1	1.4	4.7	4.2	9.0	.2	1.1
5 to 9 employees	E8	19	.1	3.9	.1	.2	2.0	8.0	5.9	14.0	.3	1.7
10 to 19 employees	E1	18	.2	6.8	.2	.4	3.9	13.3	16.3	28.6	.7	5.0
20 to 49 employees	–	14	.5	14.1	.3	.7	8.3	23.4	23.1	46.8	2.5	4.3
50 to 99 employees	–	3	.3	7.2	.2	.4	4.2	15.6	9.0	24.1	(D)	4.0
100 to 249 employees	–	4	2.9	86.5	2.2	4.0	54.7	184.7	96.8	290.1	7.1	71.2
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	61	.2	5.2	.1	.2	2.7	9.5	8.6	18.1	.5	2.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3321	**Gray and ductile iron foundries:**										
	All establishments in industry	713	77.1	2 461.4	63.2	130.4	1 890.5	4 331.6	3 483.6	7 789.2	339.3
	Establishments with this product class primary:										
33211	Ductile iron pressure pipe and fittings	20	7.9	262.5	6.1	13.1	186.8	566.3	695.2	1 231.2	40.8
33212	Other ductile iron castings	84	15.4	424.5	12.4	26.9	307.0	852.7	642.2	1 499.4	100.8
33216	Molds and stools for heavy steel ingots	6	.6	18.4	.6	1.1	15.6	48.5	31.5	80.6	.5
33217	Cast iron pressure pipe and fittings	4	.2	3.4	.2	.3	2.9	6.8	3.4	10.3	.2
33218	Cast iron soil pipe and fittings (including special fittings)	10	3.4	100.9	2.7	5.3	74.9	191.4	121.7	313.4	14.9
33219	Other gray iron castings	287	45.4	1 552.3	37.9	77.0	1 227.0	2 496.3	1 838.2	4 333.9	171.9
3322	**Malleable iron foundries:**										
	All establishments in industry	24	2.8	100.9	2.4	4.8	84.8	144.3	102.3	247.7	3.8
	Establishments with this product class primary:										
33221	Standard malleable iron castings	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.5
33222	Pearlitic malleable iron castings	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–
3324	**Steel investment foundries:**										
	All establishments in industry	153	20.8	574.7	16.0	33.1	398.0	1 164.6	605.8	1 783.1	52.8
3325	**Steel foundries, n.e.c.:**										
	All establishments in industry	288	22.2	610.2	17.6	36.3	426.9	1 253.4	817.4	2 059.3	71.7
	Establishments with this product class primary:										
33252	Carbon steel castings, except investment	57	9.2	254.1	7.6	15.7	189.4	538.5	343.6	886.0	17.0
33254	High alloy steel castings, except investment	47	5.0	149.5	3.8	8.2	101.5	302.3	209.5	503.8	33.5
33255	Other alloy steel castings, except investment	36	5.4	146.8	4.1	8.0	93.9	276.0	178.4	449.7	14.0
3363	**Aluminum die-castings:**										
	All establishments in industry	333	27.1	744.5	22.3	45.9	546.5	1 536.1	1 290.9	2 817.4	122.5
3364	**Nonferrous die-castings, except aluminum:**										
	All establishments in industry	263	11.1	272.6	8.8	17.9	182.1	541.7	481.2	1 020.8	33.5
3365	**Aluminum foundries:**										
	All establishments in industry	591	22.9	581.7	18.1	37.1	402.5	1 153.0	812.2	1 965.0	65.6
3366	**Copper foundries:**										
	All establishments in industry	329	8.7	205.1	6.8	13.3	138.0	413.3	332.6	744.3	19.8
3369	**Nonferrous foundries, n.e.c.:**										
	All establishments in industry	118	4.2	121.2	3.0	5.9	74.6	249.7	155.4	412.6	10.8

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES			
Total value of shipments	7 789.2	7 213.1	6 202.2
Primary products value of shipments	7 290.6	6 598.5	5 691.2
Secondary products value of shipments	256.1	295.7	339.5
Total miscellaneous receipts	242.5	318.8	171.5
Value of resales	224.8	284.9	147.8
Contract receipts	4.9	7.1	4.3
Other miscellaneous receipts	12.8	26.9	19.4
Primary products specialization ratio	97	96	94
Value of primary products shipments made in all industries	7 476.5	6 839.4	6 287.7
Value of primary products shipments made in this industry	7 290.6	6 598.5	5 691.2
Value of primary products shipments made in other industries	185.8	240.9	596.4
Coverage ratio	98	96	91

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3322, MALLEABLE IRON FOUNDRIES			
Total value of shipments	247.7	283.4	323.2
Primary products value of shipments	231.7	261.8	286.0
Secondary products value of shipments	(D)	19.3	36.2
Total miscellaneous receipts	(D)	2.4	1.0
Value of resales	(D)	(D)	.4
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	93	89
Value of primary products shipments made in all industries	301.9	342.2	370.8
Value of primary products shipments made in this industry	231.7	261.8	286.0
Value of primary products shipments made in other industries	70.3	80.4	84.8
Coverage ratio	77	77	77
INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES			
Total value of shipments	1 783.1	1 450.8	1 024.6
Primary products value of shipments	1 605.5	1 298.9	921.9
Secondary products value of shipments	148.4	129.4	91.8
Total miscellaneous receipts	29.2	22.4	10.9
Value of resales	15.7	15.3	4.2
Contract receipts	6.5	.6	4.8
Other miscellaneous receipts	7.0	6.5	1.9
Primary products specialization ratio	92	91	91
Value of primary products shipments made in all industries	1 632.0	1 319.2	963.6
Value of primary products shipments made in this industry	1 605.5	1 298.9	921.9
Value of primary products shipments made in other industries	26.5	20.3	41.7
Coverage ratio	98	98	96
INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.			
Total value of shipments	2 059.3	1 680.4	2 091.4
Primary products value of shipments	1 902.6	1 517.9	1 840.4
Secondary products value of shipments	119.2	111.1	194.6
Total miscellaneous receipts	37.6	51.5	56.4
Value of resales	23.6	23.9	27.2
Contract receipts	7.9	3.5	16.4
Other miscellaneous receipts	6.1	24.1	12.8
Primary products specialization ratio	94	93	90
Value of primary products shipments made in all industries	1 971.1	1 612.7	2 009.7
Value of primary products shipments made in this industry	1 902.6	1 517.9	1 840.4
Value of primary products shipments made in other industries	68.5	94.8	169.3
Coverage ratio	97	94	92
INDUSTRY 3363, ALUMINUM DIE-CASTINGS			
Total value of shipments	2 817.4	2 468.8	(NA)
Primary products value of shipments	2 456.8	2 175.2	(NA)
Secondary products value of shipments	281.6	255.3	(NA)
Total miscellaneous receipts	79.0	38.3	(NA)
Value of resales	38.5	13.4	(NA)
Contract receipts	(D)	18.2	(NA)
Other miscellaneous receipts	(D)	6.7	(NA)
Primary products specialization ratio	90	89	(NA)
Value of primary products shipments made in all industries	2 547.4	2 328.0	(NA)
Value of primary products shipments made in this industry	2 456.8	2 175.2	(NA)
Value of primary products shipments made in other industries	90.6	152.8	(NA)
Coverage ratio	96	93	(NA)
INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM			
Total value of shipments	1 020.8	1 009.6	(NA)
Primary products value of shipments	902.8	876.1	(NA)
Secondary products value of shipments	93.0	103.9	(NA)
Total miscellaneous receipts	25.0	29.5	(NA)
Value of resales	14.2	22.3	(NA)
Contract receipts	4.5	1.4	(NA)
Other miscellaneous receipts	6.3	5.8	(NA)
Primary products specialization ratio	91	89	(NA)
Value of primary products shipments made in all industries	1 087.2	1 034.1	(NA)
Value of primary products shipments made in this industry	902.8	876.1	(NA)
Value of primary products shipments made in other industries	184.4	158.0	(NA)
Coverage ratio	83	85	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3365, ALUMINUM FOUNDRIES			
Total value of shipments	1 965.0	1 871.7	(NA)
Primary products value of shipments	1 715.3	1 628.1	(NA)
Secondary products value of shipments	202.6	203.5	(NA)
Total miscellaneous receipts	47.1	40.1	(NA)
Value of resales	28.8	21.7	(NA)
Contract receipts	4.5	2.3	(NA)
Other miscellaneous receipts	13.8	16.1	(NA)
Primary products specialization ratio	89	89	(NA)
Value of primary products shipments made in all industries	1 873.4	1 786.6	(NA)
Value of primary products shipments made in this industry	1 715.3	1 628.1	(NA)
Value of primary products shipments made in other industries	158.1	158.5	(NA)
Coverage ratio	92	91	(NA)
INDUSTRY 3366, COPPER FOUNDRIES			
Total value of shipments	744.3	625.2	(NA)
Primary products value of shipments	661.5	549.2	(NA)
Secondary products value of shipments	56.4	62.8	(NA)
Total miscellaneous receipts	26.3	13.2	(NA)
Value of resales	18.7	7.2	(NA)
Contract receipts	.8	2.8	(NA)
Other miscellaneous receipts	6.9	3.2	(NA)
Primary products specialization ratio	92	90	(NA)
Value of primary products shipments made in all industries	750.4	673.1	(NA)
Value of primary products shipments made in this industry	661.5	549.2	(NA)
Value of primary products shipments made in other industries	88.9	123.8	(NA)
Coverage ratio	88	82	(NA)
INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.			
Total value of shipments	412.6	339.9	(NA)
Primary products value of shipments	379.2	296.6	(NA)
Secondary products value of shipments	24.7	37.3	(NA)
Total miscellaneous receipts	8.8	6.1	(NA)
Value of resales	5.6	(D)	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	94	89	(NA)
Value of primary products shipments made in all industries	462.8	379.6	(NA)
Value of primary products shipments made in this industry	379.2	296.6	(NA)
Value of primary products shipments made in other industries	83.6	83.1	(NA)
Coverage ratio	82	78	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3321– –	**GRAY AND DUCTILE IRON FOUNDRIES**						
	Total	**(NA)**	**(X)**	**7 476.5**	**(NA)**	**(X)**	**6 839.4**
33211	Ductile iron pressure pipe and fittings	(NA)	(X)	1 125.5	(NA)	(X)	954.2
	Ductile iron pressure pipe:						
33211 21	Less than 14 inches (inside diameter) 1,000 s tons	11	(S)	878.0	8	1 080.2	523.0
33211 23	14 inches or more (inside diameter) 1,000 s tons	5	199.8	97.4	5	572.3	286.6
	Fittings:						
33211 25	Less than 14 inches (inside diameter) 1,000 s tons	22	68.9	106.8	15	69.1	103.0
33211 26	14 inches or more (inside diameter) 1,000 s tons	12	20.6	43.3	9	23.3	40.1
33211 00	Ductile iron pressure pipe and fittings, n.s.k.	(NA)	(X)	–	(NA)	(X)	1.5
33212	Other ductile iron castings	(NA)	(X)	1 727.2	(NA)	(X)	1 362.8
33212 22	Automotive uses 1,000 s tons	49	925.3	1 028.9	46	816.1	788.9
33212 24	Construction and utility uses 1,000 s tons	40	46.9	71.3	30	*21.1	24.2
33212 33	Machinery uses 1,000 s tons	105	186.4	283.4	64	112.1	140.7
33212 31	Valve uses 1,000 s tons	35	*28.1	57.7	28	20.8	45.3
33212 40	All other uses, including electric and electronic equipment uses, heat resistant parts, and coke oven door parts[3] 1,000 s tons	98	*197.1	276.9	(NA)	(NA)	336.7
33212 00	Other ductile iron castings, n.s.k.	(NA)	(X)	8.9	(NA)	(X)	26.9
33216	Molds and stools for heavy steel ingots	(NA)	(X)	112.1	(NA)	(X)	235.3
33216 00	Molds and stools for heavy steel ingots 1,000 s tons	10	285.4	112.1	11	725.7	235.3
33217	Cast iron pressure pipe and fittings	(NA)	(X)	46.8	(NA)	(X)	80.9
	Cast iron pressure pipe:						
33217 31	Less than 14 inches (inside diameter)	6	(X)	5.7	(NA)	(X)	2.9
33217 33	14 inches or more (inside diameter)	3	(X)	1.9			
	Fittings:						
33217 35	Less than 14 inches (inside diameter) 1,000 s tons	11	20.2	27.6	10	36.1	45.1
33217 36	14 inches or more (inside diameter) 1,000 s tons	7	11.8	9.4	6	15.6	23.4
33217 00	Cast iron pressure pipe and fittings, n.s.k.	(NA)	(X)	2.2	(NA)	(X)	9.5
33218	Cast iron soil pipe and fittings (including special fittings)	(NA)	(X)	189.1	(NA)	(X)	184.9
	Cast iron soil pipe:						
33218 22	3 inches or less (inside diameter) 1,000 s tons	7	*61.0	37.2	7	85.5	43.6
33218 24	More than 3 inches up to but not including 5 inches (inside diameter) 1,000 s tons	6	(S)	48.1	5	113.2	53.2
33218 27	5 inches or more (inside diameter) 1,000 s tons	8	(S)	35.7	5	58.5	29.7
	Fittings (including special fittings):						
33218 30	3 inches or less (inside diameter) 1,000 s tons	11	*17.3	21.9	7	**20.6	18.3
33218 33	More than 3 inches up to but not including 5 inches (inside diameter) 1,000 s tons	10	(S)	26.3	7	31.0	27.4
33218 36	5 inches or more (inside diameter) 1,000 s tons	7	(S)	17.6	6	*12.9	12.7
33218 00	Cast iron soil pipe and fittings (including special fittings), n.s.k.	(NA)	(X)	2.3	(NA)	(X)	–
33219	Other gray iron castings	(NA)	(X)	3 961.5	(NA)	(X)	3 594.7
33219 31	Rolls for rolling mills 1,000 s tons	13	**91.1	119.4	10	42.0	57.5
33219 39	Automotive uses 1,000 s tons	59	3 508.0	1 881.7	57	2 373.1	1 900.4
33219 49	Construction and utility uses 1,000 s tons	92	**444.2	490.2	65	**410.9	376.3
33219 98	All other uses 1,000 s tons	286	1 302.8	1 433.5	255	*1 545.9	1 148.7
33219 00	Other gray iron castings, n.s.k.	(NA)	(X)	36.7	(NA)	(X)	111.8
33210	Gray and ductile iron foundries, n.s.k.	(NA)	(X)	314.2	(NA)	(X)	426.5
33210 00	Gray and ductile iron foundries, n.s.k.[4]	(NA)	(X)	248.2	(NA)	(X)	307.2
33210 02	Gray and ductile iron foundries, n.s.k.[5]	(NA)	(X)	66.0	(NA)	(X)	119.3
3322– –	**MALLEABLE IRON FOUNDRIES**						
	Total	**(NA)**	**(X)**	**301.9**	**(NA)**	**(X)**	**342.2**
33221	Standard malleable iron castings	(NA)	(X)	188.7	(NA)	(X)	176.9
33221 00	Standard malleable iron castings 1,000 s tons	23	102.4	188.7	26	*142.5	176.9
33222	Pearlitic malleable iron castings	(NA)	(X)	105.5	(NA)	(X)	162.2
33222 00	Pearlitic malleable iron castings 1,000 s tons	12	92.8	105.5	10	116.3	162.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3322– —	**MALLEABLE IRON FOUNDRIES**—Con.						
33220	Malleable iron foundries, n.s.k.	(NA)	(X)	7.7	(NA)	(X)	3.0
33220 00	Malleable iron foundries, n.s.k.[6]	(NA)	(X)	5.4	(NA)	(X)	–
33220 02	Malleable iron foundries, n.s.k.[7]	(NA)	(X)	2.3	(NA)	(X)	3.0
3324– —	**STEEL INVESTMENT FOUNDRIES**						
	Total	**(NA)**	**(X)**	**1 632.0**	**(NA)**	**(X)**	**1 319.2**
33240	Steel investment castings	(NA)	(X)	1 632.0	(NA)	(X)	1 319.2
33240 63	Carbon (including low alloy)	60	(X)	257.1	31	(X)	74.4
33240 64	Alloy (excluding stainless)	42	(X)	150.5	27	(X)	57.5
33240 66	Stainless steel	78	(X)	352.9	56	(X)	171.3
33240 67	Hi-temp metal castings (iron, nickel, or cobalt-base alloys) 1,000 lb	36	(S)	773.8	25	41 165.6	900.3
33240 00	Steel investment foundries, n.s.k.[4]	(NA)	(X)	85.7	(NA)	(X)	93.3
33240 02	Steel investment foundries, n.s.k.[5]	(NA)	(X)	12.0	(NA)	(X)	22.5
3325– —	**STEEL FOUNDRIES, N.E.C.**						
	Total	**(NA)**	**(X)**	**1 971.1**	**(NA)**	**(X)**	**1 612.7**
33252	Carbon steel castings, except investment	(NA)	(X)	879.8	(NA)	(X)	716.5
33252 11	Cast steel railroad car wheels and railway specialties	16	(X)	372.3	11	(X)	222.7
33252 15	Rolls for rolling mills	4	(X)	(D)	(NA)	(X)	461.1
33252 19	Other carbon steel castings	95	(X)	486.1			
33252 00	Carbon steel castings, except investment, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	32.7
33254	High alloy steel castings, except investment	(NA)	(X)	433.8	(NA)	(X)	367.5
33254 21	High manganese steel castings 1,000 s tons	20	*47.6	103.1	18	40.4	71.9
33254 31	Other high alloy steel castings	77	(X)	330.7	68	(X)	275.3
33254 00	High alloy steel castings, except investment, n.s.k.	(NA)	(X)	–	(NA)	(X)	20.3
33255	Other alloy steel castings, except investment	(NA)	(X)	445.5	(NA)	(X)	362.2
33255 51	Railway specialties 1,000 s tons	3	*.5	1.2	(NA)	(S)	66.0
33255 55	Rolls for rolling mills 1,000 s tons	7	(S)	39.6			
33255 59	All other alloy steel castings 1,000 s tons	67	*202.0	403.3	56	*168.8	259.2
33255 00	Other alloy steel castings, except investment, n.s.k.	(NA)	(X)	1.4	(NA)	(X)	37.1
33250	Steel foundries, n.e.c., n.s.k.	(NA)	(X)	211.9	(NA)	(X)	166.4
33250 00	Steel foundries, n.e.c., n.s.k.[8]	(NA)	(X)	179.4	(NA)	(X)	95.7
33250 02	Steel foundries, n.e.c., n.s.k.[9]	(NA)	(X)	32.5	(NA)	(X)	70.7
3363– —	**ALUMINUM DIE-CASTINGS**						
	Total	**(NA)**	**(X)**	**2 547.4**	**(NA)**	**(X)**	**2 328.0**
33630	Aluminum and aluminum-base alloy die-castings	(NA)	(X)	2 547.4	(NA)	(X)	2 328.0
33630 00	Aluminum and aluminum-base alloy die-castings[4] mil lb	269	*1 754.6	2 512.0	328	(S)	2 301.9
33630 02	Aluminum die-castings, n.s.k.[5]	(NA)	(X)	35.4	(NA)	(X)	26.1
3364– —	**NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM**						
	Total	**(NA)**	**(X)**	**1 087.2**	**(NA)**	**(X)**	**1 034.1**
33640	Nonferrous die-castings (except aluminum)	(NA)	(X)	1 087.2	(NA)	(X)	1 034.1
33640 11	Copper and copper-base alloys (including bearings and bushings) mil lb	19	(S)	79.7	17	(S)	49.9
33640 21	Zinc and zinc-base alloys mil lb	159	**253.8	685.8	168	*305.8	660.6
33640 31	Magnesium and magnesium-base alloys mil lb	13	20.8	103.6	10	12.1	43.4
33640 41	Lead and lead-base alloys mil lb	15	50.0	51.1	9	*31.0	32.0
33640 51	Other nonferrous metal die-castings mil lb	14	(S)	28.3	7	(S)	13.4
33640 00	Nonferrous die-castings, except aluminum, n.s.k.[6]	(NA)	(X)	111.2	(NA)	(X)	214.0
33640 02	Nonferrous die-castings, except aluminum, n.s.k.[7]	(NA)	(X)	27.5	(NA)	(X)	20.9
3365– —	**ALUMINUM FOUNDRIES**						
	Total	**(NA)**	**(X)**	**1 873.4**	**(NA)**	**(X)**	**1 786.6**
33650	Aluminum and aluminum-base alloy castings (excluding die-castings)	(NA)	(X)	1 873.4	(NA)	(X)	1 786.6
	Aluminum and aluminum-base alloy castings (except cast aluminum cooking utensils):						
33650 11	Sand mil lb	328	(S)	805.0	308	**239.1	730.6
33650 31	Permanent and semipermanent mold mil lb	111	*295.0	637.9	109	474.3	653.5
33650 51	Investment	35	(X)	102.7	33	(X)	103.1
33650 61	Other	34	(X)	77.6	44	(X)	72.8
33650 73	Nonelectric cast aluminum pressure cookers, household-type and nonelectric cast aluminum cooking utensils	8	(X)	36.7	6	(X)	37.8
33650 00	Aluminum foundries, n.s.k.[6]	(NA)	(X)	164.8	(NA)	(X)	126.6
33650 02	Aluminum foundries, n.s.k.[7]	(NA)	(X)	48.8	(NA)	(X)	62.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3366– —	**COPPER FOUNDRIES**				
	Total	**(NA)**	**750.4**	**(NA)**	**673.1**
33660	Copper and copper-base alloy castings (excluding die-castings)	(NA)	750.4	(NA)	673.1
	Copper and copper-base alloy castings (except bearings and bushings):				
	Sand castings:				
33660 20	Alloy	67	122.7	47	58.4
33660 21	Leaded red and semi-red brasses	104	99.6	81	110.7
33660 22	Tin bronzes (including leaded and high-leaded)	51	42.0	38	42.4
33660 24	Copper and high-copper alloys	34	52.3	22	39.7
33660 25	Engineered alloys including manganese bronzes, silicon bronzes and brasses, aluminum bronzes, and copper nickels	100	92.1	68	81.2
33660 26	Other alloys: yellow and leaded yellow brasses, nickel tin bronzes, nickel silvers, lead bronzes, and special alloys[3]	46	52.3	44	54.8
33660 31	Permanent and semipermanent mold	6	29.9	8	21.9
33660 41	Centrifugal	10	33.6	7	21.6
33660 51	Investment	40	23.3	15	21.3
33660 61	Other	11	27.8	18	32.2
33660 72	Copper-base alloy bearings and bushings, nonmachined	9	34.1	10	14.7
33660 00	Copper foundries, n.s.k.[10]	(NA)	129.4	(NA)	128.2
33660 02	Copper foundries, n.s.k.[11]	(NA)	11.4	(NA)	46.0
3369– —	**NONFERROUS FOUNDRIES, N.E.C.**				
	Total	**(NA)**	**462.8**	**(NA)**	**379.6**
33690	Other nonferrous castings, n.e.c. (excluding die-castings)	(NA)	462.8	(NA)	379.6
33690 11	Zinc and zinc-base alloy	15	36.4	8	14.3
	Magnesium and magnesium-base alloy:				
33690 15	Sand	14	32.9	19	63.1
33690 23	Other (including permanent and semipermanent mold and cast anodes)[3]	5	13.8	5	18.6
33690 85	Nickel and nickel-base alloy[3]	16	100.9		
33690 91	Titanium and titanium-base alloy	6	(D)	22	254.6
33690 97	Other nonferrous metal castings[3]	32	149.4		
33690 00	Nonferrous foundries, n.e.c., n.s.k.[6]	(NA)	(D)	(NA)	21.5
33690 02	Nonferrous foundries, n.e.c., n.s.k.[7]	(NA)	17.9	(NA)	7.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]Typically for establishments with 5 employees or more.
[11]Typically for establishments with less than 5 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33211, DUCTILE IRON PRESSURE PIPE AND FITTINGS		
United States	**1 125.5**	**954.2**
Alabama	578.2	433.6
New Jersey	143.8	168.2
33212, OTHER DUCTILE IRON CASTINGS		
United States	**1 727.2**	**1 362.8**
Alabama	90.8	52.9
California	21.0	28.9
Illinois	199.7	(NA)
Indiana	102.0	83.9
Iowa	7.2	(NA)
Kansas	22.6	(NA)
Massachusetts	2.3	(NA)
Michigan	94.4	(NA)
Minnesota	35.1	33.4
Ohio	327.5	306.3
Oklahoma	43.8	(NA)
Pennsylvania	80.1	60.9
Tennessee	81.0	59.4
Texas	49.9	24.6

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33212, OTHER DUCTILE IRON CASTINGS—Con.		
Wisconsin	294.0	174.8
33216, MOLDS AND STOOLS FOR HEAVY STEEL INGOTS		
United States	**112.1**	**235.3**
33217, CAST IRON PRESSURE PIPE AND FITTINGS		
United States	**46.8**	**80.9**
33218, CAST IRON SOIL PIPE AND FITTINGS (INCLUDING SPECIAL FITTINGS)		
United States	**189.1**	**184.9**
California	32.3	36.2
33219, OTHER GRAY IRON CASTINGS		
United States	**3 961.5**	**3 594.7**
Alabama	65.8	97.8
Arkansas	14.8	(NA)
California	47.6	44.2
Georgia	52.7	8.7
Illinois	238.2	309.7
Indiana	587.1	435.7
Iowa	161.2	111.3
Kansas	26.0	15.2
Massachusetts	21.9	29.9
Michigan	625.1	598.9
Minnesota	28.6	27.7
Mississippi	3.1	(NA)
New Jersey	12.0	(NA)
New York	11.6	15.1
North Carolina	15.4	16.3
Ohio	804.7	856.7
Oklahoma	17.3	9.0
Pennsylvania	197.9	172.7
Tennessee	142.2	145.8
Texas	98.9	79.8
Virginia	57.5	(NA)
Washington	7.3	7.6
Wisconsin	495.6	334.3
33221, STANDARD MALLEABLE IRON CASTINGS		
United States	**188.7**	**176.9**
Ohio	6.1	19.2
Pennsylvania	24.3	24.6
Wisconsin	26.6	34.4
33222, PEARLITIC MALLEABLE IRON CASTINGS		
United States	**105.5**	**162.2**
33252, CARBON STEEL CASTINGS, EXCEPT INVESTMENT		
United States	**879.8**	**716.5**
California	8.5	13.4
Michigan	38.7	36.4
Missouri	11.5	19.5
Ohio	173.1	133.2
Pennsylvania	79.2	54.1
Texas	35.0	20.2
Washington	22.6	37.4
Wisconsin	78.5	92.8
33254, HIGH ALLOY STEEL CASTINGS, EXCEPT INVESTMENT		
United States	**433.8**	**367.5**
Alabama	24.8	25.1
California	5.0	(NA)
Iowa	6.1	(NA)
Louisiana	12.5	(NA)
Michigan	9.7	13.7
Ohio	58.6	44.6
Pennsylvania	53.3	58.7
Texas	25.1	9.8
Washington	18.3	15.4
Wisconsin	77.7	48.1
33255, OTHER ALLOY STEEL CASTINGS, EXCEPT INVESTMENT		
United States	**445.5**	**362.2**
Michigan	23.4	13.0
Ohio	42.6	64.0
Pennsylvania	28.7	45.5
Texas	75.4	53.8
Washington	15.4	10.8
Wisconsin	41.5	31.8

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3321-	**Gray and ductile iron foundries**	**7 476.5**	**6 679.9**	**7 409.7**	**7 695.0**	**7 900.4**	**6 839.4**	**6 287.7**	**7 835.2**
33211	Ductile iron pressure pipe and fittings	1 125.5	870.9	995.5	1 104.4	983.2	954.2	541.6	497.6
33212	Other ductile iron castings	1 727.2	1 468.9	1 618.9	1 635.5	1 572.4	1 362.8	1 113.7	1 125.6
33216	Molds and stools for heavy steel ingots	112.1	120.2	174.4	202.4	251.4	235.3	345.8	551.4
33217	Cast iron pressure pipe and fittings	46.8	36.3	82.2	65.9	84.2	80.9	190.5	177.7
33218	Cast iron soil pipe and fittings (including special fittings)	189.1	189.2	194.2	207.6	234.2	184.9	181.6	200.3
33219	Other gray iron castings	3 961.5	3 618.7	3 934.7	4 095.0	4 324.8	3 594.7	3 707.9	5 081.9
33210	Gray and ductile iron foundries, n.s.k.	314.2	375.7	409.8	384.1	450.3	426.5	206.6	200.8
3322-	**Malleable iron foundries**	**301.9**	**342.3**	**385.0**	**454.7**	**393.7**	**342.2**	**370.8**	**669.5**
33221	Standard malleable iron castings	188.7	170.6	187.8	254.5	187.1	176.9	208.0	453.0
33222	Pearlitic malleable iron castings	105.5	168.1	192.2	196.4	195.9	162.2	150.6	208.7
33220	Malleable iron foundries, n.s.k.	7.7	3.7	5.0	3.8	10.6	3.0	12.2	7.8
3324-	**Steel investment foundries**	**1 632.0**	**1 531.5**	**1 525.8**	**1 449.6**	**1 370.3**	**1 319.2**	**963.6**	**434.1**
33240	Steel investment castings	1 632.0	1 531.5	1 525.8	1 449.6	1 370.3	1 319.2	963.6	434.1
3325-	**Steel foundries, n.e.c.**	**1 971.1**	**2 218.4**	**2 291.4**	**2 314.5**	**1 939.1**	**1 612.7**	**2 009.7**	**2 205.8**
33252	Carbon steel castings, except investment	879.8	1 069.3	1 074.7	1 075.0	918.6	716.5	982.0	1 250.9
33254	High alloy steel castings, except investment	433.8	560.4	649.0	667.5	440.5	367.5	496.0	367.0
33255	Other alloy steel castings, except investment	445.5	374.9	375.1	391.6	404.0	362.2	465.1	521.0
33250	Steel foundries, n.e.c., n.s.k.	211.9	213.9	192.6	180.4	176.0	166.4	66.5	66.9
3363-	**Aluminum die-castings**	**2 547.4**	**2 482.1**	**2 680.1**	**2 891.5**	**2 734.5**	**2 328.0**	**(NA)**	**(NA)**
33630	Aluminum and aluminum-base alloy die-castings	2 547.4	2 482.1	2 680.1	2 891.5	2 734.5	2 328.0	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] BATCH_1319 [EISS,BA_TAYLOR] MCD-SRB 5/ 2/ 95 8:58 AM MACHINE: EPCV21 DATA:NONE TAPE: NOreel FRAME: 18
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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3364-	**Nonferrous die-castings, except aluminum**	**1 087.2**	**1 131.7**	**1 287.6**	**1 310.1**	**1 125.3**	**1 034.1**	**(NA)**	**(NA)**
33640	Nonferrous die-castings (except aluminum)	1 087.2	1 131.7	1 287.6	1 310.1	1 125.3	1 034.1	(NA)	(NA)
3365-	**Aluminum foundries**	**1 873.4**	**1 745.7**	**1 863.7**	**2 073.9**	**2 151.6**	**1 786.6**	**(NA)**	**(NA)**
33650	Aluminum and aluminum-base alloy castings (excluding die-castings)	1 873.4	1 745.7	1 863.7	2 073.9	2 151.6	1 786.6	(NA)	(NA)
3366-	**Copper foundries**	**750.4**	**701.1**	**726.2**	**751.8**	**722.2**	**673.1**	**(NA)**	**(NA)**
33660	Copper and copper-base alloy castings (excluding die-castings)	750.4	701.1	726.2	751.8	722.2	673.1	(NA)	(NA)
3369-	**Nonferrous foundries, n.e.c.**	**462.8**	**419.6**	**443.7**	**425.9**	**387.5**	**379.6**	**(NA)**	**(NA)**
33690	Other nonferrous castings, n.e.c. (excluding die-castings)	462.8	419.6	443.7	425.9	387.5	379.6	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3321, GRAY AND DUCTILE IRON FOUNDRIES				
	Materials, ingredients, containers, and supplies	**(X)**	**2 637.4**	**(X)**	**2 292.5**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
331051	Pig iron, excluding silvery iron, 1,000 s tons	(S)	82.1	622.9	102.4
331320	Ferrochromium	(X)	(D)	(X)	7.6
331313	Ferromanganese, silicomanganese, and manganese	(X)	30.9	(X)	23.2
331331	Ferrosilicon (more than 8 percent silicon)	(X)	87.0	(X)	86.4
330011	All other ferrous shapes and forms	(X)	45.3	(X)	57.2
	Nonferrous:				
333963	Nickel and nickel-base alloy	(X)	17.1		
333982	Cobalt-base alloy	(X)	(D)	(NA)	37.1
333911	All other nonferrous shapes and forms	(X)	52.3		
	Purchased scrap (excluding home scrap):				
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	*7 063.9	762.0	6 576.4	614.2
190082	All other purchased scrap, 1,000 s tons	*252.0	23.1	(NA)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	31.9	(X)	17.1
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	38.6	(X)	21.0
329701	Nonclay refractories	(X)	9.5	(X)	19.2
320025	All other stone, clay, glass, and concrete products	(X)	6.7	(X)	(NA)
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	47.5	(X)	18.4
354402	Industrial dies, molds, jigs, and fixtures	(X)	6.0	(X)	5.9
350066	All other industrial and commercial machinery and computer equipment	(X)	22.7	(X)	(NA)
144603	Sand	(X)	110.2	(X)	100.9
970099	All other materials and components, parts, containers, and supplies	(X)	1 109.1	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	149.4	(X)	206.2
	INDUSTRY 3322, MALLEABLE IRON FOUNDRIES				
	Materials, ingredients, containers, and supplies	**(X)**	**72.6**	**(X)**	**66.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
331051	Pig iron, excluding silvery iron, 1,000 s tons	(S)	1.9	(S)	.9
331320	Ferrochromium	(X)	(D)		
331313	Ferromanganese, silicomanganese, and manganese	(X)	–	(X)	2.2
331331	Ferrosilicon (more than 8 percent silicon)	(X)	(D)		
330011	All other ferrous shapes and forms	(X)	.3	(X)	1.0
	Nonferrous:				
333963	Nickel and nickel-base alloy	(X)	(D)	(X)	(NA)
333982	Cobalt-base alloy	(X)	–	(X)	(NA)
333911	All other nonferrous shapes and forms	(X)	(D)	(X)	(NA)
	Purchased scrap (excluding home scrap):				
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	43.7	13.9	(S)	19.9
190082	All other purchased scrap, 1,000 s tons	(D)	(D)	(NA)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	(D)	(X)	1.0
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	.3	(X)	.6
329701	Nonclay refractories	(X)	–	(X)	.7
320025	All other stone, clay, glass, and concrete products	(X)	(D)	(X)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3322, MALLEABLE IRON FOUNDRIES—Con.				
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	(D)	(X)	.3
354402	Industrial dies, molds, jigs, and fixtures	(X)	(D)	(X)	.1
350066	All other industrial and commercial machinery and computer equipment	(X)	(D)	(X)	(NA)
144603	Sand	(X)	.5	(X)	1.6
970099	All other materials and components, parts, containers, and supplies	(X)	50.5	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	2.6	(X)	2.6
	INDUSTRY 3324, STEEL INVESTMENT FOUNDRIES				
	Materials, ingredients, containers, and supplies	**(X)**	**457.0**	**(X)**	**376.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
331051	Pig iron, excluding silvery iron, 1,000 s tons	(S)	3.8	(D)	(NA)
331320	Ferrochromium	(X)	2.4	(X)	1.5
331313	Ferromanganese, silicomanganese, and manganese	(X)	.8	(X)	(NA)
331331	Ferrosilicon (more than 8 percent silicon)	(X)	1.3	(X)	1.0
330011	All other ferrous shapes and forms	(X)	19.4	(X)	14.5
	Nonferrous:				
333963	Nickel and nickel-base alloy	(X)	88.0	(X)	98.7
333982	Cobalt-base alloy	(X)	24.4	(X)	20.1
333911	All other nonferrous shapes and forms	(X)	25.3	(X)	(Z)
	Purchased scrap (excluding home scrap):				
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	94.3	16.8	(S)	10.7
190082	All other purchased scrap, 1,000 s tons	(S)	1.9	(NA)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	2.4	(X)	3.7
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	15.6	(X)	16.2
329701	Nonclay refractories	(X)	12.3	(X)	4.3
320025	All other stone, clay, glass, and concrete products	(X)	1.5	(X)	(NA)
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	6.9	(X)	(NA)
354402	Industrial dies, molds, jigs, and fixtures	(X)	10.0	(X)	9.4
350066	All other industrial and commercial machinery and computer equipment	(X)	.5	(X)	(NA)
144603	Sand	(X)	11.9	(X)	10.6
970099	All other materials and components, parts, containers, and supplies	(X)	174.6	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	37.1	(X)	33.3
	INDUSTRY 3325, STEEL FOUNDRIES, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**605.4**	**(X)**	**501.7**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Ferrous:				
331051	Pig iron, excluding silvery iron, 1,000 s tons	**12.3	2.4	14.4	2.8
331320	Ferrochromium	(X)	23.6	(X)	15.1
331313	Ferromanganese, silicomanganese, and manganese	(X)	11.3	(X)	6.2
331331	Ferrosilicon (more than 8 percent silicon)	(X)	6.7	(X)	3.9
330011	All other ferrous shapes and forms	(X)	11.4	(X)	8.8
	Nonferrous:				
333963	Nickel and nickel-base alloy	(X)	28.7	(X)	17.8
333982	Cobalt-base alloy	(X)	1.3	(X)	.4
333911	All other nonferrous shapes and forms	(X)	10.1	(X)	(NA)
	Purchased scrap (excluding home scrap):				
190023	Iron and steel scrap, excluding home scrap, 1,000 s tons	**1 024.1	104.4	**750.5	76.1
190082	All other purchased scrap, 1,000 s tons	(S)	13.9	(NA)	(NA)
	Stone, clay, glass, and concrete products:				
325501	Clay refractories	(X)	9.5	(X)	6.0
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	12.4	(X)	9.2
329701	Nonclay refractories	(X)	12.6	(X)	6.1
320025	All other stone, clay, glass, and concrete products	(X)	4.7	(X)	(NA)
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	11.6	(X)	3.5
354402	Industrial dies, molds, jigs, and fixtures	(X)	3.3	(X)	2.1
350066	All other industrial and commercial machinery and computer equipment	(X)	5.1	(X)	(NA)
144603	Sand	(X)	22.4	(X)	20.0
970099	All other materials and components, parts, containers, and supplies	(X)	245.9	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	64.0	(X)	88.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3363, ALUMINUM DIE-CASTINGS					
	Materials, ingredients, containers, and supplies		**(X)**	**1 033.7**	**(X)**	**1 010.6**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
330060	Copper and copper-base alloy	1,000 s tons	(S)	37.2	(D)	(D)
333402	Aluminum and aluminum-base alloy	1,000 s tons	(S)	486.7	(NA)	557.9
333978	Zinc and zinc-base alloy		(X)	32.3	(X)	23.1
333973	Magnesium and magnesium-base alloy		(X)	(D)	(X)	(D)
333962	Lead-base alloy		(X)	–	(X)	–
333966	All other nonferrous shapes and forms		(X)	(D)	(X)	(NA)
	Nonferrous scrap, excluding home scrap:					
190024	Copper and copper-base alloy		(X)	(D)	(X)	(D)
190040	Aluminum and aluminum-base alloy		(X)	134.0	(X)	(D)
190080	All other nonferrous scrap		(X)	(D)	(X)	(NA)
	Industrial and commercial machinery and computer equipment:					
354301	Industrial patterns		(X)	2.0	(X)	(D)
354401	Industrial dies, molds, jigs, and fixtures		(X)	26.0	(X)	(NA)
350010	All other industrial and commercial machinery and computer equipment		(X)	4.5	(X)	(NA)
144603	Sand		(X)	.7	(X)	.3
329101	Grinding wheels and other abrasive products, except industrial diamonds		(X)	1.4	(X)	3.5
970099	All other materials and components, parts, containers, and supplies		(X)	192.2	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	100.4	(X)	125.5
	INDUSTRY 3364, NONFERROUS DIE-CASTINGS, EXCEPT ALUMINUM					
	Materials, ingredients, containers, and supplies		**(X)**	**365.2**	**(X)**	**353.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
330060	Copper and copper-base alloy	1,000 s tons	(S)	24.4	(D)	(D)
333402	Aluminum and aluminum-base alloy	1,000 s tons	*10.4	13.0	(D)	(D)
333978	Zinc and zinc-base alloy		(X)	104.0	(X)	106.7
333973	Magnesium and magnesium-base alloy		(X)	24.8	(X)	13.5
333962	Lead-base alloy		(X)	15.9	(X)	11.6
333966	All other nonferrous shapes and forms		(X)	2.3	(X)	(D)
	Nonferrous scrap, excluding home scrap:					
190024	Copper and copper-base alloy		(X)	(D)	(X)	–
190040	Aluminum and aluminum-base alloy		(X)	(D)	(X)	–
190080	All other nonferrous scrap		(X)	(D)	(X)	(NA)
	Industrial and commercial machinery and computer equipment:					
354301	Industrial patterns		(X)	(D)	(X)	.2
354401	Industrial dies, molds, jigs, and fixtures		(X)	3.4	(X)	(NA)
350010	All other industrial and commercial machinery and computer equipment		(X)	2.7	(X)	(NA)
144603	Sand		(X)	(D)	(X)	.5
329101	Grinding wheels and other abrasive products, except industrial diamonds		(X)	.7	(X)	(D)
970099	All other materials and components, parts, containers, and supplies		(X)	110.0	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	61.4	(X)	81.0
	INDUSTRY 3365, ALUMINUM FOUNDRIES					
	Materials, ingredients, containers, and supplies		**(X)**	**631.4**	**(X)**	**675.0**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
330060	Copper and copper-base alloy	1,000 s tons	(S)	40.8	(D)	(D)
333402	Aluminum and aluminum-base alloy	1,000 s tons	233.9	280.2	319.0	339.5
333978	Zinc and zinc-base alloy		(X)	1.5	(X)	5.9
333973	Magnesium and magnesium-base alloy		(X)	4.1	(X)	5.0
333962	Lead-base alloy		(X)	(D)	(X)	.1
333966	All other nonferrous shapes and forms		(X)	.9	(X)	(NA)
	Nonferrous scrap, excluding home scrap:					
190024	Copper and copper-base alloy		(X)	(D)	(X)	(D)
190040	Aluminum and aluminum-base alloy		(X)	34.1	(X)	(D)
190080	All other nonferrous scrap		(X)	1.2	(X)	(NA)
	Industrial and commercial machinery and computer equipment:					
354301	Industrial patterns		(X)	15.1	(X)	8.3
354401	Industrial dies, molds, jigs, and fixtures		(X)	7.2	(X)	(NA)
350010	All other industrial and commercial machinery and computer equipment		(X)	11.3	(X)	(NA)
144603	Sand		(X)	15.0	(X)	14.9
329101	Grinding wheels and other abrasive products, except industrial diamonds		(X)	5.4	(X)	5.7
970099	All other materials and components, parts, containers, and supplies		(X)	130.5	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	83.1	(X)	105.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3366, COPPER FOUNDRIES				
	Materials, ingredients, containers, and supplies	**(X)**	**271.3**	**(X)**	**242.1**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
330060	Copper and copper-base alloy, 1,000 s tons	(S)	92.0	(NA)	74.8
333402	Aluminum and aluminum-base alloy, 1,000 s tons	*5.3	8.8	(NA)	6.7
333978	Zinc and zinc-base alloy	(X)	.2	(X)	(D)
333973	Magnesium and magnesium-base alloy	(X)	(D)	(X)	.3
333962	Lead-base alloy	(X)	(D)	(X)	(D)
333966	All other nonferrous shapes and forms	(X)	3.5	(X)	(NA)
	Nonferrous scrap, excluding home scrap:				
190024	Copper and copper-base alloy	(X)	28.5	(X)	6.4
190040	Aluminum and aluminum-base alloy	(X)	.1	(X)	(D)
190080	All other nonferrous scrap	(X)	.7	(X)	(NA)
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	2.0	(X)	1.9
354401	Industrial dies, molds, jigs, and fixtures	(X)	4.4	(X)	(NA)
350010	All other industrial and commercial machinery and computer equipment	(X)	.6	(X)	(NA)
144603	Sand	(X)	2.9	(X)	3.1
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	1.9	(X)	1.8
970099	All other materials and components, parts, containers, and supplies	(X)	42.6	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	82.9	(X)	111.1
	INDUSTRY 3369, NONFERROUS FOUNDRIES, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**131.2**	**(X)**	**103.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
330060	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	(D)	(D)
333402	Aluminum and aluminum-base alloy, 1,000 s tons	(S)	1.1	*.5	.9
333978	Zinc and zinc-base alloy	(X)	4.3	(X)	.8
333973	Magnesium and magnesium-base alloy	(X)	4.4	(X)	2.8
333962	Lead-base alloy	(X)	–	(X)	(D)
333966	All other nonferrous shapes and forms	(X)	29.9	(X)	(D)
	Nonferrous scrap, excluding home scrap:				
190024	Copper and copper-base alloy	(X)	(D)	(X)	(NA)
190040	Aluminum and aluminum-base alloy	(X)	–	(X)	(D)
190080	All other nonferrous scrap	(X)	(D)	(X)	(NA)
	Industrial and commercial machinery and computer equipment:				
354301	Industrial patterns	(X)	(D)	(X)	(D)
354401	Industrial dies, molds, jigs, and fixtures	(X)	(D)	(X)	(NA)
350010	All other industrial and commercial machinery and computer equipment	(X)	(D)	(X)	(NA)
144603	Sand	(X)	4.2	(X)	(D)
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	2.0	(X)	2.6
970099	All other materials and components, parts, containers, and supplies	(X)	57.3	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	15.2	(X)	12.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
33121 97	33121 41
33121 97	33121 81
33121 97	33121 86
3312A 17	3312A 11
3312A 17	3312A 23
3312A 26	3312A 25
3312A 26	3312A 27
3312B 62	3312B 61
3312B 62	3312B 63
3312B 66	3312B 65
3312B 66	3312B 67
33134 08	33131
33134 08	33131 00
33151 25	33151 22
33151 25	33151 51
33151 34	33151 23
33151 34	33151 33
33151 34	33151 35
33152 13	33152 12
33152 13	33152 14
33156 13	33156 15
33156 13	33156 17
33156 21	33156 22
33156 21	33156 24
33157 00	33157 21
33157 00	33157 22
33157 00	33157 23
33157 00	33157 41
33157 00	33157 42
33157 00	33157 43
33159 42	33159 41
33159 42	33159 44
33159 42	33159 45
33159 42	33159 48
33159 63	33159 61
33159 63	33159 65
33212 40	33212 32
33212 40	33212 34
33212 40	33212 39
33312 30	33312 20
33312 30	33312 23
33312 30	33312 26
33392 34	33392 31
33392 34	33392 37
33392 34	33392 39
33392 44	33392 41
33392 44	33392 43
33392 44	33392 49
33412 24	33412 17
33412 24	33412 20
33412 24	33412 23
33413 99	33413 71
33413 99	33413 98
33414 34	33414 10
33414 34	33414 14
33414 34	33414 17
33414 44	33414 20
33414 44	33414 23
33414 44	33414 26
33415 25	33415 11
33415 25	33415 81
33415 35	33415 31
33415 35	33415 71
33415 45	33415 51
33415 45	33415 89
33416 33	33416 21
33416 33	33416 61
33416 35	33416 31
33416 35	33416 69
33416 97	33416 43
33416 97	33416 99
33551 00	33551 11
33551 00	33551 51
33551 00	33551 61
33551 00	33551 65
33563 86	33563 85
33563 86	33563 87
33569 57	33569 55
33569 57	33569 59
33569 93	33562 78
33569 93	33569 91
33569 97	33569 71
33569 97	33569 98
33571 00	33571 11
33571 00	33571 51
33571 00	33571 61
33571 00	33571 65
33572 81	33572 21
33575 00	33575 17
33575 00	33575 57
33575 00	33575 65
33660 26	33660 23
33690 23	33690 21
33690 23	33690 25
33690 85	33690 98
33690 97	33690 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
33121 41	33121 97
33121 81	33121 97
33121 86	33121 97
3312A 11	3312A 17
3312A 23	3312A 17
3312A 25	3312A 26
3312A 27	3312A 26
3312B 61	3312B 62
3312B 63	3312B 62
3312B 65	3312B 66
3312B 67	3312B 66
33131	33134 08
33131 00	33134 08
33151 22	33151 25
33151 23	33151 34
33151 33	33151 34
33151 35	33151 34
33151 51	33151 25
33152 12	33152 13
33152 14	33152 13
33156 15	33156 13
33156 17	33156 13
33156 22	33156 21
33156 24	33156 21
33157 21	33157 00
33157 22	33157 00
33157 23	33157 00
33157 41	33157 00
33157 42	33157 00
33157 43	33157 00
33159 41	33159 42
33159 44	33159 42
33159 45	33159 42
33159 48	33159 42
33159 61	33159 63
33159 65	33159 63
33212 32	33212 40
33212 34	33212 40
33212 39	33212 40
33312 20	33312 30
33312 23	33312 30
33312 26	33312 30
33392 31	33392 34
33392 37	33392 34
33392 39	33392 34
33392 41	33392 44
33392 43	33392 44
33392 49	33392 44
33412 17	33412 24
33412 20	33412 24
33412 23	33412 24
33413 71	33413 99
33413 98	33413 99
33414 10	33414 34
33414 14	33414 34
33414 17	33414 34
33414 20	33414 44
33414 23	33414 44
33414 26	33414 44
33415 11	33415 25
33415 31	33415 35
33415 51	33415 45
33415 71	33415 35
33415 81	33415 25
33415 89	33415 45
33416 21	33416 33
33416 31	33416 35
33416 43	33416 97
33416 61	33416 33
33416 69	33416 35
33416 99	33416 97
33551 11	33551 00
33551 51	33551 00
33551 61	33551 00
33551 65	33551 00
33562 78	33569 93
33563 85	33563 86
33563 87	33563 86
33569 55	33569 57
33569 59	33569 57
33569 71	33569 97
33569 91	33569 93
33569 98	33569 97
33571 11	33571 00
33571 51	33571 00
33571 61	33571 00
33571 65	33571 00
33572 21	33572 81
33575 17	33575 00
33575 57	33575 00
33575 65	33575 00
33660 23	33660 26
33690 21	33690 23
33690 25	33690 23
33690 98	33690 85
33690 98	33690 97

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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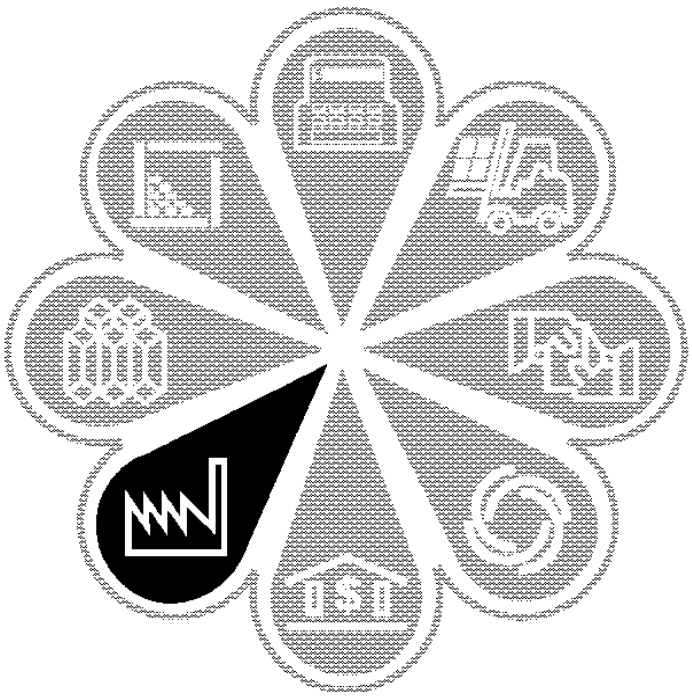
1992 Census of Manufactures

MC92-I-33C

INDUSTRY SERIES

Smelting and Refining of Nonferrous Metals and Alloys

Industries 3331, 3334, 3339, and 3341



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-33C

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
3331	Primary Copper
3334	Primary Aluminum
3339	Primary Nonferrous Metals, N.E.C.
3341	Secondary Nonferrous Metals

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3331, PRIMARY COPPER

This industry is made up of establishments primarily engaged in the smelting of copper from the ore and in the refining of copper by electrolytic or other processes. Establishments primarily engaged in rolling, drawing, or extruding copper are classified in industry 3351. Certain products primary to industry 3331 also are primary to Industry 3341, Secondary Nonferrous Metals. Establishments primarily engaged in recovering nonferrous metals and alloys from new and used scrap and dross or in producing alloys from purchased refined metals are classified in industry 3341.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3331, Primary Copper, had employment of 5.6 thousand. The employment figure was 70 percent above the 3.3 thousand reported in 1987. Compared with 1991, employment increased 24 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arizona, Texas, New Mexico, and Utah, accounting for approximately 93 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3331 shipped $4.8 billion of products considered primary to the industry, $492.3 million of secondary products, and had $276.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 77 percent.

The products primary to industry 3331, no matter in what industry they were produced, appear in table 6a and

aggregate to $4.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the primary copper industry amounted to $4.6 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3334, PRIMARY ALUMINUM

This industry is made up of establishments primarily engaged in producing aluminum from alumina and in refining aluminum by any process. Establishments primarily engaged in rolling, drawing, or extruding aluminum are classified in industry group 335. Certain products primary to industry 3334 also are primary to Industry 3341, Secondary Nonferrous Metals; and 3355, Aluminum Rolling and Drawing, N.E.C. Establishments primarily engaged in recovering nonferrous metals and alloys from new and used scrap and dross or in producing alloys from purchased refined metals are classified in industry 3341. Establishments primarily engaged in rolling, drawing, and other operations resulting in the production of aluminum ingot, including extrusion ingot, and aluminum and aluminum-base alloy base shapes, not elsewhere classified, are classified in industry 3355.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3334, Primary Aluminum, had employment of 20.4 thousand. The employment figure was 18 percent above the 17.3 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Washington, New York, Kentucky, and Ohio, accounting for approximately 50 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3334 shipped $5.0 billion of products considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3334, no matter in what industry they were produced, appear in table 6a and aggregate to $5.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the primary aluminum industry amounted to $4.2 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.

This industry is made up of establishments primarily engaged in smelting and refining nonferrous metals, except copper and aluminum. Establishments primarily engaged in rolling, drawing, and extruding these nonferrous primary metals are classified in industry 3356, and the production of bullion at the site of the mine is classified in Division B, Mining. Certain products primary to industry 3339 also are primary to Industry 3341, Secondary Nonferrous Metals. Establishments primarily engaged in recovering nonferrous metals and alloys from new and used scrap and dross or in producing alloys from purchased refined metals are classified in industry 3341.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3339, Primary Nonferrous Metals, N.E.C., had employment of 8.6 thousand. The employment figure was 22 percent below the 11.0 thousand reported in 1987. Compared with 1991, employment decreased 20 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, Pennsylvania, Washington, and Utah, accounting for approximately 44 percent of the industry's employment. This represents a shift from 1987 when Texas, Pennsylvania, Ohio, and Oregon were the leading States.

The total value of shipments for establishments classified in this industry was $2.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3339 shipped $2.2 billion of products considered primary to the industry, $147.7 million of secondary products, and had $94.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 73 percent.

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3339, no matter in what industry they were produced, appear in table 6a and aggregate to $2.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the primary nonferrous metals, not elsewhere classified, industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3341, SECONDARY NONFERROUS METALS

This industry is made up of establishments primarily engaged in recovering nonferrous metals and alloys from new and used scrap and dross or in producing alloys from purchased refined metals. This industry includes establishments engaged in both the recovery and alloying of precious metals. Plants engaged in the recovery of tin through secondary smelting and refining, as well as by chemical processes, are included in this industry. Establishments primarily engaged in assembling, sorting, and breaking up scrap metal, without smelting and refining, are classified in Wholesale Trade, Industry 5093. Certain products primary to industry 3341 also are primary to Industries 3331, Primary Copper; 3334, Primary Aluminum; 3339, Primary Nonferrous Metals, N.E.C.; and 3355, Aluminum Rolling and Drawing, N.E.C.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3341, Secondary Nonferrous Metals, had employment of 13.6 thousand. The employment figure was 9 percent above the 12.5 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Indiana, California, and Illinois, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when Alabama, California, Illinois, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $6.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3341 shipped $5.7 billion of products considered primary to the industry, $12.0 million of secondary products, and had $497.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3341, no matter in what industry they were produced, appear in table 6a and aggregate to $5.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the secondary nonferrous metals industry amounted to $5.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3331, PRIMARY COPPER															
1992 Census	12	20	17	5.6	188.6	4.2	9.3	139.4	947.9	4 598.7	5 578.2	195.5	485.4	91	99
1991 ASM	(NA)	(NA)	(NA)	4.5	152.5	3.5	7.7	114.2	942.2	2 987.0	3 898.1	110.3	225.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.6	145.5	3.6	7.7	110.7	918.0	3 216.2	4 201.2	95.5	211.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	3.8	119.0	3.0	6.6	89.1	836.2	3 315.8	4 146.8	44.5	272.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.6	110.5	2.8	5.6	82.0	721.6	3 122.5	3 825.4	(D)	255.5	(NA)	(NA)
1987 Census	8	13	12	3.3	97.8	2.6	5.2	73.0	443.4	2 177.1	2 556.9	33.6	228.8	95	[9]77
1986 ASM	(NA)	(NA)	(NA)	3.9	116.7	3.1	6.0	89.2	194.9	1 847.0	2 065.0	13.8	174.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.6	149.7	3.4	(S)	111.3	327.2	1 795.8	2 239.1	42.5	201.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.0	181.1	4.6	9.5	136.2	177.9	2 532.0	2 753.3	187.7	318.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.7	203.7	5.3	10.8	153.6	656.9	2 763.1	3 467.0	272.5	423.6	(NA)	(NA)
1982 Census	7	22	20	7.6	216.9	5.9	12.0	169.0	440.4	2 630.9	3 077.5	112.8	445.9	91	[9]89
1981 ASM	(NA)	(NA)	(NA)	10.7	281.0	8.5	16.9	213.2	905.3	4 537.8	5 366.2	(D)	694.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.3	231.3	8.1	15.0	166.0	818.8	4 442.5	5 514.8	61.2	687.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.9	248.0	9.8	19.4	193.9	1 310.8	4 587.6	5 646.3	90.8	965.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.0	236.4	10.6	21.1	184.5	775.4	3 363.6	4 229.3	124.9	667.8	(NA)	(NA)
1977 Census	8	27	27	13.1	217.3	10.6	20.6	167.5	904.3	3 062.5	3 918.1	225.8	756.6	86	(NA)
INDUSTRY 3334, PRIMARY ALUMINUM															
1992 Census	30	41	28	20.4	805.9	16.2	32.3	607.7	1 609.8	4 226.9	5 848.9	215.0	600.4	(D)	99
1991 ASM	(NA)	(NA)	(NA)	20.0	776.4	15.8	32.1	578.5	1 649.6	4 542.6	6 199.2	207.6	667.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.5	750.1	15.4	32.1	561.6	2 205.6	4 844.3	7 033.9	187.8	724.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.9	717.0	14.9	30.3	536.0	2 931.5	4 732.4	7 641.6	181.9	701.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.9	668.8	15.1	32.0	505.0	3 663.6	4 171.2	7 806.8	146.8	583.8	(NA)	(NA)
1987 Census	34	49	27	17.3	568.5	13.8	27.7	420.5	1 900.1	3 049.3	5 005.7	173.5	518.4	95	[9]99
1986 ASM	(NA)	(NA)	(NA)	16.9	570.4	13.1	23.9	405.6	1 003.9	3 014.5	4 241.8	71.1	557.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	19.7	664.8	15.3	30.0	492.4	877.1	3 423.2	4 488.4	122.8	840.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.5	767.2	17.8	35.9	581.7	1 722.5	4 516.4	6 011.2	154.4	1 188.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	21.4	712.9	16.5	32.0	529.0	1 566.8	4 158.7	6 089.9	390.7	993.1	(NA)	(NA)
1982 Census	15	34	29	22.9	733.1	16.9	32.3	525.1	1 133.9	3 916.0	5 037.1	181.2	1 389.3	97	[9]99
1981 ASM	(NA)	(NA)	(NA)	30.3	893.6	23.3	46.1	666.3	2 347.9	4 634.5	6 573.6	458.6	1 391.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.8	874.7	25.7	50.3	665.3	2 774.4	4 259.7	6 979.9	216.6	830.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.5	764.6	25.2	50.8	593.2	2 258.1	3 463.0	5 747.8	216.2	661.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.7	644.6	23.8	48.8	498.3	1 963.5	3 129.7	5 122.9	169.5	649.4	(NA)	(NA)
1977 Census	12	32	32	28.6	555.0	22.8	45.5	426.3	1 980.9	2 694.5	4 647.8	158.7	646.8	95	(NA)
INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.															
1992 Census	101	113	53	8.6	337.9	6.2	13.6	221.8	828.4	1 621.6	2 468.6	146.3	348.4	94	77
1991 ASM	(NA)	(NA)	(NA)	10.7	381.2	7.6	16.4	245.7	1 001.4	2 776.3	3 740.2	108.3	537.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.6	385.2	7.8	16.0	256.3	1 142.2	3 123.7	4 272.0	146.2	512.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.5	358.2	7.7	15.9	240.3	1 306.9	3 382.8	4 650.7	116.1	530.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.1	325.3	7.5	15.0	219.9	1 196.9	3 110.6	4 286.2	(D)	449.4	(NA)	(NA)
1987 Census	96	108	49	11.0	329.2	7.6	15.4	203.6	654.5	2 621.6	3 306.5	154.3	447.0	73	[9]92
1986 ASM	(NA)	(NA)	(NA)	11.2	323.9	7.9	15.1	206.8	546.5	1 913.5	2 569.5	113.8	420.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.2	380.5	9.3	17.9	248.8	426.4	2 485.2	3 060.0	277.2	559.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.2	351.5	8.8	16.8	232.8	674.9	2 516.7	3 179.5	111.7	631.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.7	338.9	8.5	15.9	212.6	889.2	2 542.2	3 465.7	69.8	607.0	(NA)	(NA)
1982 Census	(NA)	105	45	13.4	356.6	9.2	17.8	234.2	736.7	2 510.5	3 206.2	118.4	640.4	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	16.6	379.4	11.5	21.7	238.5	690.9	2 790.7	3 277.1	(NA)	897.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.3	356.2	12.0	23.4	240.5	862.1	2 868.8	3 912.4	110.3	653.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.8	349.4	13.0	25.8	234.5	1 171.1	2 345.4	3 302.8	138.3	765.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.5	302.6	12.0	24.3	205.9	724.5	1 533.5	2 315.2	173.0	509.1	(NA)	(NA)
1977 Census	(NA)	101	40	15.7	259.8	11.5	23.1	174.6	733.3	1 386.4	2 094.2	(NA)	548.6	(NA)	(NA)
INDUSTRY 3341, SECONDARY NONFERROUS METALS															
1992 Census	347	387	162	13.6	411.9	9.9	22.5	252.4	1 272.7	4 970.6	6 223.7	154.5	597.8	99	97
1991 ASM	(NA)	(NA)	(NA)	13.2	387.5	9.6	20.8	228.8	815.0	[r]4 685.1	[r]5 556.1	72.2	550.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.7	418.2	10.8	23.0	246.7	1 107.5	[r]5 470.4	[r]6 595.5	103.9	671.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.6	412.6	10.4	23.2	246.6	1 353.7	5 335.7	6 646.3	108.3	645.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.2	362.2	9.4	20.5	211.9	1 180.3	5 528.7	6 663.4	67.1	649.6	(NA)	(NA)
1987 Census	365	398	162	12.5	312.0	9.1	19.3	186.1	947.3	3 450.7	4 431.4	62.6	547.5	99	[9]95
1986 ASM	(NA)	(NA)	(NA)	14.6	351.1	10.5	21.0	210.0	833.3	3 323.4	4 143.0	58.2	631.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.0	371.4	11.6	23.5	225.9	782.6	3 486.8	4 315.1	103.0	661.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.7	404.6	12.9	26.0	254.2	940.5	4 387.7	5 308.7	116.7	791.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.2	376.3	12.3	24.2	230.1	833.1	4 181.9	5 135.9	54.4	762.9	(NA)	(NA)
1982 Census	396	458	212	19.2	402.2	13.5	26.3	246.4	619.8	4 134.7	4 851.9	146.4	842.0	97	[9]95
1981 ASM	(NA)	(NA)	(NA)	21.9	435.0	15.7	32.2	271.5	910.7	3 931.4	4 798.2	189.5	784.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.0	398.4	15.7	32.0	242.0	1 056.6	4 459.1	5 484.3	120.2	720.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.9	392.8	17.3	35.4	255.5	1 091.2	3 893.4	5 064.5	105.4	684.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.6	293.3	14.7	29.2	188.9	782.2	3 061.6	3 791.8	120.1	568.1	(NA)	(NA)
1977 Census	393	460	200	18.9	269.8	14.0	28.4	169.7	769.3	2 792.2	3 558.0	114.3	485.2	97	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Prior year coverage for an industry with products primary to more than one industry was recalculated and confined exclusively to that industry.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3331, PRIMARY COPPER								
1992 Census	33 679	75	2 214	14.99	82	86	169 268	20	101.92
1991 ASM	33 889	78	2 200	14.83	77	81	209 378	16	122.36
1990 ASM	31 630	78	2 139	14.38	77	80	199 565	16	119.22
1989 ASM	31 316	79	2 200	13.50	80	83	220 053	14	126.70
1988 ASM	30 694	78	2 000	14.64	82	85	200 444	15	128.86
1987 Census	29 636	79	2 000	14.04	85	89	134 364	22	85.27
1986 ASM	29 923	79	1 935	14.87	89	95	49 974	60	32.48
1985 ASM	32 543	74	0	0.00	80	87	71 130	46	0.00
1984 ASM	30 183	77	2 065	14.34	92	99	29 650	102	18.73
1983 ASM	30 403	79	2 038	14.22	80	86	98 045	31	60.82
1982 Census	28 539	78	2 034	14.08	85	93	57 947	49	36.70
1981 ASM	26 262	79	1 988	12.62	85	90	84 607	31	53.57
1980 ASM	22 456	79	1 852	11.07	81	85	79 495	28	54.59
1979 ASM	20 840	82	1 980	9.99	81	86	110 151	19	67.57
1978 ASM	18 185	82	1 991	8.74	80	85	59 646	30	36.75
1977 Census	16 588	81	1 943	8.13	78	84	69 031	24	43.90
	INDUSTRY 3334, PRIMARY ALUMINUM								
1992 Census	39 505	79	1 994	18.81	72	86	78 912	50	49.84
1991 ASM	38 820	79	2 032	18.02	73	86	82 480	47	51.39
1990 ASM	38 467	79	2 084	17.50	69	80	113 108	34	68.71
1989 ASM	37 937	79	2 034	17.69	62	71	155 106	24	96.75
1988 ASM	35 386	80	2 119	15.78	53	62	193 841	18	114.49
1987 Census	32 861	80	2 007	15.18	61	72	109 832	30	68.60
1986 ASM	33 751	78	1 824	16.97	71	85	59 402	57	42.00
1985 ASM	33 746	78	1 961	16.41	76	91	44 523	76	29.24
1984 ASM	34 098	79	2 017	16.20	75	88	76 556	45	47.98
1983 ASM	33 313	77	1 939	16.53	68	80	73 215	46	48.96
1982 Census	32 013	74	1 911	16.26	78	92	49 515	65	35.11
1981 ASM	29 492	77	1 979	14.45	71	84	77 488	38	50.93
1980 ASM	26 668	78	1 957	13.23	61	74	84 585	32	55.16
1979 ASM	24 273	80	2 016	11.68	60	74	71 686	34	44.45
1978 ASM	21 704	80	2 050	10.21	61	74	66 111	33	40.24
1977 Census	19 406	80	1 996	9.37	58	70	69 262	28	43.54
	INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.								
1992 Census	39 291	72	2 194	16.31	66	79	96 326	41	60.91
1991 ASM	35 626	71	2 158	14.98	74	84	93 589	38	61.06
1990 ASM	36 340	74	2 051	16.02	73	82	107 755	34	71.39
1989 ASM	34 114	73	2 065	15.11	73	80	124 467	27	82.19
1988 ASM	32 208	74	2 000	14.66	73	80	118 505	27	79.79
1987 Census	29 927	69	2 026	13.22	79	89	59 500	50	42.50
1986 ASM	28 920	71	1 911	13.70	74	87	48 795	59	36.19
1985 ASM	28 826	70	1 925	13.90	81	94	32 303	89	23.82
1984 ASM	28 811	72	1 909	13.86	79	90	55 320	52	40.17
1983 ASM	26 685	67	1 871	13.37	73	83	70 016	38	55.92
1982 Census	26 612	69	1 935	13.16	78	89	54 978	48	41.39
1981 ASM	22 855	69	1 887	10.99	85	97	41 620	55	31.84
1980 ASM	21 853	74	1 950	10.28	73	82	52 890	41	36.84
1979 ASM	19 629	73	1 985	9.09	71	82	65 792	30	45.39
1978 ASM	18 339	73	2 025	8.47	66	79	43 909	42	29.81
1977 Census	16 548	73	2 009	7.56	66	79	46 707	35	31.74
	INDUSTRY 3341, SECONDARY NONFERROUS METALS								
1992 Census	30 287	73	2 273	11.22	80	86	93 581	32	56.56
1991 ASM	29 356	73	2 167	11.00	84	91	61 742	48	39.18
1990 ASM	28 449	73	2 130	10.73	83	89	75 340	38	48.15
1989 ASM	28 260	71	2 231	10.63	80	86	92 719	30	58.35
1988 ASM	27 439	71	2 181	10.34	83	88	89 417	31	57.58
1987 Census	24 960	73	2 121	9.64	78	85	75 784	33	49.08
1986 ASM	24 048	72	2 000	10.00	80	89	57 075	42	39.68
1985 ASM	23 213	73	2 026	9.61	81	89	48 913	47	33.30
1984 ASM	22 859	73	2 016	9.78	83	90	53 136	43	36.17
1983 ASM	21 878	72	1 967	9.51	81	89	48 436	45	34.43
1982 Census	20 948	70	1 948	9.37	85	94	32 281	65	23.57
1981 ASM	19 863	72	2 051	8.43	82	91	41 584	48	28.28
1980 ASM	18 109	71	2 038	7.56	81	89	48 027	38	33.02
1979 ASM	17 153	76	2 046	7.22	77	85	47 651	36	30.82
1978 ASM	14 964	75	1 986	6.47	81	88	39 908	37	26.79
1977 Census	14 275	74	2 029	5.98	78	86	40 704	35	27.09

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3331, PRIMARY COPPER														
United States	–	**20**	**17**	**5.6**	**188.6**	**4.2**	**9.3**	**139.4**	**947.9**	**4 598.7**	**5 578.2**	**195.5**	**3.3**	**443.4**
Arizona	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Mexico	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Utah	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3334, PRIMARY ALUMINUM														
United States	–	**41**	**28**	**20.4**	**805.9**	**16.2**	**32.3**	**607.7**	**1 609.8**	**4 226.9**	**5 848.9**	**215.0**	**17.3**	**1 900.1**
California	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	9	7	5.7	217.0	4.6	9.8	166.1	527.4	1 027.9	1 563.3	(D)	4.2	495.5
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.														
United States	–	**113**	**53**	**8.6**	**337.9**	**6.2**	**13.6**	**221.8**	**828.4**	**1 621.6**	**2 468.6**	**146.3**	**11.0**	**654.5**
Alabama	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	10	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E1	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Montana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E3	17	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oklahoma	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	8	5	1.1	49.5	.9	2.3	33.0	172.0	186.4	342.4	(D)	G	(D)
Tennessee	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	4	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Utah	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	5	5	.8	32.2	.5	1.2	20.8	61.7	77.3	148.4	(D)	.9	71.0
Wisconsin	E4	5	2	.2	5.2	.1	.2	3.2	10.7	13.3	23.9	.4	(NA)	(NA)
INDUSTRY 3341, SECONDARY NONFERROUS METALS														
United States	**E1**	**387**	**162**	**13.6**	**411.9**	**9.9**	**22.5**	**252.4**	**1 272.7**	**4 970.6**	**6 223.7**	**154.5**	**12.5**	**947.3**
Alabama	–	10	8	1.0	28.9	.8	1.8	20.7	84.8	483.4	566.2	4.7	1.0	86.3
Arkansas	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	37	15	1.3	41.7	1.0	2.5	27.8	112.6	299.2	405.4	14.9	1.5	127.3
Florida	E1	13	1	.1	3.9	.1	.2	2.2	10.1	10.0	20.4	(D)	.2	.7
Georgia	E1	7	3	.2	5.7	.2	.4	3.3	16.4	137.5	153.2	(D)	(NA)	(NA)
Illinois	–	28	15	1.2	39.3	.8	1.9	21.4	102.3	653.9	758.5	11.3	G	(D)
Indiana	–	21	14	1.3	40.0	1.0	2.3	26.3	96.3	302.9	397.0	10.9	F	(D)
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E1	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	E	(D)
Michigan	–	17	7	.6	17.4	.4	1.2	10.7	51.8	212.6	261.5	(D)	E	(D)
Minnesota	–	8	1	.2	5.0	.1	.3	3.2	12.7	59.9	72.4	(D)	(NA)	(D)
Missouri	–	9	4	.3	8.8	.3	.6	6.1	30.0	99.5	118.2	(D)	E	(D)
New Jersey	–	13	5	.4	13.6	.3	.6	8.1	159.8	151.3	335.4	1.4	.5	33.5
New York	E3	18	10	1.1	36.0	.7	1.7	18.8	78.4	306.4	380.4	11.7	F	(D)
Ohio	–	33	15	1.0	32.3	.7	1.6	20.0	87.6	352.6	441.6	(D)	1.3	101.1
Oklahoma	–	7	3	.3	8.0	.2	.5	5.3	14.1	20.3	37.1	1.2	(NA)	(D)
Pennsylvania	E1	34	18	1.6	52.0	1.2	2.6	32.3	148.2	482.2	632.5	14.9	1.0	71.2
Rhode Island	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Tennessee	E1	16	8	.6	14.2	.4	.9	8.8	46.9	127.3	174.0	7.3	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3341, SECONDARY NONFERROUS METALS—Con.														
Texas	E4	23	3	.2	5.9	.2	.4	3.3	15.0	46.5	61.3	1.8	E	(D)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	9	3	.2	5.5	.1	.3	3.8	14.0	91.7	105.6	.6	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Primary copper (SIC 3331)	Primary aluminum (SIC 3334)	Primary nonferrous metals, n.e.c. (SIC 3339)	Secondary nonferrous metals (SIC 3341)
Companies—number	12	30	101	347
All establishments—number	20	41	113	387
With 1 to 19 employees—number	3	13	60	225
With 20 to 99 employees—number	3	2	33	121
With 100 employees or more—number	14	26	20	41
Employment and labor costs:				
Employees—1,000	5.6	20.4	8.6	13.6
Compensation, total—mil dol	260.0	1 102.3	443.4	529.3
Annual payroll—mil dol	188.6	805.9	337.9	411.9
Fringe benefits—mil dol	71.4	296.4	105.5	117.4
Social Security and other legally required payments—mil dol	25.6	91.9	36.8	51.6
Employer voluntary payments—mil dol	45.8	204.5	68.7	65.8
Production workers:				
Average for year—1,000	4.2	16.2	6.2	9.9
March—1,000	4.2	16.1	6.2	9.9
May—1,000	4.3	16.2	6.2	9.9
August—1,000	4.3	16.3	6.4	10.0
November—1,000	4.2	16.2	6.2	9.8
Hours—millions	9.3	32.3	13.6	22.5
Wages—mil dol	139.4	607.7	221.8	252.4
Cost of materials[1]—mil dol	4 598.7	4 226.9	1 621.6	4 970.6
Materials, parts, containers, etc., consumed[2]—mil dol	4 291.2	2 501.5	1 402.0	4 607.5
Resales—mil dol	(D)	(D)	34.4	141.8
Fuels—mil dol	65.7	115.6	57.1	89.2
Purchased electricity—mil dol	76.0	1 280.9	104.5	53.7
Contract work—mil dol	(D)	(D)	23.5	78.4
Quantity of electric energy used for heat and power:				
Purchased—mil kWh	1 821.7	60 272.4	3 197.5	876.7
Generated less sold—mil kWh	305.6	(S)	(D)	(D)
Total value of shipments—mil dol	5 578.2	5 848.9	2 468.6	6 223.7
Value added—mil dol	947.9	1 609.8	828.4	1 272.7
Inventories by stage of fabrication:				
Beginning of 1992—mil dol	508.2	647.1	367.7	586.6
Finished goods—mil dol	73.7	83.7	134.8	238.2
Work in process—mil dol	303.3	153.3	105.8	161.0
Materials and supplies—mil dol	131.1	410.1	127.2	187.4
End of 1992—mil dol	485.4	600.4	348.4	597.8
Finished goods—mil dol	54.4	78.6	110.3	226.1
Work in process—mil dol	291.1	146.2	111.7	192.7
Materials and supplies—mil dol	139.9	375.6	126.4	179.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Primary copper (SIC 3331)	Primary aluminum (SIC 3334)	Primary nonferrous metals, n.e.c. (SIC 3339)	Secondary nonferrous metals (SIC 3341)
Gross book value of depreciable assets:				
Total:				
Beginning of year	1 978.7	4 318.6	1 379.3	1 260.1
New capital expenditures[1]	195.5	215.0	146.3	154.5
Used capital expenditures	(D)	(D)	4.0	6.5
Retirements	(D)	(D)	15.7	30.6
End of year	2 156.1	4 471.3	1 513.9	1 390.5
Buildings and other structures:				
Beginning of year	556.8	914.0	252.9	284.2
New capital expenditures	53.8	31.2	23.4	61.2
Used capital expenditures	(D)	(D)	.9	2.0
Retirements	(D)	(D)	.3	4.5
End of year	609.2	942.3	276.8	342.9
Machinery and equipment:				
Beginning of year	1 421.9	3 404.6	1 126.4	975.9
New capital expenditures[1]	141.7	183.9	122.9	93.3
Used capital expenditures	(D)	(D)	3.2	4.5
Retirements	(D)	(D)	15.4	26.1
End of year	1 546.9	3 529.0	1 237.1	1 047.6
Depreciation charges during 1992:				
Total	84.7	421.2	86.5	88.1
Buildings and other structures	23.9	99.2	9.7	13.4
Machinery and equipment	60.8	322.0	76.8	74.7
Rental payments:				
Total	17.2	5.0	11.9	28.8
Buildings and other structures	11.5	.9	3.7	13.2
Machinery and equipment	5.7	4.1	8.2	15.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Primary copper (SIC 3331)		Primary aluminum (SIC 3334)		Primary nonferrous metals, n.e.c. (SIC 3339)		Secondary nonferrous metals (SIC 3341)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	28.7	(X)	16.8	(X)	3.9	(X)	5.2	(X)
Response coverage ratio (percent)[2]	85.5	(X)	95.4	(X)	92.8	(X)	79.8	(X)
Machinery	30.7	(X)	92.4	(X)	26.4	(X)	59.3	(X)
Response coverage ratio (percent)[2]	85.5	(X)	95.4	(X)	96.4	(X)	84.5	(X)
Other purchased services:								
Communications	.6	(X)	2.6	(X)	1.8	(X)	4.9	(X)
Response coverage ratio (percent)[2]	71.3	(X)	92.5	(X)	95.5	(X)	80.1	(X)
Legal	1.7	(X)	9.0	(X)	5.7	(X)	6.8	(X)
Response coverage ratio (percent)[2]	85.5	(X)	92.5	(X)	96.4	(X)	83.5	(X)
Accounting and bookkeeping	2.9	(X)	.6	(X)	.8	(X)	3.0	(X)
Response coverage ratio (percent)[2]	75.2	(X)	92.5	(X)	92.8	(X)	84.3	(X)
Advertising	.2	(X)	.1	(X)	.9	(X)	1.7	(X)
Response coverage ratio (percent)[2]	85.5	(X)	92.5	(X)	96.4	(X)	84.6	(X)
Software and other data processing	.2	(X)	4.3	(X)	1.3	(X)	2.7	(X)
Response coverage ratio (percent)[2]	85.5	(X)	100.0	(X)	92.8	(X)	84.6	(X)
Refuse removal, including hazardous waste	2.8	(X)	68.3	(X)	5.7	(X)	17.0	(X)
Response coverage ratio (percent)[2]	85.5	(X)	100.0	(X)	92.8	(X)	85.4	(X)
New machinery and equipment expenditures	141.7	(X)	183.9	(X)	122.9	(X)	93.3	(X)
Automobiles, trucks, etc., for highway use	.5	1	1.1	1	.7	12	4.4	43
Computers and peripheral data processing equipment	3.6	1	6.5	1	1.4	4	2.8	13
All other	137.6	1	176.3	1	120.8	1	86.2	3
Adjustment ratio[3]	1.1	(X)	1.0	(X)	1.1	(X)	1.7	(X)
Cost of materials, components, parts, etc., used	4 291.2	(X)	2 501.5	(X)	1 402.0	(X)	4 607.5	(X)
Materials purchased or transferred from foreign sources[4]	293.6	1	577.8	1	284.2	14	125.6	14
Materials purchased or transferred from domestic sources	3 997.6	1	1 923.7	1	1 117.9	4	4 481.9	1
Adjustment ratio[3]	1.1	(X)	1.2	(X)	1.6	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3331, PRIMARY COPPER												
Total	**–**	**20**	**5.6**	**188.6**	**4.2**	**9.3**	**139.4**	**947.9**	**4 598.7**	**5 578.2**	**195.5**	**485.4**
Establishments with an average of—												
1 to 4 employees	E9	1	.7	21.3	.5	.9	14.8	41.7	400.2	450.6	7.6	38.6
10 to 19 employees	E2	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	8	3.2	107.3	2.5	5.3	81.4	495.1	2 495.4	3 003.9	187.9	227.8
500 to 999 employees	–	3	1.8	60.1	1.3	3.0	43.2	411.1	1 703.2	2 123.7	(D)	219.0
INDUSTRY 3334, PRIMARY ALUMINUM												
Total	**–**	**41**	**20.4**	**805.9**	**16.2**	**32.3**	**607.7**	**1 609.8**	**4 226.9**	**5 848.9**	**215.0**	**600.4**
Establishments with an average of—												
1 to 4 employees	E8	8	(Z)	.4	(Z)	(Z)	.3	.8	1.8	2.6	111.2	.4
5 to 9 employees	–	1	.1	3.0	.1	.2	1.7	8.4	8.1	16.4	(D)	2.2
10 to 19 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	2	1.1	39.6	.9	1.6	28.1	147.8	256.3	404.4	(D)	38.3
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	16	11.7	466.7	9.3	18.3	355.3	875.6	2 363.4	3 252.8	(D)	358.8
1,000 to 2,499 employees	–	6	7.5	296.3	5.8	12.2	222.3	577.1	1 597.3	2 172.6	103.8	200.7
INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.												
Total	**–**	**113**	**8.6**	**337.9**	**6.2**	**13.6**	**221.8**	**828.4**	**1 621.6**	**2 468.6**	**146.3**	**348.4**
Establishments with an average of—												
1 to 4 employees	E7	33	.1	1.6	(Z)	.1	1.0	3.6	12.0	15.6	.3	1.9
5 to 9 employees	E7	16	.1	3.0	.1	.2	2.1	7.0	20.2	27.2	.5	3.3
10 to 19 employees	E6	11	.2	5.2	.1	.3	3.5	12.4	39.2	51.7	.8	5.6
20 to 49 employees	E3	20	.6	17.8	.4	.8	9.7	37.3	116.4	161.2	2.0	26.5
50 to 99 employees	–	13	.9	32.1	.5	1.2	14.5	148.2	195.7	348.0	10.6	38.9
100 to 249 employees	E1	7	1.2	43.8	.9	1.8	28.4	104.4	329.0	431.8	21.4	49.0
250 to 499 employees	–	10	3.2	121.7	2.3	5.0	76.2	261.8	676.5	930.9	110.8	154.3
500 to 999 employees	–	2	2.3	112.7	1.9	4.3	86.3	253.8	232.7	502.3	(D)	68.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	27	(Z)	1.1	(Z)	.1	.7	2.5	6.8	9.4	.2	1.1
INDUSTRY 3341, SECONDARY NONFERROUS METALS												
Total	**E1**	**387**	**13.6**	**411.9**	**9.9**	**22.5**	**252.4**	**1 272.7**	**4 970.6**	**6 223.7**	**154.5**	**597.8**
Establishments with an average of—												
1 to 4 employees	E8	121	.2	4.9	.1	.3	2.9	12.8	62.1	74.9	1.1	6.5
5 to 9 employees	E5	55	.4	9.5	.3	.6	5.2	24.6	92.7	116.9	1.7	10.9
10 to 19 employees	E3	49	.7	21.4	.5	1.1	12.8	49.5	170.8	219.2	4.6	27.1
20 to 49 employees	E1	67	2.2	64.2	1.6	3.4	38.4	319.9	671.8	1 024.1	8.2	69.7
50 to 99 employees	–	54	3.7	109.8	2.7	6.0	65.4	258.5	1 492.5	1 753.2	30.5	129.1
100 to 249 employees	–	37	5.2	161.9	3.8	9.0	100.7	515.7	1 999.1	2 462.4	101.4	320.0
250 to 499 employees	E2	4	1.2	40.3	.9	2.2	26.9	91.7	481.6	573.0	6.9	34.6
Covered by administrative records[2]	E9	101	.1	3.1	.1	.2	1.9	6.9	33.7	40.6	.6	3.9

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3331	**Primary copper:**										
	All establishments in industry	20	5.6	188.6	4.2	9.3	139.4	947.9	4 598.7	5 578.2	195.5
	Establishments with this product class primary:										
33311	Copper smelter products	6	2.9	100.0	2.2	5.0	78.2	513.9	1 662.7	2 180.2	136.5
33312	Refined primary copper and copper-base alloy	11	2.4	77.7	1.7	3.8	53.5	454.7	2 865.7	3 348.4	23.3
3334	**Primary aluminum:**										
	All establishments in industry	41	20.4	805.9	16.2	32.3	607.7	1 609.8	4 226.9	5 848.9	215.0
	Establishments with this product class primary:										
33347	Aluminum ingot (produced in primary aluminum reduction plants)	25	16.7	659.6	13.3	26.4	501.2	1 401.9	3 442.5	4 856.4	195.9
33348	Aluminum extrusion billet (produced in primary aluminum reduction plants)	7	3.0	122.6	2.3	4.6	83.0	194.5	734.2	928.8	18.5
3339	**Primary nonferrous metals, n.e.c.:**										
	All establishments in industry	113	8.6	337.9	6.2	13.6	221.8	828.4	1 621.6	2 468.6	146.3
	Establishments with this product class primary:										
33392	Refined primary zinc	11	1.6	55.6	1.3	3.1	40.0	170.2	439.2	601.0	(D)
33395	Precious metals and precious metal alloys	10	.7	23.8	.4	.7	10.6	60.1	283.7	343.9	(D)
33398	Other primary nonferrous metals, n.e.c.	30	5.8	243.6	4.2	8.9	161.5	561.0	809.4	1 393.2	115.3
3341	**Secondary nonferrous metals:**										
	All establishments in industry	387	13.6	411.9	9.9	22.5	252.4	1 272.7	4 970.6	6 223.7	154.5
	Establishments with this product class primary:										
33412	Copper	22	1.4	46.5	1.0	2.3	25.8	97.7	827.9	924.7	2.9
33413	Lead	26	2.8	80.3	2.1	5.1	54.5	215.1	401.2	600.1	80.8
33414	Zinc	13	1.0	33.3	.8	1.9	20.1	137.0	341.6	479.8	(D)
33415	Precious metals and precious metal alloys	31	1.3	44.9	.8	1.7	21.4	303.6	955.8	1 258.7	(D)
33416	Other secondary nonferrous metals	13	.6	17.1	.4	.9	10.2	33.9	61.1	98.1	1.8
33417	Aluminum ingot (produced by secondary smelters)	64	4.1	126.9	3.0	6.7	81.5	314.1	1 813.2	2 125.6	27.1
33418	Aluminum extrusion billet (produced by secondary smelters)	8	.4	10.2	.3	.8	7.3	39.4	108.8	145.2	.7

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3331, PRIMARY COPPER			
Total value of shipments	5 578.2	2 556.9	3 077.5
Primary products value of shipments	4 809.2	2 301.5	2 665.2
Secondary products value of shipments	492.3	113.8	251.8
Total miscellaneous receipts	276.7	141.6	160.4
Value of resales	(D)	29.8	4.0
Contract receipts	142.2	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Sales of scrap and refuse	(D)	(NA)	(NA)
Primary products specialization ratio	91	95	91
Value of primary products shipments made in all industries	4 824.7	2 970.4	2 978.3
Value of primary products shipments made in this industry	4 809.2	2 301.5	2 665.2
Value of primary products shipments made in other industries	15.5	668.9	313.1
Coverage ratio	99	77	89
INDUSTRY 3334, PRIMARY ALUMINUM			
Total value of shipments	5 848.9	5 005.7	5 037.1
Primary products value of shipments	5 016.9	4 430.1	4 444.1
Secondary products value of shipments	(D)	215.6	193.7
Total miscellaneous receipts	(D)	359.9	399.4
Value of resales	(D)	(D)	119.4
Contract receipts	403.2	305.7	(D)
Other miscellaneous receipts	13.2	(D)	(D)
Primary products specialization ratio	(D)	95	97
Value of primary products shipments made in all industries	5 020.8	4 443.9	4 444.7
Value of primary products shipments made in this industry	5 016.9	4 430.1	4 444.1
Value of primary products shipments made in other industries	3.9	13.8	.6
Coverage ratio	99	99	99

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.			
Total value of shipments	2 468.6	3 306.5	3 206.2
Primary products value of shipments	2 226.1	2 272.6	(NA)
Secondary products value of shipments	147.7	832.0	(NA)
Total miscellaneous receipts	94.8	201.9	(NA)
Value of resales	69.1	55.4	(NA)
Contract receipts	19.0	(D)	(NA)
Other miscellaneous receipts	6.8	(D)	(NA)
Sales of scrap and refuse	4.3	(NA)	(NA)
Primary products specialization ratio	94	73	(NA)
Value of primary products shipments made in all industries	2 873.1	2 458.3	2 655.7
Value of primary products shipments made in this industry	2 226.1	2 272.6	(NA)
Value of primary products shipments made in other industries	647.0	185.7	(NA)
Coverage ratio	77	92	(NA)
INDUSTRY 3341, SECONDARY NONFERROUS METALS			
Total value of shipments	6 223.7	4 431.4	4 851.9
Primary products value of shipments	5 713.7	4 053.1	4 151.8
Secondary products value of shipments	12.0	60.2	107.6
Total miscellaneous receipts	497.9	318.1	592.5
Value of resales	149.8	151.0	370.8
Contract receipts	210.6	126.0	(D)
Other miscellaneous receipts	137.5	41.2	268.8
Primary products specialization ratio	99	99	97
Value of primary products shipments made in all industries	5 892.0	4 264.9	4 385.9
Value of primary products shipments made in this industry	5 713.7	4 053.1	4 151.8
Value of primary products shipments made in other industries	178.3	211.8	234.1
Coverage ratio	97	95	95

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3331– —	**PRIMARY COPPER**								
	Total	**(NA)**	**(X)**	**(X)**	**4 824.7**	**(NA)**	**(X)**	**(X)**	**2 970.4**
33311	Copper smelter products	(NA)	(X)	(X)	1 907.3	(NA)	(X)	(X)	1 366.7
33311 00	Copper smelter products not of commercial grade, produced for further refining including blister or anode copper, etc. 1,000 s tons	7	*1 105.2	1 065.4	1 907.3	10	1 076.9	871.7	1 366.7
33312	Refined primary copper and copper-base alloy	(NA)	(X)	(X)	2 915.2	(NA)	(X)	(X)	1 598.6
33312 17	Cathode 1,000 s tons	8	**1 331.7	1 575.8	2 915.1	6	927.4	668.3	996.6
33312 30	Other (including wire bar, ingot and ingot bar, cakes, slabs, shot, etc.) 1,000 s tons	5				(NA)	(NA)	(NA)	(NA)
33312 00	Refined primary copper and copper-base alloy, n.s.k.	(NA)	(X)	(X)	.1	(NA)	(X)	(X)	.1
33310	Primary copper, n.s.k.	(NA)	(X)	(X)	2.2	(NA)	(X)	(X)	5.1
33310 00	Primary copper, n.s.k.	(NA)	(X)	(X)	2.2	(NA)	(X)	(X)	5.1
33310 02	Primary copper, n.s.k.[3]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–

See footnotes at end of table.

TIPS [UPF] BATCH_1635 [MCD_SRB,TG_LEE] MCD-SRB 5/16/95 1:49 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 8
TSF:33C_92.DAT;1 5/16/95 13:48:43 UTF:33C_93.DAT;1 5/16/95 13:48:43 META:TIPS96-13483587.DAT;1 5/16/95 13:49:40

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3334– —	**PRIMARY ALUMINUM**								
	Total	**(NA)**	**(X)**	**(X)**	**5 020.8**	**(NA)**	**(X)**	**(X)**	**4 443.9**
33347	Aluminum ingot (produced in primary aluminum reduction plants)	(NA)	(X)	(X)	4 032.3	(NA)	(X)	(X)	3 398.3
33347 00	Ingot, excluding billet, 1,000 s tons	20	*4 598.4	4 429.6	4 032.3	15	3 198.6	2 850.1	3 398.3
33348	Aluminum extrusion billet (produced in primary aluminum reduction plants)	(NA)	(X)	(X)	985.7	(NA)	(X)	(X)	1 028.4
33348 00	Extrusion ingot (billet), 1,000 s tons	12	*775.2	739.5	985.7	8	801.9	737.3	1 028.4
33340	Primary aluminum, n.s.k.	(NA)	(X)	(X)	2.7	(NA)	(X)	(X)	17.2
33340 00	Primary aluminum, n.s.k.	(NA)	(X)	(X)	2.7	(NA)	(X)	(X)	17.2
33340 02	Primary aluminum, n.s.k.[3]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
3339– —	**PRIMARY NONFERROUS METALS, N.E.C.**								
	Total	**(NA)**	**(X)**	**(X)**	**2 873.1**	**(NA)**	**(X)**	**(X)**	**2 458.3**
33391	Zinc residues and other zinc smelter products	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	19.2
33391 00	Zinc smelter products not of commercial grade, produced for further refining including base bullion, matte, speiss, etc.	3	(X)	(X)	(D)	8	(X)	(X)	19.2
33392	Refined primary zinc	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	325.9
	Zinc (including all ASTM specification zinc) unalloyed:								
33392 34	Slab, excluding remelt zinc[4]	4	(X)	(X)	422.5	(NA)	(X)	(X)	(D)
33392 44	Slab, remelt zinc[4]	2	(X)	(X)	(D)	(NA)	(X)	(X)	–
33392 55	Dust	1	(X)	(X)	(D)	3	(X)	(X)	(D)
33392 51	Zinc-base alloys, 1,000 s tons	7	*52.1	*51.4	61.5	3	29.3	29.3	25.6
33392 00	Refined primary zinc, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	26.0
33395	Precious metals and precious metal alloys	(NA)	(X)	(X)	698.4	(NA)	(X)	(X)	651.6
33395 25	Gold, 1,000 troy ounces	15	(S)	1 065.5	371.0	7	3 220.6	468.8	204.6
33395 35	Silver, 1,000 troy ounces	12	(S)	(S)	310.3	6	(D)	(D)	(D)
33395 45	Platinum (including platinum-group metals), 1,000 troy ounces	8	(S)	**61.3	17.0	1	(D)	(D)	(D)
33395 00	Precious metals and precious metal alloys, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	–
33398	Other primary nonferrous metals, n.e.c.	(NA)	(X)	(X)	1 555.7	(NA)	(X)	(X)	1 329.2
33398 01	Lead smelter products not of commercial grade, produced for further refining including base bullion, matte, speiss, etc.	2	(X)	(X)	(D)	5	(X)	(X)	(D)
33398 05	Lead and lead-base alloys	8	(X)	(X)	258.1	3	(X)	(X)	(D)
33398 33	Magnesium and magnesium-base alloys, 1,000 s tons	3	155.5	162.5	373.4	3	107.5	111.2	310.6
33398 43	Nickel and nickel-base alloys	7	(X)	(X)	(D)	3	(X)	(X)	(D)
33398 63	Tin, unalloyed	3	(X)	(X)	(D)	3	(X)	(X)	(D)
33398 73	Silicon, unalloyed	6	(X)	(X)	144.4	9	(X)	(X)	263.5
33398 89	Other unrefined nonferrous metals (including metal bearing furnace residues and other metal products)	2	(X)	(X)	(D)	4	(X)	(X)	(D)
33398 99	Other refined nonferrous metals and their alloys (including cadmium, antimony, cobalt, molybdenum, titanium sponge,etc.)	19	(X)	(X)	382.0	14	(X)	(X)	204.4
33398 00	Other primary nonferrous metals, n.e.c., n.s.k.	(NA)	(X)	(X)	59.0	(NA)	(X)	(X)	10.2
33390	Primary nonferrous metals, n.e.c., n.s.k.	(NA)	(X)	(X)	121.3	(NA)	(X)	(X)	132.5
33390 00	Primary nonferrous metals, n.e.c., n.s.k.[5]	(NA)	(X)	(X)	111.9	(NA)	(X)	(X)	87.4
33390 02	Primary nonferrous metals, n.e.c., n.s.k.[6]	(NA)	(X)	(X)	9.4	(NA)	(X)	(X)	45.0
3341– —	**SECONDARY NONFERROUS METALS**								
	Total	**(NA)**	**(X)**	**(X)**	**5 892.0**	**(NA)**	**(X)**	**(X)**	**4 264.9**
33412	Copper	(NA)	(X)	(X)	838.9	(NA)	(X)	(X)	549.8
	Unalloyed:								
33412 24	Cathode, wire bar, ingot and ingot bar[4], 1,000 s tons	5	294.3	315.3	135.3	(NA)	(NA)	(NA)	99.0
33412 26	Other (including cakes, slabs, shot, etc.), 1,000 s tons	7	*280.8	*167.2	349.3	5	162.4	161.3	218.0
33412 31	Copper-base alloys, 1,000 s tons	17	(S)	(S)	346.4	22	147.0	*146.6	199.5
33412 00	Copper, n.s.k.	(NA)	(X)	(X)	7.9	(NA)	(X)	(X)	33.3
33413	Lead	(NA)	(X)	(X)	574.3	(NA)	(X)	(X)	519.2
33413 11	Lead, unalloyed (pig, ingots, shot, etc.), 1,000 s tons	13	(S)	(S)	354.2	11	217.5	195.1	120.1
	Lead- and tin-base alloys:								
33413 21	Antimonial lead, 1,000 s tons	11	**207.2	*175.2	103.7	13	234.8	203.8	148.4
33413 33	Babbitt metal, 1,000 s tons	4	(S)	**.6	2.9	6	28.6	28.6	18.3
33413 51	Solder, 1,000 s tons	10	(S)	*39.8	92.1	16	67.6	*65.5	147.6
33413 99	Other (including type-metal)[4], 1,000 s tons	4	*22.5	*22.5	13.7	(NA)	(S)	(S)	63.1
33413 00	Lead, n.s.k.	(NA)	(X)	(X)	7.7	(NA)	(X)	(X)	21.7

See footnotes at end of table.

TIPS [UPF] BATCH_1635 [MCD_SRB,TG_LEE] MCD-SRB 5/16/95 1:49 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 9
TSF:33C_92.DAT;1 5/16/95 13:48:43 UTF:33C_93.DAT;1 5/16/95 13:48:43 META:TIPS96-13483587.DAT;1 5/16/95 13:49:40

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1] Quantity[2]	Product shipments[1] Value (million dollars)	Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1] Quantity[2]	Product shipments[1] Value (million dollars)
3341– —	**SECONDARY NONFERROUS METALS**—Con.								
33414	Zinc	(NA)	(X)	(X)	370.7	(NA)	(X)	(X)	235.9
	Zinc (including all ASTM specification zinc) unalloyed:								
33414 34	Slab, excluding remelt zinc[4]	4	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
33414 44	Slab, remelt zinc[4]	5	(X)	(X)	(D)	(NA)	(X)	(X)	(D)
33414 05	Dust	4	(X)	(X)	(D)	4	(X)	(X)	(D)
33414 11	Zinc-base alloys 1,000 s tons	9	(S)	254.4	149.6	14	(S)	(S)	145.1
33414 00	Zinc, n.s.k.	(NA)	(X)	(X)	1.3	(NA)	(X)	(X)	7.9
33415	Precious metals and precious metal alloys	(NA)	(X)	(X)	1 321.2	(NA)	(X)	(X)	745.3
33415 25	Gold[4] 1,000 troy ounces	20	7 605.9	7 305.6	986.7	(NA)	1 560.1	*975.4	482.4
33415 35	Silver[4] 1,000 troy ounces	21	(S)	(S)	95.0	(NA)	(D)	(D)	(D)
33415 45	Platinum (including platinum-group metals)[4] 1,000 troy ounces	15	(S)	(S)	209.3	(NA)	(D)	(D)	(D)
33415 00	Precious metals and precious metal alloys, n.s.k.	(NA)	(X)	(X)	30.3	(NA)	(X)	(X)	14.7
33416	Other secondary nonferrous metals	(NA)	(X)	(X)	106.7	(NA)	(X)	(X)	59.1
33416 33	Magnesium and magnesium-base alloys [4]	4	(X)	(X)	13.1	(NA)	(X)	(X)	(D)
33416 35	Nickel and nickel-base alloys [4]	5	(X)	(X)	31.7	(NA)	(X)	(X)	2.1
33416 71	Tin, unalloyed [4]	6				4	(X)	(X)	6.7
33416 97	Other nonferrous metals and their alloys (cadmium, antimony, cobalt, titanium sponge, etc.) [4]	12	(X)	(X)	42.5	(NA)	(X)	(X)	(D)
33416 00	Other secondary nonferrous metals, n.s.k.	(NA)	(X)	(X)	19.4	(NA)	(X)	(X)	8.8
33417	Aluminum ingot (produced by secondary smelters)	(NA)	(X)	(X)	1 979.9	(NA)	(X)	(X)	1 501.1
33417 00	Ingot, excluding billet 1,000 s tons	51	(S)	2 065.8	1 979.9	51	1 662.8	1 506.5	1 501.1
33418	Aluminum extrusion billet (produced by secondary smelters)	(NA)	(X)	(X)	143.8	(NA)	(X)	(X)	171.3
33418 00	Extrusion ingot (billet) 1,000 s tons	11	(S)	(S)	143.8	10	224.9	**170.6	171.3
33410	Secondary nonferrous metals, n.s.k.	(NA)	(X)	(X)	556.4	(NA)	(X)	(X)	483.1
33410 00	Secondary nonferrous metals, n.s.k.[7]	(NA)	(X)	(X)	515.8	(NA)	(X)	(X)	324.3
33410 02	Secondary nonferrous metals, n.s.k.[8]	(NA)	(X)	(X)	40.6	(NA)	(X)	(X)	158.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]There were no administrative-record cases for this industry.
[4]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[5]Typically for establishments with 25 employees or more.
[6]Typically for establishments with less than 25 employees.
[7]Typically for establishments with 5 employees or more.
[8]Typically for establishments with less than 5 employees.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1] Quantity[2]	Product shipments[1] Value (million dollars)	Number of companies with shipments of $100,000 or more	Product shipments[1] Quantity[2]	Product shipments[1] Value (million dollars)
	Refined copper and copper-base alloys	(NA)	(X)	3 754.0	(NA)	(X)	2 148.4
33312	Primary refined copper	(NA)	(X)	2 915.2	(NA)	(X)	1 598.6
33312 17	Cathode 1,000 s tons	8	1 575.8	2 915.1	6	668.3	996.6
33312 30	Other (including wire bar, ingot and ingot bar, cakes, slabs, shot, etc.) 1,000 s tons	5			(NA)	(NA)	(NA)
33312 00	Primary refined copper, n.s.k.	(NA)	(X)	.1	(NA)	(X)	.1
33412	Secondary copper	(NA)	(X)	838.9	(NA)	(X)	549.8
33412 24	Cathode, wire bar, ingot and ingot bar 1,000 s tons	5	315.3	135.3	(NA)	(NA)	99.0
33412 26	Other (including cakes, slabs, shot, etc.) 1,000 s tons	7	*167.2	349.3	5	161.3	218.0
33412 31	Copper-base alloys 1,000 s tons	17	(S)	346.4	22	*146.6	199.5
33412 00	Secondary copper, n.s.k.	(NA)	(X)	7.9	(NA)	(X)	33.3

See footnotes at end of table.

TIPS [UPF] BATCH_1635 [MCD_SRB,TG_LEE] MCD-SRB 5/16/95 1:49 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 10
TSF:33C_92.DAT;1 5/16/95 13:48:43 UTF:33C_93.DAT;1 5/16/95 13:48:43 META:TIPS96-13483587.DAT;1 5/16/95 13:49:40

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Aluminum ingot ---- 1,000 s tons	(NA)	6 811.5	6 425.3	(NA)	4 588.7	5 221.9
33347 00	Made in industry 3334 and other primary industries ---- 1,000 s tons	20	4 429.6	4 032.3	15	2 850.1	3 398.3
33417 00	Made in industry 3341 and other secondary industries ---- 1,000 s tons	51	2 065.8	1 979.9	51	1 506.5	1 501.1
33553 00	Made in industry 3355 and other aluminum rolling and drawing industries ---- 1,000 s tons	10	(S)	413.2	12	232.1	322.5
	Aluminum extrusion billet ---- 1,000 s tons	(NA)	*1 123.1	1 282.0	(NA)	1 117.9	1 481.6
33348 00	Made in industry 3334 and other primary industries ---- 1,000 s tons	12	739.5	985.7	8	737.3	1 028.4
33418 00	Made in industry 3341 and other secondary industries ---- 1,000 s tons	11	(S)	143.8	10	**170.6	171.3
33554 00	Made in industry 3355 and other aluminum rolling and drawing mills ---- 1,000 s tons	13	187.8	152.4	16	(S)	281.9
	Refined zinc and zinc-base alloys	(NA)	(X)	(D)	(NA)	(X)	561.8
33392	Primary refined zinc	(NA)	(X)	(D)	(NA)	(X)	325.9
33414	Secondary zinc	(NA)	(X)	370.7	(NA)	(X)	235.9
	Slab, excluding remelt zinc	(NA)	(X)	(D)	(NA)	(X)	(D)
33392 34	Made in industry 3339 and other primary industries	4	(X)	422.5	(NA)	(X)	(D)
33414 34	Made in industry 3341 and other secondary industries	4	(X)	(D)	(NA)	(X)	(D)
	Slab, remelt zinc	(NA)	(X)	39.5	(NA)	(X)	(D)
33392 44	Made in industry 3339 and other primary industries	2	(X)	(D)	(NA)	(X)	–
33414 44	Made in industry 3341 and other secondary industries	5	(X)	(D)	(NA)	(X)	(D)
	Dust	(NA)	(X)	115.8	(NA)	(X)	34.0
33392 55	Made in industry 3339 and other primary industries	1	(X)	(D)	3	(X)	(D)
33414 05	Made in industry 3341 and other secondary industries	4	(X)	(D)	4	(X)	(D)
	Zinc-base alloys ---- 1,000 s tons	(NA)	305.8	211.1	(NA)	(S)	170.7
33392 51	Made in industry 3339 and other primary industries ---- 1,000 s tons	7	*51.4	61.5	3	29.3	25.6
33414 11	Made in industry 3341 and other secondary industries ---- 1,000 s tons	9	254.4	149.6	14	(S)	145.1
	Refined zinc and zinc-base alloys, n.s.k.	(NA)	(X)	1.3	(NA)	(X)	33.9
33392 00	Primary refined zinc	(NA)	(X)	–	(NA)	(X)	26.0
33414 00	Secondary zinc	(NA)	(X)	1.3	(NA)	(X)	7.9
	Precious metals and precious metal alloys	(NA)	(X)	2 019.6	(NA)	(X)	1 396.9
33395	Made in primary smelting plants	(NA)	(X)	698.4	(NA)	(X)	651.6
33415	Made in secondary refineries	(NA)	(X)	1 321.2	(NA)	(X)	745.3
	Gold ---- 1,000 troy ounces	(NA)	8 371.0	1 357.7	(NA)	1 444.2	687.0
33395 25	Made in industry 3339 and other primary industries ---- 1,000 troy ounces	15	1 065.5	371.0	7	468.8	204.6
33415 25	Made in industry 3341 and other secondary industries ---- 1,000 troy ounces	20	7 305.6	986.7	(NA)	975.4	482.4
	Silver ---- 1,000 troy ounces	(NA)	(S)	405.3	(NA)	67 651.9	527.1
33395 35	Made in industry 3339 and other primary industries ---- 1,000 troy ounces	12	(S)	310.3	6	(D)	(D)
33415 35	Made in industry 3341 and other secondary industries ---- 1,000 troy ounces	21	(S)	95.0	(NA)	(D)	(D)
	Platinum, including platinum-group metals ---- 1,000 troy ounces	(NA)	(S)	226.3	(NA)	619.6	168.0
33395 45	Made in industry 3339 and other primary industries ---- 1,000 troy ounces	8	**61.3	17.0	1	(D)	(D)
33415 45	Made in industry 3341 and other secondary industries ---- 1,000 troy ounces	15	(S)	209.3	(NA)	(D)	(D)
	Precious metals and precious metal alloys, n.s.k.	(NA)	(X)	30.3	(NA)	(X)	14.7
33395 00	Made in primary smelting plants	(NA)	(X)	–	(NA)	(X)	–
33415 00	Made in secondary refineries	(NA)	(X)	30.3	(NA)	(X)	14.7
	Refined lead and lead-base alloys	(NA)	(X)	832.4	(NA)	(X)	(D)
33398 05	Primary refined lead	8	(X)	258.1	3	(X)	(D)
33413	Secondary lead	(NA)	(X)	574.3	(NA)	(X)	519.2
33413 11	Lead, unalloyed (pig, ingots, shot, etc.) ---- 1,000 s tons	13	(S)	354.2	11	195.1	120.1
33413 21	Antimonial lead ---- 1,000 s tons	11	*175.2	103.7	13	203.8	148.4
33413 33	Babbitt metal ---- 1,000 s tons	4	**.6	2.9	6	28.6	18.3
33413 51	Solder ---- 1,000 s tons	10	*39.8	92.1	16	65.5	147.6
33413 99	Other (including type-metal) ---- 1,000 s tons	4	*22.5	13.7	(NA)	(S)	63.1
33413 00	Secondary lead, n.s.k.	(NA)	(X)	7.7	(NA)	(X)	21.7
	Magnesium and magnesium-base alloys	(NA)	(X)	386.5	(NA)	(D)	(D)
33398 33	Made in industry 3339 and other primary industries ---- 1,000 s tons	3	162.5	373.4	3	111.2	310.6
33416 33	Made in industry 3341 and other secondary industries	4	(X)	13.1	(NA)	(X)	(D)

See footnotes at end of table.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Nickel and nickel-base alloys	(NA)	(X)	93.8	(NA)	(X)	(D)
33398 43	Made in industry 3339 and other primary industries	7	(X)	(D)	3	(X)	(D)
33416 35	Made in industry 3341 and other secondary industries	5	(X)	(D)	(NA)	(X)	2.1
	Tin, unalloyed	(NA)	(X)	81.1	(NA)	(X)	(D)
33398 63	Made in industry 3339 and other primary industries	3	(X)	(D)	3	(X)	(D)
33416 71	Made in industry 3341 and other secondary industries	6	(X)	(D)	4	(X)	6.7
	Other refined nonferrous metals and their alloys, including silicon	(NA)	(X)	568.9	(NA)	(X)	(D)
33398 73	Silicon, unalloyed, made in industry 3339 and other primary industries	6	(X)	144.4	9	(X)	263.5
33398 99	Other refined nonferrous metals and their alloys, made in industry 3339 and other primary industries	19	(X)	382.0	14	(X)	204.4
33416 97	Other refined nonferrous metals and their alloys, made in industry 3341 and other secondary industries	12	(X)	42.5	(NA)	(X)	(D)

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33311, COPPER SMELTER PRODUCTS		
United States	**1 907.3**	**1 366.7**
33312, REFINED PRIMARY COPPER AND COPPER-BASE ALLOY		
United States	**2 915.2**	**1 598.6**
33347, ALUMINUM INGOT (PRODUCED IN PRIMARY ALUMINUM REDUCTION PLANTS)		
United States	**4 032.3**	**3 398.3**
Washington	1 304.8	1 055.5
33348, ALUMINUM EXTRUSION BILLET (PRODUCED IN PRIMARY ALUMINUM REDUCTION PLANTS)		
United States	**985.7**	**1 028.4**
Washington	156.4	102.8
33391, ZINC RESIDUES AND OTHER ZINC SMELTER PRODUCTS		
United States	**(D)**	**19.2**
33392, REFINED PRIMARY ZINC		
United States	**(D)**	**325.9**
33395, PRECIOUS METALS AND PRECIOUS METAL ALLOYS		
United States	**698.4**	**651.6**
33398, OTHER PRIMARY NONFERROUS METALS, N.E.C.		
United States	**1 555.7**	**1 329.2**
Ohio	95.7	142.6
Washington	157.2	160.4
33412, COPPER		
United States	**838.9**	**549.8**
Alabama	18.3	(NA)
Illinois	392.7	255.9
Ohio	115.1	58.0
Pennsylvania	202.0	131.6
33413, LEAD		
United States	**574.3**	**519.2**
33414, ZINC		
United States	**370.7**	**235.9**
Illinois	54.9	(NA)
33415, PRECIOUS METALS AND PRECIOUS METAL ALLOYS		
United States	**1 321.2**	**745.3**
Illinois	73.3	(NA)
New Jersey	390.5	110.0
33416, OTHER SECONDARY NONFERROUS METALS		
United States	**106.7**	**59.1**
Illinois	3.8	(NA)
New York	15.8	(NA)
Pennsylvania	25.6	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33417, ALUMINUM INGOT (PRODUCED BY SECONDARY SMELTERS)			**33417, ALUMINUM INGOT (PRODUCED BY SECONDARY SMELTERS)**—Con.		
			Tennessee	134.9	(NA)
United States	**1 979.9**	**1 501.1**	Wisconsin	97.5	56.1
			33418, ALUMINUM EXTRUSION BILLET (PRODUCED BY SECONDARY SMELTERS)		
California	117.5	62.4			
Illinois	111.0	94.0			
Indiana	202.6	259.9	**United States**	**143.8**	**171.3**
Ohio	136.5	153.3			
Pennsylvania	71.9	(NA)	California	48.3	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3331-	**Primary copper**	**4 824.7**	**4 549.1**	**5 023.1**	**5 026.4**	**4 541.7**	**2 970.4**	**2 978.3**	**3 254.6**
33311	Copper smelter products	1 907.3	1 964.3	1 986.3	1 856.4	1 684.2	1 366.7	1 454.8	1 566.2
33312	Refined primary copper and copper-base alloy	2 915.2	2 583.6	3 035.8	3 139.7	2 856.9	1 598.6	1 522.5	1 687.9
33310	Primary copper, n.s.k.	2.2	1.2	.9	30.3	.6	5.1	1.0	.5
3334-	**Primary aluminum**	**5 020.8**	**5 421.8**	**6 150.8**	**6 876.0**	**6 860.3**	**4 443.9**	**4 444.7**	**4 291.4**
33347	Aluminum ingot (produced in primary aluminum reduction plants)	4 032.3	4 317.5	4 860.2	5 453.7	5 213.7	3 398.3	3 499.3	3 721.5
33348	Aluminum extrusion billet (produced in primary aluminum reduction plants)	985.7	1 084.5	1 241.9	1 405.5	1 623.7	1 028.4	943.9	570.0
33340	Primary aluminum, n.s.k.	2.7	19.9	48.7	16.8	22.9	17.2	1.5	–
3339-	**Primary nonferrous metals, n.e.c.**	**2 873.1**	**2 633.2**	**3 112.3**	**3 411.2**	**3 318.9**	**2 458.3**	**2 655.7**	**2 328.8**
33391	Zinc residues and other zinc smelter products	497.7	17.2	38.9	25.5	21.6	19.2	30.2	39.9
33392	Refined primary zinc		391.4	504.5	543.4	383.7	325.9	249.9	326.4
33395	Precious metals and precious metal alloys	698.4	599.5	705.6	845.3	903.3	651.6	921.3	464.8
33398	Other primary nonferrous metals, n.e.c.	1 555.7	1 476.8	1 681.3	1 812.8	1 877.0	1 329.2	877.6	940.0
33390	Primary nonferrous metals, n.e.c., n.s.k.	121.3	148.4	182.1	184.2	133.3	132.5	31.6	27.1
3341-	**Secondary nonferrous metals**	**5 892.0**	**4 805.2**	**5 816.7**	**6 148.8**	**6 112.8**	**4 264.9**	**4 385.9**	**3 194.9**
33412	Copper	838.9	934.1	1 106.0	1 053.5	907.2	549.8	866.5	616.6
33413	Lead	574.3	501.7	552.5	627.4	574.1	519.2	589.9	680.3
33414	Zinc	370.7	246.1	384.3	477.5	412.9	235.9	204.3	144.7
33415	Precious metals and precious metal alloys	1 321.2	651.9	789.0	665.0	997.6	745.3	1 156.6	315.6
33416	Other secondary nonferrous metals	106.7	127.6	104.0	70.0	78.8	59.1	166.4	96.0
33417	Aluminum ingot (produced by secondary smelters)	1 979.9	1 726.2	2 253.3	2 543.6	2 329.8	1 501.1	(D)	978.3
33418	Aluminum extrusion billet (produced by secondary smelters)	143.8	191.8	156.0	213.9	235.0	171.3	(D)	112.4
33410	Secondary nonferrous metals, n.s.k.	556.4	425.9	471.7	497.8	577.3	483.1	145.8	251.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3331, PRIMARY COPPER					
	Materials, ingredients, containers, and supplies		**(X)**	**4 291.2**	**(X)**	**2 065.3**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Aluminum and aluminum-base alloy:					
333471	Ingot	1,000 s tons	–	–	(NA)	(NA)
330009	All other aluminum and aluminum-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Copper and copper-base alloy:					
333120	Refined unalloyed copper (cathodes, ingots, cakes, slabs, etc.) and blister or anode copper	1,000 s tons	2 337.1	1 775.8	(S)	648.7
330012	All other copper and copper-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Lead and lead-base alloy:					
333986	Refined unalloyed lead		(X)	(D)	(X)	(NA)
330015	All other lead and lead-base alloy shapes and forms		(X)	–	(X)	(NA)
	Zinc and zinc-base alloy:					
333950	Refined unalloyed zinc	1,000 s tons	–	–	(NA)	(NA)
330016	All other zinc and zinc-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Tin and tin-base alloy:					
333976	Refined unalloyed tin		(X)	(D)	(X)	(NA)
330017	All other tin and tin-base alloy shapes and forms		(X)	–	(X)	(NA)
	Precious metal and precious metal alloy, including gold, silver, and platinum:					
333952	Refined unalloyed precious metal		(X)	(D)	(X)	(NA)
330019	All other precious metal and precious metal alloy shapes and forms		(X)	(D)	(X)	(NA)
	Magnesium and magnesium-base alloy:					
333974	Ingot		(X)	–	(X)	(NA)
333930	All other magnesium and magnesium-base alloy shapes and forms		(X)	(D)	(X)	(NA)
333964	All other nonferrous shapes and forms		(X)	(D)	(X)	(NA)
	Metal mining (ores and concentrates):					
102100	Copper ores, concentrates and precipitates (gross weight)	1,000 s tons	4 228.7	2 148.8	**5 246.8	1 308.7
103101	Lead ores and concentrates		(X)	–	(X)	(NA)
103103	Zinc ores and concentrates		(X)	–	(X)	(NA)
100005	Precious metal ores and concentrates		(X)	(D)	(X)	(NA)
100007	All other nonferrous metal ores and concentrates		(X)	–	(X)	(NA)
	Scrap:					
	Aluminum and aluminum-base alloy (excluding home scrap):					
190021	From other establishments of your company	1,000 s tons	–	–	(NA)	(NA)
190022	From all other sources	1,000 s tons	–	–	(NA)	(NA)
190024	Copper and copper-base alloy	1,000 s tons	(D)	(D)	(D)	(NA)
190025	Lead and lead-base alloy		(X)	–	(X)	(NA)
190026	Zinc and zinc-base alloy (including drosses and skimmings)		(X)	–	(X)	(NA)
190027	Tinplate (including shredded steel can scrap)		(X)	–	(X)	(NA)
190051	Precious metal and precious metal alloy		(X)	–	(X)	(NA)
190052	All other nonferrous metal and metal-base alloy scrap		(X)	–	(X)	(NA)
281951	Alumina (gross weight)	1,000 s tons	–	–	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies		(X)	128.2	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	(D)	(X)	.5
	INDUSTRY 3334, PRIMARY ALUMINUM					
	Materials, ingredients, containers, and supplies		**(X)**	**2 501.5**	**(X)**	**1 694.4**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Aluminum and aluminum-base alloy:					
333471	Ingot	1,000 s tons	98.5	42.8	(NA)	(NA)
330009	All other aluminum and aluminum-base alloy shapes and forms		(X)	40.3	(X)	(NA)
	Copper and copper-base alloy:					
333120	Refined unalloyed copper (cathodes, ingots, cakes, slabs, etc.) and blister or anode copper	1,000 s tons	(D)	(D)	(NA)	(NA)
330012	All other copper and copper-base alloy shapes and forms		(X)	.8	(X)	(NA)
	Lead and lead-base alloy:					
333986	Refined unalloyed lead		(X)	–	(X)	(NA)
330015	All other lead and lead-base alloy shapes and forms		(X)	–	(X)	(NA)
	Zinc and zinc-base alloy:					
333950	Refined unalloyed zinc	1,000 s tons	–	–	(NA)	(NA)
330016	All other zinc and zinc-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Tin and tin-base alloy:					
333976	Refined unalloyed tin		(X)	–	(X)	(NA)
330017	All other tin and tin-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Precious metal and precious metal alloy, including gold, silver, and platinum:					
333952	Refined unalloyed precious metal		(X)	–	(X)	(NA)
330019	All other precious metal and precious metal alloy shapes and forms		(X)	–	(X)	(NA)
	Magnesium and magnesium-base alloy:					
333974	Ingot		(X)	19.9	(X)	37.5
333930	All other magnesium and magnesium-base alloy shapes and forms		(X)	2.2	(X)	(NA)
333964	All other nonferrous shapes and forms		(X)	25.1	(X)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3334, PRIMARY ALUMINUM—Con.				
	Metal mining (ores and concentrates):				
102100	Copper ores, concentrates and precipitates (gross weight) 1,000 s tons	–	–	(NA)	(NA)
103101	Lead ores and concentrates	(X)	–	(X)	(NA)
103103	Zinc ores and concentrates	(X)	–	(X)	(NA)
100005	Precious metal ores and concentrates	(X)	–	(X)	(NA)
100007	All other nonferrous metal ores and concentrates	(X)	(D)	(X)	(NA)
	Scrap:				
	Aluminum and aluminum-base alloy (excluding home scrap):				
190021	From other establishments of your company 1,000 s tons	(D)	(D)	(D)	(NA)
190022	From all other sources 1,000 s tons	(D)	(D)	–	–
190024	Copper and copper-base alloy 1,000 s tons	(D)	(D)	(NA)	(NA)
190025	Lead and lead-base alloy	(X)	(D)	(X)	(NA)
190026	Zinc and zinc-base alloy (including drosses and skimmings)	(X)	(D)	(X)	(NA)
190027	Tinplate (including shredded steel can scrap)	(X)	–	(X)	(NA)
190051	Precious metal and precious metal alloy	(X)	–	(X)	(NA)
190052	All other nonferrous metal and metal-base alloy scrap	(X)	(D)	(X)	(NA)
281951	Alumina (gross weight) 1,000 s tons	11 048.3	1 401.5	5 532.9	767.4
970099	All other materials and components, parts, containers, and supplies	(X)	936.4	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	1.6	(X)	55.5
	INDUSTRY 3339, PRIMARY NONFERROUS METALS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 402.0**	**(X)**	**2 362.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Aluminum and aluminum-base alloy:				
333471	Ingot 1,000 s tons	(D)	(D)	(NA)	(NA)
330009	All other aluminum and aluminum-base alloy shapes and forms	(X)	(D)	(X)	(NA)
	Copper and copper-base alloy:				
333120	Refined unalloyed copper (cathodes, ingots, cakes, slabs, etc.) and blister or anode copper 1,000 s tons	(D)	(D)	(NA)	(NA)
330012	All other copper and copper-base alloy shapes and forms	(X)	(D)	(X)	(NA)
	Lead and lead-base alloy:				
333986	Refined unalloyed lead	(X)	(D)	(X)	(NA)
330015	All other lead and lead-base alloy shapes and forms	(X)	(D)	(X)	(NA)
	Zinc and zinc-base alloy:				
333950	Refined unalloyed zinc 1,000 s tons	24.7	21.7	(NA)	(NA)
330016	All other zinc and zinc-base alloy shapes and forms	(X)	(D)	(X)	(NA)
	Tin and tin-base alloy:				
333976	Refined unalloyed tin	(X)	20.1	(X)	(NA)
330017	All other tin and tin-base alloy shapes and forms	(X)	(D)	(X)	(NA)
	Precious metal and precious metal alloy, including gold, silver, and platinum:				
333952	Refined unalloyed precious metal	(X)	(D)	(X)	(NA)
330019	All other precious metal and precious metal alloy shapes and forms	(X)	(D)	(X)	(NA)
	Magnesium and magnesium-base alloy:				
333974	Ingot	(X)	–	(X)	(NA)
333930	All other magnesium and magnesium-base alloy shapes and forms	(X)	(D)	(X)	(NA)
333964	All other nonferrous shapes and forms	(X)	(D)	(X)	(NA)
	Metal mining (ores and concentrates):				
102100	Copper ores, concentrates and precipitates (gross weight) 1,000 s tons	(D)	(D)	(NA)	(NA)
103101	Lead ores and concentrates	(X)	(D)	(X)	(NA)
103103	Zinc ores and concentrates	(X)	(D)	(X)	(NA)
100005	Precious metal ores and concentrates	(X)	(D)	(X)	(NA)
100007	All other nonferrous metal ores and concentrates	(X)	27.6	(X)	(NA)
	Scrap:				
	Aluminum and aluminum-base alloy (excluding home scrap):				
190021	From other establishments of your company 1,000 s tons	(D)	(D)	(NA)	(NA)
190022	From all other sources 1,000 s tons	*2.1	1.9	(NA)	(NA)
190024	Copper and copper-base alloy 1,000 s tons	(D)	(D)	(NA)	(NA)
190025	Lead and lead-base alloy	(X)	(D)	(X)	(NA)
190026	Zinc and zinc-base alloy (including drosses and skimmings)	(X)	(D)	(X)	(NA)
190027	Tinplate (including shredded steel can scrap)	(X)	(D)	(X)	(NA)
190051	Precious metal and precious metal alloy	(X)	(D)	(X)	(NA)
190052	All other nonferrous metal and metal-base alloy scrap	(X)	(D)	(X)	(NA)
281951	Alumina (gross weight) 1,000 s tons	–	–	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	361.2	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	108.1	(X)	–

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3341, SECONDARY NONFERROUS METALS					
	Materials, ingredients, containers, and supplies		**(X)**	**4 607.5**	**(X)**	**3 169.9**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Aluminum and aluminum-base alloy:					
333471	Ingot	1,000 s tons	**116.8	104.5	65.6	86.2
330009	All other aluminum and aluminum-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Copper and copper-base alloy:					
333120	Refined unalloyed copper (cathodes, ingots, cakes, slabs, etc.) and blister or anode copper	1,000 s tons	**1.3	2.7	([3])	([3])
330012	All other copper and copper-base alloy shapes and forms		(X)	5.3	(X)	(NA)
	Lead and lead-base alloy:					
333986	Refined unalloyed lead		(X)	(D)	(X)	15.9
330015	All other lead and lead-base alloy shapes and forms		(X)	.1	(X)	(NA)
	Zinc and zinc-base alloy:					
333950	Refined unalloyed zinc	1,000 s tons	(D)	(D)	**110.4	84.1
330016	All other zinc and zinc-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Tin and tin-base alloy:					
333976	Refined unalloyed tin		(X)	22.2	(X)	25.6
330017	All other tin and tin-base alloy shapes and forms		(X)	(D)	(X)	(NA)
	Precious metal and precious metal alloy, including gold, silver, and platinum:					
333952	Refined unalloyed precious metal		(X)	(D)	(X)	(NA)
330019	All other precious metal and precious metal alloy shapes and forms		(X)	(D)	(X)	(NA)
333965	All other nonferrous shapes and forms		(X)	6.6	(X)	(NA)
	Metal mining (ores and concentrates):					
102100	Copper ores, concentrates and precipitates (gross weight)	1,000 s tons	1.1	–	(NA)	(NA)
103101	Lead ores and concentrates		(X)	–	(X)	(NA)
103103	Zinc ores and concentrates		(X)	–	(X)	(NA)
100005	Precious metal ores and concentrates		(X)	(D)	(X)	(NA)
100007	All other nonferrous metal ores and concentrates		(X)	(D)	(X)	(NA)
	Scrap:					
	Aluminum and aluminum-base alloy (excluding home scrap):					
190021	From other establishments of your company	1,000 s tons	(D)	(D)	(S)	329.9
190022	From all other sources	1,000 s tons	*1 655.6	1 273.6	*801.1	723.4
190024	Copper and copper-base alloy	1,000 s tons	**452.7	652.3	[3]429.9	[3]325.6
190025	Lead and lead-base alloy		(X)	280.9	(X)	171.0
190026	Zinc and zinc-base alloy (including drosses and skimmings)		(X)	77.4	(X)	69.9
190027	Tinplate (including shredded steel can scrap)		(X)	(D)	(X)	(NA)
190051	Precious metal and precious metal alloy		(X)	585.8	(X)	(NA)
190052	All other nonferrous metal and metal-base alloy scrap		(X)	76.7	(X)	(NA)
281951	Alumina (gross weight)	1,000 s tons	(D)	(D)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies		(X)	256.5	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	578.1	(X)	479.5

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, material codes were combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
33121 97	33121 41
33121 97	33121 81
33121 97	33121 86
3312A 17	3312A 11
3312A 17	3312A 23
3312A 26	3312A 25
3312A 26	3312A 27
3312B 62	3312B 61
3312B 62	3312B 63
3312B 66	3312B 65
3312B 66	3312B 67
33134 08	33131
33134 08	33131 00
33151 25	33151 22
33151 25	33151 51
33151 34	33151 23
33151 34	33151 33
33151 34	33151 35
33152 13	33152 12
33152 13	33152 14
33156 13	33156 15
33156 13	33156 17
33156 21	33156 22
33156 21	33156 24
33157 00	33157 21
33157 00	33157 22
33157 00	33157 23
33157 00	33157 41
33157 00	33157 42
33157 00	33157 43
33159 42	33159 41
33159 42	33159 44
33159 42	33159 45
33159 42	33159 48
33159 63	33159 61
33159 63	33159 65
33212 40	33212 32
33212 40	33212 34
33212 40	33212 39
33312 30	33312 20
33312 30	33312 23
33312 30	33312 26
33392 34	33392 31
33392 34	33392 37
33392 34	33392 39
33392 44	33392 41
33392 44	33392 43
33392 44	33392 49
33412 24	33412 17
33412 24	33412 20
33412 24	33412 23
33413 99	33413 71
33413 99	33413 98
33414 34	33414 10
33414 34	33414 14
33414 34	33414 17
33414 44	33414 20
33414 44	33414 23
33414 44	33414 26
33415 25	33415 11
33415 25	33415 81
33415 35	33415 31
33415 35	33415 71
33415 45	33415 51
33415 45	33415 89
33416 33	33416 21
33416 33	33416 61
33416 35	33416 31
33416 35	33416 69
33416 97	33416 43
33416 97	33416 99
33551 00	33551 11
33551 00	33551 51
33551 00	33551 61
33551 00	33551 65
33563 86	33563 85
33563 86	33563 87
33569 57	33569 55
33569 57	33569 59
33569 93	33562 78
33569 93	33569 91
33569 97	33569 71
33569 97	33569 98
33571 00	33571 11
33571 00	33571 51
33571 00	33571 61
33571 00	33571 65
33572 81	33572 21
33575 00	33575 17
33575 00	33575 57
33575 00	33575 65
33660 26	33660 23
33690 23	33690 21
33690 23	33690 25
33690 85	33690 98
33690 97	33690 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
33121 41	33121 97
33121 81	33121 97
33121 86	33121 97
3312A 11	3312A 17
3312A 23	3312A 17
3312A 25	3312A 26
3312A 27	3312A 26
3312B 61	3312B 62
3312B 63	3312B 62
3312B 65	3312B 66
3312B 67	3312B 66
33131	33134 08
33131 00	33134 08
33151 22	33151 25
33151 23	33151 34
33151 33	33151 34
33151 35	33151 34
33151 51	33151 25
33152 12	33152 13
33152 14	33152 13
33156 15	33156 13
33156 17	33156 13
33156 22	33156 21
33156 24	33156 21
33157 21	33157 00
33157 22	33157 00
33157 23	33157 00
33157 41	33157 00
33157 42	33157 00
33157 43	33157 00
33159 41	33159 42
33159 44	33159 42
33159 45	33159 42
33159 48	33159 42
33159 61	33159 63
33159 65	33159 63
33212 32	33212 40
33212 34	33212 40
33212 39	33212 40
33312 20	33312 30
33312 23	33312 30
33312 26	33312 30
33392 31	33392 34
33392 37	33392 34
33392 39	33392 34
33392 41	33392 44
33392 43	33392 44
33392 49	33392 44
33412 17	33412 24
33412 20	33412 24
33412 23	33412 24
33413 71	33413 99
33413 98	33413 99
33414 10	33414 34
33414 14	33414 34
33414 17	33414 34
33414 20	33414 44
33414 23	33414 44
33414 26	33414 44
33415 11	33415 25
33415 31	33415 35
33415 51	33415 45
33415 71	33415 35
33415 81	33415 25
33415 89	33415 45
33416 21	33416 33
33416 31	33416 35
33416 43	33416 97
33416 61	33416 33
33416 69	33416 35
33416 99	33416 97
33551 11	33551 00
33551 51	33551 00
33551 61	33551 00
33551 65	33551 00
33562 78	33569 93
33563 85	33563 86
33563 87	33563 86
33569 55	33569 57
33569 59	33569 57
33569 71	33569 97
33569 91	33569 93
33569 98	33569 97
33571 11	33571 00
33571 51	33571 00
33571 61	33571 00
33571 65	33571 00
33572 21	33572 81
33575 17	33575 00
33575 57	33575 00
33575 65	33575 00
33660 23	33660 26
33690 21	33690 23
33690 25	33690 23
33690 98	33690 85
33690 98	33690 97

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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TSF:TIPS92-08344482.DAT;1 1/ 6/ 95 08:34:54 UTF:TIPS93-08344482.DAT;1 1/ 6/ 95 08:34:54 META:TIPS96-08344482.DAT;1 1/ 6/ 95 08:35:28

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-33D

INDUSTRY SERIES

Nonferrous Metal Mills and Miscellaneous Primary Metal Products

Industries 3351, 3353, 3354, 3355, 3356, 3357, 3398, and 3399

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Wed Mar 29 10:06:01 1995 / pssw02/ disk2/ economic/ mc92i/ 33d/ 01cvr

1992 Census of Manufactures

MC92-I-33D

INDUSTRY SERIES

Nonferrous Metal Mills and Miscellaneous Primary Metal Products

Industries 3351, 3353, 3354, 3355, 3356, 3357, 3398, and 3399

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

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Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3351	Copper Rolling and Drawing
3353	Aluminum Sheet, Plate, and Foil
3354	Aluminum Extruded Products
3355	Aluminum Rolling and Drawing, N.E.C.
3356	Nonferrous Rolling and Drawing, N.E.C.
3357	Nonferrous Wiredrawing and Insulating
3398	Metal Heat Treating
3399	Primary Metal Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3351, COPPER ROLLING AND DRAWING

This industry is made up of establishments primarily engaged in rolling, drawing, and extruding copper, brass, bronze, and other copper base alloy basic shapes, such as plate, sheet, strip, bar, and tubing. Establishments engaged in recovering copper and its alloys from scrap or dross are classified in industry 3341.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3351, Copper Rolling and Drawing, had employment of 18.9 thousand. The employment figure was 16 percent below the 22.6 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Pennsylvania, New York, and Connecticut, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $6.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3351 shipped $5.4 billion of products considered primary to the industry, $204.1 million of secondary products, and had $376.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3351, no matter in what industry they were produced, appear in table 6a and aggregate to $5.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cooper rolling and drawing industry amounted to $4.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL

This industry is made up of establishments primarily engaged in flat rolling aluminum and aluminum-base alloy basic shapes, such as sheet, plate, and foil, including establishments producing welded tube. Also included are establishments primarily producing similar products by continuous castings.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3353, Aluminum Sheet, Plate, and Foil, had employment of 24.4 thousand. The employment figure was 7 percent below the 26.1 thousand reported in 1987.

The leading States in employment in 1992 were Alabama, Iowa, Indiana, and Tennessee, accounting for approximately 46 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $10.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3353 shipped $9.3 billion of products considered primary to the industry, $421.2 million of secondary products, and had $911.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3353, no matter in what industry they were produced, appear in table 6a and aggregate to $9.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aluminum sheets, plate, and foil industry amounted to $7.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS

This industry is made up of establishments primarily engaged in extruding aluminum and aluminum-base alloy basic shapes, such as rod and bar, pipe and tube, and tube blooms, including establishments producing tube by drawing.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3354, Aluminum Extruded Products, had employment of 25.6 thousand. The employment figure was 17 percent below the 30.7 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, California, Georgia, and Ohio. This represents a shift from 1987 when California, Indiana, Georgia, and Michigan were the leading States.

The total value of shipments for establishments classified in this industry was $3.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3354 shipped $3.4 billion of products considered primary to the industry, $212.1 million of secondary products, and had $127.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3354, no matter in what industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aluminum extruded products industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.

This industry is made up of establishments primarily engaged in rolling, drawing, and other operations resulting in the production of aluminum ingot, including extrusion ingot, and aluminum and aluminum-base alloy shapes, not elsewhere classified, such as rolled and continuous cast rod and bar. Establishments primarily engaged in producing aluminum powder, flake, and paste are classified in industry 3399, and those producing aluminum wire and cable from purchased wire bars, rods, or wire are classified in industry 3357.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3355, Aluminum Rolling and Drawing, N.E.C., had employment of 1.5 thousand. The employment figure was 67 percent above the .9 thousand reported in 1987. Compared with 1991, employment increased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New Jersey, Ohio, and Kentucky. This represents a shift from 1987 when New York, Kentucky, and California were the leading States.

The total value of shipments for establishments classified in this industry was $778.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3355 shipped $646.3 million of products considered primary to the industry.

Establishments in this industry also accounted for 60 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 42 percent.

The products primary to industry 3355, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aluminum rolling and drawing, not elsewhere classified, industry amounted to $651.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.

This industry is made up of establishments primarily engaged in rolling, drawing, and extruding nonferrous metals other than copper and aluminum. The products of this industry are in the form of basic shapes, such as plate, sheet, strip, bar, and tubing. Establishments primarily engaged in recovering nonferrous metals and alloys from scrap or dross are classified in industry 3341; those manufacturing gold, silver, tin, and other foils, except aluminum, are classified in industry 3497; and those manufacturing aluminum foil are classified in industry 3353.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3356, Nonferrous Rolling and Drawing, N.E.C., had employment of 16.0 thousand. The employment figure was 11 percent below the 17.9 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Oregon, Pennsylvania, West Virginia, and Ohio, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when Massachusetts, Ohio, Oregon, and West Virginia were the leading States.

The total value of shipments for establishments classified in this industry was $2.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3356 shipped $2.5 billion of products considered primary to the industry, $142.8 million of secondary products, and had $117.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3356, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonferrous rolling and drawing, not elsewhere classified, industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING

This industry is made up of establishments primarily engaged in drawing, drawing and insulating, and insulating wire and cable of nonferrous metals from purchased wire bars, rods, or wire. Also included are establishments primarily engaged in manufacturing insulated fiber optic cable. Establishments primarily engaged in manufacturing glass fiber optic materials are classified in industry 3229, and those manufacturing fabricated wire products from purchased wire are classified in industry 3496.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3357, Nonferrous Wiredrawing and Insulating, had employment of 60.6 thousand. The employment figure was 7 percent below the 64.9 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, North Carolina, Georgia, and Illinois, accounting for approximately 27 percent of the industry's employment. This represents a shift from 1987 when Indiana, Massachusetts, New York, and Georgia accounted for approximately 31 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $13.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3357 shipped $12.1 billion of products considered primary to the industry, $500.1 million of secondary products, and had $515.8 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3357, no matter in what industry they were produced, appear in table 6a and aggregate to $12.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonferrous wiredrawing and insulating industry amounted to $8.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3398, METAL HEAT TREATING

This industry is made up of establishments primarily engaged in the heat treating of metals for the trade.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3398, Metal Heat Treating, had employment of 17.4 thousand. The employment figure was 3 percent below the 18.0 thousand reported in 1987. Compared with 1991, employment decreased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, California, and Indiana, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Michigan, Ohio, California, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $2.0 billion.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal heat treating industry amounted to $772.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing primary metal products, not elsewhere classified, such as nonferrous nails, brads, and spikes, and metal powder, flakes, and paste.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3399, Primary Metal Products, N.E.C., had employment of 12.7 thousand. The employment figure was 8 percent below the 13.8 thousand reported in 1987. Compared with 1991, employment increased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts, Pennsylvania, New Jersey , and Ohio. This represents a shift from 1987 when Massachusetts, Pennsylvania, New Jersey, and California were the leading States.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3399 shipped $1.6 billion of products considered primary to the industry, $239.6 million of secondary products, and had $61.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3399, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the primary metal products, not elsewhere classified, industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3351, COPPER ROLLING AND DRAWING															
1992 Census	88	115	86	18.9	606.1	14.5	32.9	424.6	1 453.3	4 487.1	6 000.1	126.8	690.8	96	98
1991 ASM	(NA)	(NA)	(NA)	20.1	640.0	15.3	33.4	448.1	1 362.4	4 551.2	6 005.1	178.6	719.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.4	662.8	16.3	35.6	460.7	1 679.3	5 223.2	6 880.2	126.1	858.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.6	655.0	17.4	37.3	459.0	1 667.5	5 505.0	7 259.5	179.5	888.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	22.5	622.9	17.4	37.4	444.2	1 807.8	4 890.8	6 521.0	128.6	989.5	(NA)	(NA)
1987 Census	94	121	91	22.6	589.1	17.6	36.8	418.2	1 610.2	3 617.9	5 134.0	90.4	786.8	94	98
1986 ASM	(NA)	(NA)	(NA)	21.2	525.1	16.5	34.2	378.1	1 182.1	2 629.7	3 820.6	85.1	542.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.4	517.8	17.1	34.5	367.1	1 061.2	2 611.2	3 671.8	132.0	540.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.4	554.3	18.0	37.8	399.1	1 285.7	2 817.5	4 020.2	110.0	592.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.8	511.2	17.1	33.9	357.5	1 189.2	2 663.5	3 855.1	94.0	568.6	(NA)	(NA)
1982 Census	102	137	95	23.3	468.2	17.2	32.6	322.9	957.7	2 267.0	3 270.0	123.9	557.1	90	95
1981 ASM	(NA)	(NA)	(NA)	31.2	615.6	23.8	47.5	444.4	1 244.3	3 524.3	4 783.6	104.1	542.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	573.7	23.6	47.9	411.1	1 108.2	3 723.4	4 839.2	79.5	548.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.8	624.1	28.1	57.2	458.3	1 343.8	4 014.4	5 332.5	91.9	586.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.3	513.4	25.9	53.7	383.3	1 169.3	2 966.1	4 090.5	71.2	496.3	(NA)	(NA)
1977 Census	101	140	99	31.3	455.5	24.2	50.5	338.7	973.7	3 019.9	4 013.8	64.4	472.1	85	92
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL															
1992 Census	45	63	44	24.4	1 014.3	18.3	39.9	717.4	3 229.2	7 273.1	10 648.7	418.3	1 517.1	96	98
1991 ASM	(NA)	(NA)	(NA)	24.9	999.7	18.4	39.3	701.1	2 579.8	7 823.7	10 773.0	567.2	1 641.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	25.1	1 021.0	18.7	39.7	719.9	2 508.5	8 682.0	11 121.5	681.3	2 124.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.7	993.0	19.3	40.8	700.4	1 864.7	9 667.4	11 820.6	551.9	2 101.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.1	963.4	19.5	41.2	688.9	1 959.7	9 925.2	11 647.1	524.0	2 421.3	(NA)	(NA)
1987 Census	39	56	44	26.1	912.3	19.8	40.2	659.0	1 790.0	7 841.4	9 497.2	439.2	2 104.8	96	98
1986 ASM	(NA)	(NA)	(NA)	26.7	910.7	20.4	39.7	670.0	2 240.1	6 523.6	8 699.4	439.4	1 862.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.9	926.6	20.8	42.0	689.0	1 797.7	6 382.5	8 424.8	348.0	1 806.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.9	914.5	21.0	41.6	695.9	1 720.9	7 222.7	9 118.8	359.3	2 126.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	28.1	907.4	21.9	42.9	697.8	1 503.9	6 859.9	8 453.5	296.9	2 295.7	(NA)	(NA)
1982 Census	39	56	43	27.7	862.1	21.0	39.9	639.9	1 154.0	5 898.4	7 213.8	260.4	2 300.2	95	99
1981 ASM	(NA)	(NA)	(NA)	32.0	950.6	24.7	49.0	717.7	1 893.7	7 241.7	8 866.9	357.7	2 528.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.7	867.4	25.4	50.8	658.6	1 752.0	6 651.3	8 122.0	402.5	2 201.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.2	814.9	27.0	55.1	636.0	1 871.7	6 198.2	7 990.9	326.0	1 850.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.9	733.8	26.9	53.1	567.3	1 853.0	5 612.4	7 349.1	219.1	1 742.6	(NA)	(NA)
1977 Census	30	53	45	31.4	613.5	25.0	50.6	480.1	1 340.6	4 900.5	5 924.0	157.7	1 625.2	92	99
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS															
1992 Census	134	193	153	25.6	687.2	19.7	42.8	456.4	1 374.0	2 358.7	3 735.6	150.0	414.3	94	92
1991 ASM	(NA)	(NA)	(NA)	29.2	767.1	22.4	48.6	507.8	1 422.1	2 781.8	4 260.1	113.3	513.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.9	793.0	23.8	51.3	531.3	1 466.9	3 335.2	4 850.3	128.2	631.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.1	802.6	24.3	50.7	536.0	1 514.4	3 974.7	5 509.4	(D)	683.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	30.0	740.5	22.9	49.4	505.7	1 516.2	3 599.5	5 077.6	(D)	752.7	(NA)	(NA)
1987 Census	131	204	161	30.7	740.6	23.5	50.0	504.7	1 404.7	2 908.8	4 292.8	116.9	640.9	87	97
1986 ASM	(NA)	(NA)	(NA)	28.4	658.4	21.8	45.6	451.1	1 102.9	2 461.2	3 573.6	109.0	492.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	29.1	639.0	22.7	47.3	450.3	1 173.8	2 384.1	3 575.7	120.6	491.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	28.2	607.8	22.1	45.6	435.7	1 194.1	2 566.1	3 718.7	125.0	547.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.0	538.4	20.1	40.9	379.9	915.6	2 193.7	3 057.3	96.8	587.6	(NA)	(NA)
1982 Census	134	193	151	25.4	499.0	19.3	38.0	344.1	859.3	1 778.5	2 673.1	114.7	489.7	89	91
1981 ASM	(NA)	(NA)	(NA)	26.5	501.9	20.2	40.9	349.0	940.9	2 002.4	2 939.0	80.2	482.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.6	472.7	21.1	41.9	334.5	951.8	1 933.1	2 870.6	76.2	443.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.6	455.7	22.6	46.0	334.2	989.0	1 850.0	2 826.0	63.1	409.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.5	411.1	22.8	46.8	303.5	830.9	1 606.8	2 414.0	50.8	389.0	(NA)	(NA)
1977 Census	133	193	146	26.5	355.9	21.2	44.0	264.1	678.6	1 386.1	2 050.0	48.2	337.2	88	92
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.															
1992 Census	27	29	11	1.5	51.0	1.1	2.7	30.5	128.5	651.1	778.0	14.7	67.1	(D)	60
1991 ASM	(NA)	(NA)	(NA)	1.3	40.4	.9	2.2	21.7	90.1	479.7	569.5	3.4	49.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	.8	22.6	.6	1.2	14.6	54.6	333.1	388.3	1.9	34.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	.9	22.9	.6	1.3	15.6	50.4	326.5	374.7	(D)	39.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	.8	23.5	.6	1.4	17.0	162.7	381.8	541.1	(D)	57.5	(NA)	(NA)
1987 Census	29	29	14	.9	24.2	.6	1.4	17.0	109.3	392.6	482.3	2.8	54.8	98	[9]42
1986 ASM	(NA)	(NA)	(NA)	1.7	51.5	1.3	2.7	35.4	122.7	481.6	613.7	7.5	71.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	2.0	55.0	1.5	3.1	38.0	168.8	599.3	783.4	13.2	86.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	1.9	56.0	1.5	2.9	39.0	166.7	702.0	905.2	13.8	95.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	2.2	57.9	1.6	3.2	40.7	139.3	725.9	844.3	9.0	135.2	(NA)	(NA)
1982 Census	24	27	15	2.6	65.0	1.9	3.5	44.2	30.7	535.3	670.8	5.5	117.3	77	[9]52
1981 ASM	(NA)	(NA)	(NA)	4.9	118.3	3.7	7.3	83.1	490.6	895.4	1 323.2	23.8	380.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	111.7	3.9	7.7	80.3	545.9	982.7	1 486.8	22.8	267.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.1	107.8	3.9	7.9	78.0	383.8	934.9	1 310.6	40.0	214.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.0	94.6	3.9	7.6	69.1	239.3	934.5	1 152.5	26.8	194.2	(NA)	(NA)
1977 Census	18	22	15	4.7	78.1	3.6	6.9	56.5	222.8	754.9	1 001.0	16.1	169.5	91	[9]65
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.															
1992 Census	159	182	92	16.0	545.3	10.7	22.2	332.2	1 193.8	1 466.4	2 713.3	91.8	789.2	94	95
1991 ASM	(NA)	(NA)	(NA)	17.4	579.7	11.8	23.8	350.6	1 188.1	1 709.9	3 023.6	82.4	898.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.6	612.1	12.4	25.6	373.1	1 502.5	1 967.8	3 481.2	106.0	913.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.5	589.2	12.6	26.4	362.6	1 541.9	2 138.5	3 635.0	100.5	1 137.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.4	559.0	12.2	25.6	331.0	1 378.3	2 029.6	3 328.5	104.4	1 048.3	(NA)	(NA)
1987 Census	140	172	93	17.9	527.7	11.8	25.2	308.5	1 187.9	1 876.7	3 049.4	96.2	1 062.7	91	[9]96
1986 ASM	(NA)	(NA)	(NA)	18.3	523.0	11.9	24.0	298.7	1 137.8	1 901.5	3 008.2	74.7	1 127.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.9	508.2	11.8	23.5	285.1	1 086.4	1 920.9	3 034.4	91.7	1 111.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.2	474.4	11.4	23.2	269.5	1 009.1	2 061.0	3 103.7	91.1	958.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	18.9	466.3	12.0	22.7	260.2	1 049.8	2 299.1	3 323.8	99.3	1 064.2	(NA)	(NA)
1982 Census	144	169	91	20.0	472.2	12.6	24.0	263.7	993.3	2 293.9	3 418.3	134.4	1 070.2	94	[9]96
1981 ASM	(NA)	(NA)	(NA)	19.7	435.2	13.1	26.1	258.0	1 351.0	2 487.3	3 884.4	145.0	742.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.3	420.6	14.0	28.4	256.8	1 387.7	2 610.9	3 922.0	72.0	765.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.0	358.3	13.5	28.1	223.8	1 039.8	2 392.9	3 348.7	47.6	656.3	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.—Con.															
1978 ASM	(NA)	(NA)	(NA)	18.2	300.2	12.9	26.4	189.3	756.0	2 061.7	2 747.4	58.9	514.9	(NA)	(NA)
1977 Census	153	173	86	17.2	260.2	12.0	24.7	158.7	569.0	2 000.4	2 596.5	34.3	477.5	94	[9]93
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING															
1992 Census	379	528	354	60.6	1 724.4	44.8	94.1	1 120.3	4 867.7	8 229.1	13 106.7	364.2	1 741.8	96	98
1991 ASM	(NA)	(NA)	(NA)	57.1	1 575.2	41.9	86.3	1 027.3	4 313.1	7 307.4	11 686.4	277.9	1 601.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	60.2	1 600.8	44.6	90.1	1 037.5	4 620.7	7 995.6	12 609.4	300.3	1 707.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	64.0	1 636.8	48.5	98.7	1 080.8	4 838.1	8 589.2	13 459.9	282.1	1 726.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	64.9	1 588.6	48.6	101.7	1 065.5	4 684.7	7 968.0	12 485.4	248.2	1 781.3	(NA)	(NA)
1987 Census	341	487	355	64.9	1 504.3	48.4	99.2	1 010.1	4 229.5	6 722.3	10 826.5	243.9	1 587.9	97	[9]98
1986 ASM	(NA)	(NA)	(NA)	59.0	1 352.5	44.3	89.9	898.6	3 309.8	5 743.8	9 055.8	219.6	1 330.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	64.4	1 411.4	47.9	96.1	934.1	3 427.0	5 706.4	9 217.4	308.4	1 338.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	68.5	1 460.2	51.7	102.8	981.3	3 461.7	5 954.3	9 323.1	249.9	1 446.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	63.9	1 291.9	47.1	93.6	850.4	2 762.5	5 522.7	8 320.8	219.9	1 305.5	(NA)	(NA)
1982 Census	271	440	340	67.6	1 269.6	49.8	95.5	835.6	2 826.6	5 262.8	8 216.9	294.4	1 295.6	97	[9]95
1981 ASM	(NA)	(NA)	(NA)	66.3	1 191.4	49.9	101.2	811.1	2 977.6	5 997.8	8 888.1	293.4	1 363.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	67.5	1 125.7	51.3	103.6	768.9	2 911.1	6 006.1	8 851.8	230.8	1 266.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	68.2	1 062.2	52.3	108.5	738.3	2 822.7	5 459.1	8 165.9	177.5	1 219.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	68.0	968.7	52.2	108.1	675.9	2 421.6	4 690.9	7 060.4	164.8	1 014.1	(NA)	(NA)
1977 Census	245	421	320	66.3	876.8	50.0	101.8	603.4	2 117.6	4 493.1	6 595.4	139.8	960.7	94	[9]93
INDUSTRY 3398, METAL HEAT TREATING															
1992 Census	634	731	299	17.4	513.9	13.0	27.7	322.7	1 194.1	772.4	1 952.4	66.9	229.8	[10]	[10]
1991 ASM	(NA)	(NA)	(NA)	19.9	548.4	14.9	32.2	355.0	1 194.4	568.1	1 767.4	63.7	152.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.5	566.1	15.4	32.8	354.9	1 274.0	603.9	1 871.7	84.1	162.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.7	558.1	15.7	33.1	346.3	1 205.7	649.1	1 847.0	81.8	179.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.3	487.5	14.1	31.7	301.8	1 135.2	630.0	1 757.7	49.8	176.8	(NA)	(NA)
1987 Census	631	725	294	18.0	421.6	13.4	27.9	264.2	1 015.4	383.3	1 397.3	81.6	101.0	[10]	[10]
1986 ASM	(NA)	(NA)	(NA)	18.6	411.9	14.3	29.9	273.4	973.5	408.0	1 381.7	84.6	52.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.4	382.9	14.2	28.9	255.3	958.6	388.5	1 309.6	79.4	48.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.0	373.7	13.7	28.0	252.9	918.4	520.1	1 397.0	71.3	47.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.9	314.9	12.5	24.6	210.5	691.7	377.9	1 064.1	26.8	102.9	(NA)	(NA)
1982 Census	669	758	288	17.7	324.2	13.5	26.9	216.6	684.5	416.0	1 128.2	42.5	98.1	[10]	[10]
1981 ASM	(NA)	(NA)	(NA)	17.8	321.2	14.0	28.0	210.6	872.2	370.2	1 190.6	52.3	75.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	310.5	14.6	28.9	204.4	809.1	342.6	1 150.3	42.5	78.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.0	283.3	14.2	29.2	191.1	639.2	404.5	1 030.0	42.6	88.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.7	262.0	14.0	30.8	180.5	617.2	383.2	995.8	41.7	74.1	(NA)	(NA)
1977 Census	682	753	273	16.9	220.1	13.3	27.6	147.9	466.8	281.9	744.9	42.2	69.0	[10]	[10]
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.															
1992 Census	260	273	99	12.7	415.3	7.8	15.3	189.0	871.4	999.7	1 869.5	78.9	375.8	87	88
1991 ASM	(NA)	(NA)	(NA)	12.4	363.0	7.7	14.8	163.2	714.3	918.4	1 681.6	74.6	305.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.7	379.3	8.8	16.3	186.2	881.3	1 001.3	1 867.1	67.8	398.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.6	373.4	8.8	16.8	182.2	805.7	957.9	1 755.4	84.8	377.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.2	378.9	9.5	18.1	185.0	839.5	925.4	1 757.2	101.8	414.5	(NA)	(NA)
1987 Census	238	252	99	13.8	353.2	8.9	16.8	180.9	728.2	802.1	1 510.1	58.2	393.7	84	83
1986 ASM	(NA)	(NA)	(NA)	14.8	366.4	9.6	17.6	184.5	741.6	791.3	1 538.0	53.2	399.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	14.5	347.6	9.5	17.4	186.1	782.3	743.5	1 533.9	59.6	423.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.9	227.0	6.7	12.7	137.9	662.4	670.1	1 301.3	52.8	342.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.4	200.0	5.9	11.2	120.7	427.6	592.0	1 025.0	26.9	350.7	(NA)	(NA)
1982 Census	238	249	80	8.2	173.4	5.6	10.6	101.4	313.5	595.2	938.1	51.7	369.6	87	82
1981 ASM	(NA)	(NA)	(NA)	10.3	208.7	7.0	14.2	122.5	456.1	815.8	1 285.3	48.8	293.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.5	171.6	6.7	14.1	105.8	417.0	818.9	1 228.7	37.4	273.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.5	160.7	6.7	13.9	97.7	432.5	783.1	1 181.1	35.8	243.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.2	156.1	7.7	15.6	100.9	367.7	521.9	879.7	38.1	172.3	(NA)	(NA)
1977 Census	406	427	119	9.0	124.4	6.9	13.9	81.2	296.5	454.9	750.6	27.3	149.2	94	70

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Prior year coverage ratio for an industry with products primary to more than one industry was recalculated and confined exclusively to that industry.

[10]Relationships are not meaningful because of the predominance of miscellaneous receipts, particularly receipts of contract and commission work on materials owned by others.

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Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3351, COPPER ROLLING AND DRAWING									
1992 Census	32 069	77	2 269	12.91	75	85	76 894	42	44.17
1991 ASM	31 841	76	2 183	13.42	76	86	67 781	47	40.79
1990 ASM	30 972	76	2 184	12.94	76	86	78 472	39	47.17
1989 ASM	28 982	77	2 144	12.31	76	85	73 783	39	44.71
1988 ASM	27 684	77	2 149	11.88	75	85	80 347	34	48.34
1987 Census	26 066	78	2 091	11.36	70	82	71 248	37	43.76
1986 ASM	24 769	78	2 073	11.06	69	83	55 759	44	34.56
1985 ASM	23 116	76	2 018	10.64	71	85	47 375	49	30.76
1984 ASM	23 688	77	2 100	10.56	70	84	54 944	43	34.01
1983 ASM	22 421	75	1 982	10.55	69	82	52 158	43	35.08
1982 Census	20 094	74	1 895	9.90	69	84	41 103	49	29.38
1981 ASM	19 731	76	1 996	9.36	74	87	39 881	49	26.20
1980 ASM	18 506	76	2 030	8.58	77	89	35 748	52	23.14
1979 ASM	17 433	78	2 036	8.01	75	87	37 536	46	23.49
1978 ASM	15 417	78	2 073	7.14	73	85	35 114	44	21.77
1977 Census	14 553	77	2 087	6.71	75	87	31 109	47	19.28
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL									
1992 Census	41 570	75	2 180	17.98	68	78	132 344	31	80.93
1991 ASM	40 149	74	2 136	17.84	73	82	103 606	39	65.64
1990 ASM	40 677	75	2 123	18.13	78	87	99 940	41	63.19
1989 ASM	38 638	75	2 114	17.17	82	90	72 556	53	45.70
1988 ASM	36 912	75	2 113	16.72	85	93	75 084	49	47.57
1987 Census	34 954	76	2 030	16.39	83	92	68 582	51	44.53
1986 ASM	34 109	76	1 946	16.88	75	85	83 899	41	56.43
1985 ASM	34 446	77	2 019	16.40	76	87	66 829	52	42.80
1984 ASM	33 996	78	1 981	16.73	79	89	63 974	53	41.37
1983 ASM	32 292	78	1 959	16.27	81	92	53 520	60	35.06
1982 Census	31 123	76	1 900	16.04	82	94	41 661	75	28.92
1981 ASM	29 706	77	1 984	14.65	82	92	59 178	50	38.65
1980 ASM	26 526	78	2 000	12.96	82	93	53 578	50	34.49
1979 ASM	23 827	79	2 041	11.54	78	88	54 728	44	33.97
1978 ASM	21 646	79	1 974	10.68	76	86	54 661	40	34.90
1977 Census	19 538	80	2 024	9.49	83	93	42 694	46	26.49
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS									
1992 Census	26 844	77	2 173	10.66	63	82	53 672	50	32.10
1991 ASM	26 271	77	2 170	10.45	65	83	48 702	54	29.26
1990 ASM	25 663	77	2 155	10.36	69	85	47 472	54	28.59
1989 ASM	25 003	76	2 086	10.57	72	87	47 178	53	29.87
1988 ASM	24 683	76	2 157	10.24	71	85	50 540	49	30.69
1987 Census	24 124	77	2 128	10.09	68	85	45 756	53	28.09
1986 ASM	23 183	77	2 092	9.89	69	87	38 835	60	24.19
1985 ASM	21 959	78	2 084	9.52	67	85	40 337	54	24.82
1984 ASM	21 553	78	2 063	9.55	69	85	42 344	51	26.19
1983 ASM	20 708	77	2 035	9.29	72	89	35 215	59	22.39
1982 Census	19 646	76	1 969	9.06	67	85	33 831	58	22.61
1981 ASM	18 940	76	2 025	8.53	68	85	35 506	53	23.00
1980 ASM	17 127	76	1 986	7.98	67	84	34 486	50	22.72
1979 ASM	15 934	79	2 035	7.27	65	82	34 580	46	21.50
1978 ASM	14 425	80	2 053	6.49	67	84	29 154	49	17.75
1977 Census	13 430	80	2 075	6.00	68	85	25 608	52	15.42
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.									
1992 Census	34 000	73	2 455	11.30	84	90	85 667	40	47.59
1991 ASM	31 077	69	2 444	9.86	84	91	69 308	45	40.95
1990 ASM	28 250	75	2 000	12.17	86	92	68 250	41	45.50
1989 ASM	25 444	67	2 167	12.00	87	93	56 000	45	38.77
1988 ASM	29 375	75	2 333	12.14	71	75	203 375	14	116.21
1987 Census	26 889	67	2 333	12.14	81	86	121 444	22	78.07
1986 ASM	30 294	76	2 077	13.11	78	87	72 176	42	45.44
1985 ASM	27 500	75	2 067	12.26	76	84	84 400	33	54.45
1984 ASM	29 474	79	1 933	13.45	78	84	87 737	34	57.48
1983 ASM	26 318	73	2 000	12.72	86	93	63 318	42	43.53
1982 Census	25 000	73	1 842	12.63	80	89	11 808	212	8.77
1981 ASM	24 143	76	1 973	11.38	68	77	100 122	24	67.21
1980 ASM	21 902	76	1 974	10.43	66	74	107 039	20	70.90
1979 ASM	21 137	76	2 026	9.87	71	80	75 255	28	48.58
1978 ASM	18 920	78	1 949	9.09	81	89	47 860	40	31.49
1977 Census	16 617	77	1 917	8.19	75	83	47 404	35	32.29
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.									
1992 Census	34 081	67	2 075	14.96	54	74	74 613	46	53.77
1991 ASM	33 316	68	2 017	14.73	57	76	68 282	49	49.92
1990 ASM	32 909	67	2 065	14.57	57	74	80 780	41	58.69
1989 ASM	31 849	68	2 095	13.73	59	75	83 346	38	58.41
1988 ASM	30 380	66	2 098	12.93	61	78	74 908	41	53.84
1987 Census	29 480	66	2 136	12.24	62	79	66 363	44	47.14
1986 ASM	28 579	65	2 017	12.45	63	81	62 175	46	47.41
1985 ASM	26 889	62	1 992	12.13	63	80	57 481	47	46.23
1984 ASM	26 066	63	2 035	11.62	66	82	55 445	47	43.50
1983 ASM	24 672	63	1 892	11.46	69	83	55 545	44	46.25
1982 Census	23 610	63	1 905	10.99	67	81	49 665	48	41.39
1981 ASM	22 091	66	1 992	9.89	64	75	68 579	32	51.76
1980 ASM	20 719	69	2 029	9.04	67	77	68 360	30	48.86
1979 ASM	18 858	71	2 081	7.96	71	82	54 726	34	37.00
1978 ASM	16 495	71	2 047	7.17	75	86	41 538	40	28.64
1977 Census	15 128	70	2 058	6.43	77	87	33 081	46	23.04

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING								
1992 Census	28 455	74	2 100	11.91	63	76	80 325	35	51.73
1991 ASM	27 587	73	2 060	11.90	63	76	75 536	37	49.98
1990 ASM	26 591	74	2 020	11.51	63	76	76 756	35	51.28
1989 ASM	25 575	76	2 035	10.95	64	76	75 595	34	49.02
1988 ASM	24 478	75	2 093	10.48	64	77	72 183	34	46.06
1987 Census	23 179	75	2 050	10.18	62	76	65 169	36	42.64
1986 ASM	22 924	75	2 029	10.00	63	78	56 098	41	36.82
1985 ASM	21 916	74	2 006	9.72	62	77	53 214	41	35.66
1984 ASM	21 317	75	1 988	9.55	64	80	50 536	42	33.67
1983 ASM	20 218	74	1 987	9.09	66	82	43 232	47	29.51
1982 Census	18 781	74	1 918	8.75	64	79	41 814	45	29.60
1981 ASM	17 970	75	2 028	8.01	67	81	44 911	40	29.42
1980 ASM	16 677	76	2 019	7.42	68	81	43 127	39	28.10
1979 ASM	15 575	77	2 075	6.80	67	80	41 389	38	26.02
1978 ASM	14 246	77	2 071	6.25	66	80	35 612	40	22.40
1977 Census	13 225	75	2 036	5.93	68	81	31 940	41	20.80
	INDUSTRY 3398, METAL HEAT TREATING								
1992 Census	29 534	75	2 131	11.65	40	66	68 626	43	43.11
1991 ASM	27 558	75	2 161	11.02	32	63	60 020	46	37.09
1990 ASM	27 615	75	2 130	10.82	32	63	62 146	44	38.84
1989 ASM	26 961	76	2 108	10.46	35	65	58 246	46	36.43
1988 ASM	25 259	73	2 248	9.52	36	64	58 819	43	35.81
1987 Census	23 422	74	2 082	9.47	27	58	56 411	42	36.39
1986 ASM	22 145	77	2 091	9.14	30	59	52 339	42	32.56
1985 ASM	20 810	77	2 035	8.83	30	59	52 098	40	33.17
1984 ASM	20 761	76	2 044	9.03	37	64	51 022	41	32.80
1983 ASM	18 633	74	1 968	8.56	36	65	40 929	46	28.12
1982 Census	18 316	76	1 993	8.05	37	66	38 672	47	25.45
1981 ASM	18 045	79	2 000	7.52	31	58	49 000	37	31.15
1980 ASM	16 604	78	1 979	7.07	30	57	43 267	38	28.00
1979 ASM	15 739	79	2 056	6.54	39	67	35 511	44	21.89
1978 ASM	14 802	79	2 200	5.86	38	65	34 870	42	20.04
1977 Census	13 024	79	2 075	5.36	38	67	27 621	47	16.91
	INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.								
1992 Census	32 701	61	1 962	12.35	53	76	68 614	48	56.95
1991 ASM	29 274	62	1 922	11.03	55	76	57 605	51	48.26
1990 ASM	27 686	64	1 852	11.42	54	74	64 328	43	54.07
1989 ASM	27 456	65	1 909	10.85	55	76	59 243	46	47.96
1988 ASM	26 683	67	1 905	10.22	53	74	59 120	45	46.38
1987 Census	25 594	64	1 888	10.77	53	77	52 768	49	43.35
1986 ASM	24 757	65	1 833	10.48	51	75	50 108	49	42.14
1985 ASM	23 972	66	1 832	10.70	48	71	53 952	44	44.96
1984 ASM	22 929	68	1 896	10.86	51	69	66 909	34	52.16
1983 ASM	23 810	70	1 898	10.78	58	77	50 905	47	38.18
1982 Census	21 146	68	1 893	9.57	63	82	38 232	55	29.58
1981 ASM	20 262	68	2 029	8.63	63	80	44 282	46	32.12
1980 ASM	18 063	71	2 104	7.50	67	81	43 895	41	29.57
1979 ASM	16 916	71	2 075	7.03	66	80	45 526	37	31.12
1978 ASM	15 304	75	2 026	6.47	59	77	36 049	42	23.57
1977 Census	13 822	77	2 014	5.84	61	77	32 944	42	21.33

Note: For qualifications of data, see footnotes on table 1a.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/ 9/ 95 8:36 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:33D_92.DAT;5 5/ 3/ 95 10:30:41 UTF:33D_93.DAT;7 5/ 9/ 95 08:31:49 META:TIPS96-08350379.DAT;1 5/ 9/ 95 08:36:11

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3351, COPPER ROLLING AND DRAWING														
United States	–	**115**	**86**	**18.9**	**606.1**	**14.5**	**32.9**	**424.6**	**1 453.3**	**4 487.1**	**6 000.1**	**126.8**	**22.6**	**1 610.2**
Alabama	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Connecticut	–	12	9	1.2	41.8	.9	1.9	27.8	104.5	171.3	274.6	5.5	1.9	107.7
Georgia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	8	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	7	6	.3	9.3	.3	.5	6.5	23.8	27.2	50.2	1.3	E	(D)
Michigan	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	57.6
Mississippi	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	6	5	.6	15.7	.5	2.0	11.1	30.0	51.9	80.1	.8	G	(D)
New York	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	5	5	.8	27.1	.5	1.2	16.8	83.5	242.8	324.7	6.8	1.3	126.0
Oklahoma	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	12	11	2.7	84.7	1.9	4.0	55.3	155.1	409.5	574.9	9.7	3.0	186.9
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Utah	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	5	4	1.2	42.2	.9	2.1	29.2	84.9	128.0	216.1	4.8	G	(D)
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL														
United States	–	**63**	**44**	**24.4**	**1 014.3**	**18.3**	**39.9**	**717.4**	**3 229.2**	**7 273.1**	**10 648.7**	**418.3**	**26.1**	**1 790.0**
Alabama	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	9	3	.6	17.2	.4	.9	11.8	55.9	126.3	183.6	3.8	.6	59.8
Colorado	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Indiana	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	17.0
New Jersey	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	5	5	1.4	55.5	1.0	2.0	35.9	127.2	471.5	607.7	(D)	G	(D)
Pennsylvania	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	4	4	2.1	89.3	1.6	3.7	70.5	472.2	716.6	1 215.4	(D)	(NA)	(D)
Texas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
West Virginia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS														
United States	–	**193**	**153**	**25.6**	**687.2**	**19.7**	**42.8**	**456.4**	**1 374.0**	**2 358.7**	**3 735.6**	**150.0**	**30.7**	**1 404.7**
Alabama	E1	3	3	.4	8.5	.3	.5	5.0	19.6	32.9	51.8	(D)	(NA)	(D)
Arizona	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	30	21	2.3	69.7	1.8	3.9	46.7	120.7	250.3	372.1	6.6	4.4	183.0
Connecticut	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	6	5	1.1	26.5	.9	2.2	18.8	49.1	113.0	161.1	12.4	1.2	66.0
Georgia	–	9	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	6	5	1.0	24.8	.8	1.6	16.7	44.3	71.4	114.8	5.2	G	(D)
Indiana	–	15	12	2.4	69.5	1.9	3.7	48.0	167.5	231.2	409.1	5.7	(NA)	(D)
Kentucky	–	2	2	.5	14.9	.4	1.2	10.8	29.0	43.2	71.5	1.2	E	(D)
Louisiana	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	3	3	.1	3.1	.1	.2	2.6	4.3	11.2	15.6	(D)	E	(D)
Michigan	–	16	13	1.6	50.9	1.1	2.4	30.6	92.8	105.8	198.6	8.9	2.6	92.6
Minnesota	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
Missouri	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E2	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	1.3	65.6
New York	–	6	5	1.5	47.7	1.1	2.6	34.1	103.2	155.7	258.3	(D)	G	(D)
North Carolina	–	7	7	.9	20.6	.7	1.7	12.8	11.7	135.7	145.7	3.7	F	(D)
Ohio	E1	21	19	2.0	51.1	1.6	3.6	34.6	115.4	182.5	298.0	6.6	2.3	101.1
Oregon	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	7	5	1.4	42.7	1.1	2.3	29.1	99.0	160.6	254.1	(D)	G	(D)
South Carolina	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E2	5	4	1.0	23.8	.8	1.6	16.1	61.7	115.4	179.5	2.1	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/ 9/ 95 8:36 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:33D_92.DAT;5 5/ 3/ 95 10:30:41 UTF:33D_93.DAT;7 5/ 9/ 95 08:31:49 META:TIPS96-08350379.DAT;1 5/ 9/ 95 08:36:11

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS—Con.														
Texas	–	11	6	1.1	30.3	.8	1.6	16.4	71.2	117.8	188.5	1.5	G	(D)
Utah	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.														
United States	**–**	**29**	**11**	**1.5**	**51.0**	**1.1**	**2.7**	**30.5**	**128.5**	**651.1**	**778.0**	**14.7**	**.9**	**109.3**
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.														
United States	**–**	**182**	**92**	**16.0**	**545.3**	**10.7**	**22.2**	**332.2**	**1 193.8**	**1 466.4**	**2 713.3**	**91.8**	**17.9**	**1 187.9**
Alabama	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	10	3	.2	4.6	.1	.2	2.4	12.1	21.6	33.9	.6	(NA)	(D)
Connecticut	–	9	4	.7	25.9	.3	.8	13.3	49.9	54.2	107.6	1.7	.7	45.3
Florida	E1	9	1	.1	3.1	.1	.2	1.7	11.2	12.5	24.6	.8	(NA)	(NA)
Illinois	–	9	4	.8	23.9	.6	1.1	14.9	51.6	64.9	115.8	1.7	E	(D)
Indiana	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	G	(D)
Michigan	E2	13	7	.4	12.4	.3	.7	7.8	26.7	53.4	79.5	2.2	E	(D)
Nevada	E2	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	14	8	.8	30.3	.5	1.0	15.7	64.9	77.1	144.0	(D)	.9	63.1
New York	E4	13	7	.8	27.3	.5	1.0	17.1	55.3	101.5	152.6	(D)	G	(D)
North Carolina	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	12	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.8	G	(D)
Oregon	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E1	22	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.8	G	(D)
Rhode Island	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E1	4	3	.3	9.7	.2	.5	5.8	29.2	41.1	70.1	(D)	(NA)	(D)
Texas	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	(NA)	(NA)
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E4	5	4	.6	23.7	.4	.9	12.1	56.3	64.0	121.7	(D)	E	(D)
West Virginia	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING														
United States	**E1**	**528**	**354**	**60.6**	**1 724.4**	**44.8**	**94.1**	**1 120.3**	**4 867.7**	**8 229.1**	**13 106.7**	**364.2**	**64.9**	**4 229.5**
Alabama	–	6	4	.6	13.5	.5	.9	9.3	34.1	147.6	183.8	(D)	.6	74.8
Arizona	E2	9	5	2.1	69.9	1.6	3.1	55.4	180.0	291.2	429.0	(D)	(NA)	(D)
Arkansas	E1	12	11	2.1	49.1	1.8	4.0	36.6	156.9	364.5	527.2	7.4	G	(D)
California	E3	60	27	2.9	72.2	2.1	4.1	44.4	134.5	302.3	439.7	10.8	3.3	194.7
Colorado	E3	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	34	20	3.2	95.7	2.0	4.3	52.6	197.1	339.2	542.5	15.5	3.9	209.9
Delaware	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E4	8	3	.4	8.7	.3	.5	4.7	11.8	32.1	46.1	(D)	(NA)	(D)
Georgia	–	14	11	4.1	147.1	3.2	6.5	109.1	587.4	683.7	1 260.8	(D)	4.8	595.7
Illinois	E1	34	21	3.6	116.1	2.4	5.2	59.7	255.8	416.6	677.2	15.2	3.2	208.9
Indiana	–	27	23	4.6	129.7	3.5	7.4	91.6	433.4	863.6	1 302.8	21.6	5.3	341.3
Kansas	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	11	10	1.9	54.3	1.5	3.2	38.8	208.9	352.9	565.7	14.4	G	(D)
Louisiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E4	46	35	3.5	111.9	2.5	5.3	67.4	247.9	357.6	606.1	10.0	5.1	261.0
Michigan	E4	10	6	.7	17.1	.6	1.1	12.2	42.5	44.7	87.5	(D)	1.0	63.8
Mississippi	E2	6	6	.9	21.7	.7	1.4	15.0	89.7	139.9	241.0	(D)	.9	61.6
Missouri	–	5	5	.6	15.4	.4	.8	9.5	54.9	189.2	244.6	3.7	F	(D)
Nebraska	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	E2	13	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E2	23	17	2.0	61.7	1.3	2.7	33.1	143.6	182.2	327.7	7.2	3.0	173.6
New York	E1	40	25	3.1	86.5	2.3	5.1	54.3	183.0	436.7	622.8	12.5	4.9	208.6
North Carolina	–	21	17	4.3	108.4	3.4	7.4	74.3	384.6	598.0	975.7	36.6	3.0	206.6
Ohio	E1	21	12	1.2	39.0	.9	2.1	25.4	91.3	176.4	272.7	6.6	G	(D)
Oklahoma	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING—Con.														
Oregon	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E2	19	16	2.7	66.1	2.1	4.4	43.0	179.5	336.0	518.0	18.7	2.3	127.4
Rhode Island	E2	8	7	2.7	66.9	2.1	4.0	45.9	192.8	275.4	497.2	4.3	4.1	176.6
South Carolina	–	6	6	1.7	45.1	1.3	2.8	28.2	106.8	196.4	304.3	18.9	G	(D)
Tennessee	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E3	33	23	3.5	85.0	2.5	5.2	51.2	225.5	406.1	625.6	12.0	(NA)	(D)
Utah	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Vermont	E3	7	4	.7	17.7	.5	1.3	10.4	51.4	52.2	103.1	(D)	.7	25.5
Virginia	–	7	5	1.2	34.2	.9	1.8	21.5	97.2	120.6	209.6	5.7	G	(D)
Washington	E9	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E1	3	2	.2	4.8	.1	.2	2.5	9.5	18.1	27.7	.6	(NA)	(NA)
INDUSTRY 3398, METAL HEAT TREATING														
United States	**E1**	**731**	**299**	**17.4**	**513.9**	**13.0**	**27.7**	**322.7**	**1 194.1**	**772.4**	**1 952.4**	**66.9**	**18.0**	**1 015.4**
Alabama	–	6	2	.2	5.3	.2	.3	3.9	7.9	21.6	33.1	(D)	(NA)	(NA)
Arizona	–	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	79	35	1.7	49.7	1.3	2.8	31.6	101.5	32.0	134.4	5.4	2.0	106.1
Connecticut	E1	33	11	.7	22.3	.5	1.1	13.5	48.5	33.4	82.3	(D)	F	(D)
Florida	–	7	3	.1	4.0	.1	.3	2.9	8.1	2.6	10.9	(D)	(NA)	(NA)
Illinois	E2	47	24	1.3	34.2	1.0	2.1	22.4	80.3	49.9	129.2	5.4	G	(D)
Indiana	–	39	19	1.4	47.9	.9	1.8	24.1	163.3	117.1	280.0	6.6	F	(D)
Kentucky	E8	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	21	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	105	50	2.9	89.3	2.1	4.6	56.5	209.3	63.2	271.7	10.2	3.3	185.2
Minnesota	–	12	8	.3	9.2	.2	.5	6.0	17.9	5.4	23.1	(D)	F	(D)
Missouri	–	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E3	20	8	.4	12.8	.3	.7	7.6	29.5	9.8	39.3	1.1	F	(D)
New York	–	28	11	.4	12.8	.3	.7	7.6	32.9	8.0	41.0	2.3	1.4	130.9
North Carolina	E6	16	2	.3	7.7	.2	.5	4.4	19.3	8.8	28.4	1.1	(NA)	(D)
Ohio	–	87	33	2.5	69.6	1.9	4.0	46.2	104.1	210.9	312.5	10.1	2.1	115.5
Oklahoma	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Oregon	–	7	1	.1	3.3	.1	.2	2.1	9.2	2.3	11.2	.3	(NA)	(NA)
Pennsylvania	–	46	14	1.1	34.9	.8	1.6	22.1	83.9	107.8	188.6	3.8	.6	24.7
Tennessee	–	12	5	.2	5.7	.2	.4	3.6	17.0	3.9	20.8	(D)	.2	10.8
Texas	E2	52	21	1.2	30.7	.9	1.8	19.3	77.9	31.1	108.0	2.0	F	(D)
Wisconsin	E1	28	16	.7	21.1	.5	1.1	12.9	47.5	12.3	58.3	(D)	F	(D)
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.														
United States	**E1**	**273**	**99**	**12.7**	**415.3**	**7.8**	**15.3**	**189.0**	**871.4**	**999.7**	**1 869.5**	**78.9**	**13.8**	**728.2**
Alabama	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E3	24	7	.4	12.2	.2	.5	4.6	28.3	27.6	55.6	1.7	F	(D)
Connecticut	–	9	2	.2	5.7	.1	.3	3.8	11.3	6.4	17.3	(D)	(NA)	(D)
Illinois	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	E1	12	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E7	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	10	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	E2	21	7	.4	10.1	.2	.5	5.5	13.1	20.8	34.9	.8	.4	20.1
Minnesota	–	6	2	.1	2.9	.1	.2	1.9	3.1	11.0	14.3	(D)	(NA)	(NA)
Mississippi	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E9	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	17	8	.8	29.6	.5	.9	14.1	71.7	100.9	171.1	13.1	F	(D)
New York	–	16	8	.5	17.7	.3	.7	9.8	62.8	124.4	185.4	8.1	F	(D)
North Carolina	–	6	4	.4	9.8	.3	.5	5.1	37.9	47.6	84.4	.7	(NA)	(NA)
Ohio	E4	18	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.4	F	(D)
Pennsylvania	–	35	15	2.2	73.9	1.5	3.1	40.2	133.9	203.9	343.4	13.4	2.1	72.8
Tennessee	E2	7	2	.2	5.1	.1	.3	2.6	7.2	20.5	27.3	(D)	.5	18.8
Texas	–	12	3	.2	6.7	.2	.3	4.2	40.7	26.9	67.3	.5	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)	Aluminum sheet, plate, and foil (SIC 3353)	Aluminum extruded products (SIC 3354)	Aluminum rolling and drawing, n.e.c. (SIC 3355)	Nonferrous rolling and drawing, n.e.c. (SIC 3356)	Nonferrous wire-drawing and insulating (SIC 3357)	Metal heat treating (SIC 3398)	Primary metal products, n.e.c. (SIC 3399)
Companies ---- number	88	45	134	27	159	379	634	260
All establishments ---- number	115	63	193	29	182	528	731	273
With 1 to 19 employees ---- number	29	19	40	18	90	174	432	174
With 20 to 99 employees ---- number	38	7	68	8	58	169	278	79
With 100 employees or more ---- number	48	37	85	3	34	185	21	20
Employment and labor costs:								
Employees ---- 1,000	18.9	24.4	25.6	1.5	16.0	60.6	17.4	12.7
Compensation, total ---- mil dol	803.8	1 373.2	899.1	60.9	703.9	2 239.4	624.9	531.5
Annual payroll ---- mil dol	606.1	1 014.3	687.2	51.0	545.3	1 724.4	513.9	415.3
Fringe benefits ---- mil dol	197.7	358.9	211.9	9.9	158.6	515.0	111.0	116.1
Social Security and other legally required payments ---- mil dol	72.8	97.1	80.1	5.4	57.9	189.0	56.5	46.0
Employer voluntary payments ---- mil dol	124.8	261.8	131.8	4.5	100.7	326.1	54.4	70.1
Production workers:								
Average for year ---- 1,000	14.5	18.3	19.7	1.1	10.7	44.8	13.0	7.8
March ---- 1,000	14.3	18.3	19.3	1.1	10.9	44.7	13.1	7.8
May ---- 1,000	14.3	18.4	19.8	1.1	10.8	44.5	13.2	7.9
August ---- 1,000	14.8	18.3	20.1	1.1	10.6	44.8	13.0	7.9
November ---- 1,000	14.6	18.1	19.7	1.1	10.6	45.1	12.7	7.7
Hours ---- millions	32.9	39.9	42.8	2.7	22.2	94.1	27.7	15.3
Wages ---- mil dol	424.6	717.4	456.4	30.5	332.2	1 120.3	322.7	189.0
Cost of materials[1] ---- mil dol	4 487.1	7 273.1	2 358.7	651.1	1 466.4	8 229.1	772.4	999.7
Materials, parts, containers, etc., consumed[2] ---- mil dol	4 252.7	6 590.2	2 135.4	628.0	1 280.3	7 747.2	602.4	864.8
Resales ---- mil dol	51.7	(D)	28.7	(D)	36.1	250.8	3.2	38.8
Fuels ---- mil dol	46.2	143.9	64.8	6.9	30.0	39.4	59.4	19.0
Purchased electricity ---- mil dol	105.2	179.6	72.6	8.7	62.7	161.3	75.1	47.2
Contract work ---- mil dol	31.2	(D)	57.3	(D)	57.2	30.3	32.3	29.9
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	2 073.9	4 587.7	1 297.4	163.2	1 351.1	2 776.8	1 115.3	769.9
Generated less sold ---- mil kWh	–	–	–	–	(D)	(D)	–	–
Total value of shipments ---- mil dol	6 000.1	10 648.7	3 735.6	778.0	2 713.3	13 106.7	1 952.4	1 869.5
Value added ---- mil dol	1 453.3	3 229.2	1 374.0	128.5	1 193.8	4 867.7	1 194.1	871.4
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	708.0	1 670.6	416.0	62.1	858.9	1 756.8	215.8	364.4
Finished goods ---- mil dol	155.6	422.3	87.8	31.8	125.2	806.6	58.5	109.2
Work in process ---- mil dol	379.9	914.1	126.1	18.8	484.2	503.9	55.0	135.9
Materials and supplies ---- mil dol	172.6	334.3	202.2	11.4	249.5	446.4	102.3	119.3
End of 1992 ---- mil dol	690.8	1 517.1	414.3	67.1	789.2	1 741.8	229.8	375.8
Finished goods ---- mil dol	145.9	359.2	86.6	36.8	107.8	831.9	63.5	121.1
Work in process ---- mil dol	329.8	830.8	124.3	15.5	448.5	468.8	64.2	125.7
Materials and supplies ---- mil dol	215.1	327.1	203.4	14.9	232.9	441.1	102.1	129.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)	Aluminum sheet, plate, and foil (SIC 3353)	Aluminum extruded products (SIC 3354)	Aluminum rolling and drawing, n.e.c. (SIC 3355)	Nonferrous rolling and drawing, n.e.c. (SIC 3356)	Nonferrous wire-drawing and insulating (SIC 3357)	Metal heat treating (SIC 3398)	Primary metal products, n.e.c. (SIC 3399)
Gross book value of depreciable assets:								
Total:								
Beginning of year	1 796.5	7 234.7	1 543.4	136.5	1 584.4	4 179.9	1 102.3	1 066.7
New capital expenditures[1]	126.8	418.3	150.0	14.7	91.8	364.2	66.9	78.9
Used capital expenditures	(D)	(D)	8.1	.7	5.4	45.9	10.2	6.7
Retirements	(D)	(D)	26.6	.7	28.3	105.5	18.5	27.2
End of year	1 947.8	7 552.4	1 674.9	151.3	1 653.3	4 484.6	1 160.9	1 125.0
Buildings and other structures:								
Beginning of year	290.3	1 217.5	343.5	28.8	303.8	891.1	202.8	273.2
New capital expenditures	15.0	46.0	27.3	1.7	11.1	52.0	8.3	13.4
Used capital expenditures	(D)	(D)	.7	.1	3.0	2.8	1.0	.6
Retirements	(D)	(D)	1.4	(Z)	.4	13.3	1.2	1.9
End of year	313.4	1 213.1	370.2	30.6	317.4	932.5	210.9	285.3
Machinery and equipment:								
Beginning of year	1 506.2	6 017.2	1 199.9	107.7	1 280.6	3 288.9	899.5	793.4
New capital expenditures[1]	111.7	372.3	122.7	13.0	80.7	312.2	58.6	65.5
Used capital expenditures	(D)	(D)	7.3	.6	2.4	43.1	9.2	6.1
Retirements	(D)	(D)	25.2	.7	27.9	92.1	17.2	25.3
End of year	1 634.5	6 339.3	1 304.7	120.6	1 335.9	3 552.1	950.1	839.7
Depreciation charges during 1992:								
Total	97.2	384.3	142.3	8.4	82.2	265.4	69.0	158.2
Buildings and other structures	10.7	41.4	27.3	.9	9.9	34.7	8.9	57.6
Machinery and equipment	86.5	342.9	115.1	7.4	72.2	230.7	60.1	100.5
Rental payments:								
Total	23.3	21.6	19.4	2.7	14.6	73.4	26.9	18.3
Buildings and other structures	11.9	6.3	8.0	2.2	8.4	46.7	14.3	9.3
Machinery and equipment	11.4	15.3	11.4	.4	6.2	26.6	12.6	9.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)		Aluminum sheet, plate, and foil (SIC 3353)		Aluminum extruded products (SIC 3354)		Aluminum rolling and drawing, n.e.c. (SIC 3355)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	10.4	(X)	25.0	(X)	4.4	(X)	.2	(X)
Response coverage ratio (percent)[2]	95.2	(X)	97.1	(X)	86.8	(X)	72.4	(X)
Machinery	64.8	(X)	180.5	(X)	54.4	(X)	2.4	(X)
Response coverage ratio (percent)[2]	96.7	(X)	99.4	(X)	92.8	(X)	72.4	(X)
Other purchased services:								
Communications	6.6	(X)	6.8	(X)	7.1	(X)	.3	(X)
Response coverage ratio (percent)[2]	91.8	(X)	82.9	(X)	91.8	(X)	72.4	(X)
Legal	5.7	(X)	9.2	(X)	2.5	(X)	.5	(X)
Response coverage ratio (percent)[2]	97.4	(X)	81.6	(X)	91.1	(X)	72.4	(X)
Accounting and bookkeeping	2.8	(X)	2.4	(X)	3.2	(X)	.1	(X)
Response coverage ratio (percent)[2]	86.1	(X)	83.2	(X)	90.7	(X)	72.4	(X)
Advertising	1.2	(X)	.3	(X)	2.0	(X)	(Z)	(X)
Response coverage ratio (percent)[2]	92.8	(X)	79.3	(X)	91.1	(X)	72.4	(X)
Software and other data processing	1.8	(X)	6.9	(X)	2.4	(X)	.1	(X)
Response coverage ratio (percent)[2]	95.6	(X)	86.6	(X)	94.9	(X)	72.4	(X)
Refuse removal, including hazardous waste	11.9	(X)	14.6	(X)	5.5	(X)	.2	(X)
Response coverage ratio (percent)[2]	90.2	(X)	99.4	(X)	94.9	(X)	72.4	(X)
New machinery and equipment expenditures	111.7	(X)	372.3	(X)	122.7	(X)	13.0	(X)
Automobiles, trucks, etc., for highway use	1.7	16	1.6	1	1.6	33	(S)	(X)
Computers and peripheral data processing equipment	4.7	6	18.1	1	4.6	4	(S)	(X)
All other	105.3	1	352.6	1	116.5	1	(S)	(X)
Adjustment ratio[3]	.9	(X)	1.0	(X)	1.2	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	4 252.7	(X)	6 590.2	(X)	2 135.4	(X)	628.0	(X)
Materials purchased or transferred from foreign sources[4]	354.4	10	1 335.2	2	221.4	6	42.6	3
Materials purchased or transferred from domestic sources	3 898.3	1	5 255.0	1	1 914.0	1	585.4	1
Adjustment ratio[3]	1.4	(X)	1.7	(X)	1.3	(X)	1.3	(X)

Item	Nonferrous rolling and drawing, n.e.c. (SIC 3356)		Nonferrous wiredrawing and insulating (SIC 3357)		Metal heat treating (SIC 3398)		Primary metal products, n.e.c. (SIC 3399)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	4.3	(X)	11.0	(X)	6.7	(X)	2.0	(X)
Response coverage ratio (percent)[2]	81.0	(X)	68.3	(X)	82.9	(X)	87.7	(X)
Machinery	24.8	(X)	59.3	(X)	39.8	(X)	13.1	(X)
Response coverage ratio (percent)[2]	85.6	(X)	69.9	(X)	82.9	(X)	87.5	(X)
Other purchased services:								
Communications	5.4	(X)	13.8	(X)	3.9	(X)	3.8	(X)
Response coverage ratio (percent)[2]	86.5	(X)	68.9	(X)	80.0	(X)	88.2	(X)
Legal	4.3	(X)	5.5	(X)	5.8	(X)	4.5	(X)
Response coverage ratio (percent)[2]	85.6	(X)	65.1	(X)	82.9	(X)	84.8	(X)
Accounting and bookkeeping	2.9	(X)	7.4	(X)	4.2	(X)	.9	(X)
Response coverage ratio (percent)[2]	84.7	(X)	63.2	(X)	79.8	(X)	87.6	(X)
Advertising	5.1	(X)	6.9	(X)	2.0	(X)	2.7	(X)
Response coverage ratio (percent)[2]	85.6	(X)	64.3	(X)	80.4	(X)	87.7	(X)
Software and other data processing	7.1	(X)	11.0	(X)	1.6	(X)	1.0	(X)
Response coverage ratio (percent)[2]	85.1	(X)	64.8	(X)	81.9	(X)	88.2	(X)
Refuse removal, including hazardous waste	8.9	(X)	10.3	(X)	4.5	(X)	2.1	(X)
Response coverage ratio (percent)[2]	87.4	(X)	70.5	(X)	82.9	(X)	87.5	(X)
New machinery and equipment expenditures	80.7	(X)	312.2	(X)	58.6	(X)	65.5	(X)
Automobiles, trucks, etc., for highway use	.3	4	2.7	12	4.4	38	.1	54
Computers and peripheral data processing equipment	7.9	3	11.3	6	1.9	19	1.3	26
All other	72.5	1	298.2	1	52.3	5	64.1	1
Adjustment ratio[3]	1.3	(X)	1.3	(X)	1.5	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 280.3	(X)	7 747.2	(X)	602.4	(X)	864.8	(X)
Materials purchased or transferred from foreign sources[4]	141.4	5	463.8	5	59.4	13	65.2	26
Materials purchased or transferred from domestic sources	1 138.9	1	7 283.4	1	543.0	2	799.7	3
Adjustment ratio[3]	1.6	(X)	1.9	(X)	1.9	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3351, COPPER ROLLING AND DRAWING												
Total	**–**	**115**	**18.9**	**606.1**	**14.5**	**32.9**	**424.6**	**1 453.3**	**4 487.1**	**6 000.1**	**126.8**	**690.8**
Establishments with an average of—												
1 to 4 employees	E9	13	(Z)	.4	(Z)	(Z)	.3	.8	2.7	3.5	.1	.4
5 to 9 employees	E6	11	.1	2.3	.1	.1	1.5	4.3	10.8	15.8	2.3	1.8
10 to 19 employees	E7	5	.1	1.7	(Z)	.1	1.0	5.2	5.5	10.5	(D)	.9
20 to 49 employees	E1	23	.8	23.4	.6	1.2	14.5	52.0	132.0	184.9	2.4	26.3
50 to 99 employees	–	15	1.1	32.2	.8	1.8	23.0	110.0	206.0	314.3	11.5	31.4
100 to 249 employees	–	24	3.9	126.5	2.9	6.3	84.3	362.1	1 322.2	1 686.6	40.1	135.7
250 to 499 employees	–	16	5.7	174.0	4.5	10.7	123.4	294.1	1 581.3	1 928.3	27.8	212.9
500 to 999 employees	–	7	7.3	245.5	5.6	12.6	176.6	624.8	1 226.5	1 856.2	42.6	281.3
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	13	(Z)	.8	(Z)	(Z)	.6	.9	3.2	4.1	.1	.5
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL												
Total	**–**	**63**	**24.4**	**1 014.3**	**18.3**	**39.9**	**717.4**	**3 229.2**	**7 273.1**	**10 648.7**	**418.3**	**1 517.1**
Establishments with an average of—												
1 to 4 employees	E2	12	(Z)	.6	(Z)	(Z)	.5	1.2	5.3	6.5	.4	1.3
5 to 9 employees	–	3	(Z)	.8	(Z)	(Z)	.6	2.0	5.7	7.7	.8	1.5
10 to 19 employees	–	4	.1	2.1	(Z)	.1	1.2	3.6	20.9	24.1	(D)	3.0
20 to 49 employees	–	4	.2	5.5	.1	.2	3.5	15.2	37.0	51.5	2.1	7.4
50 to 99 employees	–	3	.2	8.3	.2	.4	5.7	26.9	113.2	140.7	4.4	12.4
100 to 249 employees	–	14	2.4	92.2	1.8	3.7	62.4	229.7	771.8	1 000.9	26.8	101.6
250 to 499 employees	–	9	2.9	99.2	2.3	4.9	73.5	268.5	665.1	947.9	27.7	167.0
500 to 999 employees	–	7	5.5	237.4	3.9	8.3	161.3	744.2	2 066.4	2 810.2	122.5	362.2
1,000 to 2,499 employees	–	5	13.1	568.0	9.9	22.3	408.7	1 938.0	3 587.7	5 659.3	233.5	860.8
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	11	(Z)	.5	(Z)	(Z)	.4	1.0	4.2	5.2	.3	1.0
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS												
Total	**–**	**193**	**25.6**	**687.2**	**19.7**	**42.8**	**456.4**	**1 374.0**	**2 358.7**	**3 735.6**	**150.0**	**414.3**
Establishments with an average of—												
1 to 4 employees	E9	20	(Z)	.8	(Z)	.1	.5	1.4	2.9	4.3	.1	.6
5 to 9 employees	E8	9	.1	1.4	(Z)	.1	1.0	2.5	5.2	7.6	.2	1.0
10 to 19 employees	E3	11	.2	4.1	.1	.2	2.3	10.4	19.8	30.3	.4	2.9
20 to 49 employees	E2	29	1.0	25.6	.7	1.4	14.7	50.5	105.9	155.9	5.3	15.4
50 to 99 employees	–	39	2.7	63.4	2.0	4.4	41.8	83.1	256.0	338.5	7.6	40.9
100 to 249 employees	–	52	8.7	231.4	6.5	14.4	147.5	446.6	838.7	1 285.0	40.4	121.5
250 to 499 employees	–	29	13.0	360.5	10.3	22.1	248.7	779.5	1 130.3	1 914.0	56.3	232.1
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	39.7	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	26	.1	1.7	.1	.1	1.2	2.9	6.0	8.9	.2	1.2
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.												
Total	**–**	**29**	**1.5**	**51.0**	**1.1**	**2.7**	**30.5**	**128.5**	**651.1**	**778.0**	**14.7**	**67.1**
Establishments with an average of—												
1 to 4 employees	E9	6	(Z)	.3	(Z)	(Z)	.2	.9	4.0	4.8	.6	.9
5 to 9 employees	E7	9	.1	1.5	(Z)	.1	.8	3.1	12.6	15.7	1.9	2.7
10 to 19 employees	E9	3	(Z)	.9	(Z)	(Z)	.5	3.1	14.2	17.3	2.2	3.2
20 to 49 employees	E3	4	.1	3.0	.1	.2	2.2	11.5	46.8	54.9	2.9	9.3
50 to 99 employees	E2	4	.3	9.0	.2	.5	6.4	22.1	49.1	70.7	(D)	9.8
100 to 249 employees	–	1	1.0	36.3	.7	1.9	20.3	87.8	524.4	614.6	7.3	41.3
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	5	(Z)	.4	(Z)	(Z)	.2	.6	2.6	3.2	.4	.6
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.												
Total	**–**	**182**	**16.0**	**545.3**	**10.7**	**22.2**	**332.2**	**1 193.8**	**1 466.4**	**2 713.3**	**91.8**	**789.2**
Establishments with an average of—												
1 to 4 employees	E9	39	.1	2.7	.1	.1	1.7	7.1	7.8	15.0	.5	3.8
5 to 9 employees	E7	20	.2	4.0	.1	.2	2.5	8.7	9.3	18.1	.7	4.1
10 to 19 employees	E1	31	.5	12.9	.3	.7	7.7	34.5	46.4	80.5	2.2	18.0
20 to 49 employees	E3	34	1.2	33.6	.8	1.6	18.0	73.1	142.5	216.8	7.1	34.5
50 to 99 employees	–	24	1.7	50.5	1.2	2.5	29.7	99.2	202.5	308.6	6.6	68.5
100 to 249 employees	E2	15	2.4	76.2	1.5	3.2	40.3	176.1	203.1	394.7	8.5	60.9
250 to 499 employees	–	14	5.1	179.7	3.6	7.6	111.3	379.3	508.0	901.6	41.1	318.7
500 to 999 employees	–	3	5.0	185.7	3.2	6.4	120.9	415.9	346.8	777.9	25.2	280.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	45	.2	4.4	.1	.2	2.7	9.7	10.6	20.3	.7	5.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING												
Total	**E1**	**528**	**60.6**	**1 724.4**	**44.8**	**94.1**	**1 120.3**	**4 867.7**	**8 229.1**	**13 106.7**	**364.2**	**1 741.8**
Establishments with an average of—												
1 to 4 employees	E7	76	.1	3.4	.1	.2	2.1	11.0	15.6	25.4	.5	4.5
5 to 9 employees	E5	46	.3	8.2	.2	.4	4.9	19.8	29.0	48.3	1.7	6.3
10 to 19 employees	E3	52	.8	20.5	.5	1.0	11.0	55.1	69.1	124.9	1.8	13.6
20 to 49 employees	E1	79	2.6	68.5	1.8	3.9	38.3	198.7	302.9	502.6	8.7	68.2
50 to 99 employees	E1	90	6.5	172.5	4.7	9.9	104.1	491.0	840.9	1 332.3	36.1	166.3
100 to 249 employees	E2	113	17.9	492.8	13.4	28.5	321.1	1 275.0	2 889.7	4 172.3	105.2	553.4
250 to 499 employees	E1	57	18.3	481.9	13.7	28.4	317.7	1 283.6	2 523.5	3 848.3	92.6	544.9
500 to 999 employees	–	10	6.5	196.9	4.8	9.9	136.3	561.1	798.3	1 363.9	117.6	165.8
1,000 to 2,499 employees	–	4	7.6	279.7	5.5	11.8	184.7	972.3	760.2	1 688.6	(D)	218.8
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	77	.2	4.3	.1	.3	2.8	9.9	17.7	27.6	.6	3.7
INDUSTRY 3398, METAL HEAT TREATING												
Total	**E1**	**731**	**17.4**	**513.9**	**13.0**	**27.7**	**322.7**	**1 194.1**	**772.4**	**1 952.4**	**66.9**	**229.8**
Establishments with an average of—												
1 to 4 employees	E8	127	.3	7.8	.2	.5	5.0	20.0	7.1	27.2	1.1	2.2
5 to 9 employees	E3	129	.9	23.6	.7	1.5	15.4	55.2	17.2	72.4	2.9	5.0
10 to 19 employees	E1	176	2.5	68.9	1.8	4.0	41.5	156.3	44.2	200.6	6.5	17.3
20 to 49 employees	–	219	6.6	190.1	4.9	10.6	119.8	434.6	134.5	567.8	26.4	50.8
50 to 99 employees	E2	59	3.9	113.3	2.9	6.3	73.1	269.1	126.8	384.6	16.3	59.3
100 to 249 employees	E2	17	2.1	62.1	1.7	3.4	42.0	146.0	107.1	256.3	13.8	35.3
250 to 499 employees	–	4	1.2	48.1	.8	1.4	26.0	112.8	335.6	443.5	(D)	59.9
Covered by administrative records[2]	E9	158	.5	12.7	.4	.8	7.9	30.5	9.9	40.4	1.9	3.2
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.												
Total	**E1**	**273**	**12.7**	**415.3**	**7.8**	**15.3**	**189.0**	**871.4**	**999.7**	**1 869.5**	**78.9**	**375.8**
Establishments with an average of—												
1 to 4 employees	E9	110	.1	4.2	.1	.2	2.0	7.6	9.2	16.7	.7	3.8
5 to 9 employees	E4	27	.2	5.1	.1	.2	2.6	11.0	12.7	24.0	1.3	4.1
10 to 19 employees	E2	37	.5	15.0	.3	.7	7.7	37.6	60.4	97.8	4.0	17.8
20 to 49 employees	–	43	1.3	38.2	.9	1.8	20.6	102.5	126.5	229.0	7.5	39.5
50 to 99 employees	E1	36	2.4	80.3	1.6	3.3	41.0	189.8	234.6	424.3	15.0	78.9
100 to 249 employees	E1	15	2.0	70.6	1.3	2.5	35.0	212.2	304.7	511.4	13.6	97.7
250 to 499 employees	E3	3	6.1	202.0	3.6	6.7	80.2	310.7	251.5	566.2	36.7	134.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	107	.2	5.5	.1	.3	2.7	9.6	11.7	21.3	.9	4.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3351	**Copper rolling and drawing:**										
	All establishments in industry	115	18.9	606.1	14.5	32.9	424.6	1 453.3	4 487.1	6 000.1	126.8
	Establishments with this product class primary:										
33511	Copper wire, bare and tinned (nonelectrical)	11	1.4	38.4	1.1	3.1	27.1	96.0	122.9	215.6	2.5
33513	Copper and copper-base alloy rod, bar, and shapes	20	4.2	129.8	3.1	6.9	89.2	270.7	2 066.9	2 378.4	30.0
33514	Copper and copper-base alloy sheet, strip, and plate	25	7.4	265.2	5.5	12.6	183.2	624.7	1 149.7	1 778.6	43.6
33515	Copper and copper-base alloy pipe and tube	26	5.5	159.8	4.5	9.5	116.8	435.3	1 087.6	1 541.2	46.9
3353	**Aluminum sheet, plate, and foil:**										
	All establishments in industry	63	24.4	1 014.3	18.3	39.9	717.4	3 229.2	7 273.1	10 648.7	418.3
	Establishments with this product class primary:										
33531	Aluminum plate (thickness of 0.25 inches or more) (including continuous cast)	12	.1	3.1	.1	.2	2.2	7.5	26.7	34.3	2.1
33532	Aluminum sheet and strip (including continuous cast)	41	22.2	929.8	16.6	36.6	658.7	3 015.8	6 731.3	9 882.7	392.9
33533	Plain aluminum foil	10	2.2	81.4	1.6	3.2	56.5	205.9	515.1	731.7	23.3
3354	**Aluminum extruded products:**										
	All establishments in industry	193	25.6	687.2	19.7	42.8	456.4	1 374.0	2 358.7	3 735.6	150.0
	Establishments with this product class primary:										
33541	Extruded aluminum rod, bar, and other extruded shapes	122	21.2	574.8	16.1	34.7	375.3	1 182.4	1 987.2	3 176.7	123.0
33542	Extruded and drawn aluminum tube	20	3.3	86.7	2.7	6.1	63.4	178.0	251.2	427.1	24.6
3355	**Aluminum rolling and drawing, n.e.c.:**										
	All establishments in industry	29	1.5	51.0	1.1	2.7	30.5	128.5	651.1	778.0	14.7
	Establishments with this product class primary:										
33551	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in aluminum rolling mills)	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33552	Rolled aluminum rod, bar (including continuous cast)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33553	Aluminum ingot (produced in aluminum rolling mills)	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33554	Aluminum extrusion billet (produced in aluminum rolling mills)	4	.4	15.4	.3	.6	10.7	27.7	105.0	131.1	(D)
3356	**Nonferrous rolling and drawing, n.e.c.:**										
	All establishments in industry	182	16.0	545.3	10.7	22.2	332.2	1 193.8	1 466.4	2 713.3	91.8
	Establishments with this product class primary:										
33561	Nickel and nickel-base alloy mill shapes (including nickel-copper alloys)	13	4.3	153.7	2.9	6.0	103.8	365.7	369.9	754.8	26.2
33562	Titanium and titanium-base alloy mill shapes (excluding wire)	10	2.4	83.4	1.6	3.2	47.3	189.7	234.0	427.1	27.4
33563	Precious metal mill shapes	19	2.5	83.6	1.6	3.5	48.3	183.5	357.8	552.6	14.9
33569	All other nonferrous metal mill shapes	50	5.7	192.2	3.8	7.9	113.2	380.4	427.6	825.7	18.9
3357	**Nonferrous wiredrawing and insulating:**										
	All establishments in industry	528	60.6	1 724.4	44.8	94.1	1 120.3	4 867.7	8 229.1	13 106.7	364.2
	Establishments with this product class primary:										
33571	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in nonferrous wiredrawing plants)	13	1.3	36.1	1.0	2.3	24.6	100.6	273.6	378.5	9.2
33572	Copper and copper-base alloy wire, strand, and cable, (for electrical transmission)	24	3.2	84.4	2.4	5.5	57.9	164.2	414.6	586.5	(D)
33573	Other bare nonferrous metal wire, made in nonferrous wiredrawing plants	9	.8	25.8	.7	1.5	19.7	70.7	57.5	128.8	(D)
33576	Apparatus wire and cord and flexible cord sets	32	5.3	114.5	4.3	8.6	79.1	313.7	444.1	764.7	12.9
33577	Magnet wire	32	4.5	139.6	3.4	7.2	94.0	349.9	909.7	1 254.3	44.8
33578	Power wire and cable	35	5.5	168.6	4.0	8.2	106.9	411.2	887.0	1 288.1	26.1
33579	Fiber optic cable	20	5.3	193.5	4.0	8.0	135.7	786.1	662.8	1 437.9	99.8
3357A	Electronic wire and cable	90	12.0	345.9	8.2	18.4	192.9	923.2	907.9	1 850.9	39.6
3357B	Telephone and telegraph wire and cable	24	7.0	215.5	5.4	11.2	154.7	595.0	929.5	1 482.6	45.9
3357C	Control and signal wire and cable	17	1.9	52.4	1.2	2.6	28.6	124.6	153.7	284.2	12.0
3357D	Building wire and cable	30	6.5	167.3	4.9	9.8	116.6	511.1	1 867.6	2 408.4	23.7
3357E	Other wire and cable, n.e.c.	35	4.0	98.9	2.8	5.8	58.5	302.6	427.8	736.8	18.1
3398	**Metal heat treating:**										
	All establishments in industry	731	17.4	513.9	13.0	27.7	322.7	1 194.1	772.4	1 952.4	66.9
3399	**Primary metal products, n.e.c.:**										
	All establishments in industry	273	12.7	415.3	7.8	15.3	189.0	871.4	999.7	1 869.5	78.9
	Establishments with this product class primary:										
33991	Metal powders, paste, and flakes	85	4.6	155.5	2.8	5.7	75.6	456.3	597.4	1 050.5	40.2
33992	Primary metal products, n.e.c.	29	6.7	217.2	4.1	7.7	91.3	330.4	308.2	641.6	31.9

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3351, COPPER ROLLING AND DRAWING			
Total value of shipments	6 000.1	5 134.0	3 270.0
Primary products value of shipments	5 419.1	4 595.9	2 796.4
Secondary products value of shipments	204.1	308.8	319.4
Total miscellaneous receipts	376.9	229.3	154.2
Value of resales	56.1	(D)	23.9
Contract receipts	262.6	179.4	(D)
Other miscellaneous receipts	58.2	(D)	(D)
Primary products specialization ratio	96	94	90
Value of primary products shipments made in all industries	5 501.6	4 667.9	2 941.6
Value of primary products shipments made in this industry	5 419.1	4 595.9	2 796.4
Value of primary products shipments made in other industries	82.5	72.0	145.1
Coverage ratio	98	98	95
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL			
Total value of shipments	10 648.7	9 497.2	7 213.8
Primary products value of shipments	9 316.1	8 842.3	6 425.0
Secondary products value of shipments	421.2	411.3	348.9
Total miscellaneous receipts	911.4	243.6	439.9
Value of resales	(D)	24.8	(D)
Contract receipts	(D)	43.2	(D)
Other miscellaneous receipts	96.2	175.6	(NA)
Primary products specialization ratio	96	96	95
Value of primary products shipments made in all industries	9 486.2	9 051.9	6 519.7
Value of primary products shipments made in this industry	9 316.1	8 842.3	6 425.0
Value of primary products shipments made in other industries	170.1	209.6	94.7
Coverage ratio	98	98	99
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS			
Total value of shipments	3 735.6	4 292.8	2 673.1
Primary products value of shipments	3 396.2	3 676.4	2 319.2
Secondary products value of shipments	212.1	531.1	291.1
Total miscellaneous receipts	127.3	85.3	62.8
Value of resales	30.5	37.4	18.1
Contract receipts	34.7	24.1	11.6
Other miscellaneous receipts	62.1	23.8	33.1
Primary products specialization ratio	94	87	89
Value of primary products shipments made in all industries	3 708.3	3 781.9	2 550.5
Value of primary products shipments made in this industry	3 396.2	3 676.4	2 319.2
Value of primary products shipments made in other industries	312.0	105.5	231.3
Coverage ratio	92	97	91
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.			
Total value of shipments	778.0	482.3	670.8
Primary products value of shipments	646.3	463.1	506.1
Secondary products value of shipments	(D)	9.6	151.8
Total miscellaneous receipts	(D)	9.7	12.8
Value of resales	(D)	.5	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	98	77
Value of primary products shipments made in all industries	1 078.0	1 099.4	975.0
Value of primary products shipments made in this industry	646.3	463.1	506.1
Value of primary products shipments made in other industries	431.8	636.3	468.9
Coverage ratio	60	42	52
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.			
Total value of shipments	2 713.3	3 049.4	3 418.3
Primary products value of shipments	2 453.0	2 685.3	3 157.1
Secondary products value of shipments	142.8	276.3	197.2
Total miscellaneous receipts	117.5	87.7	64.0
Value of resales	41.8	30.0	12.8
Contract receipts	52.1	36.8	3.8
Other miscellaneous receipts	23.6	20.8	47.4
Primary products specialization ratio	94	91	94
Value of primary products shipments made in all industries	2 592.5	2 810.5	3 305.0
Value of primary products shipments made in this industry	2 453.0	2 685.3	3 041.0
Value of primary products shipments made in other industries	139.5	125.2	147.9
Coverage ratio	95	96	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING			
Total value of shipments	13 106.7	10 826.5	8 216.9
Primary products value of shipments	12 090.7	10 156.2	7 753.4
Secondary products value of shipments	500.1	359.5	272.3
Total miscellaneous receipts	515.8	310.8	198.8
Value of resales	307.8	182.1	86.1
Contract receipts	114.8	63.6	20.5
Other miscellaneous receipts	93.3	65.0	92.2
Primary products specialization ratio	96	97	97
Value of primary products shipments made in all industries	12 300.1	10 341.1	8 188.1
Value of primary products shipments made in this industry	12 090.7	10 156.2	7 753.4
Value of primary products shipments made in other industries	209.4	184.9	434.7
Coverage ratio	98	98	95
INDUSTRY 3398, METAL HEAT TREATING			
Total value of shipments	1 952.4	1 397.3	1 128.2
Primary products value of shipments	1 814.3	1 318.0	1 073.8
Secondary products value of shipments	51.5	21.6	11.6
Total miscellaneous receipts	86.6	57.7	42.7
Value of resales	5.4	9.8	33.8
Contract receipts	33.4	42.2	4.9
Other miscellaneous receipts	47.8	5.8	4.0
Primary products specialization ratio	(NA)	(NA)	(NA)
Value of primary products shipments made in all industries	1 879.3	1 387.0	1 105.9
Value of primary products shipments made in this industry	1 814.3	1 318.0	1 073.8
Value of primary products shipments made in other industries	65.0	69.0	32.1
Coverage ratio	(NA)	(NA)	(NA)
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.			
Total value of shipments	1 869.5	1 510.1	938.1
Primary products value of shipments	1 567.9	1 215.4	784.3
Secondary products value of shipments	239.6	239.6	116.8
Total miscellaneous receipts	61.9	55.0	36.9
Value of resales	44.2	38.7	12.9
Contract receipts	15.7	13.0	17.5
Other miscellaneous receipts	2.1	3.3	6.5
Primary products specialization ratio	87	84	87
Value of primary products shipments made in all industries	1 790.1	1 467.9	959.0
Value of primary products shipments made in this industry	1 567.9	1 215.4	784.3
Value of primary products shipments made in other industries	222.2	252.5	174.6
Coverage ratio	88	83	82

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3351– —	**COPPER ROLLING AND DRAWING**								
	Total	**(NA)**	**(X)**	**(X)**	**5 501.6**	**(NA)**	**(X)**	**(X)**	**4 667.9**
33511	Copper wire, bare and tinned (nonelectrical)	(NA)	(X)	(X)	227.9	(NA)	(X)	(X)	326.4
33511 11	Unalloyed, 1,000 s tons	10	(S)	139.5	105.1	11	76.6	74.9	184.0
33511 31	Alloyed, 1,000 s tons	16	32.7	30.1	116.1	18	46.0	40.6	119.5
33511 00	Copper wire, bare and tinned (nonelectrical), n.s.k.	(NA)	(X)	(X)	6.8	(NA)	(X)	(X)	22.9
33513	Copper and copper-base alloy rod, bar, and shapes	(NA)	(X)	(X)	2 312.1	(NA)	(X)	(X)	1 915.4
33513 11	Unalloyed (except electric rod), 1,000 s tons	9	1 091.6	957.5	829.9	14	989.8	850.5	1 088.8
33513 32	Alloyed (except electric rod), 1,000 s tons	22	1 329.4	*729.6	1 482.1	25	506.5	494.5	819.9
33513 00	Copper and copper-base alloy rod, bar, and shapes, n.s.k.	(NA)	(X)	(X)	.2	(NA)	(X)	(X)	6.7
33514	Copper and copper-base alloy sheet, strip, and plate	(NA)	(X)	(X)	1 352.3	(NA)	(X)	(X)	1 017.5
33514 13	Unalloyed, 1,000 s tons	9	182.2	180.1	316.4	10	157.4	144.9	293.8
33514 35	Alloyed (including military cups and discs, net weight), 1,000 s tons	24	368.7	364.6	1 033.1	20	428.5	368.3	708.8
33514 00	Copper and copper-base alloy sheet, strip, and plate, n.s.k.	(NA)	(X)	(X)	2.7	(NA)	(X)	(X)	14.9
33515	Copper and copper-base alloy pipe and tube	(NA)	(X)	(X)	1 534.7	(NA)	(X)	(X)	1 264.0
	Unalloyed:								
33515 16	Pipe and tube, plumbing, 1,000 s tons	7	**192.4	243.7	770.2	8	299.5	302.3	716.6
33515 18	Other pipe and tube, 1,000 s tons	12	104.5	156.6	336.6	10	212.6	211.9	313.2
	Alloyed:								
33515 36	Pipe and tube, plumbing, 1,000 s tons	4	(S)	(S)	424.8	(NA)	50.1	53.7	170.1
33515 38	Other pipe and tube, 1,000 s tons	17							
33515 00	Copper and copper-base alloy pipe and tube, n.s.k.	(NA)	(X)	(X)	3.0	(NA)	(X)	(X)	64.0
33510	Copper rolling and drawing, n.s.k.	(NA)	(X)	(X)	74.6	(NA)	(X)	(X)	144.5
33510 00	Copper rolling and drawing, n.s.k.[3]	(NA)	(X)	(X)	70.7	(NA)	(X)	(X)	127.6
33510 02	Copper rolling and drawing, n.s.k.[4]	(NA)	(X)	(X)	3.9	(NA)	(X)	(X)	17.0
3353– —	**ALUMINUM SHEET, PLATE, AND FOIL**								
	Total	**(NA)**	**(X)**	**(X)**	**9 486.2**	**(NA)**	**(X)**	**(X)**	**9 051.9**
33531	Aluminum plate (thickness of 0.25 inches or more) (including continuous cast)	(NA)	(X)	(X)	579.8	(NA)	(X)	(X)	433.7
33531 13	Heat-treatable, 1,000 s tons	8	87.7	86.6	421.4	4	96.1	82.0	274.0
33531 15	Nonheat-treatable, 1,000 s tons	13	49.2	46.7	158.4	7	43.0	51.6	148.5
33531 00	Aluminum plate (thickness of 0.25 inches or more) (including continuous cast), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	11.2
33532	Aluminum sheet and strip (including continuous cast)	(NA)	(X)	(X)	8 213.5	(NA)	(X)	(X)	7 998.3
33532 23	Flat, heat-treatable, 1,000 s tons	10	66.8	63.1	191.0	5	71.2	66.4	189.3
33532 25	Flat, nonheat-treatable, bare and precoated, 1,000 s tons	11	*122.9	123.9	313.3	7	99.5	111.4	254.8
33532 27	Coiled, heat-treatable, 1,000 s tons	14	705.6	703.4	1 316.7	11	982.2	648.2	1 219.8
33532 31	Coiled, nonheat-treatable, bare, 1,000 s tons	23	4 699.7	2 410.0	4 529.7	17	2 999.7	2 822.7	5 093.2
33532 33	Coiled, nonheat-treatable, precoated (including only permanent finishes such as enameling and vinyl coatings), 1,000 s tons	18	*726.9	754.5	1 862.8	13	569.3	613.6	1 193.9
33532 00	Aluminum sheet and strip (including continuous cast), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	47.4
33533	Plain aluminum foil	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	546.6
33533 00	Plain aluminum foil (less than .006 inches thick), 1,000 s tons	12	[5]338.5	[5]*335.1	[5]692.9	14	256.7	249.0	546.6
33534	Aluminum welded tube	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	40.8
33534 00	Aluminum welded tube, 1,000 s tons	4	([5])	([5])	([5])	6	(S)	(S)	40.8
33530	Aluminum sheet, plate, and foil, n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	32.5
33530 00	Aluminum sheet, plate, and foil, n.s.k.[6]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	28.8
33530 02	Aluminum sheet, plate, and foil, n.s.k.[7]	(NA)	(X)	(X)	–	(NA)	(X)	(X)	3.7

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3354– —	**ALUMINUM EXTRUDED PRODUCTS**								
	Total	**(NA)**	**(X)**	**(X)**	**3 708.3**	**(NA)**	**(X)**	**(X)**	**3 781.9**
33541	Extruded aluminum rod, bar, and other extruded shapes	(NA)	(X)	(X)	2 971.6	(NA)	(X)	(X)	3 038.6
	Rod and bar:								
33541 15	Alloys other than 2000 and 7000 series, 1,000 s tons	27	**243.6	*240.7	476.0	22	196.1	196.6	522.7
33541 18	Alloys in 2000 and 7000 series, 1,000 s tons	9	*97.2	95.1	187.9	11	188.2	183.0	399.9
	Other extruded shapes (except tube):								
33541 25	Alloys other than 2000 and 7000 series, 1,000 s tons	68	*996.4	*984.9	2 027.2	52	725.3	740.9	1 561.6
33541 28	Alloys in 2000 and 7000 series, 1,000 s tons	11	43.0	43.0	213.8	10	112.4	113.4	394.3
33541 00	Extruded aluminum rod, bar, and other extruded shapes, n.s.k.	(NA)	(X)	(X)	66.7	(NA)	(X)	(X)	160.1
33542	Extruded and drawn aluminum tube	(NA)	(X)	(X)	538.8	(NA)	(X)	(X)	472.7
33542 61	Alloys other than 2000 and 7000 series, 1,000 s tons	34	*157.1	154.6	409.3	25	190.3	*152.7	385.0
33542 63	Alloys in 2000 and 7000 series, 1,000 s tons	11	34.2	32.1	128.6	5	(S)	(S)	67.7
33542 00	Extruded and drawn aluminum tube, n.s.k.	(NA)	(X)	(X)	1.0	(NA)	(X)	(X)	20.0
33540	Aluminum extruded products, n.s.k.	(NA)	(X)	(X)	197.9	(NA)	(X)	(X)	270.6
33540 00	Aluminum extruded products, n.s.k.[8]	(NA)	(X)	(X)	189.0	(NA)	(X)	(X)	256.8
33540 02	Aluminum extruded products, n.s.k.[9]	(NA)	(X)	(X)	8.9	(NA)	(X)	(X)	13.7
3355– —	**ALUMINUM ROLLING AND DRAWING, N.E.C.**								
	Total	**(NA)**	**(X)**	**(X)**	**1 078.0**	**(NA)**	**(X)**	**(X)**	**1 099.4**
33551	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in aluminum rolling mills)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	111.4
33551 00	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (including ACSR) [10], 1,000 s tons	5	(D)	(D)	(D)	(NA)	(NA)	(NA)	111.4
33552	Rolled aluminum rod, bar (including continuous cast)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	326.6
33552 22	Rolled, 1,000 s tons	5	81.7	76.5	130.3	(NA)	190.1	161.5	257.4
33552 25	Continuous cast, 1,000 s tons	1	(D)	(D)	(D)				
33552 00	Rolled aluminum rod, bar (including continuous cast), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	69.2
33553	Aluminum ingot (produced in aluminum rolling mills)	(NA)	(X)	(X)	413.2	(NA)	(X)	(X)	322.5
33553 00	Ingot, excluding billet, 1,000 s tons	10	(S)	(S)	413.2	12	1 492.0	232.1	322.5
33554	Aluminum extrusion billet (produced in aluminum rolling mills)	(NA)	(X)	(X)	152.4	(NA)	(X)	(X)	281.9
33554 00	Extrusion ingot (billet), 1,000 s tons	13	*296.6	187.8	152.4	16	(S)	(S)	281.9
33550	Aluminum rolling and drawing, n.e.c., n.s.k.	(NA)	(X)	(X)	53.1	(NA)	(X)	(X)	57.0
33550 00	Aluminum rolling and drawing, n.e.c., n.s.k.[3]	(NA)	(X)	(X)	49.9	(NA)	(X)	(X)	43.9
33550 02	Aluminum rolling and drawing, n.e.c., n.s.k.[4]	(NA)	(X)	(X)	3.2	(NA)	(X)	(X)	13.1
3356– —	**NONFERROUS ROLLING AND DRAWING, N.E.C.**								
	Total	**(NA)**	**(X)**	**(X)**	**2 592.5**	**(NA)**	**(X)**	**(X)**	**2 810.5**
33561	Nickel and nickel-base alloy mill shapes (including nickel-copper alloys)	(NA)	(X)	(X)	682.3	(NA)	(X)	(X)	627.0
33561 61	Plate, sheet, and strip (excluding nickel-copper alloys), 1,000 s tons	11	111.9	17.7	242.8	10	(D)	(D)	(D)
33561 64	Other nickel shapes (excluding nickel-copper alloys and wire), 1,000 s tons	10	(S)	22.8	379.6	10	37.7	40.2	336.6
33561 65	Nickel-copper alloys, all shapes and forms (except wire), 1,000 s tons	7	101.5	1.7	21.7	9	(D)	(D)	(D)
33561 66	Nickel and nickel alloy wire, 1,000 s tons	6	(S)	3.5	38.1	8	1.3	1.3	17.1
33561 00	Nickel and nickel-base alloy mill shapes (including nickel-copper alloys), n.s.k.	(NA)	(X)	(X)	–	(NA)	(X)	(X)	6.5
33562	Titanium and titanium-base alloy mill shapes (excluding wire)	(NA)	(X)	(X)	501.6	(NA)	(X)	(X)	484.4
33562 72	Ingot, 1,000 s tons	6	14.9	14.8	124.9	6	18.3	18.0	142.2
33562 74	Forging and extrusion ingot (billet), 1,000 s tons	6	*11.4	9.6	145.7	6	(S)	(S)	116.0
33562 79	Other, including sheet, plate, tubing, bar, etc., 1,000 s tons	15	9.7	6.2	221.1	12	(S)	(S)	199.0
33562 00	Titanium and titanium-base alloy mill shapes (excluding wire), n.s.k.	(NA)	(X)	(X)	9.9	(NA)	(X)	(X)	27.3

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3356– —	**NONFERROUS ROLLING AND DRAWING, N.E.C.**—Con.								
33563	Precious metal mill shapes	(NA)	(X)	(X)	532.2	(NA)	(X)	(X)	843.8
33563 81	Gold (excluding wire) 1,000 troy ounces	9	(S)	(S)	125.0	9	(S)	(S)	381.8
33563 83	Silver (excluding wire) 1,000 troy ounces	8	(S)	(S)	121.8	10	(D)	(D)	(D)
33563 86	Other, including platinum-group metals (excluding wire)[10] 1,000 troy ounces	5	(S)	(S)	76.0	(NA)	(D)	(D)	(D)
33563 91	Precious metal wire 1,000 troy ounces	9	(S)	(S)	81.2	12	(S)	(S)	143.9
33563 00	Precious metal mill shapes, n.s.k.	(NA)	(X)	(X)	128.2	(NA)	(X)	(X)	43.3
33569	All other nonferrous metal mill shapes	(NA)	(X)	(X)	735.6	(NA)	(X)	(X)	678.5
33569 34	Magnesium and magnesium-base alloy mill shapes (excluding wire) 1,000 s tons	7	24.6	20.9	73.3	3	(D)	(D)	(D)
	Lead and lead-base alloy mill shapes (excluding wire):								
33569 51	Plate, sheet, and strip 1,000 s tons	4	(S)	11.6	10.5	8	15.8	16.4	16.1
33569 57	Other rolled, drawn, or extruded products, including pipe, tubing, traps, and bends[10] 1,000 s tons	13	(S)	(S)	66.2	(NA)	25.4	24.8	60.3
33569 94	Tungsten and tungsten-base alloy mill shapes (excluding wire) 1,000 s tons	4	(S)	(S)	7.0	7	(S)	(S)	16.3
33569 96	Molybdenum and molybdenum-base alloy mill shapes (excluding wire) 1,000 s tons	4	(S)	(S)	24.0	7	(S)	(S)	21.9
33569 97	Other nonferrous metals, rolled, drawn, and extruded shapes, including zinc (excluding wire)[10] 1,000 s tons	26	(S)	(S)	322.6	(NA)	(D)	(D)	(D)
33569 93	Other nonferrous wire (except copper, aluminum, nickel, and precious metals) [10] 1,000 s tons	15	(S)	(S)	169.7	(NA)	11.9	5.7	35.6
33569 00	All other nonferrous metal mill shapes, n.s.k.	(NA)	(X)	(X)	62.3	(NA)	(X)	(X)	98.9
33560	Nonferrous rolling and drawing, n.e.c., n.s.k.	(NA)	(X)	(X)	140.7	(NA)	(X)	(X)	176.7
33560 00	Nonferrous rolling and drawing, n.e.c., n.s.k.[11]	(NA)	(X)	(X)	120.5	(NA)	(X)	(X)	129.0
33560 02	Nonferrous rolling and drawing, n.e.c., n.s.k.[12]	(NA)	(X)	(X)	20.3	(NA)	(X)	(X)	47.7
3357– —	**NONFERROUS WIREDRAWING AND INSULATING**								
	Total	**(NA)**	**(X)**	**(X)**	**12 300.1**	**(NA)**	**(X)**	**(X)**	**10 341.1**
33571	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in nonferrous wiredrawing plants)	(NA)	(X)	(X)	383.5	(NA)	(X)	(X)	306.8
33571 00	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (include ACSR) [10] 1,000 s tons	21	(S)	(S)	383.5	(NA)	(NA)	(NA)	306.8
33572	Copper and copper-base alloy wire, strand, and cable, (for electrical transmission)	(NA)	(X)	(X)	593.7	(NA)	(X)	(X)	485.0
33572 11	Bare wire, unalloyed 1,000 s tons	18	189.0	96.2	223.3	13	106.1	56.0	127.9
33572 51	Bare wire, alloyed 1,000 s tons	7	(S)	(S)	49.1	5	(S)	(S)	([13])
33572 71	Strand and cable, bare 1,000 s tons	11	126.4	114.0	257.6	10	151.4	83.5	195.6
33572 81	Other copper and copper-base alloy wire, strand, and cable (including electrical wire rod)[10] 1,000 s tons	12	(S)	(S)	27.3	2	(D)	(D)	[13]68.5
33572 00	Copper and copper-base alloy wire, strand, and cable, (for electrical transmission), n.s.k.	(NA)	(X)	(X)	36.3	(NA)	(X)	(X)	93.1
33573	Other bare nonferrous metal wire, made in nonferrous wiredrawing plants	(NA)	(X)	(X)	133.6	(NA)	(X)	(X)	121.1
33573 00	Other nonferrous metal wire, bare 1,000 s tons	14	(S)	(S)	133.6	17	(S)	(S)	121.1
33575	Nonferrous wire cloth and other woven wire products (made in nonferrous wiredrawing plants)	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	26.5
33575 00	Nonferrous wire cloth and other woven wire products[10]	1	(X)	(X)	(D)	(NA)	(X)	(X)	26.5
33576	Apparatus wire and cord and flexible cord sets	(NA)	(X)	(X)	817.9	(NA)	(X)	(X)	809.5
33576 00	Apparatus wire and cordage and flexible cord sets, except wiring harnesses	43	(X)	(X)	817.9	51	(X)	(X)	809.5
33577	Magnet wire	(NA)	(X)	(X)	1 047.4	(NA)	(X)	(X)	708.1
33577 00	Magnet wire	26	(X)	(X)	1 047.4	14	(X)	(X)	708.1
33578	Power wire and cable	(NA)	(X)	(X)	1 236.7	(NA)	(X)	(X)	1 159.9
33578 00	Power wire and cable	37	(X)	(X)	1 236.7	42	(X)	(X)	1 159.9
33579	Fiber optic cable	(NA)	(X)	(X)	1 068.3	(NA)	(X)	(X)	557.3
33579 11	Communication (telephone, telegraph, and electronic)	26	(X)	(X)	956.4	(NA)	(X)	(X)	544.3
33579 21	All other uses	11	(X)	(X)	110.3				
33579 00	Fiber optic cable, n.s.k.	(NA)	(X)	(X)	1.6	(NA)	(X)	(X)	12.9
3357A	Electronic wire and cable	(NA)	(X)	(X)	1 823.4	(NA)	(X)	(X)	1 574.2
3357A 00	Electronic wire and cable	126	(X)	(X)	1 823.4	98	(X)	(X)	1 574.2

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992				1987			
		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]		Number of companies with shipments of $100,000 or more	Quantity of production for all purposes	Product shipments[1]	
				Quantity[2]	Value (million dollars)			Quantity[2]	Value (million dollars)
3357– —	**NONFERROUS WIREDRAWING AND INSULATING**—Con.								
3357B	Telephone and telegraph wire and cable	(NA)	(X)	(X)	1 541.6	(NA)	(X)	(X)	1 435.6
3357B 00	Telephone and telegraph wire and cable	30	(X)	(X)	1 541.6	33	(X)	(X)	1 435.6
3357C	Control and signal wire and cable	(NA)	(X)	(X)	386.0	(NA)	(X)	(X)	191.9
3357C 00	Control and signal wire and cable	44	(X)	(X)	386.0	38	(X)	(X)	191.9
3357D	Building wire and cable	(NA)	(X)	(X)	2 028.9	(NA)	(X)	(X)	1 885.5
3357D 00	Building wire and cable	22	(X)	(X)	2 028.9	40	(X)	(X)	1 885.5
3357E	Other wire and cable, n.e.c.	(NA)	(X)	(X)	693.0	(NA)	(X)	(X)	510.9
3357E 00	Other insulated wire and cable, including automotive	60	(X)	(X)	693.0	52	(X)	(X)	510.9
33570	Nonferrous wiredrawing and insulating, n.s.k.	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	568.9
33570 00	Nonferrous wiredrawing and insulating, n.s.k.[6]	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	427.8
33570 02	Nonferrous wiredrawing and insulating, n.s.k.[7]	(NA)	(X)	(X)	(D)	(NA)	(X)	(X)	141.0

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3398– —	**METAL HEAT TREATING**				
	Total	**(NA)**	**1 879.3**	**(NA)**	**1 387.0**
33980	Heat treating of metal for the trade	(NA)	1 879.3	(NA)	1 387.0
33980 00	Heat treating of metal (heat treating, pickling, annealing, brazing, shot peening, tempering, etc.)[6]	548	1 839.0	(NA)	1 349.4
33980 02	Metal heat treating, n.s.k.[7]	(NA)	40.3	(NA)	37.6

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3399– —	**PRIMARY METAL PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**1 790.1**	**(NA)**	**(X)**	**1 467.9**
33991	Metal powders, paste, and flakes	(NA)	(X)	1 213.9	(NA)	(X)	993.0
33991 11	Aluminum and aluminum-base alloy mil lb	17	99.1	156.3	12	72.7	85.4
33991 33	Copper and copper-base alloy mil lb	24	54.1	123.6	18	*65.6	113.9
33991 55	Iron and steel mil lb	28	**694.9	274.0	15	*474.1	177.3
33991 66	Nickel-cobalt-base superalloy materials mil lb	15	10.9	77.4	6	(S)	33.2
33991 77	Tungsten and tungsten-base alloy mil lb	9	46.5	149.9	8	(S)	121.1
33991 86	Molybdenum mil lb	5	1.8	19.3	4	2.8	30.7
33991 87	Titanium	4	(X)	34.4	(NA)	(X)	32.5
33991 88	Tantalum	3					
33991 91	Precious metals and precious-metal-base alloys (gold, silver, platinum, etc.) 1,000 troy ounces	13	59.7	149.7	15	14.9	160.0
33991 98	Other nonferrous powders, paste, and flakes mil lb	28	174.9	185.2	26	113.3	139.8
33991 00	Metal powders, paste, and flakes, n.s.k.	(NA)	(X)	44.0	(NA)	(X)	99.1
33992	Primary metal products, n.e.c.	(NA)	(X)	409.9	(NA)	(X)	311.9
33992 11	Nonferrous nails, brads, tacks, and staples	11	(X)	78.5	12	(X)	188.4
33992 98	Other primary metal products, n.e.c.	27	(X)	326.8	22	(X)	101.8
33992 00	Primary metal products, n.e.c., n.s.k.	(NA)	(X)	4.6	(NA)	(X)	21.8
33990	Primary metal products, n.e.c., n.s.k.	(NA)	(X)	166.3	(NA)	(X)	163.0
33990 00	Primary metal products, n.e.c., n.s.k.[6]	(NA)	(X)	145.7	(NA)	(X)	154.5
33990 02	Primary metal products, n.e.c., n.s.k.[7]	(NA)	(X)	20.6	(NA)	(X)	8.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]For 1992, product codes are combined to avoid disclosing data for individual companies.
[6]Typically for establishments with 5 employees or more
[7]Typically for establishments with less than 5 employees.
[8]Typically for establishments with 25 employees or more.
[9]Typically for establishments with less than 25 employees.
[10]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[11]Typically for establishments with 20 employees or more.
[12]Typically for establishments with less than 20 employees.
[13]For 1987, product codes were combined to avoid disclosing data for individual companies.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Aluminum ingot ---- 1,000 s tons	(NA)	(S)	6 425.3	(NA)	4 588.7	5 221.9
33347 00	Made in industry 3334 and other primary industries ---- 1,000 s tons	20	4 429.6	4 032.3	15	2 850.1	3 398.3
33417 00	Made in industry 3341 and other secondary industries ---- 1,000 s tons	51	2 065.8	1 979.9	51	1 506.5	1 501.1
33553 00	Made in industry 3355 and other aluminum rolling and drawing industries ---- 1,000 s tons	10	(S)	413.2	12	232.1	322.5
	Aluminum extrusion billet ---- 1,000 s tons	(NA)	(S)	1 282.0	(NA)	1 117.9	1 481.6
33348 00	Made in industry 3334 and other primary industries ---- 1,000 s tons	12	739.5	985.7	8	737.3	1 028.4
33418 00	Made in industry 3341 and other secondary industries ---- 1,000 s tons	11	(S)	143.8	10	**170.6	171.3
33554 00	Made in industry 3355 and other aluminum rolling and drawing mills ---- 1,000 s tons	13	187.8	152.4	16	(S)	281.9
	Aluminum and aluminum-base alloy wire and cable, except covered or insulated ---- 1,000 s tons	(NA)	(D)	(D)	(NA)	(X)	418.2
33551 00	Made in industry 3355, aluminum rolling mills ---- 1,000 s tons	5	(D)	(D)	(NA)	(NA)	111.4
33571 00	Made in industry 3357, nonferrous wiredrawing plants ---- 1,000 s tons	21	(S)	383.5	(NA)	(NA)	306.8
	Other bare nonferrous wire ----	(NA)	(X)	422.7	(NA)	(S)	317.7
	Made in rolling mills ----	(NA)	(X)	289.1	(NA)	(X)	196.6
33561 66	Nickel and nickel alloy wire ---- 1,000 s tons	6	3.5	38.1	8	1.3	17.1
33563 91	Precious metal wire ---- 1,000 troy ounces	9	(S)	81.2	12	(S)	143.9
33569 93	Other nonferrous wire ---- 1,000 s tons	15	(S)	169.7	(NA)	5.7	35.6
33573 00	Made in wiredrawing plants ---- 1,000 s tons	14	(S)	133.6	17	(S)	121.1
	Nonferrous wire cloth and other woven wire products ----	(NA)	(X)	(D)	(NA)	(X)	141.5
33575 00	Made in wiredrawing plants ----	1	(X)	(D)	(NA)	(X)	26.5
34965 00	Not made in wiredrawing plants ----	29	(X)	145.8	(NA)	(X)	115.0
	Apparatus wire and cord and flexible cord sets ----	(NA)	(X)	1 111.4	(NA)	(X)	1 056.2
33576 00	Made in industry 3357, wiredrawing and insulating plants ----	43	(X)	817.9	51	(X)	809.5
36996 00	Made in industry 3699, industries purchasing insulated wire ----	58	(X)	293.5	58	(X)	246.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33511, COPPER WIRE, BARE AND TINNED (NONELECTRICAL)		
United States	**227.9**	**326.4**
33513, COPPER AND COPPER-BASE ALLOY ROD, BAR, AND SHAPES		
United States	**2 312.1**	**1 915.4**
Pennsylvania	153.0	(NA)
Wisconsin	28.1	(NA)
33514, COPPER AND COPPER-BASE ALLOY SHEET, STRIP, AND PLATE		
United States	**1 352.3**	**1 017.5**
Connecticut	127.5	87.0
Massachusetts	27.8	(NA)
Ohio	21.3	89.4
Pennsylvania	202.4	214.0
33515, COPPER AND COPPER-BASE ALLOY PIPE AND TUBE		
United States	**1 534.7**	**1 264.0**
33531, ALUMINUM PLATE (THICKNESS OF 0.25 INCHES OR MORE) (INCLUDING CONTINUOUS CAST)		
United States	**579.8**	**433.7**
California	65.7	42.0
33532, ALUMINUM SHEET AND STRIP (INCLUDING CONTINUOUS CAST)		
United States	**8 213.5**	**7 998.3**
Ohio	579.9	(NA)
33533, PLAIN ALUMINUM FOIL		
United States	**(D)**	**546.6**
Tennessee	159.7	(NA)
33534, ALUMINUM WELDED TUBE		
United States	**(D)**	**40.8**
33541, EXTRUDED ALUMINUM ROD, BAR, AND OTHER EXTRUDED SHAPES		
United States	**2 971.6**	**3 038.6**
California	287.7	360.0
Florida	93.9	115.1
Georgia	224.2	246.5
Illinois	108.6	110.0
Indiana	302.3	262.2
Massachusetts	14.7	(NA)
Michigan	124.8	179.7
Mississippi	63.9	117.7
New York	152.4	170.0
Ohio	255.4	223.0
Pennsylvania	193.6	184.3
Tennessee	166.1	(NA)
Texas	183.3	167.3
33542, EXTRUDED AND DRAWN ALUMINUM TUBE		
United States	**538.8**	**472.7**
Arizona	34.0	(NA)
California	29.6	81.3
Ohio	17.0	(NA)
33551, ALUMINUM AND ALUMINUM-BASE ALLOY WIRE AND CABLE, EXCEPT COVERED OR INSULATED (PRODUCED IN ALUMINUM ROLLING MILLS)		
United States	**(D)**	**111.4**
33552, ROLLED ALUMINUM ROD, BAR (INCLUDING CONTINUOUS CAST)		
United States	**(D)**	**326.6**
33553, ALUMINUM INGOT (PRODUCED IN ALUMINUM ROLLING MILLS)		
United States	**413.2**	**322.5**
Tennessee	38.3	(NA)
33554, ALUMINUM EXTRUSION BILLET (PRODUCED IN ALUMINUM ROLLING MILLS)		
United States	**152.4**	**281.9**
California	5.8	27.0
33561, NICKEL AND NICKEL-BASE ALLOY MILL SHAPES (INCLUDING NICKEL-COPPER ALLOYS)		
United States	**682.3**	**627.0**
Pennsylvania	18.4	(NA)
33562, TITANIUM AND TITANIUM-BASE ALLOY MILL SHAPES (EXCLUDING WIRE)		
United States	**501.6**	**484.4**
33563, PRECIOUS METAL MILL SHAPES		
United States	**532.2**	**843.8**
Rhode Island	60.1	(NA)
33569, ALL OTHER NONFERROUS METAL MILL SHAPES		
United States	**735.6**	**678.5**
Illinois	65.5	71.3
New Jersey	23.4	25.6
Ohio	16.0	(NA)
Pennsylvania	145.8	(NA)
Texas	12.8	8.8
Washington	49.5	(NA)
33571, ALUMINUM AND ALUMINUM-BASE ALLOY WIRE AND CABLE, EXCEPT COVERED OR INSULATED (PRODUCED IN NONFERROUS WIREDRAWING PLANTS)		
United States	**383.5**	**306.8**
Connecticut	13.2	(NA)
Illinois	63.1	(NA)
New York	39.6	(NA)
Texas	30.3	(NA)
Washington	14.7	(NA)
33572, COPPER AND COPPER-BASE ALLOY WIRE, STRAND, AND CABLE, (FOR ELECTRICAL TRANSMISSION)		
United States	**593.7**	**485.0**
California	12.0	(NA)
Indiana	64.6	(NA)
Massachusetts	41.3	28.4
New York	202.1	230.5
33573, OTHER BARE NONFERROUS METAL WIRE, MADE IN NONFERROUS WIREDRAWING PLANTS		
United States	**133.6**	**121.1**
33575, NONFERROUS WIRE CLOTH AND OTHER WOVEN WIRE PRODUCTS (MADE IN NONFERROUS WIREDRAWING PLANTS)		
United States	**(D)**	**26.5**
33576, APPARATUS WIRE AND CORD AND FLEXIBLE CORD SETS		
United States	**817.9**	**809.5**
Illinois	34.3	50.0
Indiana	231.5	165.7
Massachusetts	46.2	(NA)
New York	14.9	(NA)
Ohio	57.7	35.3
Rhode Island	136.0	148.8

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
33577, MAGNET WIRE		
United States	**1 047.4**	**708.1**
Connecticut	14.3	(NA)
Georgia	12.4	(NA)
Illinois	94.0	86.9
Indiana	392.3	355.2
33578, POWER WIRE AND CABLE		
United States	**1 236.7**	**1 159.9**
California	88.7	120.7
Illinois	93.2	(NA)
Massachusetts	51.0	(NA)
Pennsylvania	98.1	(NA)
Texas	77.1	(NA)
33579, FIBER OPTIC CABLE		
United States	**1 068.3**	**557.3**
Connecticut	8.3	(NA)
3357A, ELECTRONIC WIRE AND CABLE		
United States	**1 823.4**	**1 574.2**
Arkansas	64.0	8.4
California	85.7	67.9
Connecticut	141.4	137.8
Illinois	112.9	66.3
Massachusetts	212.8	221.2
New Hampshire	21.7	10.2
New Jersey	69.4	104.0
New York	55.4	114.5
North Carolina	352.7	(NA)
Pennsylvania	60.0	71.8
Rhode Island	22.2	38.0
Texas	31.2	68.8
Vermont	89.8	66.2
3357B, TELEPHONE AND TELEGRAPH WIRE AND CABLE		
United States	**1 541.6**	**1 435.6**
Massachusetts	34.5	16.9
Texas	173.1	(NA)
3357C, CONTROL AND SIGNAL WIRE AND CABLE		
United States	**386.0**	**191.9**
Connecticut	41.0	35.2
Massachusetts	23.6	16.1
New York	43.2	17.3
Pennsylvania	35.8	16.1
Rhode Island	35.5	40.4
Texas	31.7	(NA)
3357D, BUILDING WIRE AND CABLE		
United States	**2 028.9**	**1 885.5**
New York	135.8	145.6
3357E, OTHER WIRE AND CABLE, N.E.C.		
United States	**693.0**	**510.9**
California	10.7	4.8
Connecticut	3.8	39.2
Illinois	46.6	19.1
Indiana	121.5	(NA)
Massachusetts	49.6	33.7
New Jersey	9.4	12.0
New York	15.3	9.1
Ohio	40.4	64.0
Pennsylvania	59.2	41.9
Texas	73.4	(NA)
33991, METAL POWDERS, PASTE, AND FLAKES		
United States	**1 213.9**	**993.0**
California	36.1	42.1
Connecticut	9.2	10.5
Indiana	47.3	25.5
Massachusetts	38.9	35.5
Michigan	30.0	24.6
New Jersey	151.3	237.7
New York	197.3	97.0
Ohio	62.8	68.0
Pennsylvania	258.7	133.4
Rhode Island	4.8	(NA)
Tennessee	19.0	30.9
33992, PRIMARY METAL PRODUCTS, N.E.C.		
United States	**409.9**	**311.9**
Pennsylvania	110.1	23.2

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3351-	**Copper rolling and drawing**	**5 501.6**	**5 441.8**	**6 183.5**	**6 474.5**	**5 864.3**	**4 667.9**	**2 941.6**	**3 536.1**
33511	Copper wire, bare and tinned (nonelectrical)	227.9	494.7	482.8	509.3	334.7	326.4	346.4	170.7
33513	Copper and copper-base alloy rod, bar, and shapes	2 312.1	2 142.6	2 888.6	2 948.6	2 567.7	1 915.4	921.0	1 491.3
33514	Copper and copper-base alloy sheet, strip, and plate	1 352.3	1 149.5	1 272.9	1 288.6	1 278.6	1 017.5	800.8	937.3
33515	Copper and copper-base alloy pipe and tube	1 534.7	1 606.8	1 491.9	1 675.0	1 531.7	1 264.0	845.0	895.5
33510	Copper rolling and drawing, n.s.k.	74.6	48.2	47.2	52.9	151.6	144.5	28.3	41.3
3353-	**Aluminum sheet, plate, and foil**	**9 486.2**	**9 170.8**	**10 094.6**	**10 958.2**	**10 811.6**	**9 051.9**	**6 519.7**	**5 358.8**
33531	Aluminum plate (thickness of 0.25 inches or more) (including continuous cast)	579.8	585.5	662.7	717.6	590.5	433.7	378.6	247.3
33532	Aluminum sheet and strip (including continuous cast)	8 213.5	7 840.7	8 687.9	9 454.7	9 419.9	7 998.3	5 555.5	4 569.6
33533	Plain aluminum foil	692.9	643.8	631.8	683.4	713.9	546.6	545.1	476.6
33534	Aluminum welded tube		54.9	70.2	73.0	54.9	40.8	29.8	61.6
33530	Aluminum sheet, plate, and foil, n.s.k.	–	45.9	41.9	29.6	32.3	32.5	10.8	3.7
3354-	**Aluminum extruded products**	**3 708.3**	**3 821.0**	**4 176.5**	**4 756.3**	**4 499.2**	**3 781.9**	**2 550.5**	**1 928.2**
33541	Extruded aluminum rod, bar, and other extruded shapes	2 971.6	2 955.2	3 302.8	3 872.1	3 667.5	3 038.6	2 100.4	1 541.9
33542	Extruded and drawn aluminum tube	538.8	584.5	594.3	602.9	565.5	472.7	430.1	333.0
33540	Aluminum extruded products, n.s.k.	197.9	281.3	279.5	281.3	266.2	270.6	20.1	53.3
3355-	**Aluminum rolling and drawing, n.e.c.**	**1 078.0**	**1 065.5**	**1 322.9**	**1 240.7**	**1 512.4**	**1 099.4**	**975.0**	**1 367.5**
33551	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in aluminum rolling mills)	459.4	122.1	120.3	140.3	172.9	111.4	201.5	124.1
33552	Rolled aluminum rod, bar (including continuous cast)		394.2	410.6	455.9	520.1	326.6	341.4	530.0
33553	Aluminum ingot (produced in aluminum rolling mills)	413.2	328.8	530.0	342.3	448.1	322.5	413.1	709.5
33554	Aluminum extrusion billet (produced in aluminum rolling mills)	152.4	150.4	182.8	237.1	308.2	281.9		
33550	Aluminum rolling and drawing, n.e.c., n.s.k.	53.1	70.0	79.3	65.1	63.1	57.0	19.0	3.9

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3356-	**Nonferrous rolling and drawing, n.e.c.**	**2 592.5**	**2 787.4**	**3 212.3**	**3 420.8**	**3 152.0**	**2 810.5**	**3 305.0**	**2 616.5**
33561	Nickel and nickel-base alloy mill shapes (including nickel-copper alloys)	682.3	895.0	904.2	982.8	773.4	627.0	(NA)	(NA)
33562	Titanium and titanium-base alloy mill shapes (excluding wire)	501.6	502.2	802.2	841.5	659.6	484.4	(NA)	(NA)
33563	Precious metal mill shapes	532.2	611.2	696.4	745.0	787.1	843.8	(NA)	(NA)
33569	All other nonferrous metal mill shapes	735.6	643.2	673.8	713.8	727.1	678.5	(NA)	(NA)
33560	Nonferrous rolling and drawing, n.e.c., n.s.k.	140.7	135.6	135.8	137.8	204.9	176.7	39.7	78.8
3357-	**Nonferrous wiredrawing and insulating**	**12 300.1**	**11 209.8**	**11 946.6**	**12 822.0**	**11 983.3**	**10 341.1**	**8 188.1**	**6 460.3**
33571	Aluminum and aluminum-base alloy wire and cable, except covered or insulated (produced in nonferrous wiredrawing plants)	383.5	346.7	333.8	412.7	465.7	306.8	284.9	263.4
33572	Copper and copper-base alloy wire, strand, and cable, (for electrical transmission)	593.7	587.1	617.0	604.3	646.3	485.0	402.3	496.8
33573	Other bare nonferrous metal wire, made in nonferrous wiredrawing plants	133.6	160.0	154.4	194.0	198.0	121.1	116.1	117.9
33575	Nonferrous wire cloth and other woven wire products (made in nonferrous wiredrawing plants)	(D)	45.2	40.3	39.9	38.8	26.5	39.1	94.5
33576	Apparatus wire and cord and flexible cord sets	817.9	718.5	718.9	911.9	860.2	809.5	477.6	447.8
33577	Magnet wire	1 047.4	922.5	946.2	968.1	970.5	708.1	747.0	754.4
33578	Power wire and cable	1 236.7	1 288.9	1 600.7	1 805.5	1 412.5	1 159.9	854.5	705.9
33579	Fiber optic cable	1 068.3	680.4	687.2	649.6	607.6	557.3	88.6	(NA)
3357A	Electronic wire and cable	1 823.4	1 607.4	1 791.4	1 922.6	1 869.3	1 574.2	1 304.4	478.9
3357B	Telephone and telegraph wire and cable	1 541.6	1 449.3	1 562.1	1 537.6	1 621.6	1 435.6	1 815.2	1 600.2
3357C	Control and signal wire and cable	386.0	272.0	250.8	269.5	183.0	191.9	248.8	128.3
3357D	Building wire and cable	2 028.9	1 947.1	2 141.2	2 326.3	2 044.2	1 885.5	1 083.6	890.2
3357E	Other wire and cable, n.e.c.	693.0	617.8	571.0	683.0	545.5	510.9	550.6	431.7
33570	Nonferrous wiredrawing and insulating, n.s.k.	(D)	566.6	531.8	497.0	520.1	568.9	175.4	50.3
3398-	**Metal heat treating**	**1 879.3**	**1 747.4**	**1 838.1**	**1 785.5**	**1 652.6**	**1 387.0**	**1 105.9**	**704.1**
33980	Heat treating of metal for the trade	1 879.3	1 747.4	1 838.1	1 785.5	1 652.6	1 387.0	1 105.9	704.1
3399-	**Primary metal products, n.e.c.**	**1 790.1**	**1 638.8**	**1 788.6**	**1 652.2**	**1 613.1**	**1 467.9**	**959.0**	**967.5**
33991	Metal powders, paste, and flakes	1 213.9	1 137.6	1 244.2	1 129.5	1 156.0	993.0	799.1	702.2
33992	Primary metal products, n.e.c.	409.9	325.7	345.2	342.3	277.2	311.9	119.9	144.7
33990	Primary metal products, n.e.c., n.s.k.	166.3	175.5	199.2	180.4	179.8	163.0	40.0	120.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3351, COPPER ROLLING AND DRAWING				
	Materials, ingredients, containers, and supplies	**(X)**	**4 252.7**	**(X)**	**3 389.2**
	Nonferrous shapes and forms, except castings, forgings, and fab. metal products:				
	Aluminum and aluminum-base alloy:				
	Ingot, pig, shot:				
333404	Unalloyed, 1,000 s tons	(D)	(D)	12.5	17.4
333405	Alloyed, 1,000 s tons	(D)	(D)		
335301	Sheet, plate, foil, and welded tubing, mil lb	(D)	(D)	(D)	(D)
335405	Extruded shapes (including extruded rod, bar, pipe, tube, etc.), mil lb	1.3	1.7	(D)	(D)
330010	All other aluminum and aluminum-base alloy shapes and forms	(X)	(D)	(X)	(D)
	Copper and copper-base alloy:				
333102	Cathodes, 1,000 s tons	1 167.1	957.1	775.5	804.8
333125	Wire bar, 1,000 s tons	13.5	47.6	23.2	28.7
333130	Ingot and ingot bar, 1,000 s tons	11.4	32.4	(D)	(D)
333135	All other copper and copper-base alloy shapes and forms, 1,000 s tons	577.8	969.8	402.8	469.1
333973	Magnesium and magnesium-base alloy, 1,000 s tons	(D)	(D)	(D)	(D)
333963	Nickel and nickel-base alloy, 1,000 s tons	1.6	12.9	2.0	10.7
333978	Zinc and zinc-base alloy, 1,000 s tons	51.9	70.5	59.1	48.4
333981	Molybdenum and molybdenum-base alloy, mil lb	–	–	(D)	(D)
333983	Tin and tin-base alloy, mil lb	*1.5	4.4	*1.5	5.2
333940	Titanium and titanium-base alloy, 1,000 s tons	(D)	(D)	(NA)	(NA)
333904	Precious metals and precious metal alloy, including gold, silver, and platinum, 1,000 troy ounces	(D)	(D)	(D)	(D)
335100	Brass, 1,000 s tons	131.6	340.5	70.2	113.6
333960	All other nonferrous shapes and forms	(X)	37.5	(X)	(NA)
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of your company, 1,000 s tons	(D)	(D)	–	–
190022	From all other sources, 1,000 s tons	(D)	(D)	(D)	(D)
190024	Copper and copper-base alloy, 1,000 s tons	679.9	1 372.1	1 046.5	1 253.0
190080	Other nonferrous metal scrap, 1,000 s tons	**17.1	20.1	(D)	(D)
970099	All other materials and components, parts, containers, and supplies	(X)	224.4	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	132.0	(X)	140.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL				
	Materials, ingredients, containers, and supplies	**(X)**	**6 590.2**	**(X)**	**7 430.3**
	Nonferrous shapes and forms, except castings, forgings, and fab. metal products:				
	Aluminum and aluminum-base alloy:				
	Ingot, pig, shot:				
333404	Unalloyed, 1,000 s tons	1 424.9	1 634.6	1 641.3	2 061.4
333405	Alloyed, 1,000 s tons	999.8	1 743.1	1 996.0	2 584.2
335301	Sheet, plate, foil, and welded tubing, mil lb	1 004.5	812.4	747.7	634.4
335405	Extruded shapes (including extruded rod, bar, pipe, tube, etc.), mil lb	(D)	(D)	–	–
330010	All other aluminum and aluminum-base alloy shapes and forms	(X)	255.1	(X)	–
	Copper and copper-base alloy:				
333102	Cathodes, 1,000 s tons	–	–	(NA)	(NA)
333125	Wire bar, 1,000 s tons	(D)	(D)	(NA)	(NA)
333130	Ingot and ingot bar, 1,000 s tons	(D)	(D)	(D)	(D)
333135	All other copper and copper-base alloy shapes and forms, 1,000 s tons	(S)	.5	(D)	(D)
333973	Magnesium and magnesium-base alloy, 1,000 s tons	46.6	111.0	40.8	100.8
333963	Nickel and nickel-base alloy, 1,000 s tons	–	–	(NA)	(NA)
333978	Zinc and zinc-base alloy, 1,000 s tons	2.9	3.5	4.9	3.7
333981	Molybdenum and molybdenum-base alloy, mil lb	–	–	(NA)	(NA)
333983	Tin and tin-base alloy, mil lb	–	–	(NA)	(NA)
333940	Titanium and titanium-base alloy, 1,000 s tons	.9	2.9	(NA)	(NA)
333904	Precious metals and precious metal alloy, including gold, silver, and platinum, 1,000 troy ounces	(D)	(D)	(NA)	(NA)
335100	Brass, 1,000 s tons	(D)	(D)	(NA)	(NA)
333960	All other nonferrous shapes and forms	(X)	25.5	(X)	(NA)
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of your company, 1,000 s tons	270.2	305.9	395.9	497.5
190022	From all other sources, 1,000 s tons	1 168.6	1 168.3	823.7	1 011.3
190024	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	(D)	(D)
190080	Other nonferrous metal scrap, 1,000 s tons	–	–	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	495.4	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	–	(X)	76.8
	INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS				
	Materials, ingredients, containers, and supplies	**(X)**	**2 135.4**	**(X)**	**2 685.3**
	Nonferrous shapes and forms, except castings, forgings, and fab. metal products:				
	Aluminum and aluminum-base alloy:				
	Ingot, pig, shot:				
333404	Unalloyed, 1,000 s tons	313.0	389.4	506.4	606.1
333405	Alloyed, 1,000 s tons	*503.8	471.6	*832.2	1 013.5
335301	Sheet, plate, foil, and welded tubing, mil lb	.8	6.0	(D)	([3])
335405	Extruded shapes (including extruded rod, bar, pipe, tube, etc.), mil lb	393.0	271.1	(S)	130.8
330010	All other aluminum and aluminum-base alloy shapes and forms	(X)	307.2	(X)	[3]31.5
	Copper and copper-base alloy:				
333102	Cathodes, 1,000 s tons	–	–	(NA)	(NA)
333125	Wire bar, 1,000 s tons	(D)	(D)	(NA)	(NA)
333130	Ingot and ingot bar, 1,000 s tons	(D)	(D)	(D)	(D)
333135	All other copper and copper-base alloy shapes and forms, 1,000 s tons	.5	.9	(D)	(D)
333973	Magnesium and magnesium-base alloy, 1,000 s tons	3.8	8.8	9.4	24.5
333963	Nickel and nickel-base alloy, 1,000 s tons	(D)	(D)	(D)	(D)
333978	Zinc and zinc-base alloy, 1,000 s tons	(D)	(D)	*3.7	3.3
333981	Molybdenum and molybdenum-base alloy, mil lb	–	–	(NA)	(NA)
333983	Tin and tin-base alloy, mil lb	(D)	(D)	(D)	(D)
333940	Titanium and titanium-base alloy, 1,000 s tons	.7	2.3	(NA)	(NA)
333904	Precious metals and precious metal alloy, including gold, silver, and platinum, 1,000 troy ounces	–	–	(NA)	(NA)
335100	Brass, 1,000 s tons	–	–	(NA)	(NA)
333960	All other nonferrous shapes and forms	(X)	5.0	(X)	(NA)
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of your company, 1,000 s tons	57.0	66.9	134.6	153.8
190022	From all other sources, 1,000 s tons	*157.4	165.9	166.1	201.6
190024	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	3.5	2.7
190080	Other nonferrous metal scrap, 1,000 s tons	(D)	(D)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	290.3	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	135.2	(X)	231.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**628.0**	**(X)**	**381.0**
	Nonferrous shapes and forms, except castings, forgings, and fab. metal products:				
	Aluminum and aluminum-base alloy:				
	Ingot, pig, shot:				
333404	Unalloyed, 1,000 s tons	(D)	(D)	(D)	(D)
333405	Alloyed, 1,000 s tons	7.5	9.4	(D)	(D)
335301	Sheet, plate, foil, and welded tubing, mil lb	(D)	(D)	(D)	(D)
335405	Extruded shapes (including extruded rod, bar, pipe, tube, etc.), mil lb	(D)	(D)	(D)	(D)
330010	All other aluminum and aluminum-base alloy shapes and forms	(X)	(D)	(X)	–
	Copper and copper-base alloy:				
333102	Cathodes, 1,000 s tons	(D)	(D)	(NA)	(NA)
333125	Wire bar, 1,000 s tons	–	–	(NA)	(NA)
333130	Ingot and ingot bar, 1,000 s tons	–	–	(NA)	(NA)
333135	All other copper and copper-base alloy shapes and forms, 1,000 s tons	(D)	(D)	(NA)	(NA)
333973	Magnesium and magnesium-base alloy, 1,000 s tons	1.2	3.2	(NA)	(NA)
333963	Nickel and nickel-base alloy, 1,000 s tons	(D)	(D)	(NA)	(NA)
333978	Zinc and zinc-base alloy, 1,000 s tons	(D)	(D)	(NA)	(NA)
333981	Molybdenum and molybdenum-base alloy, mil lb	–	–	(NA)	(NA)
333983	Tin and tin-base alloy, mil lb	–	–	(NA)	(NA)
333940	Titanium and titanium-base alloy, 1,000 s tons	(D)	(D)	(NA)	(NA)
333904	Precious metals and precious metal alloy, including gold, silver, and platinum, 1,000 troy ounces	–	–	(NA)	(NA)
335100	Brass, 1,000 s tons	–	–	(NA)	(NA)
333960	All other nonferrous shapes and forms	(X)	7.7	(X)	(NA)
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of your company, 1,000 s tons	23.0	23.1	(D)	(D)
190022	From all other sources, 1,000 s tons	(D)	(D)	(D)	(D)
190024	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	(NA)	(NA)
190080	Other nonferrous metal scrap, 1,000 s tons	(D)	(D)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	(D)	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	66.0	(X)	104.0
	INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**1 280.3**	**(X)**	**1 687.3**
	Nonferrous shapes and forms, except castings, forgings, and fab. metal products:				
	Ingot, pig, shot:				
	Aluminum and aluminum-base alloy:				
333404	Unalloyed, 1,000 s tons	(D)	(D)	7.2	9.7
333405	Alloyed, 1,000 s tons	(D)	(D)		
335301	Sheet, plate, foil, and welded tubing, mil lb	(S)	.2	(Z)	(Z)
335405	Extruded shapes (including extruded rod, bar, pipe, tube, etc.), mil lb	(D)	(D)	–	–
330010	All other aluminum and aluminum-base alloy shapes and forms	(X)	4.4	(X)	(D)
	Copper and copper-base alloy:				
333102	Cathodes, 1,000 s tons	(D)	(D)	(D)	(D)
333125	Wire bar, 1,000 s tons	–	–	(D)	(D)
333130	Ingot and ingot bar, 1,000 s tons	–	–	(D)	(D)
333135	All other copper and copper-base alloy shapes and forms, 1,000 s tons	4.0	11.6	(D)	(D)
333973	Magnesium and magnesium-base alloy, 1,000 s tons	21.2	57.8	8.8	27.7
333963	Nickel and nickel-base alloy, 1,000 s tons	(S)	145.3	*36.4	158.1
333978	Zinc and zinc-base alloy, 1,000 s tons	33.2	38.1	(D)	(D)
333981	Molybdenum and molybdenum-base alloy, mil lb	2.8	15.8	4.1	15.9
333983	Tin and tin-base alloy, mil lb	(S)	23.1	7.9	24.3
333940	Titanium and titanium-base alloy, 1,000 s tons	*18.8	101.5	(NA)	(NA)
333904	Precious metals and precious metal alloy, including gold, silver, and platinum, 1,000 troy ounces	838.4	248.8	(S)	527.2
335100	Brass, 1,000 s tons	(D)	(D)	1.6	1.3
333960	All other nonferrous shapes and forms	(X)	167.1	(X)	(NA)
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of your company, 1,000 s tons	–	–	–	–
190022	From all other sources, 1,000 s tons	–	–	(D)	(D)
190024	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	(D)	(D)
190080	Other nonferrous metal scrap, 1,000 s tons	9.9	16.4	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	256.0	(X)	(D)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	155.5	(X)	183.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material		1992		1987	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING					
	Materials, ingredients, containers, and supplies		**(X)**	**7 747.2**	**(X)**	**6 333.0**
	Shapes and forms, except castings, forgings, and fabricated metal products:					
	Steel:					
331501	Bare wire	1,000 s tons	**70.9	103.9	33.8	30.1
331003	All other steel shapes and forms	1,000 s tons	36.7	40.2	(NA)	(NA)
	Copper and copper-base alloy:					
	Rods:					
335133	Unalloyed	mil lb	2 127.1	2 194.8	1 915.8	1 484.9
335135	Alloyed	mil lb	357.6	307.9	*121.5	97.7
335112	Wire for redrawing	mil lb	249.8	272.5	161.8	152.4
335725	Bare wire, electrical (except wire for redrawing)	mil lb	(D)	(D)	258.1	292.1
333125	Wire bar	1,000 s tons			42.0	36.5
335794	Insulated copper wire and cable		(X)	125.2	(X)	26.2
333102	Cathodes	1,000 s tons	151.1	159.0	341.2	256.6
335120	All other copper and copper-base alloy shapes and forms	mil lb	(S)	164.4	(D)	(D)
	Aluminum and aluminum-base alloys:					
335009	Rods	mil lb	521.4	344.7	530.9	351.9
335511	Wire for redrawing	mil lb	22.5	21.4	15.5	20.3
335718	Bare wire, except for redrawing	mil lb	41.8	52.7	**72.5	58.4
335050	All other aluminum and aluminum-base alloy shapes and forms	mil lb	2 958.1	145.2	116.0	101.3
333976	Refined unalloyed tin		(X)	6.7	(X)	6.9
335092	All other nonferrous shapes and forms	mil lb	185.3	55.6	87.0	52.2
	Chemicals and allied products:					
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	mil lb	1 287.3	891.9	*1 179.5	744.4
282202	Synthetic rubber	mil lb	635.0	93.4	*69.0	66.0
280025	All other chemical and allied products	mil lb	*62.4	76.3	(NA)	(NA)
	Stone, clay, glass, and concrete products:					
323110	Optical fiber, data and nondata transmission		(X)	246.3	(X)	(NA)
329610	Fiberglass insulating materials		(X)	11.6	(X)	6.8
320010	All other stone, clay, glass, and concrete products		(X)	5.5	(X)	(NA)
083100	Natural rubber	mil lb	11.2	10.7	(D)	(D)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes		(X)	64.7	(X)	43.3
228102	Cotton yarns	mil lb	(S)	8.3	5.6	13.6
364350	Connectors		(X)	38.4	(X)	(NA)
970099	All other materials and components, parts, containers, and supplies		(X)	1 031.2	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]		(X)	824.8	(X)	726.1
	INDUSTRY 3398, METAL HEAT TREATING					
	(Material data were not collected for this industry.)					
	INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.					
	(Material data were not collected for this industry.)					

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1987, material codes were combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
33121 97	33121 41	33157 00	33157 21	33412 24	33412 20	33551 00	33551 11
33121 97	33121 81	33157 00	33157 22	33412 24	33412 23	33551 00	33551 51
33121 97	33121 86	33157 00	33157 23			33551 00	33551 61
		33157 00	33157 41	33413 99	33413 71	33551 00	33551 65
3312A 17	3312A 11	33157 00	33157 42	33413 99	33413 98		
3312A 17	3312A 23	33157 00	33157 43			33563 86	33563 85
3312A 26	3312A 25					33563 86	33563 87
3312A 26	3312A 27	33159 42	33159 41				
		33159 42	33159 44	33414 34	33414 10	33569 57	33569 55
3312B 62	3312B 61	33159 42	33159 45	33414 34	33414 14	33569 57	33569 59
3312B 62	3312B 63	33159 42	33159 48	33414 34	33414 17	33569 93	33562 78
3312B 66	3312B 65	33159 63	33159 61	33414 44	33414 20	33569 93	33569 91
3312B 66	3312B 67	33159 63	33159 65	33414 44	33414 23	33569 97	33569 71
				33414 44	33414 26	33569 97	33569 98
33134 08	33131	33212 40	33212 32				
33134 08	33131 00	33212 40	33212 34			33571 00	33571 11
		33212 40	33212 39			33571 00	33571 51
33151 25	33151 22			33415 25	33415 11	33571 00	33571 61
33151 25	33151 51	33312 30	33312 20	33415 25	33415 81	33571 00	33571 65
33151 34	33151 23	33312 30	33312 23	33415 35	33415 31		
33151 34	33151 33	33312 30	33312 26	33415 35	33415 71	33572 81	33572 21
33151 34	33151 35			33415 45	33415 51		
		33392 34	33392 31	33415 45	33415 89	33575 00	33575 17
33152 13	33152 12	33392 34	33392 37			33575 00	33575 57
33152 13	33152 14	33392 34	33392 39			33575 00	33575 65
		33392 44	33392 41	33416 33	33416 21		
33156 13	33156 15	33392 44	33392 43	33416 33	33416 61	33660 26	33660 23
33156 13	33156 17	33392 44	33392 49	33416 35	33416 31		
33156 21	33156 22			33416 35	33416 69	33690 23	33690 21
33156 21	33156 24	33412 24	33412 17	33416 97	33416 43	33690 23	33690 25
				33416 97	33416 99	33690 85	33690 98
						33690 97	33690 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
33121 41	33121 97	33157 21	33157 00	33412 20	33412 24	33551 65	33551 00
33121 81	33121 97	33157 22	33157 00	33412 23	33412 24		
33121 86	33121 97	33157 23	33157 00			33562 78	33569 93
		33157 41	33157 00	33413 71	33413 99		
3312A 11	3312A 17	33157 42	33157 00	33413 98	33413 99	33563 85	33563 86
3312A 23	3312A 17	33157 43	33157 00			33563 87	33563 86
3312A 25	3312A 26			33414 10	33414 34		
3312A 27	3312A 26	33159 41	33159 42	33414 14	33414 34	33569 55	33569 57
		33159 44	33159 42	33414 17	33414 34	33569 59	33569 57
3312B 61	3312B 62	33159 45	33159 42	33414 20	33414 44	33569 71	33569 97
3312B 63	3312B 62	33159 48	33159 42	33414 23	33414 44	33569 91	33569 93
3312B 65	3312B 66	33159 61	33159 63	33414 26	33414 44	33569 98	33569 97
3312B 67	3312B 66	33159 65	33159 63				
				33415 11	33415 25	33571 11	33571 00
33131	33134 08	33212 32	33212 40	33415 31	33415 35	33571 51	33571 00
33131 00	33134 08	33212 34	33212 40	33415 51	33415 45	33571 61	33571 00
		33212 39	33212 40	33415 71	33415 35	33571 65	33571 00
33151 22	33151 25			33415 81	33415 25		
33151 23	33151 34	33312 20	33312 30	33415 89	33415 45	33572 21	33572 81
33151 33	33151 34	33312 23	33312 30				
33151 35	33151 34	33312 26	33312 30	33416 21	33416 33	33575 17	33575 00
33151 51	33151 25			33416 31	33416 35	33575 57	33575 00
		33392 31	33392 34	33416 43	33416 97	33575 65	33575 00
33152 12	33152 13	33392 37	33392 34	33416 61	33416 33		
33152 14	33152 13	33392 39	33392 34	33416 69	33416 35	33660 23	33660 26
		33392 41	33392 44	33416 99	33416 97		
33156 15	33156 13	33392 43	33392 44			33690 21	33690 23
33156 17	33156 13	33392 49	33392 44	33551 11	33551 00	33690 25	33690 23
33156 22	33156 21			33551 51	33551 00	33690 98	33690 85
33156 24	33156 21	33412 17	33412 24	33551 61	33551 00	33690 98	33690 97

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3312200	MA33B, Steel Mill Products	3316700	MA33B, Steel Mill Products
3312300	MA33B, Steel Mill Products	3316800	MA33B, Steel Mill Products
3312400	MA33B, Steel Mill Products	3317000	MA33B, Steel Mill Products
3312C00	MA33B, Steel Mill Products	3357600	MA33L, Insulated Wire and Cable
3315113	MA33B, Steel Mill Products	3357700	MA33L, Insulated Wire and Cable
		3357800	MA33L, Insulated Wire and Cable
3315134	MA33B, Steel Mill Products	3357900	MA33L, Insulated Wire and Cable
3315500	MA33B, Steel Mill Products	3357A00	MA33L, Insulated Wire and Cable
3315621	MA33B, Steel Mill Products	3357B00	MA33L, Insulated Wire and Cable
3315771	MA33B, Steel Mill Products	3357C00	MA33L, Insulated Wire and Cable
3315951	MA33B, Steel Mill Products	3357D00	MA33L, Insulated Wire and Cable
3315955	MA33B, Steel Mill Products	3357E00	MA33L, Insulated Wire and Cable

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:34 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08333121.DAT;1 1/ 6/ 95 08:33:41 UTF:TIPS93-08333121.DAT;1 1/ 6/ 95 08:33:42 META:TIPS96-08333121.DAT;1 1/ 6/ 95 08:34:17

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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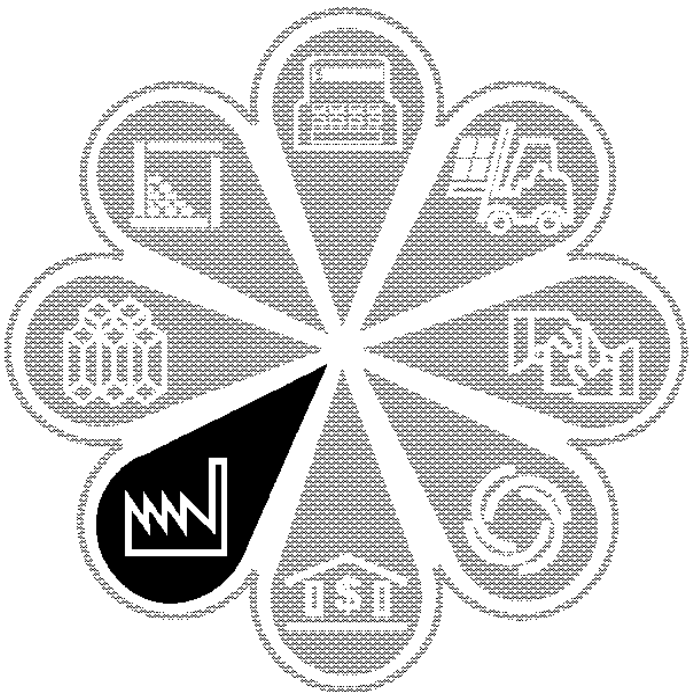
1992 Census of Manufactures

MC92-I-34A

INDUSTRY SERIES

Metal Cans, Cutlery, Handtools, and General Hardware

Industries 3411, 3412, 3421, 3423, 3425, and 3429



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 5 OUTPUT: Fri Jun 16 16:28:53 1995 / pssw02/ disk2/ economic/ mc92i/ 34a/ 01cvr

1992 Census of Manufactures

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

JOBNAME: No Job Name PAGE: 1 SESS: 20 OUTPUT: Mon Jun 5 09:33:10 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3411	Metal Cans
3412	Metal Barrels, Drums, and Pails
3421	Cutlery
3423	Hand and Edge Tools, N.E.C.
3425	Saw Blades and Handsaws
3429	Hardware, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3411, METAL CANS

This industry is made up of establishments primarily engaged in manufacturing metal cans from purchased materials. Establishments primarily engaged in manufacturing foil containers are classified in industry 3497.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3411, Metal Cans, had employment of 32.3 thousand. The employment figure was 18 percent below the 39.4 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Illinois, and Texas, accounting for approximately 40 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $12.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3411 shipped $11.4 billion of metal cans considered primary to the industry, $112.1 million of secondary products, and had $593.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3411, no matter in what industry they were produced, appear in table 6a and aggregate to $11.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal cans industry amounted to $8.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS

This industry is made up of establishments primarily engaged in manufacturing metal barrels, drums, and pails.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3412, Metal Barrels, Drums, and Pails, had employment of 7.2 thousand. The employment figure was 17 percent below the 8.7 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Texas, Ohio, and California, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when Ohio, New Jersey, Illinois, and California were the leading States.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3412 shipped $1.0 billion of metal barrels, drums, and pails considered primary to the industry, $85.5 million of secondary products, and had $46.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio also was 92 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3412, no matter in what industry they were produced, appear in table 6a and aggregate to $1.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal barrels, drums, and pails industry amounted to $693.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3421, CUTLERY

This industry is made up of establishments primarily engaged in manufacturing safety razors, razor blades, scissors, shears, and other cutlery of metal, except precious metal and table cutlery with handles of metal. Establishments primarily engaged in manufacturing precious metal cutlery and table cutlery with handles of metal are classified in industry 3914; those manufacturing electric razors, knives, or scissors are classified in industry 3634; those manufacturing hair clippers for human use are classified in industry 3999 and for animal use in industry 3523; and those manufacturing power hedge shears and trimmers are classified in industry 3524.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3421, Cutlery, had employment of 11.2 thousand. The employment figure was 7 percent above the 10.5 thousand reported in 1987. Compared with 1991, employment increased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts, New York, Connecticut, and Wisconsin, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when Massachusetts, Connecticut, New York, and California accounted for approximately 56 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3421 shipped $1.3 billion of cutlery considered primary to the industry, $76.9 million of secondary products, and had

$101.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3421, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the cutlery industry amounted to $430.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing files and other hand and edge tools for metalworking, woodworking, and general maintenance. Establishments primarily engaged in manufacturing handsaws and saw blades are classified in industry 3425; and those manufacturing metal cutting dies, power-driven handtools, and attachments and accessories for machine tools are classified in major group 35.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3423, Hand and Edge Tools, N.E.C., had employment of 39.7 thousand. The employment figure was 5 percent below the 41.9 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Illinois, California, and Minnesota, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Ohio, Illinois, North Carolina, and Minnesota were the leading States.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3423 shipped $3.3 billion of hand and edge tools, not elsewhere classified, considered primary to the industry, $335.7 million of secondary products, and had $530.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3423, no matter in what industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hand and edge tools, not elsewhere classified, industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3425, SAW BLADES AND HANDSAWS

This industry is made up of establishments primarily engaged in manufacturing handsaw and saw blades for hand and power-driven saws. Establishments primarily engaged in manufacturing power-driven sawing machines are classified in major group 35.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3425, Saw Blades and Handsaws, had employment of 7.6 thousand. The employment figure was 1 percent below the 7.7 thousand reported in 1987.

The leading States in employment in 1992 were Oregon, Massachusetts, Kentucky, and Ohio, accounting for approximately 46 percent of the industry's employment. This represents a shift from 1987 when Massachusetts, Oregon, Kentucky, and Virginia accounted for approximately 46 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $847.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3425 shipped $644.3 million of saw blades, and handsaws considered primary to the industry, $96.9 million of secondary products, and had $106.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3425, no matter in what industry they were produced, appear in table 6a and aggregate to $716.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the saw blades and handsaws industry amounted to $341.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3429, HARDWARE, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing miscellaneous metal products usually termed hardware, not elsewhere classified. Establishments primarily engaged in manufacturing bolts and nuts are classified in industry 3452; those manufacturing nails and spikes are classified in major group 33; those manufacturing cutlery are classified in industry 3421; those manufacturing handtools are classified in industry 3423; and those manufacturing pole line and transmission hardware are classified in industry group 364.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3429, Hardware, N.E.C., had employment of 75.4 thousand. The employment figure was 12 percent below the 85.2 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, California, Michigan, and Ohio, accounting for approximately 38 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $8.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3429 shipped $8.1 billion of hardware, not elsewhere classified, considered primary to the industry, $308.5 million of secondary products, and had $442.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3429, no matter in what industry they were produced, appear in table 6a and aggregate to $8.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hardware, not elsewhere classified, industry amounted to $4.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3411, METAL CANS															
1992 Census	132	324	240	32.3	1 261.9	27.2	58.3	1 032.7	3 290.1	8 797.9	12 112.2	350.6	1 512.3	99	98
1991 ASM	(NA)	(NA)	(NA)	34.6	1 315.0	29.3	65.5	1 048.8	3 557.3	8 977.9	12 449.6	233.3	1 435.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	35.9	1 319.4	30.5	67.6	1 077.2	3 668.4	8 676.4	12 342.4	285.9	1 334.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	36.9	1 342.1	31.1	68.7	1 082.0	3 418.5	7 985.9	11 389.3	359.5	1 393.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	39.0	1 361.5	32.9	71.8	1 081.9	3 920.3	7 492.2	11 407.1	303.0	1 398.2	(NA)	(NA)
1987 Census	161	369	259	39.4	1 325.4	32.7	69.5	1 058.0	3 816.0	7 194.6	11 013.6	334.2	1 383.9	99	98
1986 ASM	(NA)	(NA)	(NA)	41.8	1 370.0	35.0	72.3	1 102.2	3 773.9	7 351.2	11 068.7	362.7	1 287.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.2	1 399.1	37.1	76.5	1 114.3	3 736.3	7 886.8	11 643.9	263.6	1 332.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	45.7	1 364.9	38.2	78.9	1 086.4	3 883.2	7 778.8	11 623.2	204.2	1 382.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	46.2	1 344.3	38.5	78.3	1 062.9	3 757.0	7 276.2	10 961.5	178.1	1 326.3	(NA)	(NA)
1982 Census	168	397	294	49.0	1 334.5	40.8	81.5	1 066.4	4 071.7	7 046.8	11 132.8	247.0	1 338.8	98	99
1981 ASM	(NA)	(NA)	(NA)	50.3	1 297.2	41.3	86.3	1 038.7	3 828.6	6 577.1	10 448.0	352.8	1 284.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	53.6	1 255.0	44.4	93.7	1 011.8	3 978.1	6 188.1	10 087.0	205.2	1 357.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	57.6	1 216.7	48.2	101.7	989.3	3 905.2	6 091.9	9 892.3	215.1	1 292.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	58.9	1 141.6	49.4	103.0	928.0	3 351.1	5 652.5	8 972.3	205.3	1 110.0	(NA)	(NA)
1977 Census	153	403	300	59.8	1 066.3	50.2	106.4	870.8	3 154.3	5 068.7	8 142.8	176.9	1 032.9	96	98
INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS															
1992 Census	116	155	91	7.2	201.0	5.5	12.0	131.7	437.9	693.6	1 133.8	22.0	132.4	92	90
1991 ASM	(NA)	(NA)	(NA)	6.7	174.9	5.0	10.8	112.4	426.7	756.4	1 192.0	23.4	154.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.2	184.3	5.4	12.0	117.9	422.1	782.2	1 213.3	23.1	168.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.9	195.2	6.0	13.2	123.6	434.5	802.3	1 238.6	28.5	170.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.2	198.4	6.3	14.0	136.3	408.4	740.3	1 148.5	13.3	170.4	(NA)	(NA)
1987 Census	118	168	99	8.7	202.0	6.5	14.0	137.1	397.4	702.0	1 100.0	14.0	160.7	92	93
1986 ASM	(NA)	(NA)	(NA)	7.3	169.7	5.6	12.1	110.0	339.5	547.6	888.2	15.3	130.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.8	177.1	6.1	13.1	119.6	341.1	577.8	923.1	17.0	142.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.2	194.8	7.2	15.1	131.4	369.6	652.6	1 020.4	19.0	176.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.2	200.1	8.1	15.9	143.8	439.6	753.7	1 152.7	23.6	221.9	(NA)	(NA)
1982 Census	115	169	109	9.9	198.6	7.6	14.8	136.3	371.7	663.0	1 038.7	22.7	165.5	93	93
1981 ASM	(NA)	(NA)	(NA)	12.0	233.0	9.6	19.5	164.8	461.8	810.6	1 267.8	54.4	202.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.7	225.5	10.3	20.8	162.3	479.2	776.6	1 258.6	39.0	166.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.1	218.2	10.6	21.9	161.3	497.5	748.4	1 236.9	31.4	195.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.7	198.0	9.9	20.3	142.8	406.6	621.6	1 031.7	27.8	147.8	(NA)	(NA)
1977 Census	120	184	113	12.4	180.3	9.8	20.1	128.8	389.6	551.2	937.1	31.8	135.0	94	90
INDUSTRY 3421, CUTLERY															
1992 Census	127	133	54	11.2	292.1	8.2	15.9	194.3	1 077.0	430.5	1 509.9	56.2	248.5	95	90
1991 ASM	(NA)	(NA)	(NA)	10.4	274.9	8.1	16.2	192.8	1 027.3	351.6	1 391.2	38.2	233.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.9	292.3	8.6	18.0	205.5	977.8	360.6	1 320.5	63.9	243.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.6	263.4	8.3	16.2	182.7	940.9	306.3	1 235.2	82.2	213.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.8	270.2	8.4	16.5	172.6	884.1	278.8	1 142.2	60.6	194.2	(NA)	(NA)
1987 Census	131	141	62	10.5	241.0	7.9	15.1	157.9	803.1	250.7	1 054.0	57.9	174.0	96	88
1986 ASM	(NA)	(NA)	(NA)	11.7	251.2	9.1	17.2	170.2	772.9	269.5	1 045.1	47.3	177.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.8	239.9	9.4	17.3	164.6	731.7	303.9	1 043.4	43.9	180.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.1	231.8	9.6	18.1	161.7	717.9	289.9	992.4	35.2	189.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.2	222.1	9.7	18.3	155.7	723.5	238.1	972.3	34.2	173.9	(NA)	(NA)
1982 Census	123	132	69	13.0	223.7	10.5	20.1	161.2	683.6	256.3	938.0	44.0	185.4	96	90
1981 ASM	(NA)	(NA)	(NA)	12.8	200.8	10.8	20.4	147.1	613.1	251.5	854.6	21.3	167.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.8	187.8	10.9	20.6	141.9	561.6	233.1	782.6	33.3	155.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.6	184.3	12.4	22.9	139.4	553.7	223.4	771.4	31.2	151.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.7	187.0	12.9	24.8	138.3	547.3	253.8	790.0	37.9	147.4	(NA)	(NA)
1977 Census	119	130	62	14.9	159.6	12.1	23.5	118.3	492.0	219.1	711.4	23.3	132.1	92	94
INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.															
1992 Census	828	915	340	39.7	1 058.3	29.3	59.5	653.6	2 584.5	1 608.0	4 208.8	123.4	720.8	91	91
1991 ASM	(NA)	(NA)	(NA)	39.6	1 006.3	29.0	58.9	625.8	2 400.8	1 578.6	3 949.5	102.4	787.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	40.6	991.7	29.9	60.6	621.6	2 392.8	1 549.1	3 966.7	129.9	734.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	41.2	994.7	30.6	62.5	642.2	2 519.9	1 517.7	4 058.4	106.0	755.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	42.0	975.2	31.4	63.2	619.0	2 336.3	1 469.4	3 815.5	118.7	774.3	(NA)	(NA)
1987 Census	732	810	318	41.9	922.0	31.3	62.8	595.0	2 233.2	1 381.7	3 605.6	117.0	755.2	90	92
1986 ASM	(NA)	(NA)	(NA)	40.3	839.7	30.2	59.8	550.0	1 968.6	1 278.1	3 242.3	105.4	779.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	40.6	810.7	30.7	58.2	533.1	1 948.2	1 183.2	3 136.6	96.3	755.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	40.8	806.8	30.5	59.7	513.6	1 865.5	1 211.9	3 060.1	94.0	766.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	40.0	735.0	29.6	56.0	462.0	1 751.9	1 079.2	2 869.6	79.7	719.8	(NA)	(NA)
1982 Census	703	786	322	40.4	706.5	29.8	55.4	448.8	1 785.2	1 103.5	2 915.5	93.2	720.1	90	92
1981 ASM	(NA)	(NA)	(NA)	47.3	778.6	36.4	71.0	513.3	2 011.0	1 285.4	3 261.1	81.7	636.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	47.2	702.2	36.1	67.6	463.5	1 799.7	1 143.9	2 947.2	85.7	579.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.1	721.9	39.9	77.6	493.3	1 887.8	1 206.0	3 038.1	87.5	579.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	50.2	648.4	40.1	79.4	464.3	1 636.0	1 058.2	2 648.7	82.0	538.4	(NA)	(NA)
1977 Census	662	724	296	47.0	566.4	36.9	72.8	394.7	1 421.4	898.7	2 279.2	72.0	487.4	91	90
INDUSTRY 3425, SAW BLADES AND HANDSAWS															
1992 Census	128	139	57	7.6	218.4	5.3	11.1	129.3	507.2	341.1	847.2	34.2	151.1	87	90
1991 ASM	(NA)	(NA)	(NA)	7.8	200.9	5.5	11.2	119.9	449.4	368.3	789.6	55.5	189.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.7	224.3	6.1	11.6	136.8	540.3	379.5	916.8	38.4	168.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.8	210.4	6.3	12.6	135.8	535.5	355.1	874.2	40.2	167.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.9	197.8	5.8	11.7	123.3	459.8	283.9	748.2	19.3	139.0	(NA)	(NA)
1987 Census	128	138	60	7.7	177.4	5.6	11.0	113.9	413.6	267.0	674.9	22.5	133.6	90	87
1986 ASM	(NA)	(NA)	(NA)	9.3	215.6	7.0	14.1	138.2	497.8	323.3	805.6	14.2	172.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.5	183.0	6.3	13.0	114.5	417.6	270.1	701.3	28.1	143.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.3	191.5	6.8	13.5	122.2	394.2	270.7	675.0	17.8	150.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.8	145.1	5.6	11.0	90.6	300.6	211.5	509.3	13.3	111.5	(NA)	(NA)
1982 Census	119	135	62	7.4	133.4	5.3	10.5	83.2	251.8	220.1	487.3	24.1	115.8	82	84
1981 ASM	(NA)	(NA)	(NA)	9.4	161.8	6.9	14.2	107.1	329.7	252.1	579.2	46.1	129.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.7	153.2	7.3	15.3	100.0	339.7	255.4	578.9	34.5	120.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.1	130.7	6.8	14.1	86.9	296.2	211.9	511.9	27.0	101.3	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 3425, SAW BLADES AND HANDSAWS—Con.														
1978 ASM	(NA)	(NA)	(NA)	8.6	110.9	6.6	13.1	73.4	269.2	159.5	426.1	19.2	86.4	(NA)	(NA)
1977 Census	105	115	55	7.6	94.3	5.7	11.4	62.7	230.6	137.6	363.3	13.4	75.5	86	77
	INDUSTRY 3429, HARDWARE, N.E.C.														
1992 Census	1 172	1 278	485	75.4	2 063.1	56.2	113.3	1 318.8	4 860.9	3 951.1	8 842.8	253.3	1 237.4	96	96
1991 ASM	(NA)	(NA)	(NA)	73.8	1 937.5	56.2	111.5	1 257.8	4 278.2	3 887.1	8 223.0	187.5	1 281.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	78.8	2 016.2	60.6	119.7	1 334.0	4 593.3	3 865.6	8 462.3	217.9	1 346.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	84.9	2 042.2	66.3	130.6	1 400.0	4 707.0	4 041.6	8 706.1	226.7	1 387.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	86.8	2 124.0	66.3	128.7	1 459.2	4 564.6	3 862.2	8 403.5	182.0	1 427.5	(NA)	(NA)
1987 Census	1 127	1 239	519	85.2	2 048.5	65.8	128.6	1 408.5	4 580.7	3 567.5	8 146.2	251.6	1 312.5	96	95
1986 ASM	(NA)	(NA)	(NA)	82.3	1 961.4	61.9	122.7	1 337.7	4 311.4	3 393.6	7 688.9	236.5	1 300.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	84.7	2 032.4	65.0	128.8	1 417.7	4 411.9	3 448.4	7 860.9	233.7	1 252.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	87.9	1 977.0	67.8	134.0	1 374.7	4 415.0	3 189.6	7 505.9	215.3	1 293.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	82.3	1 717.4	63.5	125.1	1 200.2	3 947.9	2 843.0	6 752.8	162.3	1 199.9	(NA)	(NA)
1982 Census	1 085	1 185	486	80.1	1 520.9	60.8	114.1	1 030.2	3 320.1	2 370.6	5 740.9	174.3	1 064.5	96	94
1981 ASM	(NA)	(NA)	(NA)	95.9	1 720.1	74.7	143.2	1 215.2	3 666.7	2 635.9	6 259.6	301.2	1 075.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	97.1	1 584.0	74.6	142.7	1 106.4	3 317.3	2 399.9	5 707.3	261.5	1 053.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	107.3	1 632.6	84.9	163.5	1 163.0	3 622.8	2 689.2	6 231.4	158.6	1 072.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	105.2	1 510.4	82.3	159.8	1 076.2	3 334.8	2 472.1	5 734.5	179.0	968.2	(NA)	(NA)
1977 Census	1 063	1 168	464	99.2	1 359.0	77.9	156.8	977.7	3 032.6	2 239.0	5 202.6	190.2	849.7	94	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3411, METAL CANS								
1992 Census	39 068	84	2 143	17.71	73	83	101 861	38	56.43
1991 ASM	38 006	85	2 235	16.01	72	83	102 812	37	54.31
1990 ASM	36 752	85	2 216	15.93	70	81	102 184	36	54.27
1989 ASM	36 371	84	2 209	15.75	70	82	92 642	39	49.76
1988 ASM	34 910	84	2 182	15.07	66	78	100 521	35	54.60
1987 Census	33 640	83	2 125	15.22	65	77	96 853	35	54.91
1986 ASM	32 775	84	2 066	15.24	66	79	90 285	36	52.20
1985 ASM	31 654	84	2 062	14.57	68	80	84 532	37	48.84
1984 ASM	29 867	84	2 065	13.77	67	79	84 972	35	49.22
1983 ASM	29 097	83	2 034	13.57	66	79	81 320	36	47.98
1982 Census	27 235	83	1 998	13.08	63	75	83 096	33	49.96
1981 ASM	25 789	82	2 090	12.04	63	75	76 115	34	44.36
1980 ASM	23 414	83	2 110	10.80	61	74	74 218	32	42.46
1979 ASM	21 123	84	2 110	9.73	62	74	67 799	31	38.40
1978 ASM	19 382	84	2 085	9.01	63	76	56 895	34	32.53
1977 Census	17 831	84	2 120	8.18	62	75	52 747	34	29.65
	INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS								
1992 Census	27 917	76	2 182	10.98	61	79	60 819	46	36.49
1991 ASM	26 104	75	2 160	10.41	63	78	63 687	41	39.51
1990 ASM	25 597	75	2 222	9.83	64	80	58 625	44	35.18
1989 ASM	24 709	76	2 200	9.36	65	81	55 000	45	32.92
1988 ASM	24 195	77	2 222	9.74	64	82	49 805	49	29.17
1987 Census	23 218	75	2 154	9.79	64	82	45 678	51	28.39
1986 ASM	23 247	77	2 161	9.09	62	81	46 507	50	28.06
1985 ASM	22 705	78	2 148	9.13	63	82	43 731	52	26.04
1984 ASM	21 174	78	2 097	8.70	64	83	40 174	53	24.48
1983 ASM	19 618	79	1 963	9.04	65	83	43 098	46	27.65
1982 Census	20 061	77	1 947	9.21	64	83	37 545	53	25.11
1981 ASM	19 417	80	2 031	8.45	64	82	38 483	50	23.68
1980 ASM	17 756	81	2 019	7.80	62	80	37 732	47	23.04
1979 ASM	16 656	81	2 066	7.37	61	78	37 977	44	22.72
1978 ASM	15 591	78	2 051	7.03	60	79	32 016	49	20.03
1977 Census	14 540	79	2 051	6.41	59	78	31 419	46	19.38

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3421, CUTLERY								
1992 Census	26 080	73	1 939	12.22	29	48	96 161	27	67.74
1991 ASM	26 433	78	2 000	11.90	25	45	98 779	27	63.41
1990 ASM	26 817	79	2 093	11.42	27	49	89 706	30	54.32
1989 ASM	24 849	78	1 952	11.28	25	46	88 764	28	58.08
1988 ASM	25 019	78	1 964	10.46	24	48	81 861	31	53.58
1987 Census	22 952	75	1 911	10.46	24	47	76 486	30	53.19
1986 ASM	21 470	78	1 890	9.90	26	50	66 060	33	44.94
1985 ASM	20 331	80	1 840	9.51	29	52	62 008	33	42.29
1984 ASM	19 157	79	1 885	8.93	29	53	59 331	32	39.66
1983 ASM	18 205	80	1 887	8.51	24	47	59 303	31	39.54
1982 Census	17 208	81	1 914	8.02	27	51	52 585	33	34.01
1981 ASM	15 688	84	1 889	7.21	29	53	47 898	33	30.05
1980 ASM	14 672	85	1 890	6.89	30	54	43 875	33	27.26
1979 ASM	12 623	85	1 847	6.09	29	53	37 925	33	24.18
1978 ASM	11 911	82	1 922	5.58	32	56	34 860	34	22.07
1977 Census	10 711	81	1 942	5.03	31	53	33 020	32	20.94
	INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.								
1992 Census	26 657	74	2 031	10.98	38	63	65 101	41	43.44
1991 ASM	25 412	73	2 031	10.62	40	65	60 626	42	40.76
1990 ASM	24 426	74	2 027	10.26	39	64	58 936	41	39.49
1989 ASM	24 143	74	2 042	10.28	37	62	61 163	39	40.32
1988 ASM	23 219	75	2 013	9.79	39	64	55 626	42	36.97
1987 Census	22 005	75	2 006	9.47	38	64	53 298	41	35.56
1986 ASM	20 836	75	1 980	9.20	39	65	48 849	43	32.92
1985 ASM	19 968	76	1 896	9.16	38	64	47 985	42	33.47
1984 ASM	19 775	75	1 957	8.60	40	66	45 723	43	31.25
1983 ASM	18 375	74	1 892	8.25	38	63	43 798	42	31.28
1982 Census	17 488	74	1 859	8.10	38	62	44 188	40	32.22
1981 ASM	16 461	77	1 951	7.23	39	63	42 516	39	28.32
1980 ASM	14 877	76	1 873	6.86	39	63	38 129	39	26.62
1979 ASM	14 127	78	1 945	6.36	40	63	36 943	38	24.33
1978 ASM	12 916	80	1 980	5.85	40	64	32 590	40	20.60
1977 Census	12 051	79	1 973	5.42	39	64	30 243	40	19.52
	INDUSTRY 3425, SAW BLADES AND HANDSAWS								
1992 Census	28 737	70	2 094	11.65	40	66	66 737	43	45.69
1991 ASM	25 756	71	2 036	10.71	47	72	57 615	45	40.13
1990 ASM	25 782	70	1 902	11.79	41	66	62 103	42	46.58
1989 ASM	23 909	72	2 000	10.78	41	65	60 852	39	42.50
1988 ASM	25 038	73	2 017	10.54	38	64	58 203	43	39.30
1987 Census	23 039	73	1 964	10.35	40	66	53 714	43	37.60
1986 ASM	23 183	75	2 014	9.80	40	67	53 527	43	35.30
1985 ASM	21 529	74	2 063	8.81	39	65	49 129	44	32.12
1984 ASM	20 591	73	1 985	9.05	40	68	42 387	49	29.20
1983 ASM	18 603	72	1 964	8.24	42	70	38 538	48	27.33
1982 Census	18 027	72	1 981	7.92	45	73	34 027	53	23.98
1981 ASM	17 213	73	2 058	7.54	44	71	35 074	49	23.22
1980 ASM	15 794	75	2 096	6.54	44	71	35 021	45	22.20
1979 ASM	14 363	75	2 074	6.16	41	67	32 549	44	21.01
1978 ASM	12 895	77	1 985	5.60	37	63	31 302	41	20.55
1977 Census	12 408	75	2 000	5.50	38	64	30 342	41	20.23
	INDUSTRY 3429, HARDWARE, N.E.C.								
1992 Census	27 362	75	2 016	11.64	45	68	64 468	42	42.90
1991 ASM	26 253	76	1 984	11.28	47	71	57 970	45	38.37
1990 ASM	25 586	77	1 975	11.14	46	70	58 291	44	38.37
1989 ASM	24 054	78	1 970	10.72	46	70	55 442	43	36.04
1988 ASM	24 470	76	1 941	11.34	46	71	52 588	47	35.47
1987 Census	24 043	77	1 954	10.95	44	69	53 764	45	35.62
1986 ASM	23 832	75	1 982	10.90	44	70	52 386	45	35.14
1985 ASM	23 995	77	1 982	11.01	44	70	52 089	46	34.25
1984 ASM	22 491	77	1 976	10.26	42	69	50 228	45	32.95
1983 ASM	20 868	77	1 970	9.59	42	68	47 970	44	31.56
1982 Census	18 988	76	1 877	9.03	41	68	41 449	46	29.10
1981 ASM	17 936	78	1 917	8.49	42	70	38 235	47	25.61
1980 ASM	16 313	77	1 913	7.75	42	70	34 164	48	23.25
1979 ASM	15 215	79	1 926	7.11	43	69	33 763	45	22.16
1978 ASM	14 357	78	1 942	6.73	43	69	31 700	45	20.87
1977 Census	13 700	79	2 013	6.24	43	69	30 571	45	19.34

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3411, METAL CANS														
United States	–	**324**	**240**	**32.3**	**1 261.9**	**27.2**	**58.3**	**1 032.7**	**3 290.1**	**8 797.9**	**12 112.2**	**350.6**	**39.4**	**3 816.0**
Alabama	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	29.2
Arizona	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	55	41	5.1	196.0	4.3	9.0	162.4	417.1	1 332.6	1 790.2	44.4	6.6	528.1
Colorado	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	12	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	10	6	.9	36.1	.7	1.6	27.9	107.0	224.3	326.3	(D)	G	(D)
Illinois	–	22	14	2.5	95.2	2.1	4.4	77.1	167.4	407.2	577.3	8.0	(NA)	(D)
Indiana	–	8	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.6	F	(D)
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	10	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E2	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	6	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E1	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	8	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	21	12	1.5	55.9	1.2	2.7	44.8	145.9	313.7	461.0	5.8	2.4	181.3
New York	–	12	8	1.0	42.5	.9	1.9	33.5	123.4	348.3	471.0	(D)	G	(D)
North Carolina	–	6	5	.9	39.4	.8	1.7	30.3	102.7	268.1	367.8	(D)	G	(D)
Ohio	–	19	16	3.4	129.5	2.9	6.0	101.9	384.1	837.2	1 213.9	41.6	3.3	327.3
Oklahoma	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	14	11	1.7	56.7	1.3	3.0	44.2	164.1	332.6	501.2	8.4	2.0	161.1
South Carolina	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	5	3	.2	6.1	.2	.5	5.0	27.1	48.9	74.5	(D)	(NA)	(D)
Texas	–	21	17	1.9	70.5	1.6	3.6	57.4	249.1	549.6	799.0	18.2	2.4	268.5
Virginia	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	11.9	1.3	96.1
Washington	–	7	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	19	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wyoming	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS														
United States	–	**155**	**91**	**7.2**	**201.0**	**5.5**	**12.0**	**131.7**	**437.9**	**693.6**	**1 133.8**	**22.0**	**8.7**	**397.4**
Alabama	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	16.2
California	–	17	8	.6	18.2	.5	1.0	13.0	40.1	67.0	106.4	1.2	.8	40.6
Georgia	E1	5	3	.6	13.3	.6	1.2	11.2	28.4	56.8	85.1	(D)	(NA)	(D)
Illinois	–	19	13	1.3	43.7	.8	1.9	24.8	74.1	106.3	180.5	5.2	G	(D)
Louisiana	E1	4	3	.2	5.0	.1	.3	3.7	15.3	39.5	55.0	(D)	E	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	8	5	.4	13.3	.3	.7	8.0	33.4	44.7	78.0	1.4	1.0	41.9
New York	–	5	3	.1	3.0	.1	.2	1.9	5.1	7.7	13.0	(D)	(NA)	(D)
North Carolina	–	3	3	.2	4.5	.2	.3	3.0	9.2	17.1	26.4	(D)	(NA)	(NA)
Ohio	E1	20	16	1.0	25.4	.8	1.6	16.6	58.4	90.4	148.9	2.6	1.3	51.0
Pennsylvania	–	11	7	.5	14.8	.4	.8	10.4	43.5	57.9	101.4	1.0	.4	22.9
Texas	–	11	9	1.0	25.2	.8	1.7	15.0	55.6	88.5	145.2	2.5	.7	40.1
INDUSTRY 3421, CUTLERY														
United States	–	**133**	**54**	**11.2**	**292.1**	**8.2**	**15.9**	**194.3**	**1 077.0**	**430.5**	**1 509.9**	**56.2**	**10.5**	**803.1**
Arkansas	–	5	2	.2	3.1	.1	.2	2.2	7.9	4.0	13.8	(D)	(NA)	(NA)
California	–	9	4	.8	21.3	.6	.9	11.3	52.6	23.6	77.3	2.1	F	(D)
Connecticut	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	5	3	.3	7.5	.2	.7	4.1	22.3	17.9	39.9	(D)	E	(D)
Georgia	E3	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	E1	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	3	2	.1	2.5	.1	.2	1.9	5.0	2.6	7.2	(D)	(NA)	(NA)
New Jersey	–	9	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	19.7
New York	E1	16	9	1.6	35.8	1.2	2.7	24.3	89.8	67.0	160.4	3.2	G	(D)
Ohio	E1	11	2	.2	6.4	.2	.4	2.6	11.9	5.5	16.8	.7	E	(D)
Oregon	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	8	5	.5	11.0	.3	.7	6.5	25.3	9.3	32.9	.8	.6	31.5
South Carolina	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992 All establishments Total (no.)	1992 All establishments With 20 employees or more (no.)	1992 All employees Number[2] (1,000)	1992 All employees Payroll (million dollars)	1992 Production workers Number (1,000)	1992 Production workers Hours (millions)	1992 Production workers Wages (million dollars)	1992 Value added by manufacture (million dollars)	1992 Cost of materials (million dollars)	1992 Value of shipments (million dollars)	1992 New capital expenditures (million dollars)	1987 All employees[2] (1,000)	1987 Value added by manufacture (million dollars)
INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.														
United States	–	**915**	**340**	**39.7**	**1 058.3**	**29.3**	**59.5**	**653.6**	**2 584.5**	**1 608.0**	**4 208.8**	**123.4**	**41.9**	**2 233.2**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	E1	6	4	.8	19.9	.8	1.6	16.1	33.4	24.4	57.4	(D)	F	(D)
California	E1	122	37	2.4	59.3	1.7	3.4	33.5	130.2	80.9	208.6	4.0	2.3	103.5
Colorado	–	11	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Connecticut	–	30	11	1.3	45.9	.8	1.6	21.9	117.4	61.1	199.0	(D)	1.9	127.3
Florida	E1	21	2	.3	7.1	.2	.4	3.5	17.6	5.5	23.1	.2	(NA)	(D)
Georgia	–	11	7	.5	14.5	.3	.6	5.9	31.6	16.5	49.8	1.3	E	(D)
Illinois	–	64	30	3.9	113.0	2.9	5.9	71.2	247.0	116.4	360.7	13.4	(NA)	(D)
Indiana	–	26	10	1.1	29.0	.8	1.9	18.6	63.4	51.8	120.1	6.1	G	(D)
Iowa	–	10	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E6	11	6	.5	10.8	.3	.5	5.2	30.4	26.3	56.4	.4	E	(D)
Kentucky	–	13	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	–	6	4	.1	3.4	.1	.2	2.2	6.1	3.7	9.7	.1	(NA)	(NA)
Massachusetts	–	44	19	1.6	44.9	1.2	2.5	29.0	95.0	46.7	143.9	6.2	2.1	77.7
Michigan	–	57	19	1.7	37.9	1.1	2.2	21.2	116.0	147.1	262.7	4.0	G	(D)
Minnesota	–	33	15	2.0	60.8	1.2	2.5	28.9	120.5	122.0	241.6	4.9	2.3	90.8
Missouri	–	28	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	F	(D)
Nebraska	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	E4	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	33	13	1.8	36.0	1.4	2.7	19.9	79.5	57.0	136.6	2.7	1.7	68.0
New York	E2	49	16	1.6	37.9	1.2	2.6	22.4	95.7	82.9	180.3	3.7	1.7	84.3
North Carolina	–	24	13	1.8	50.1	1.5	3.4	36.6	118.3	111.1	229.2	7.2	G	(D)
North Dakota	–	3	3	.1	2.9	.1	.2	1.5	8.3	4.1	12.1	(D)	(NA)	(NA)
Ohio	–	77	35	4.4	129.2	3.1	6.1	76.9	358.2	205.1	565.0	14.2	4.7	292.1
Oregon	E1	8	2	.2	4.4	.1	.3	3.2	20.7	7.3	27.6	(D)	(NA)	(D)
Pennsylvania	E1	54	21	1.8	44.1	1.3	2.4	26.6	94.7	44.3	135.3	3.1	2.1	91.8
South Carolina	–	10	6	1.9	44.6	1.5	3.0	30.8	126.2	57.3	183.4	5.5	2.3	125.4
Tennessee	E4	14	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	26	7	1.0	23.7	.8	1.9	16.3	60.4	48.9	109.4	1.5	F	(D)
Vermont	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	(NA)	(NA)
Washington	E2	18	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(D)
West Virginia	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	32	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3425, SAW BLADES AND HANDSAWS														
United States	–	**139**	**57**	**7.6**	**218.4**	**5.3**	**11.1**	**129.3**	**507.2**	**341.1**	**847.2**	**34.2**	**7.7**	**413.6**
California	E1	19	6	.5	13.1	.3	.5	6.1	25.6	25.4	51.3	1.4	E	(D)
Connecticut	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E1	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	E7	8	1	.2	4.0	.1	.2	2.5	9.4	6.0	15.6	(D)	(NA)	(NA)
Mississippi	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	7	3	.2	5.6	.2	.4	3.7	14.6	10.9	25.4	.4	E	(D)
North Carolina	E1	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	14	5	.6	15.3	.4	.8	8.6	43.0	34.3	75.8	2.4	E	(D)
Oregon	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	8	4	.3	8.0	.2	.5	5.0	25.4	11.5	37.0	.7	.3	24.5
South Carolina	–	3	3	.4	10.4	.3	.6	6.1	17.9	25.0	43.6	(D)	E	(D)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3429, HARDWARE, N.E.C.														
United States	–	**1 278**	**485**	**75.4**	**2 063.1**	**56.2**	**113.3**	**1 318.8**	**4 860.9**	**3 951.1**	**8 842.8**	**253.3**	**85.2**	**4 580.7**
Alabama	–	16	11	1.7	34.7	1.2	2.5	23.2	89.6	83.4	169.1	(D)	G	(D)
Arizona	–	10	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	8	4	1.0	19.3	.7	1.2	11.6	50.1	32.5	83.0	1.5	.8	50.6
California	E1	198	71	8.2	234.6	5.9	12.1	139.5	556.6	350.3	897.8	20.7	10.5	554.3
Colorado	–	7	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Connecticut	E2	49	25	4.1	120.1	2.7	5.6	70.4	259.5	150.3	415.9	6.7	5.7	298.8
Florida	E1	53	12	1.4	29.2	1.1	2.1	17.6	56.3	44.6	100.2	2.5	2.3	81.8
Georgia	E1	16	5	.6	12.0	.4	.8	6.5	28.0	21.6	49.6	.3	F	(D)
Illinois	E1	100	44	8.3	225.8	5.9	11.4	112.5	534.2	382.7	920.0	44.9	(NA)	(D)
Indiana	E1	47	21	3.6	93.1	2.7	5.5	60.6	240.3	196.6	440.9	22.1	3.0	198.5
Iowa	–	14	7	.6	12.4	.5	1.0	8.3	29.7	26.4	54.8	1.5	.4	18.0
Kansas	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	15	10	1.6	38.3	1.3	2.3	25.7	107.0	93.6	199.9	3.5	G	(D)
Maryland	E1	9	4	.2	4.6	.2	.4	3.2	17.6	19.6	38.0	.6	.2	8.3
Massachusetts	–	34	13	1.3	30.7	.9	1.8	16.6	62.1	43.2	107.5	(D)	G	(D)
Michigan	–	107	49	7.5	241.2	5.6	11.1	156.8	511.1	691.9	1 216.9	28.9	10.1	601.1
Minnesota	–	29	5	1.0	25.2	.6	1.2	13.1	61.1	45.6	108.4	(D)	F	(D)
Mississippi	–	9	5	.5	11.7	.4	.8	8.9	38.7	46.8	85.1	.8	F	(D)
Missouri	E4	25	8	1.3	31.7	.9	1.9	19.1	70.6	55.1	125.7	(D)	.9	39.4
New Hampshire	E1	6	1	.2	5.1	.1	.2	3.7	9.2	4.2	13.0	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3429, HARDWARE, N.E.C.—Con.														
New Jersey	–	31	10	2.6	95.1	2.1	4.5	75.7	173.4	202.6	377.2	1.3	4.0	234.8
New York	E1	75	29	3.7	112.1	2.8	5.0	77.5	235.9	168.1	409.9	5.4	5.1	263.6
North Carolina	–	33	19	3.4	78.0	2.8	5.9	53.6	187.5	175.6	364.3	7.9	3.2	159.6
Ohio	–	63	31	4.8	154.0	3.4	6.9	102.4	314.2	262.1	575.4	13.8	7.1	434.6
Oklahoma	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	17	4	.5	11.8	.4	.8	6.4	32.5	23.9	54.9	1.2	.5	23.7
Pennsylvania	–	46	18	2.8	72.2	2.1	4.2	44.8	205.9	103.6	309.5	6.0	3.1	148.7
South Carolina	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	5	3	.3	5.0	.2	.4	3.5	9.9	12.6	22.2	.3	(NA)	(D)
Tennessee	–	28	17	4.4	102.1	3.7	8.1	76.3	252.7	330.7	587.2	15.3	3.8	188.3
Texas	E2	73	14	1.3	32.6	1.0	2.1	21.4	58.5	85.6	143.5	6.2	F	(D)
Virginia	–	10	4	.8	21.0	.5	1.0	12.3	62.6	13.3	76.4	(D)	F	(D)
Washington	–	25	6	.6	20.5	.5	1.1	15.1	39.3	12.0	56.2	(D)	.9	29.0
West Virginia	E6	4	4	.3	6.3	.2	.5	3.9	14.0	9.4	23.6	(D)	E	(D)
Wisconsin	–	38	17	3.7	114.4	2.9	5.8	81.7	267.5	135.4	403.1	16.0	3.3	177.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal cans (SIC 3411)	Metal barrels, drums, and pails (SIC 3412)	Cutlery (SIC 3421)	Hand and edge tools, n.e.c. (SIC 3423)	Saw blades and handsaws (SIC 3425)	Hardware, n.e.c. (SIC 3429)
Companies, number	132	116	127	828	128	1 172
All establishments, number	324	155	133	915	139	1 278
With 1 to 19 employees, number	84	64	79	575	82	793
With 20 to 99 employees, number	97	74	28	252	35	318
With 100 employees or more, number	143	17	26	88	22	167
Employment and labor costs:						
Employees, 1,000	32.3	7.2	11.2	39.7	7.6	75.4
Compensation, total, mil dol	1 688.5	256.4	383.7	1 319.8	275.1	2 714.9
Annual payroll, mil dol	1 261.9	201.0	292.1	1 058.3	218.4	2 063.1
Fringe benefits, mil dol	426.6	55.4	91.6	261.6	56.7	651.8
Social Security and other legally required payments, mil dol	149.5	22.2	32.3	107.7	22.7	234.8
Employer voluntary payments, mil dol	277.1	33.2	59.4	153.9	34.0	417.0
Production workers:						
Average for year, 1,000	27.2	5.5	8.2	29.3	5.3	56.2
March, 1,000	27.6	5.6	8.3	29.3	5.3	56.3
May, 1,000	27.7	5.6	8.1	29.3	5.3	56.8
August, 1,000	27.4	5.6	8.2	29.4	5.4	55.8
November, 1,000	26.0	5.3	8.0	29.2	5.3	56.2
Hours, millions	58.3	12.0	15.9	59.5	11.1	113.3
Wages, mil dol	1 032.7	131.7	194.3	653.6	129.3	1 318.8
Cost of materials[1], mil dol	8 797.9	693.6	430.5	1 608.0	341.1	3 951.1
Materials, parts, containers, etc., consumed[2], mil dol	8 390.3	654.6	327.2	1 180.5	259.5	3 398.8
Resales, mil dol	176.4	8.0	63.3	322.0	59.3	268.9
Fuels, mil dol	58.3	12.4	5.4	16.3	2.0	29.3
Purchased electricity, mil dol	148.0	14.9	13.9	47.1	16.0	85.1
Contract work, mil dol	24.8	3.7	20.6	42.1	4.2	169.0
Quantity of electric energy used for heat and power:						
Purchased, mil kWh	2 721.3	223.9	210.5	791.8	295.2	1 331.8
Generated less sold, mil kWh	(D)	–	48.3	10.2	(D)	(S)
Total value of shipments, mil dol	12 112.2	1 133.8	1 509.9	4 208.8	847.2	8 842.8
Value added, mil dol	3 290.1	437.9	1 077.0	2 584.5	507.2	4 860.9
Inventories by stage of fabrication:						
Beginning of 1992, mil dol	1 443.7	131.0	247.8	732.2	148.3	1 273.8
Finished goods, mil dol	786.4	14.5	110.9	339.5	54.8	403.1
Work in process, mil dol	259.0	18.2	56.4	223.1	39.7	478.4
Materials and supplies, mil dol	398.3	98.2	80.5	169.6	53.8	392.3
End of 1992, mil dol	1 512.3	132.4	248.5	720.8	151.1	1 237.4
Finished goods, mil dol	807.8	14.3	100.6	328.7	57.9	391.0
Work in process, mil dol	213.5	16.3	64.2	217.7	37.8	459.7
Materials and supplies, mil dol	491.0	101.9	83.7	174.4	55.4	386.8

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal cans (SIC 3411)	Metal barrels, drums, and pails (SIC 3412)	Cutlery (SIC 3421)	Hand and edge tools, n.e.c. (SIC 3423)	Saw blades and handsaws (SIC 3425)	Hardware, n.e.c. (SIC 3429)
Gross book value of depreciable assets:						
Total:						
Beginning of year	4 331.4	426.3	673.1	1 457.9	365.8	3 141.2
New capital expenditures[1]	350.6	22.0	56.2	123.4	34.2	253.3
Used capital expenditures	19.7	5.2	1.9	11.5	1.9	26.7
Retirements	242.5	22.1	42.9	31.5	13.4	66.4
End of year	4 459.2	431.4	688.3	1 561.3	388.6	3 354.8
Buildings and other structures:						
Beginning of year	644.1	70.8	139.8	280.8	77.0	677.1
New capital expenditures	13.1	1.6	7.5	13.7	1.8	41.1
Used capital expenditures	2.1	.7	(D)	2.9	(D)	7.3
Retirements	9.4	.1	(D)	6.8	(D)	4.0
End of year	649.9	72.9	144.5	290.7	79.1	721.5
Machinery and equipment:						
Beginning of year	3 687.3	355.5	533.2	1 177.1	288.8	2 464.1
New capital expenditures[1]	337.4	20.4	48.7	109.7	32.4	212.2
Used capital expenditures	17.6	4.6	(D)	8.6	(D)	19.4
Retirements	233.0	22.0	(D)	24.7	(D)	62.5
End of year	3 809.3	358.5	543.7	1 270.6	309.5	2 633.2
Depreciation charges during 1992:						
Total	289.4	30.7	18.9	109.4	26.3	211.3
Buildings and other structures	21.9	3.1	2.5	12.3	3.5	26.8
Machinery and equipment	267.5	27.7	16.4	97.0	22.8	184.5
Rental payments:						
Total	44.1	11.0	7.9	42.2	5.2	71.1
Buildings and other structures	31.1	6.5	5.2	23.0	3.0	41.9
Machinery and equipment	13.0	4.5	2.7	19.3	2.2	29.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal cans (SIC 3411)		Metal barrels, drums, and pails (SIC 3412)		Cutlery (SIC 3421)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	20.2	(X)	2.5	(X)	2.7	(X)
Response coverage ratio (percent)[2]	92.3	(X)	72.9	(X)	74.8	(X)
Machinery	141.7	(X)	9.0	(X)	25.2	(X)
Response coverage ratio (percent)[2]	92.9	(X)	80.2	(X)	78.3	(X)
Other purchased services:						
Communications	7.4	(X)	2.1	(X)	2.0	(X)
Response coverage ratio (percent)[2]	90.8	(X)	80.2	(X)	79.6	(X)
Legal	3.0	(X)	3.1	(X)	1.3	(X)
Response coverage ratio (percent)[2]	84.7	(X)	71.9	(X)	78.3	(X)
Accounting and bookkeeping	.7	(X)	.8	(X)	.9	(X)
Response coverage ratio (percent)[2]	84.3	(X)	80.0	(X)	75.4	(X)
Advertising	1.1	(X)	.9	(X)	26.7	(X)
Response coverage ratio (percent)[2]	85.0	(X)	80.0	(X)	75.4	(X)
Software and other data processing	3.8	(X)	.3	(X)	1.0	(X)
Response coverage ratio (percent)[2]	90.8	(X)	72.1	(X)	69.6	(X)
Refuse removal, including hazardous waste	14.4	(X)	2.0	(X)	1.1	(X)
Response coverage ratio (percent)[2]	93.1	(X)	72.1	(X)	79.6	(X)
New machinery and equipment expenditures	337.4	(X)	20.4	(X)	48.7	(X)
Automobiles, trucks, etc., for highway use	.6	37	3.4	24	.2	50
Computers and peripheral data processing equipment	20.0	43	.7	48	1.6	20
All other	316.8	4	16.3	4	47.0	1
Adjustment ratio[3]	1.0	(X)	.8	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	8 390.3	(X)	654.6	(X)	327.2	(X)
Materials purchased or transferred from foreign sources[4]	87.8	8	48.2	33	27.0	15
Materials purchased or transferred from domestic sources	8 302.6	1	606.5	4	300.2	2
Adjustment ratio[3]	1.3	(X)	1.3	(X)	1.3	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Hand and edge tools, n.e.c. (SIC 3423)		Saw blades and handsaws (SIC 3425)		Hardware, n.e.c. (SIC 3429)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.5	(X)	1.3	(X)	13.8	(X)
Response coverage ratio (percent)[2]	81.4	(X)	94.9	(X)	86.8	(X)
Machinery	29.1	(X)	8.8	(X)	58.1	(X)
Response coverage ratio (percent)[2]	82.0	(X)	98.0	(X)	87.3	(X)
Other purchased services:						
Communications	7.8	(X)	6.2	(X)	16.1	(X)
Response coverage ratio (percent)[2]	74.1	(X)	92.8	(X)	84.4	(X)
Legal	5.1	(X)	3.6	(X)	13.3	(X)
Response coverage ratio (percent)[2]	80.8	(X)	99.2	(X)	86.6	(X)
Accounting and bookkeeping	6.6	(X)	2.2	(X)	7.0	(X)
Response coverage ratio (percent)[2]	81.4	(X)	99.2	(X)	84.2	(X)
Advertising	33.1	(X)	13.3	(X)	55.7	(X)
Response coverage ratio (percent)[2]	82.8	(X)	97.0	(X)	83.3	(X)
Software and other data processing	5.3	(X)	.7	(X)	9.8	(X)
Response coverage ratio (percent)[2]	79.4	(X)	97.6	(X)	86.1	(X)
Refuse removal, including hazardous waste	5.2	(X)	.8	(X)	14.8	(X)
Response coverage ratio (percent)[2]	78.0	(X)	98.0	(X)	86.6	(X)
New machinery and equipment expenditures	109.7	(X)	32.4	(X)	212.2	(X)
Automobiles, trucks, etc., for highway use	2.8	32	1.3	78	3.7	25
Computers and peripheral data processing equipment	6.0	14	1.8	20	14.4	5
All other	100.8	2	29.4	5	194.1	1
Adjustment ratio[3]	1.4	(X)	.9	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 180.5	(X)	259.5	(X)	3 398.8	(X)
Materials purchased or transferred from foreign sources[4]	69.5	16	88.7	54	261.1	7
Materials purchased or transferred from domestic sources	1 111.0	1	170.8	29	3 137.6	1
Adjustment ratio[3]	1.4	(X)	1.4	(X)	1.4	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3411, METAL CANS												
Total	**–**	**324**	**32.3**	**1 261.9**	**27.2**	**58.3**	**1 032.7**	**3 290.1**	**8 797.9**	**12 112.2**	**350.6**	**1 512.3**
Establishments with an average of–												
1 to 4 employees	E7	42	.1	2.1	.1	.1	1.8	6.5	13.5	20.0	.5	2.1
5 to 9 employees	E1	17	.1	3.9	.1	.2	3.2	14.1	27.9	42.2	.5	3.6
10 to 19 employees	E3	25	.3	9.1	.3	.6	7.1	40.0	47.6	87.6	1.1	8.4
20 to 49 employees	–	47	1.6	48.8	1.3	2.7	37.9	147.6	333.8	477.5	6.7	63.9
50 to 99 employees	–	50	3.7	148.9	3.1	6.6	123.1	450.2	1 110.3	1 578.3	31.8	186.5
100 to 249 employees	–	114	17.3	700.4	14.4	31.6	575.2	1 825.7	5 366.1	7 196.4	202.2	899.7
250 to 499 employees	–	27	9.3	348.7	7.9	16.5	284.4	806.1	1 898.8	2 710.2	107.9	348.2
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	35	.1	1.7	.1	.1	1.4	4.6	10.2	14.8	.3	1.6
INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS												
Total	**–**	**155**	**7.2**	**201.0**	**5.5**	**12.0**	**131.7**	**437.9**	**693.6**	**1 133.8**	**22.0**	**132.4**
Establishments with an average of–												
1 to 4 employees	E2	32	.1	1.7	.1	.1	1.1	3.1	5.5	8.6	.1	1.0
5 to 9 employees	E4	18	.1	2.6	.1	.2	1.6	5.1	7.9	13.0	.2	1.5
10 to 19 employees	E2	14	.2	4.7	.1	.3	2.9	8.3	20.3	28.7	.2	2.8
20 to 49 employees	E2	38	1.3	32.9	1.0	2.1	20.6	75.4	122.6	199.5	2.9	26.5
50 to 99 employees	–	36	2.6	72.5	2.0	4.4	50.5	166.6	281.6	449.0	7.1	46.5
100 to 249 employees	–	14	1.9	57.8	1.4	3.1	34.8	127.8	180.9	308.7	11.4	36.0
250 to 499 employees	–	3	1.1	28.9	.9	1.9	20.2	51.6	74.8	126.2	(D)	18.1
Covered by administrative records[2]	E9	43	.2	3.7	.1	.3	2.3	6.5	10.9	17.5	.2	2.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3421, CUTLERY												
Total	**–**	**133**	**11.2**	**292.1**	**8.2**	**15.9**	**194.3**	**1 077.0**	**430.5**	**1 509.9**	**56.2**	**248.5**
Establishments with an average of—												
1 to 4 employees	E9	43	.1	1.7	.1	.1	1.2	5.2	2.2	7.5	.2	1.6
5 to 9 employees	E6	19	.1	2.9	.1	.2	2.0	9.2	4.1	13.4	.3	2.5
10 to 19 employees	E1	17	.2	4.8	.2	.3	3.1	12.4	5.3	17.7	.3	3.0
20 to 49 employees	–	7	.2	4.8	.1	.3	2.4	13.3	10.2	22.8	.6	4.1
50 to 99 employees	–	21	1.5	32.7	1.1	2.1	19.4	80.8	46.7	123.4	1.8	33.9
100 to 249 employees	E1	17	2.9	66.4	2.1	4.2	36.5	191.3	105.8	302.7	6.9	64.7
250 to 499 employees	–	5	1.7	43.8	1.4	2.8	30.2	113.8	65.5	179.7	4.6	37.2
500 to 999 employees	–	3	4.4	135.1	3.1	5.9	99.5	650.9	190.6	842.8	41.5	101.4
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	58	.2	4.0	.1	.3	2.8	11.9	5.1	17.1	.5	3.7
INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.												
Total	**–**	**915**	**39.7**	**1 058.3**	**29.3**	**59.5**	**653.6**	**2 584.5**	**1 608.0**	**4 208.8**	**123.4**	**720.8**
Establishments with an average of—												
1 to 4 employees	E1	241	.4	9.7	.3	.6	6.1	29.5	14.6	44.0	1.1	6.6
5 to 9 employees	E5	146	1.0	22.9	.8	1.6	15.3	55.0	33.1	87.9	2.1	15.6
10 to 19 employees	E2	188	2.6	66.5	1.9	3.7	39.6	132.3	67.8	200.0	4.4	34.6
20 to 49 employees	–	181	5.8	148.5	4.2	8.5	86.0	298.0	179.0	471.8	10.1	87.6
50 to 99 employees	–	71	5.1	127.1	3.7	7.5	72.8	300.0	194.9	495.6	13.7	90.1
100 to 249 employees	E1	51	7.5	209.3	5.3	10.7	123.3	542.5	326.8	872.1	28.9	155.2
250 to 499 employees	–	23	8.0	209.7	6.2	12.7	146.4	529.8	331.4	874.2	23.3	150.1
500 to 999 employees	–	14	9.2	264.5	6.9	14.1	164.0	697.5	460.4	1 163.1	39.8	181.0
Covered by administrative records[2]	E9	345	1.3	28.2	1.0	2.1	18.1	71.6	40.4	112.0	2.8	18.0
INDUSTRY 3425, SAW BLADES AND HANDSAWS												
Total	**–**	**139**	**7.6**	**218.4**	**5.3**	**11.1**	**129.3**	**507.2**	**341.1**	**847.2**	**34.2**	**151.1**
Establishments with an average of—												
1 to 4 employees	E9	40	.1	1.6	(Z)	.1	1.0	4.0	2.2	6.3	.2	1.1
5 to 9 employees	E8	23	.1	3.4	.1	.2	2.1	6.9	3.8	10.7	.3	2.1
10 to 19 employees	–	19	.3	7.1	.2	.4	4.3	14.7	11.3	26.2	.3	3.9
20 to 49 employees	E1	22	.7	19.3	.5	1.0	11.1	44.4	31.3	74.2	1.3	11.9
50 to 99 employees	–	13	.9	22.6	.6	1.3	14.1	52.4	42.1	94.2	2.1	24.9
100 to 249 employees	–	15	2.5	66.9	1.8	3.8	41.9	166.7	143.6	309.4	8.2	58.8
250 to 499 employees	–	5	3.0	97.5	2.1	4.3	54.8	218.1	106.7	326.2	21.8	48.4
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	61	.2	4.8	.2	.3	3.2	11.0	6.1	17.1	.4	3.1
INDUSTRY 3429, HARDWARE, N.E.C.												
Total	**–**	**1 278**	**75.4**	**2 063.1**	**56.2**	**113.3**	**1 318.8**	**4 860.9**	**3 951.1**	**8 842.8**	**253.3**	**1 237.4**
Establishments with an average of—												
1 to 4 employees	E8	396	.6	16.6	.5	1.0	11.0	36.7	31.7	68.8	1.4	11.5
5 to 9 employees	E6	212	1.5	35.2	1.1	2.1	22.1	74.0	60.7	136.1	3.1	20.2
10 to 19 employees	E3	185	2.5	57.2	1.8	3.7	35.7	116.0	95.0	211.5	4.4	35.0
20 to 49 employees	–	203	6.6	164.4	4.7	9.4	92.7	411.0	305.9	717.5	14.5	111.1
50 to 99 employees	–	115	8.3	204.4	5.9	12.2	117.3	479.3	434.9	914.6	17.8	152.9
100 to 249 employees	–	97	15.0	390.1	10.7	22.5	230.7	988.8	871.2	1 861.8	41.8	255.5
250 to 499 employees	E1	41	14.5	386.2	11.1	22.8	249.1	959.8	679.4	1 643.2	66.6	245.1
500 to 999 employees	–	22	15.5	417.3	11.6	23.2	268.8	968.6	649.4	1 630.4	71.5	262.9
1,000 to 2,499 employees	–	7	10.8	391.5	8.8	16.4	291.5	826.6	823.0	1 659.0	32.2	143.3
Covered by administrative records[2]	E9	559	2.2	48.1	1.6	3.3	31.6	97.0	78.5	175.5	3.9	27.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3411	**Metal cans:**										
	All establishments in industry	324	32.3	1 261.9	27.2	58.3	1 032.7	3 290.1	8 797.9	12 112.2	350.6
	Establishments with this product class primary:										
34111	Steel cans and tinware products	155	16.4	576.7	13.9	29.1	466.0	1 432.0	3 431.4	4 922.4	106.0
34112	Aluminum cans	99	15.2	667.8	12.7	28.0	552.4	1 810.7	5 265.7	7 041.8	241.5
3412	**Metal barrels, drums, and pails:**										
	All establishments in industry	155	7.2	201.0	5.5	12.0	131.7	437.9	693.6	1 133.8	22.0
	Establishments with this product class primary:										
34121	Steel pails	13	1.5	43.4	1.2	2.6	29.7	83.9	141.7	225.9	7.3
34122	Steel shipping barrels and drums (more than 12 gallon capacity)	72	5.0	139.0	3.8	8.2	90.2	321.6	502.8	826.2	13.7
34123	All other metal barrels	6	.2	4.8	.2	.3	3.3	8.0	9.3	17.5	(D)
3421	**Cutlery:**										
	All establishments in industry	133	11.2	292.1	8.2	15.9	194.3	1 077.0	430.5	1 509.9	56.2
	Establishments with this product class primary:										
34211	Cutlery, scissors, shears, trimmers, and snips	59	6.4	144.6	4.9	9.4	92.1	423.4	249.6	673.2	15.2
34212	Razor blades and razors, except electric	7	4.1	131.6	2.7	5.6	93.5	615.1	162.4	780.9	40.0
3423	**Hand and edge tools, n.e.c.:**										
	All establishments in industry	915	39.7	1 058.3	29.3	59.5	653.6	2 584.5	1 608.0	4 208.8	123.4
	Establishments with this product class primary:										
34231	Mechanics' hand service tools	134	17.2	451.5	13.0	26.3	294.0	1 033.6	748.1	1 782.4	51.4
34234	Edge tools, hand-operated	45	3.3	88.8	2.2	4.6	46.3	261.6	183.3	450.1	12.7
34235	Dies and interchangeable cutting tools, for machines and power-driven handtools	210	7.5	213.2	5.3	11.0	129.1	426.3	199.1	627.7	24.3
34236	Other handtools, n.e.c.	90	8.5	229.9	6.3	12.7	139.2	678.4	381.0	1 067.9	28.3
3425	**Saw blades and handsaws:**										
	All establishments in industry	139	7.6	218.4	5.3	11.1	129.3	507.2	341.1	847.2	34.2
3429	**Hardware, n.e.c.:**										
	All establishments in industry	1 278	75.4	2 063.1	56.2	113.3	1 318.8	4 860.9	3 951.1	8 842.8	253.3
	Establishments with this product class primary:										
34292	Furniture hardware (excluding cabinet hardware)	56	7.6	180.7	6.0	11.4	121.5	383.6	320.3	703.8	16.0
34293	Vacuum and insulated bottles, jugs, and chests	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
34294	Builders' hardware	220	32.1	870.6	23.2	45.6	518.5	2 247.4	1 430.8	3 676.4	119.0
34296	Motor vehicle hardware	72	18.7	572.9	14.9	31.2	426.2	1 212.4	1 446.2	2 683.9	54.4
34297	Other transportation equipment hardware (except motor vehicle hardware)	91	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
34298	Other hardware, n.e.c.	114	6.0	167.9	4.1	8.6	88.6	444.8	337.1	782.5	23.9

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3411, METAL CANS			
Total value of shipments	12 112.2	11 013.6	11 132.8
Primary products value of shipments	11 406.9	10 478.6	10 467.2
Secondary products value of shipments	112.1	74.5	262.1
Total miscellaneous receipts	593.1	460.5	403.5
Value of resales	182.9	193.0	167.3
Contract receipts	(D)	5.5	10.3
Other miscellaneous receipts	(D)	262.0	225.9
Primary products specialization ratio	99	99	98
Value of primary products shipments made in all industries	11 665.0	10 652.5	10 551.9
Value of primary products shipments made in this industry	11 406.9	10 478.6	10 467.2
Value of primary products shipments made in other industries	258.1	173.9	84.7
Coverage ratio	98	98	99

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS			
Total value of shipments	1 133.8	1 100.0	1 038.7
Primary products value of shipments	1 001.8	929.7	880.2
Secondary products value of shipments	85.5	83.2	71.1
Total miscellaneous receipts	46.4	87.0	87.3
Value of resales	21.7	4.6	3.0
Contract receipts	7.5	8.8	5.0
Other miscellaneous receipts	17.2	73.7	79.3
Primary products specialization ratio	92	92	93
Value of primary products shipments made in all industries	1 116.2	1 003.7	945.8
Value of primary products shipments made in this industry	1 001.8	929.7	880.2
Value of primary products shipments made in other industries	114.4	74.0	65.6
Coverage ratio	90	93	93
INDUSTRY 3421, CUTLERY			
Total value of shipments	1 509.9	1 054.0	938.0
Primary products value of shipments	1 331.7	985.2	861.3
Secondary products value of shipments	76.9	39.3	36.5
Total miscellaneous receipts	101.3	29.5	40.2
Value of resales	100.2	27.7	34.3
Contract receipts	–	.8	(D)
Other miscellaneous receipts	1.1	1.1	(D)
Primary products specialization ratio	95	96	96
Value of primary products shipments made in all industries	1 473.8	1 119.3	953.8
Value of primary products shipments made in this industry	1 331.7	985.2	861.3
Value of primary products shipments made in other industries	142.1	134.1	92.5
Coverage ratio	90	88	90
INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.			
Total value of shipments	4 208.8	3 605.6	2 915.5
Primary products value of shipments	3 342.2	2 909.0	2 379.2
Secondary products value of shipments	335.7	337.9	262.1
Total miscellaneous receipts	530.9	358.6	274.2
Value of resales	498.9	315.4	232.6
Contract receipts	20.4	18.5	11.2
Other miscellaneous receipts	11.6	24.7	30.4
Primary products specialization ratio	91	90	90
Value of primary products shipments made in all industries	3 657.6	3 152.6	2 598.4
Value of primary products shipments made in this industry	3 342.2	2 909.0	2 379.2
Value of primary products shipments made in other industries	315.5	243.6	219.2
Coverage ratio	91	92	92
INDUSTRY 3425, SAW BLADES AND HANDSAWS			
Total value of shipments	847.2	674.9	487.3
Primary products value of shipments	644.3	552.1	370.0
Secondary products value of shipments	96.9	59.1	79.5
Total miscellaneous receipts	106.0	63.7	37.8
Value of resales	83.2	47.5	28.7
Contract receipts	(D)	7.8	2.5
Other miscellaneous receipts	(D)	8.4	6.6
Primary products specialization ratio	87	90	82
Value of primary products shipments made in all industries	716.0	635.5	440.9
Value of primary products shipments made in this industry	644.3	552.1	370.0
Value of primary products shipments made in other industries	71.7	83.4	70.9
Coverage ratio	90	87	84
INDUSTRY 3429, HARDWARE, N.E.C.			
Total value of shipments	8 842.8	8 146.2	5 740.9
Primary products value of shipments	8 091.7	7 598.3	5 354.7
Secondary products value of shipments	308.5	329.6	206.0
Total miscellaneous receipts	442.6	218.3	180.2
Value of resales	384.2	155.8	135.9
Contract receipts	21.2	22.6	12.5
Other miscellaneous receipts	37.2	39.9	31.8
Primary products specialization ratio	96	96	96
Value of primary products shipments made in all industries	8 458.2	7 969.9	5 676.9
Value of primary products shipments made in this industry	8 091.7	7 598.3	5 354.7
Value of primary products shipments made in other industries	366.5	371.6	322.2
Coverage ratio	96	95	94

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3411– —	**METAL CANS**				
	Total	**(NA)**	**11 665.0**	**(NA)**	**10 652.5**
34111	Steel cans and tinware products	(NA)	4 775.0	(NA)	4 852.6
34111 20	Steel, (including lids, ends, and parts shipped separately)	54	3 907.2	55	4 513.9
34111 91	Tinware end products (including ice cream cans, but excluding cooking and kitchen utensils)	12	819.2	19	309.8
34111 00	Steel cans and tinware products, n.s.k.	(NA)	48.7	(NA)	28.9
34112	Aluminum cans	(NA)	6 746.8	(NA)	5 626.7
34112 00	Aluminum (including lids, ends, and parts shipped separately)	28	6 746.8	26	5 626.7
34110	Metal cans, n.s.k.	(NA)	143.2	(NA)	173.2
34110 00	Metal cans, n.s.k.[3]	(NA)	128.7	(NA)	111.4
34110 02	Metal cans, n.s.k.[4]	(NA)	14.5	(NA)	61.8
3412– —	**METAL BARRELS, DRUMS, AND PAILS**				
	Total	**(NA)**	**1 116.2**	**(NA)**	**1 003.7**
34121	Steel pails	(NA)	257.3	(NA)	185.3
34121 00	Steel pails (1 to 12 gallon capacity)[5]	21	257.3	19	185.3
34122	Steel shipping barrels and drums (more than 12 gallon capacity)[5]	(NA)	753.8	(NA)	639.4
34122 00	Steel shipping barrels and drums (excluding beer barrels) (more than 12 gallon capacity)	42	753.8	36	639.4
34123	All other metal barrels	(NA)	55.1	(NA)	111.2
34123 13	Metal fluid milk shipping and delivery containers (except crates)	(NA)			
34123 19	All other metal barrels (including beer barrels and parts for metal barrels and pails)	14	55.1	(NA)	111.2
34123 00	All other metal barrels, n.s.k.	(NA)	–	(NA)	–
34120	Metal barrels, drums, and pails, n.s.k.	(NA)	50.0	(NA)	67.8
34120 00	Metal barrels, drums, and pails, n.s.k.[6]	(NA)	30.7	(NA)	28.2
34120 02	Metal barrels, drums, and pails, n.s.k.[7]	(NA)	19.3	(NA)	39.7
3421– —	**CUTLERY**				
	Total	**(NA)**	**1 473.8**	**(NA)**	**1 119.3**
34211	Cutlery, scissors, shears, trimmers, and snips	(NA)	632.0	(NA)	534.9
	Cutlery:				
34211 11	Table cutlery (knives, forks, spoons, etc.) for serving and eating, with handles of materials other than metal	5	30.8	6	39.4
34211 25	Kitchen cutlery (including knives, forks, cleavers, butchers', and meat packing cutlery), excluding carving sets	11	76.4	(NA)	159.6
34211 30	Other cutlery (including knife blades sold separately)	12	28.7		
	Scissors and shears:				
34211 53	Household scissors and barber shears, pinking shears, and tailoring shears	11	78.1	12	51.8
34211 55	Manicure and pedicure scissors and implements (including tweezers)	5	91.4	6	61.4
34211 57	Metal cutting shears (including aviation and tinners' snips, BX, and wire filament cutters)	12	27.4	13	31.2
34211 59	All other scissors and shears (including hedge and grass shears and pruners)	16	108.4	12	42.1
34211 80	Other knives (including pocket, pen, and replacement blade knives)	31	188.0	23	131.0
34211 00	Cutlery, scissors, shears, trimmers, and snips, n.s.k.	(NA)	2.9	(NA)	18.4
34212	Razor blades and razors, except electric	(NA)	803.9	(NA)	517.7
34212 05	Razors	3	(D)	(NA)	(NA)
	Razor blades:				
34212 10	Single and double edge for shaving	3	(D)	(NA)	(NA)
34212 16	All other uses	9	28.8	(NA)	(NA)
34212 00	Razor blades and razors, except electric, n.s.k.	(NA)	.1	(NA)	(NA)
34210	Cutlery, n.s.k.	(NA)	37.9	(NA)	66.8
34210 00	Cutlery, n.s.k.[3]	(NA)	22.4	(NA)	36.7
34210 02	Cutlery, n.s.k.[4]	(NA)	15.5	(NA)	30.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3423– —	**HAND AND EDGE TOOLS, N.E.C.**						
	Total	**(NA)**	**(X)**	**3 657.6**	**(NA)**	**(X)**	**3 152.6**
34231	Mechanics' hand service tools	(NA)	(X)	1 607.0	(NA)	(X)	1 376.8
	Pliers:						
34231 12	Slip joint millions	14	8.5	50.3	12	(S)	31.2
34231 13	Solid joint millions	17	15.3	86.9	16	**15.1	81.0
34231 21	Ball peen hammers millions	7	4.5	10.3	7	*1.7	8.2
	Wrenches:						
34231 31	Socket, including sockets, drives (ratchet and other) , extensions, etc., for hand-operated socket wrenches	24	(X)	357.2	21	(X)	268.4
34231 33	Open-end and box wrenches	15	(X)	44.6	(NA)	(X)	45.0
34231 36	Torque wrenches millions	9	(S)	31.3	11	*2.6	48.4
34231 37	Adjustable, including pipe wrenches millions	11	7.1	73.8	10	(S)	96.5
34231 38	Combination open-end and box	10	(X)	73.9	10	(X)	55.2
34231 39	All other wrenches mil units	21	(S)	55.5	14	(S)	34.8
34231 41	Screwdrivers	26	(X)	147.5	20	(X)	180.4
34231 51	Automobile jacks, mechanical (excluding hydraulic and pneumatic) millions	9	(S)	86.6	12	(S)	95.1
34231 55	Tools for automotive use (excluding jacks, but including wheel or gear pullers, valve tools, body or fender tools, etc.)	29	(X)	102.5	21	(X)	135.7
34231 97	Other mechanics' hand service tools (including blow torches)	77	(X)	472.0	(NA)	(X)	253.0
34231 00	Mechanics' hand service tools, n.s.k.	(NA)	(X)	14.6	(NA)	(X)	43.8
34234	Edge tools, hand-operated	(NA)	(X)	306.5	(NA)	(X)	246.6
34234 14	Axes, adzes, hatchets, and chisels	23	(X)	47.7	(NA)	(X)	45.2
34234 33	Professional and craft edge handtools (palette knives, paperhanger knives, putty knives, scrapers, trimmers, etc.)	35	(X)	197.7	25	(X)	120.1
34234 44	Kitchen tools (including nonelectric can openers, peelers, slicers, dicers, etc.)	6	(X)	6.9	3	(X)	(D)
34234 98	Other edge tools (including agricultural and forestry edge handtools)	22	(X)	50.8	23	(X)	75.6
34234 00	Edge tools, hand-operated, n.s.k.	(NA)	(X)	3.4	(NA)	(X)	(D)
34235	Dies and interchangeable cutting tools, for machines and power-driven handtools	(NA)	(X)	573.0	(NA)	(X)	351.9
	Dies (except metal cutting):						
34235 11	Steel rule dies	104	(X)	171.9	54	(X)	97.8
34235 12	Other cutting dies, for use in cutting cloth, paper, leathers, etc. (excluding dies for cutting metal)	73	(X)	165.1	61	(X)	99.2
	Machine knives (except metal cutting):						
34235 21	Veneer knives and chipper knives	6	(X)	15.7	9	(X)	15.3
34235 22	All other machines knives	38	(X)	99.1	28	(X)	57.4
	Machine tools for woodcutting:						
34235 31	Countersink, drill, and router bits	22	(X)	82.2	11	(X)	46.4
34235 41	All other woodcutting machine tools (including milling cutters)	24	(X)	38.0	(NA)	(X)	31.1
34235 00	Dies and interchangeable cutting tools, for machines and power-driven handtools, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	4.8
34236	Other handtools, n.e.c.	(NA)	(X)	934.2	(NA)	(X)	877.5
34236 11	Shovels, spades, scoops, telegraph spoons, and scrapers millions	17	10.7	92.5	8	17.8	102.6
34236 21	Light forged hammers, less than 4 lb (excluding ball peen hammers) millions	21	*10.0	73.9	14	7.0	65.0
34236 31	Heavy forged tools, sledges (4 lb or more), picks, pick mattocks, and mauls millions	13	(S)	20.4	9	(S)	21.2
34236 41	Steel goods (forks, hoes, rakes, weeders, etc.) millions	16	*17.9	103.7	10	(S)	131.9
34236 81	Soldering irons (electric) millions	7	(S)	36.6	9	(S)	54.0
34236 85	Clamps and vises (excluding machine tool accessories)	9	(X)	55.6			
34236 98	Other handtools (including woodworking and metalworking files and rasps; including precision files; except edge tools)	116	(X)	547.8	(NA)	(X)	497.7
34236 00	Other handtools, n.e.c., n.s.k.	(NA)	(X)	3.8	(NA)	(X)	5.0
34230	Hand and edge tools, n.e.c., n.s.k.	(NA)	(X)	236.9	(NA)	(X)	299.7
34230 00	Hand and edge tools, n.e.c., n.s.k.[3]	(NA)	(X)	145.0	(NA)	(X)	160.8
34230 02	Hand and edge tools, n.e.c., n.s.k.[4]	(NA)	(X)	92.0	(NA)	(X)	138.9
3425– —	**SAW BLADES AND HANDSAWS**						
	Total	**(NA)**	**(X)**	**716.0**	**(NA)**	**(X)**	**635.5**
34250	Handsaws, saw blades (hand and power), and saw accessories	(NA)	(X)	716.0	(NA)	(X)	635.5
	Power saw blades:						
	Woodworking (including chain saw blades):						
34250 11	Circular, solid tooth	12	(X)	42.6	16	(X)	55.5
34250 13	Circular, inserted tooth	19	(X)	77.6	13	(X)	49.0
34250 16	Band	14	(X)	38.3	14	(X)	57.4
34250 18	Teeth for inserted saws, sold separately	5	(X)	20.2	7	(X)	21.8
34250 19	All other woodworking power saw blades (scroll, jig, etc.) 1,000 feet	17	(S)	105.8	11	(S)	43.5

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3425– —	**SAW BLADES AND HANDSAWS**—Con.						
34250	Handsaws, saw blades (hand and power), and saw accessories—Con.						
	Power saw blades—Con.						
	Metalworking:						
34250 31	Circular (including metal teeth and cutting segments sold separately)	19	(X)	49.9	13	(X)	18.2
34250 35	Hack (power only) — millions	8	5.3	6.6	6	(S)	5.3
34250 36	Band (flexible back, spring temper metal cutting, and high-speed metal cutting) — 1,000 feet	16	(S)	143.4	14	(S)	152.2
34250 39	Other metalworking saw blades (saber, reciprocating, etc.)	12	(X)	50.6	13	(X)	[8]25.3
34250 41	All other power saw blades	22	(X)	83.9	(NA)	(X)	([8])
	Hand-operated saws:						
34250 43	Hacksaw blades (hand only) — millions	12	*27.3	18.4	10	**37.6	[9]17.9
34250 45	Carpenter crosscuts and ripsaws — millions	4	*4.0	22.6	2	(D)	([9])
34250 49	Other hand saws (heavy hand saws, crosscut, buck, miter, coping, pruning, compass, etc., including frames, and blades)	12	(X)	30.4	20	(X)	139.0
34250 00	Saw blades and handsaws, n.s.k.[3]	(NA)	(X)	9.9	(NA)	(X)	[r]33.7
34250 02	Saw blades and handsaws, n.s.k.[4]	(NA)	(X)	15.8	(NA)	(X)	16.7

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3429– —	**HARDWARE, N.E.C.**				
	Total	**(NA)**	**8 458.2**	**(NA)**	**7 969.9**
34292	Furniture hardware (excluding cabinet hardware)	(NA)	702.5	(NA)	547.5
34292 12	Sleeper mechanisms	4	(D)	3	([10])
34292 13	Rotating and tilting fixtures and bases	11	69.1	9	[10]174.9
34292 14	Furniture hardware, including drawer pulls and handles, etc. (excluding furniture and drawer slides)	32	242.7	26	73.9
34292 16	Furniture and drawer slides	8	130.1	8	66.9
34292 53	Furniture casters	14	88.9	13	135.1
34292 55	Other floor protective devices (including slides, glides, furniture rests, and desk leg cups)	12	(D)	23	55.6
34292 00	Furniture hardware (excluding cabinet hardware), n.s.k.	(NA)	23.1	(NA)	41.1
34293	Vacuum and insulated bottles, jugs, and chests	(NA)	(D)	(NA)	64.0
34293 00	Vacuum and insulated bottles, jugs, and chests (except those made principally of foam plastics)	5	(D)	(NA)	64.0
34294	Builders' hardware	(NA)	3 426.2	(NA)	2 869.1
	Padlocks:				
34294 12	Pin tumbler	21	140.9	19	101.5
34294 13	Nonpin tumbler	8	(D)	6	(D)
34294 14	Combination	5	(D)	4	(D)
	Doorlocks, locksets, and lock trim:				
34294 16	Bored, cylindrical and tubular (except deadlocks)	23	569.8	22	494.9
34294 17	Mortise, except mortise deadlocks	18	131.9	15	112.4
34294 18	Tubular and mortise deadlocks	18	187.7	17	88.3
34294 19	Electronically or electrically operated locks	17	52.5	16	27.4
34294 22	All other types	44	161.1	22	85.2
34294 23	Architectural trim (sold separately) (including protection plates, push plates, pulls, push-pull bars, lock trim, etc.)	29	70.2	17	78.8
34294 24	Key blanks	25	90.3	20	59.9
34294 27	Exit devices (including fire exit hardware)	13	162.8	14	116.3
34294 33	Screen and storm door hardware (including pneumatic and hydraulic closers)	12	64.4	11	57.3
34294 36	Window hardware (including window locks)	41	290.6	36	208.1
34294 37	Miscellaneous closet hardware (including shelving other than wire and decorative shelving)	15	47.3	13	42.4
	Door controls, closers, and checking devices:				
34294 42	Surface applied	11	150.8	10	125.2
34294 43	Concealed (overhead, in the door, or on the floor)	10	49.7	8	33.6
34294 44	Electromechanical-pneumatic (with hold-open mechanism released by integral or remote smoke detector)	10	41.5	6	13.0
	Hinges, excluding cabinet hinges, but including spring hinges:				
	Butt hinges:				
34294 52	3 1/2 in. x 3 1/2 in. or less	17	48.6	15	47.3
34294 53	More than 3 1/2 in. x 3 1/2 in., either dimension	18	119.9	14	144.4
34294 54	Other	36	115.6	24	115.7
	Cabinet hardware:				
34294 61	Cabinet hinges	14	50.6	12	58.6
34294 62	Cabinet locks	13	52.7	13	42.0
34294 64	Cabinet knobs, pulls, and catches	22	87.7	21	80.7
34294 66	Other cabinet hardware (including drawer slides, etc.)	13	91.8	17	122.6
34294 71	Hangers, tracks, and related items (except sliding and folding door hardware), residential and commercial	28	74.5	21	68.5
34294 73	Sliding and folding door hardware (residential and commercial)	32	94.0	32	83.6
34294 81	Door holders and stops (overhead, surface, and concealed; floor and wall mounted)	10	14.5	14	28.1
34294 91	Rim locks and other locking devices, n.e.c.	7	18.4	14	22.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3429– —	**HARDWARE, N.E.C.**—Con.				
34294	Builders' hardware—Con.				
34294 98	Other builders' hardware	88	329.9	56	307.5
34294 00	Builders' hardware, n.s.k.	(NA)	30.1	(NA)	r44.4
34296	Motor vehicle hardware	(NA)	2 562.0	(NA)	2 759.2
34296 00	Motor vehicle hardware (lock units, door and window handles, window regulators, hinges, license plate brackets, etc.)	82	2 562.0	(NA)	2 759.2
34297	Other transportation equipment hardware (except motor vehicle hardware)	(NA)	(D)	(NA)	382.6
34297 11	Marine hardware (including shackles, rope sockets, tackle blocks, wire rope clips, clamps, and joiners' hardware)	64	204.8	55	173.4
34297 31	Aircraft hardware	36	139.7	26	88.5
34297 98	Other transportation equipment hardware (including railroad car hardware)	32	(D)	26	73.0
34297 00	Other transportation equipment hardware (except motor vehicle hardware), n.s.k.	(NA)	6.2	(NA)	47.7
34298	Other hardware, n.e.c.	(NA)	812.3	(NA)	741.7
34298 12	Casket and casket shell hardware	10	37.9	13	31.5
34298 22	Casters and wheels for dollies and industrial handtrucks	25	179.9	20	179.2
34298 52	Fireplace fixtures and equipment, andirons, screens, tongs, and other fire tools	24	125.9	18	91.5
34298 62	Hose fittings and couplings, excluding fittings and couplings used in fluid power systems	32	124.8	28	126.3
34298 65	Refrigerator and stove hardware	9	40.5	9	36.4
34298 98	Other hardware (including saddlery and harness hardware, but excluding drapery hardware)	106	262.0	(NA)	234.5
34298 00	Other hardware, n.e.c., n.s.k.	(NA)	41.2	(NA)	42.3
34290	Hardware, n.e.c., n.s.k.	(NA)	439.2	(NA)	605.8
34290 00	Hardware, n.e.c., n.s.k.[3]	(NA)	258.2	(NA)	385.8
34290 02	Hardware, n.e.c., n.s.k.[4]	(NA)	180.9	(NA)	220.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[6]Typically for establishments with 15 employees or more.
[7]Typically for establishments with less than 15 employees.
[8]For 1987, product code 34250 39 is combined with product code 34250 41 because they were not collected separately.
[9]For 1987, product code 34250 43 is combined with product code 34250 45 to avoid disclosing data for individual companies.
[10]For 1987, product code 34292 12 is combined with product code 34292 13 to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34111, STEEL CANS AND TINWARE PRODUCTS			**34112, ALUMINUM CANS**		
United States	**4 775.0**	**4 852.6**	**United States**	**6 746.8**	**5 626.7**
Alabama	31.2	19.9	California	881.7	753.0
California	806.5	842.9	Florida	405.8	300.6
Florida	88.6	120.8	Georgia	217.3	255.1
Georgia	111.3	(NA)	Missouri	412.4	209.3
Illinois	440.4	654.6	New Jersey	162.6	(NA)
Indiana	214.0	(NA)	New York	378.2	257.2
Maryland	161.5	161.2	North Carolina	250.1	282.5
Missouri	159.2	190.6	Ohio	668.8	440.7
New Jersey	258.4	290.2	Texas	599.6	597.4
Ohio	457.7	426.0	Virginia	445.0	428.0
Pennsylvania	393.1	369.8	Wisconsin	310.1	382.0
Tennessee	63.4	(NA)	**34121, STEEL PAILS**		
Texas	142.6	156.4	**United States**	**257.3**	**185.3**
Washington	174.6	74.3	Illinois	44.2	46.3
Wisconsin	306.8	268.2	Ohio	49.2	27.1

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/20/95 10:37:11 EPCV23 TLP:34A.BTI;46 6/19/95 08:36:06 DATA:NONE UPF:92MFFI_PUBS:34ADAT.UPF PAGE: 15
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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34122, STEEL SHIPPING BARRELS AND DRUMS (MORE THAN 12 GALLON CAPACITY)		
United States	**753.8**	**639.4**
California	75.7	(NA)
Illinois	106.8	88.4
Louisiana	49.2	41.2
North Carolina	25.1	28.0
Ohio	112.9	67.0
Pennsylvania	72.2	49.1
Texas	91.8	62.9
34123, ALL OTHER METAL BARRELS		
United States	**55.1**	**111.2**
Illinois	4.7	16.8
34211, CUTLERY, SCISSORS, SHEARS, TRIMMERS, AND SNIPS		
United States	**632.0**	**534.9**
Arkansas	13.3	(NA)
Connecticut	39.9	40.8
Illinois	27.0	(NA)
Michigan	7.1	7.9
New York	112.1	78.8
Pennsylvania	32.0	26.9
34212, RAZOR BLADES AND RAZORS, EXCEPT ELECTRIC		
United States	**803.9**	**517.7**
34231, MECHANICS' HAND SERVICE TOOLS		
United States	**1 607.0**	**1 376.8**
California	33.3	39.3
Connecticut	58.4	31.4
Georgia	17.0	16.1
Illinois	178.2	184.3
Kansas	8.0	(NA)
Massachusetts	46.7	(NA)
Michigan	56.7	94.1
Minnesota	121.7	69.5
Missouri	25.0	15.3
New York	44.3	35.8
Ohio	201.1	146.4
Pennsylvania	39.2	51.1
South Carolina	114.8	94.8
Wisconsin	116.2	105.3
34234, EDGE TOOLS, HAND-OPERATED		
United States	**306.5**	**246.6**
California	31.0	18.9
Illinois	19.1	20.2
Massachusetts	32.6	(NA)
Pennsylvania	17.8	10.4
Wisconsin	2.8	(NA)
34235, DIES AND INTERCHANGEABLE CUTTING TOOLS, FOR MACHINES AND POWER-DRIVEN HANDTOOLS		
United States	**573.0**	**351.9**
California	24.7	29.2
Connecticut	4.4	5.0
Georgia	18.5	7.9
Illinois	59.4	16.7
Indiana	45.5	14.0
Maine	5.9	2.5
Massachusetts	42.7	37.0
Michigan	43.4	54.8
Minnesota	13.2	(NA)
Missouri	34.9	16.1
New Hampshire	3.7	(NA)
New Jersey	18.9	8.4
New York	17.8	14.3
North Carolina	36.5	19.6
Ohio	51.0	44.2
Pennsylvania	29.5	25.3
Tennessee	12.6	5.4
Texas	4.6	(NA)
Virginia	14.5	2.7
Washington	4.1	4.3
Wisconsin	14.4	9.8
34236, OTHER HANDTOOLS, N.E.C.		
United States	**934.2**	**877.5**
California	57.2	48.4
Illinois	85.8	67.9
Maine	4.3	(NA)
Massachusetts	23.3	18.3
Michigan	4.8	6.7
Minnesota	27.5	43.1
Missouri	14.4	4.1
New Jersey	62.7	56.0
New York	25.3	(NA)
North Carolina	50.8	(NA)
Ohio	91.2	85.7
Pennsylvania	35.9	38.6
South Carolina	46.3	45.9
Tennessee	25.7	28.3
Wisconsin	22.4	12.3
34292, FURNITURE HARDWARE (EXCLUDING CABINET HARDWARE)		
United States	**702.5**	**547.5**
California	123.9	79.1
Illinois	21.9	8.5
Indiana	12.9	(NA)
Michigan	82.6	116.8
North Carolina	161.3	92.5
Ohio	4.2	3.6
Wisconsin	4.5	33.0
34293, VACUUM AND INSULATED BOTTLES, JUGS, AND CHESTS		
United States	**(D)**	**64.0**
34294, BUILDERS' HARDWARE		
United States	**3 426.2**	**2 869.1**
Alabama	114.5	(NA)
California	462.2	532.6
Connecticut	300.2	329.2
Florida	22.0	21.6
Georgia	5.9	(NA)
Illinois	547.4	435.3
Indiana	178.0	116.0
Iowa	15.4	(NA)
Kentucky	70.3	69.4
Massachusetts	52.0	34.5
Michigan	161.3	89.1
Mississippi	48.4	52.8
New Jersey	20.6	23.1
New York	110.0	118.9
Ohio	91.8	72.0
Pennsylvania	114.5	141.0
South Carolina	31.7	(NA)
Tennessee	55.8	(NA)
Texas	74.8	17.3
Washington	2.2	(NA)
Wisconsin	257.7	162.6
34296, MOTOR VEHICLE HARDWARE		
United States	**2 562.0**	**2 759.2**
Illinois	196.5	(NA)
Michigan	667.9	828.6
Ohio	322.7	(NA)
Tennessee	376.4	(NA)
34297, OTHER TRANSPORTATION EQUIPMENT HARDWARE (EXCEPT MOTOR VEHICLE HARDWARE)		
United States	**(D)**	**382.6**
California	95.2	72.7
Connecticut	11.4	11.9
Florida	25.8	39.6
Illinois	21.1	13.1
Indiana	6.0	7.0
Michigan	35.5	53.4
New Jersey	3.7	(NA)
New York	18.3	25.6
Ohio	15.9	17.2
Pennsylvania	8.5	12.7
Rhode Island	4.5	(NA)
Washington	40.0	(NA)
Wisconsin	18.6	9.8

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34298, OTHER HARDWARE, N.E.C.			**34298, OTHER HARDWARE, N.E.C.**—Con.		
United States	**812.3**	**741.7**	Michigan	41.9	57.3
			Missouri	6.9	26.2
			New Jersey	23.5	25.6
Alabama	9.4	(NA)	New York	29.5	28.1
California	64.6	59.0	North Carolina	18.9	5.3
Connecticut	23.0	44.6			
Georgia	39.6	27.5	Ohio	55.2	42.1
Illinois	83.7	91.9	Pennsylvania	85.6	38.7
Indiana	104.3	102.2	Tennessee	54.4	47.8
Iowa	10.7	(NA)	Texas	9.0	(NA)
Massachusetts	17.5	29.7	Wisconsin	15.5	3.3

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3411-	**Metal cans**	**11 665.0**	**12 207.3**	**12 114.3**	**10 995.7**	**10 944.1**	**10 652.5**	**10 551.9**	**7 414.7**
34111	Steel cans and tinware products	4 775.0	5 195.2	5 354.0	5 041.8	4 956.2	4 852.6	5 643.7	7 368.5
34112	Aluminum cans	6 746.8	6 873.3	6 629.8	5 841.7	5 816.3	5 626.7	4 878.7	
34110	Metal cans, n.s.k.	143.2	138.8	130.5	112.2	171.6	173.2	29.5	46.2
3412-	**Metal barrels, drums, and pails**	**1 116.2**	**1 175.3**	**1 179.7**	**1 128.8**	**1 037.7**	**1 003.7**	**945.8**	**948.2**
34121	Steel pails	257.3	191.6	200.3	218.3	182.1	185.3	207.8	272.9
34122	Steel shipping barrels and drums (more than 12 gallon capacity)	753.8	769.2	797.1	758.2	711.6	639.4	563.2	548.4
34123	All other metal barrels	55.1	115.5	96.2	89.7	70.4	111.2	139.9	84.0
34120	Metal barrels, drums, and pails, n.s.k.	50.0	99.1	86.1	62.6	73.6	67.8	34.9	43.0
3421-	**Cutlery**	**1 473.8**	**1 484.2**	**1 416.5**	**1 359.3**	**1 193.9**	**1 119.3**	**953.8**	**666.9**
34211	Cutlery, scissors, shears, trimmers, and snips	632.0	642.9	620.8	623.1	568.1	534.9	503.5	344.7
34212	Razor blades and razors, except electric	803.9	761.4	721.6	665.2	555.8	517.7	431.2	307.4
34210	Cutlery, n.s.k.	37.9	79.9	74.1	71.1	70.0	66.8	19.1	14.8
3423-	**Hand and edge tools, n.e.c.**	**3 657.6**	**3 504.3**	**3 480.5**	**3 584.3**	**3 452.9**	**3 152.6**	**2 598.4**	**2 066.1**
34231	Mechanics' hand service tools	1 607.0	1 398.8	1 399.1	1 424.4	1 563.3	1 376.8	1 330.6	1 070.2
34234	Edge tools, hand-operated	306.5	289.2	297.9	265.9	256.2	246.6	(NA)	(NA)
34235	Dies and interchangeable cutting tools, for machines and power-driven handtools	573.0	420.9	399.1	441.3	422.2	351.9	(NA)	(NA)
34236	Other handtools, n.e.c.	934.2	968.2	943.1	1 039.0	880.3	877.5	690.5	524.3
34230	Hand and edge tools, n.e.c., n.s.k.	236.9	427.3	441.3	413.6	331.0	299.7	106.6	144.0
3425-	**Saw blades and handsaws**	**716.0**	**813.7**	**912.1**	**812.4**	**694.5**	**635.5**	**440.9**	**369.3**
34250	Handsaws, saw blades (hand and power), and saw accessories	716.0	813.7	912.1	812.4	694.5	635.5	440.9	369.3
3429-	**Hardware, n.e.c.**	**8 458.2**	**7 885.8**	**8 251.9**	**8 528.7**	**8 239.6**	**7 969.9**	**5 676.9**	**5 082.5**
34292	Furniture hardware (excluding cabinet hardware)	702.5	644.8	665.6	686.9	634.8	547.5	272.0	279.9
34293	Vacuum and insulated bottles, jugs, and chests	(D)	(D)	73.0	60.9	80.0	64.0	120.4	107.0
34294	Builders' hardware	3 426.2	3 154.2	3 224.4	3 148.3	2 841.8	2 869.1	2 057.2	1 418.9
34296	Motor vehicle hardware	2 562.0	2 281.7	2 482.4	2 842.3	2 766.8	2 759.2	1 999.4	2 220.0
34297	Other transportation equipment hardware (except motor vehicle hardware)	(D)	(D)	456.4	423.2	457.0	382.6	274.2	155.4
34298	Other hardware, n.e.c.	812.3	707.0	708.2	761.0	754.3	741.7	667.5	648.5
34290	Hardware, n.e.c., n.s.k.	439.2	617.5	641.8	606.2	704.9	605.8	286.2	252.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3411, METAL CANS		
	Materials, ingredients, containers, and supplies	**8 390.3**	**6 807.6**
	Fabricated metal products (except castings and forgings):		
341105	Lids, ends, and parts for metal cans	631.9	156.2
340064	All other fabricated metal products	(D)	(NA)
346000	Forgings	–	(NA)
330091	Castings (rough and semifinished)	(D)	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331099	Sheet, strip, and tin mill products	2 025.2	(NA)
331027	Wire and wire products	.2	(NA)
331098	All other steel shapes and forms	(D)	(NA)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	2 567.8	(NA)
335008	Other aluminum and aluminum-base alloy shapes and forms	2 019.4	(NA)
	Copper and copper base alloy:		
335104	Copper mechanical wire (including extruded and/ or drawn shapes)	24.6	25.8
335126	All other copper and copper-base alloy	.9	(NA)
335099	All other nonferrous shapes and forms	1.0	(NA)
	Chemicals and allied products:		
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products	301.4	199.4
289100	Adhesives and sealants	31.3	25.2
289300	Printing ink	43.0	34.1
280080	All other chemicals and allied products	35.3	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	24.2	26.5
970099	All other materials and components, parts, containers, and supplies	261.6	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	303.6	174.2
	INDUSTRY 3412, METAL BARRELS, DRUMS, AND PAILS		
	Materials, ingredients, containers, and supplies	**654.6**	**666.8**
	Fabricated metal products (except castings and forgings):		
341105	Lids, ends, and parts for metal cans	30.8	25.8
340064	All other fabricated metal products	21.7	(NA)
346000	Forgings	–	(NA)
330091	Castings (rough and semifinished)	–	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331099	Sheet, strip, and tin mill products	342.9	(NA)
331027	Wire and wire products	1.0	(NA)
331098	All other steel shapes and forms	32.8	(NA)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	–	(NA)
335008	Other aluminum and aluminum-base alloy shapes and forms	(D)	(NA)
	Copper and copper base alloy:		
335104	Copper mechanical wire (including extruded and/ or drawn shapes)	–	(D)
335126	All other copper and copper-base alloy	–	(NA)
335099	All other nonferrous shapes and forms	(D)	(NA)
	Chemicals and allied products:		
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	26.8	24.7
289100	Adhesives and sealants	.9	1.5
289300	Printing ink	.2	.4
280080	All other chemicals and allied products	5.0	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	5.3	2.8
970099	All other materials and components, parts, containers, and supplies	63.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	122.0	60.5
	INDUSTRY 3421, CUTLERY		
	Materials, ingredients, containers, and supplies	**327.2**	**202.4**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	8.5	4.4
340098	All other fabricated metal products	13.3	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	22.4	(D)
336005	Aluminum and aluminum-base alloy	3.5	.9
336003	Other nonferrous	(D)	(NA)
346205	Iron and steel forgings	13.0	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	2.6	(NA)
331073	Sheet, strip, and tin mill products	22.7	(NA)
331027	Wire and wire products	.7	(NA)
331028	All other shapes and forms	16.2	(NA)
335105	Copper and copper-base alloy	.1	3.1
335001	Aluminum and aluminum-base alloy	1.4	4.4
335099	All other nonferrous shapes and forms	(D)	(NA)
249991	Wood parts, including handles	7.1	5.0
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	28.1	13.5
308002	Plastics products (film, sheet, rod, tube, and fabricated shapes, including parts, handles, grips, etc.)	29.6	16.4
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	43.5	19.9
970099	All other materials and components, parts, containers, and supplies	66.8	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3421, CUTLERY—Con.		
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	44.3	21.0
	INDUSTRY 3423, HAND AND EDGE TOOLS, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 180.5**	**1 025.4**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	42.3	31.9
340098	All other fabricated metal products	74.9	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	65.1	33.3
336005	Aluminum and aluminum-base alloy	11.5	16.4
336003	Other nonferrous	5.6	(NA)
346205	Iron and steel forgings	30.4	54.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	136.0	(NA)
331073	Sheet, strip, and tin mill products	104.7	(NA)
331027	Wire and wire products	21.4	(NA)
331028	All other shapes and forms	34.4	(NA)
335105	Copper and copper-base alloy	11.9	10.3
335001	Aluminum and aluminum-base alloy	15.4	8.1
335099	All other nonferrous shapes and forms	10.2	(NA)
249991	Wood parts, including handles	38.1	33.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	24.0	15.3
308002	Plastics products (film, sheet, rod, tube, and fabricated shapes, including parts, handles, grips, etc.)	35.3	37.7
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	56.6	30.7
970099	All other materials and components, parts, containers, and supplies	346.2	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	116.5	138.8
	INDUSTRY 3425, SAW BLADES AND HANDSAWS		
	Materials, ingredients, containers, and supplies	**259.5**	**214.3**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	1.5	(D)
340098	All other fabricated metal products	9.5	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	3.8	(D)
336005	Aluminum and aluminum-base alloy	(D)	(D)
336003	Other nonferrous	7.4	(NA)
346205	Iron and steel forgings	–	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	10.3	(NA)
331073	Sheet, strip, and tin mill products	74.6	(NA)
331027	Wire and wire products	5.3	(NA)
331028	All other shapes and forms	10.1	(NA)
335105	Copper and copper-base alloy	(D)	(D)
335001	Aluminum and aluminum-base alloy	(D)	–
335099	All other nonferrous shapes and forms	(D)	(NA)
249991	Wood parts, including handles	2.2	(D)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1.9	(D)
308002	Plastics products (film, sheet, rod, tube, and fabricated shapes, including parts, handles, grips, etc.)	5.3	1.4
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	16.4	4.6
970099	All other materials and components, parts, containers, and supplies	82.2	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	18.6	22.8
	INDUSTRY 3429, HARDWARE, N.E.C.		
	Materials, ingredients, containers, and supplies	**3 398.8**	**3 186.1**
	Fabricated metal products (except forgings):		
342903	Metal hardware including hinges, handles, locks, casters, etc.	231.7	183.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	156.3	169.0
346901	Metal stampings	149.3	117.4
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	39.0	16.9
340053	All other fabricated metal products	224.2	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	67.7	40.6
336005	Aluminum and aluminum-base alloy	20.7	25.5
336006	Copper and copper-base alloy	21.8	24.5
336009	Zinc and zinc-base alloy	81.9	30.1
336007	All other nonferrous castings	13.2	(NA)
346000	Forgings	35.2	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3429, HARDWARE, N.E.C.—Con.		
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	108.6	(NA)
331073	Sheet, strip, and tin mill products	408.6	(NA)
331027	Wire and wire products	55.6	(NA)
331028	All other steel shapes and forms	52.3	(NA)
	Copper and copper-base alloy:		
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	30.9	25.9
335150	Sheet, strip, and plate	69.7	52.7
335108	All other shapes and forms	21.9	(NA)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	47.6	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	35.8	28.1
335008	All other shapes and forms	8.1	(NA)
333978	Zinc and zinc-base alloy refinery shapes	86.0	38.2
335045	All other nonferrous shapes and forms	19.4	(NA)
339915	Metal powders	19.6	21.1
	Rubber and miscellaneous plastics products:		
306002	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	31.1	(D)
308002	Plastics products (film, sheet, rod, tube, and fabricated shapes, including parts, handles, grips, etc.)	136.0	126.8
300099	All other rubber and miscellaneous plastics products	33.7	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	85.5	67.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	84.4	104.2
320100	Glass and glass products	18.3	34.5
362105	Electric motors, generators, and parts	188.9	(D)
970099	All other materials and components, parts, containers, and supplies	437.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	378.3	352.2

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

TIPS UPF [APS_PSB,C_BROOKS] 6/20/95 10:37:11 EPCV23 TLP:34A.BTI;46 6/19/95 08:36:06 DATA:NONE UPF:92MFFI_PUBS:34ADAT.UPF PAGE: 20
TSF:34A_92.DAT;2 6/19/95 08:36:16 UTF:34A_93.DAT;3 6/20/95 10:34:32 META:TIPS96-10361056.DAT;1 6/20/95 10:36:50

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
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34293 00	34293 17
34298 98	34298 32
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34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
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34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
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34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
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34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
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34842 65	34842 63
34842 65	34842 67
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34842 74	34842 73
34916 78	34916 77
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3492B	34923
3492B 00	34923 00
3492C	34921
3492C 00	34921 00
3492D	34921
3492D 00	34921 00
3492E	34922
3492E 00	34922 00
3492F	34922
3492F 00	34922 00
3492G	34927
3492G 00	34927 00
3492H	34926
3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
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34964 00	34964 41
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34968 42	34968 41
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
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34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
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34231 98	34231 97
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34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
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34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
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34320 11	34321 08
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34320 13	34321 13
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34320 15	34321 15
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34320 29	34321 30
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34320 57	34322 33
34320 58	34322 36
34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
34320 74	34323 08
34320 75	34323 11
34320 76	34323 14
34320 78	34323 17
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34320 81	34323 25
34320 82	34322 27
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34320 84	34322 30
34320 85	34323 27
34320 86	34322 30
34320 87	34323 27
34320 89	34323 32
34320 90	34322 01
34320 91	34322 03
34320 92	34322 05
34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
34333 17	34333 35
34333 60	34333 65
34333 81	34333 65
34334 00	34334 10
34334 00	34334 22
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34334 00	34334 40
34334 00	34334 62
34334 00	34334 74
34335 31	34335 20
34335 35	34335 25
34335 44	34335 20
34335 46	34335 25
34339 10	34339 06
34339 10	34339 08
34339 10	34339 11
34339 10	34339 13
34411 21	34411 41
34411 22	34411 42
34411 23	34411 43
34411 24	34411 44
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34411 27	34411 47
34411 61	34411 41
34411 62	34411 42
34411 63	34411 43
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34433 17	34433 24
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34433 38	34433 41
34433 38	34433 44
34433 39	34433 48
34433 42	34433 46
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34433 43	34433 46
34433 43	34433 47
34433 49	34433 15
34433 49	34433 24
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34433 49	34433 34
34433 50	34433 08
34433 50	34433 35
34433 50	34433 48
34433 50	34433 51
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34435 23	34435 20
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34662 00	34662 32
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34699 98	34699 97
34790 00	34790 77
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34842 56	34842 54
34842 63	34842 65
34842 64	34842 74
34842 67	34842 65
34842 73	34842 74
34916 77	34916 78
34916 79	34916 78
34921	3492C
34921	3492D
34921 00	3492C 00
34921 00	3492D 00
34922	3492E
34922	3492F
34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
34924	3492J
34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
34961 22	34961 52
34961 31	34961 34
34961 33	34961 34
34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
34964 43	34964 00
34964 45	34964 00
34964 51	34964 00
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34966 27	34966 21
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3412100	MQ34K, Steel Shipping Drums and Palls	3492E00	MA35N, Fluid Power Products, Including Aerospace
34122	MQ34K, Steel Shipping Drums and Palls	3492F00	MA35N, Fluid Power Products, Including Aerospace
3431010	MQ34E, Plumbing Fixtures	3492G00	MA35N, Fluid Power Products, Including Aerospace
3491800	MA38B, Selected Instruments and Related Products	3492H00	MA35N, Fluid Power Products, Including Aerospace
3491900	MA38B, Selected Instruments and Related Products	3492J00	MA35N, Fluid Power Products, Including Aerospace
3492A00	MA35N, Fluid Power Products, Including Aerospace		
3492B00	MA35N, Fluid Power Products, Including Aerospace	3492K00	MA35N, Fluid Power Products, Including Aerospace
3492C00	MA35N, Fluid Power Products, Including Aerospace	3492M00	MA35N, Fluid Power Products, Including Aerospace
3492D00	MA35N, Fluid Power Products, Including Aerospace	3492N00	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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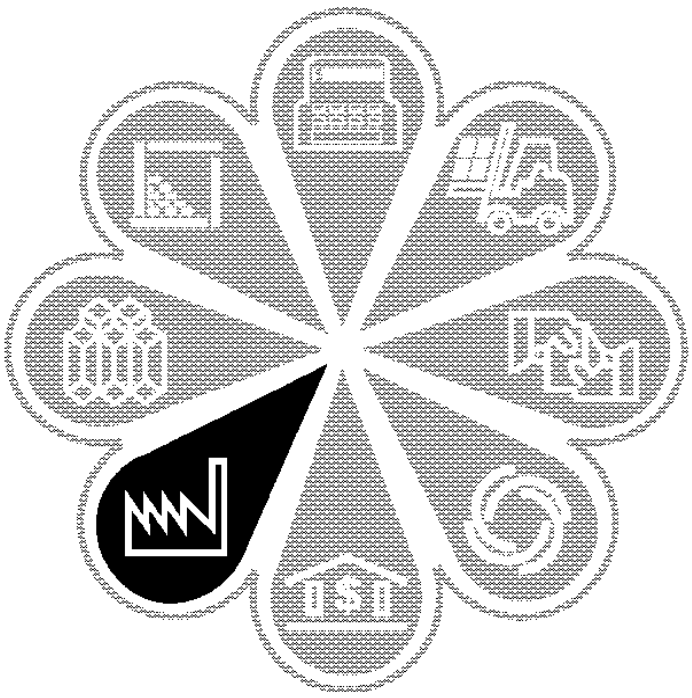
1992 Census of Manufactures

MC92-I-34B

INDUSTRY SERIES

Heating Apparatus (Except Electric and Warm Air Furnaces) and Plumbing Fixtures

Industries 3431, 3432, and 3433



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-34B

INDUSTRY SERIES

Heating Apparatus (Except Electric and Warm Air Furnaces) and Plumbing Fixtures

Industries 3431, 3432, and 3433

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

JOBNAME: No Job Name PAGE: 1 SESS: 66 OUTPUT: Mon Jun 5 13:03:41 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ ackral

Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Annette Ralston.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3431	Metal Sanitary Ware
3432	Plumbing Fixture Fittings and Trim
3433	Heating Equipment, Except Electric

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3431, METAL SANITARY WARE

This industry is made up of establishments primarily engaged in manufacturing enameled iron, cast iron, or pressed metal sanitary ware. Establishments primarily engaged in manufacturing plastics plumbing fixtures are classified in industry 3088; those manufacturing vitreous and semivitreous pottery sanitary ware are classified in industry 3261; and those manufacturing porcelain enameled kitchen, household, and hospital ware are classified in industry 3469.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3431, Metal Sanitary Ware, had employment of 6.5 thousand. The employment figure was 19 percent below the 8.0 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, Ohio, and Wisconsin. This represents a shift from 1987 when California, Illinois, Kentucky, and Wisconsin were the leading States.

The total value of shipments for establishments classified in this industry was $829.4 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3431 shipped $681.9 million of metal sanitary ware products considered primary to the industry, $88.9 million of secondary products, and had $58.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3431, no matter in what industry they were produced, appear in table 6a and aggregate to $721.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal

sanitary ware industry amounted to $321.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM

This industry is made up of establishments primarily engaged in manufacturing metal plumbing fixture fittings and trim. Also included in this industry are establishments engaged in the assembly of plastics components into plumbing fixture fittings. Establishments primarily engaged in the manufacture of stream or water line valves are classified in industry group 349. Establishments primarily engaged in manufacturing china and earthenware plumbing fixture fittings are classified in industry 3261, and those manufacturing plastics plumbing fixture components are classified in industry 3089.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3432, Plumbing Fixture Fittings and Trim, had employment of 17.4 thousand. The employment figure was 2 percent above the 17.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Indiana, North Carolina, and Illinois. This represents a shift from 1987 when California, Illinois, Indiana, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $2.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3432 shipped $2.4 billion of plumbing fixture fittings and trim products considered primary to the industry, $121.5 million of secondary products, and had $153.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3432, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plumbing fixture fittings and trim industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC

This industry is made up of establishments primarily engaged in manufacturing heating equipment, except electric and warm air furnaces, including gas, oil, and stoker coal fired equipment for the automatic utilization of gaseous, liquid, and solid fuels. Establishments primarily engaged in manufacturing warm air furnaces are classified in industry 3585; cooking stoves and ranges are classified in industry 3631; boiler shops primarily engaged in the production of industrial, power, and marine boilers are classified in industry 3443; and those manufacturing industrial process furnaces and ovens are classified in industry 3567.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3433, Heating Equipment, Except Electric, had employment of 18.1 thousand. The employment figure was 12 percent below the 20.5 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, California, Indiana, and New York, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, New York, and Illinois accounted for approximately 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3433 shipped $2.1 billion of heating equipment, except electric products considered primary to the industry, $143.6 million of secondary products, and had $100.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3433, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the heating equipment, except electric, industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3431, METAL SANITARY WARE															
1992 Census	75	81	27	6.5	200.8	5.0	10.6	137.8	499.4	321.6	829.4	18.3	139.6	88	95
1991 ASM	(NA)	(NA)	(NA)	7.3	211.4	5.5	12.0	137.8	499.3	410.6	903.7	28.0	154.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.7	233.6	5.9	12.3	134.5	524.8	456.0	980.0	33.9	146.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.8	228.7	6.0	13.0	142.8	505.6	548.9	1 051.6	36.0	157.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.7	223.0	6.0	12.3	137.9	529.3	431.3	945.6	21.3	154.8	(NA)	(NA)
1987 Census	90	97	42	8.0	193.3	6.0	12.3	124.9	444.1	359.1	803.4	20.4	145.1	92	91
1986 ASM	(NA)	(NA)	(NA)	7.6	188.9	5.8	12.5	138.3	482.5	367.3	845.8	23.6	140.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.0	178.0	6.2	12.8	128.6	463.3	359.4	827.4	26.1	136.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.1	172.1	6.4	13.2	125.3	409.3	351.0	755.2	16.8	143.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.7	159.2	6.0	12.6	116.1	392.8	356.6	737.2	11.1	141.2	(NA)	(NA)
1982 Census	78	86	35	7.5	139.4	5.7	10.8	97.0	308.1	303.4	620.3	15.7	127.9	75	97
1981 ASM	(NA)	(NA)	(NA)	7.2	131.2	5.8	12.0	99.8	309.3	228.3	534.4	32.8	74.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.1	116.8	5.7	11.9	88.8	292.9	212.2	501.7	18.9	69.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.6	124.0	6.2	13.7	98.9	303.9	256.3	555.1	17.3	72.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.5	123.6	7.0	15.3	99.5	303.4	250.8	553.5	16.8	70.7	(NA)	(NA)
1977 Census	96	101	37	8.1	109.7	6.7	14.4	87.5	248.7	223.6	477.6	11.3	65.5	82	92
INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM															
1992 Census	163	185	103	17.4	444.5	13.3	26.7	285.0	1 358.5	1 317.6	2 700.7	74.2	424.5	95	95
1991 ASM	(NA)	(NA)	(NA)	16.4	414.7	12.1	23.5	254.4	1 323.4	1 307.5	2 655.0	40.5	457.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.3	405.8	12.9	24.8	254.2	1 400.1	1 342.7	2 749.9	42.5	493.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.7	401.9	13.7	27.3	259.7	1 406.6	1 340.5	2 733.2	65.5	505.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.9	393.8	13.9	29.1	260.9	1 346.1	1 240.9	2 563.1	67.0	476.3	(NA)	(NA)
1987 Census	161	180	98	17.1	355.6	13.1	27.5	235.3	1 265.9	1 127.4	2 355.4	61.9	428.5	95	96
1986 ASM	(NA)	(NA)	(NA)	15.9	320.2	12.2	25.3	216.9	1 082.5	909.6	1 982.3	24.7	359.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.0	308.3	12.4	24.9	210.7	966.4	903.8	1 863.0	45.1	347.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.3	296.8	12.8	25.0	202.9	942.6	884.9	1 788.4	44.8	337.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.4	265.6	12.0	23.4	180.9	817.8	759.3	1 557.4	28.3	294.1	(NA)	(NA)
1982 Census	162	186	103	14.4	237.9	11.1	21.2	156.9	672.1	613.8	1 300.5	37.2	258.5	97	93
1981 ASM	(NA)	(NA)	(NA)	17.0	260.3	13.3	25.9	175.1	713.7	731.5	1 425.7	34.5	285.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.5	248.3	14.4	27.1	168.0	634.0	705.4	1 349.0	33.2	265.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.1	246.8	16.0	31.2	170.2	608.6	721.5	1 330.3	31.9	278.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.3	222.8	15.3	29.3	152.3	599.3	628.2	1 220.3	23.3	255.4	(NA)	(NA)
1977 Census	191	213	110	19.3	215.0	15.3	30.0	145.0	579.3	601.6	1 166.4	30.3	239.8	96	92
INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC															
1992 Census	405	423	168	18.1	502.6	11.0	25.1	243.8	1 251.9	1 050.8	2 303.0	37.3	375.4	93	91
1991 ASM	(NA)	(NA)	(NA)	18.3	479.4	11.5	24.3	247.3	1 142.4	1 042.8	2 174.0	45.1	371.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.4	455.6	11.9	24.0	234.6	1 154.6	1 022.8	2 167.4	48.7	369.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.4	439.6	12.2	24.4	231.7	1 149.6	995.5	2 127.7	56.5	364.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.5	467.1	12.5	25.9	241.3	1 212.3	1 024.7	2 221.2	31.0	380.3	(NA)	(NA)
1987 Census	540	556	182	20.5	455.7	13.3	26.7	240.5	1 143.8	980.4	2 124.0	43.6	360.6	93	87
1986 ASM	(NA)	(NA)	(NA)	22.4	476.4	15.2	30.1	270.9	1 086.2	1 078.3	2 178.8	45.7	363.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.0	490.4	16.3	32.5	276.7	1 097.6	1 081.4	2 183.7	58.6	426.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	24.0	464.8	16.0	31.2	260.4	1 061.3	1 028.2	2 084.4	47.0	400.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.9	447.4	17.3	33.4	250.7	997.4	965.4	1 964.5	32.1	404.9	(NA)	(NA)
1982 Census	875	905	260	26.0	443.4	17.1	31.8	245.2	1 042.4	1 023.5	2 082.5	44.0	408.5	90	87
1981 ASM	(NA)	(NA)	(NA)	26.9	427.6	17.9	33.5	232.7	884.5	1 004.2	1 878.3	48.3	369.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.4	469.2	22.9	43.6	273.3	1 092.7	1 132.2	2 187.2	45.8	411.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	30.8	418.4	22.0	43.1	249.3	928.7	1 037.0	1 951.1	39.8	352.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.7	371.3	20.8	40.1	222.4	830.7	883.5	1 697.8	39.6	307.2	(NA)	(NA)
1977 Census	678	701	194	25.8	312.2	18.7	36.0	190.3	745.6	716.7	1 443.6	32.4	262.6	87	84

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3431, METAL SANITARY WARE								
1992 Census	30 892	77	2 120	13.00	39	63	76 831	40	47.11
1991 ASM	28 959	75	2 182	11.48	45	69	68 397	42	41.61
1990 ASM	30 338	77	2 085	10.93	47	70	68 156	45	42.67
1989 ASM	29 321	77	2 167	10.98	52	74	64 821	45	38.89
1988 ASM	28 961	78	2 050	11.21	46	69	68 740	42	43.03
1987 Census	24 163	75	2 050	10.15	45	69	55 513	44	36.11
1986 ASM	24 855	76	2 155	11.06	43	66	63 487	39	38.60
1985 ASM	22 250	78	2 065	10.05	43	65	57 913	38	36.20
1984 ASM	21 247	79	2 063	9.49	46	69	50 531	42	31.01
1983 ASM	20 675	78	2 100	9.21	48	70	51 013	41	31.17
1982 Census	18 587	76	1 895	8.98	49	71	41 080	45	28.53
1981 ASM	18 222	81	2 069	8.32	43	67	42 958	42	25.78
1980 ASM	16 451	80	2 088	7.46	42	66	41 254	40	24.61
1979 ASM	16 316	82	2 210	7.22	46	69	39 987	41	22.18
1978 ASM	14 541	82	2 186	6.50	45	68	35 694	41	19.83
1977 Census	13 543	83	2 149	6.08	47	70	30 704	44	17.27
	INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM								
1992 Census	25 546	76	2 008	10.67	49	65	78 075	33	50.88
1991 ASM	25 287	74	1 942	10.83	49	65	80 695	31	56.31
1990 ASM	23 457	75	1 922	10.25	49	64	80 931	29	56.46
1989 ASM	22 706	77	1 993	9.51	49	64	79 469	29	51.52
1988 ASM	22 000	78	2 094	8.97	48	64	75 201	29	46.26
1987 Census	20 795	77	2 099	8.56	48	63	74 029	28	46.03
1986 ASM	20 138	77	2 074	8.57	46	62	68 082	30	42.79
1985 ASM	19 269	78	2 008	8.46	49	65	60 400	32	38.81
1984 ASM	18 209	79	1 953	8.12	49	66	57 828	31	37.70
1983 ASM	17 247	78	1 950	7.73	49	66	53 104	32	34.95
1982 Census	16 521	77	1 910	7.40	47	65	46 674	35	31.70
1981 ASM	15 312	78	1 947	6.76	51	70	41 982	36	27.56
1980 ASM	13 422	78	1 882	6.20	52	71	34 270	39	23.39
1979 ASM	12 279	80	1 950	5.46	54	73	30 279	41	19.51
1978 ASM	11 544	79	1 915	5.20	51	70	31 052	37	20.45
1977 Census	11 140	79	1 961	4.83	52	70	30 016	37	19.31
	INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC								
1992 Census	27 768	61	2 282	9.71	46	67	69 166	40	49.88
1991 ASM	26 197	63	2 113	10.18	48	70	62 426	42	47.01
1990 ASM	24 761	65	2 017	9.78	47	68	62 750	39	48.11
1989 ASM	23 891	66	2 000	9.50	47	67	62 478	38	47.11
1988 ASM	23 954	64	2 072	9.32	46	67	62 169	39	46.81
1987 Census	22 229	65	2 008	9.01	46	68	55 795	40	42.84
1986 ASM	21 268	68	1 980	9.00	49	71	48 491	44	36.09
1985 ASM	20 433	68	1 994	8.51	50	72	45 733	45	33.77
1984 ASM	19 367	67	1 950	8.35	49	72	44 221	44	34.02
1983 ASM	17 274	67	1 931	7.51	49	72	38 510	45	29.86
1982 Census	17 054	66	1 860	7.71	49	70	40 092	43	32.78
1981 ASM	15 896	67	1 872	6.95	53	76	32 881	48	26.40
1980 ASM	14 481	71	1 904	6.27	52	73	33 725	43	25.06
1979 ASM	13 584	71	1 959	5.78	53	75	30 153	45	21.55
1978 ASM	12 937	72	1 928	5.55	52	74	28 944	45	20.72
1977 Census	12 101	72	1 925	5.29	50	71	28 899	42	20.71

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3431, METAL SANITARY WARE														
United States	–	**81**	**27**	**6.5**	**200.8**	**5.0**	**10.6**	**137.8**	**499.4**	**321.6**	**829.4**	**18.3**	**8.0**	**444.1**
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	19	5	.7	22.9	.5	1.0	12.8	39.9	43.8	85.6	1.1	1.6	80.2
Illinois	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	F	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E9	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	40.1
Pennsylvania	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E9	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM														
United States	–	**185**	**103**	**17.4**	**444.5**	**13.3**	**26.7**	**285.0**	**1 358.5**	**1 317.6**	**2 700.7**	**74.2**	**17.1**	**1 265.9**
Alabama	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	47	29	4.7	119.3	3.6	6.6	70.2	355.7	274.0	633.2	21.1	3.4	211.2
Connecticut	–	12	7	.6	14.9	.4	.9	8.3	29.8	31.2	61.4	.8	F	(D)
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(D)
Georgia	E3	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	13	5	1.2	38.0	.9	1.7	22.4	115.8	116.7	236.8	3.4	2.0	141.0
Indiana	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	6	4	.5	10.0	.4	.8	6.8	44.8	45.3	91.2	1.5	E	(D)
New Jersey	E3	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E6	12	5	.5	15.0	.4	.9	7.7	23.5	47.4	71.1	(D)	F	(D)
North Carolina	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	15	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.1	1.2	148.9
Oklahoma	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	23.6
Texas	–	11	5	1.1	22.9	.9	1.8	17.2	80.5	78.8	157.9	(D)	G	(D)
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC														
United States	**E1**	**423**	**168**	**18.1**	**502.6**	**11.0**	**25.1**	**243.8**	**1 251.9**	**1 050.8**	**2 303.0**	**37.3**	**20.5**	**1 143.8**
Alabama	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	44	15	1.6	42.2	.8	3.8	16.7	91.1	78.8	170.9	2.5	2.6	142.9
Connecticut	E7	6	4	.3	9.2	.1	.3	3.9	16.3	16.7	33.1	.5	.4	19.4
Florida	E1	9	2	.1	3.4	.1	.1	1.4	6.9	5.6	12.6	(D)	(NA)	(D)
Georgia	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	17	8	1.0	32.5	.6	1.3	14.9	73.3	52.3	127.1	(D)	1.3	60.5
Indiana	–	11	6	1.4	45.9	.8	1.5	22.5	146.6	83.7	229.7	3.7	G	(D)
Iowa	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E1	6	4	.3	7.2	.2	.4	4.4	22.4	13.2	36.1	.5	F	(D)
Michigan	E1	24	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Minnesota	–	22	7	.8	20.7	.5	.9	11.6	49.0	42.4	87.6	1.4	E	(D)
Missouri	E5	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E3	21	5	.5	16.5	.3	.7	9.3	39.2	29.2	67.4	(D)	F	(D)
New York	E3	29	13	1.1	35.5	.7	1.4	16.0	76.5	83.9	157.9	1.8	1.4	87.7
North Carolina	–	12	6	.4	9.6	.3	.8	5.5	19.4	19.0	38.2	.6	E	(D)
Ohio	–	12	7	1.0	30.6	.5	1.1	12.6	65.6	58.6	123.8	(D)	1.1	63.5
Oklahoma	–	12	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	.2	9.7
Oregon	E2	13	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	8.6
Pennsylvania	–	40	22	2.2	65.7	1.3	2.6	32.3	181.4	141.2	322.0	5.9	2.4	159.1
South Carolina	E1	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	12.6
Tennessee	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E2	14	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	F	(D)
Utah	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	E2	14	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	17	5	.5	14.3	.4	.7	7.4	44.7	26.5	71.5	1.1	F	(D)
Wisconsin	–	9	6	.3	8.2	.2	.4	3.5	21.7	22.6	45.2	.9	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal sanitary ware (SIC 3431)	Plumbing fixture fittings and trim (SIC 3432)	Heating equipment, except electric (SIC 3433)	Item	Metal sanitary ware (SIC 3431)	Plumbing fixture fittings and trim (SIC 3432)	Heating equipment, except electric (SIC 3433)
Companies ---- number	75	163	405	Cost of materials[1] ---- mil dol	321.6	1 317.6	1 050.8
All establishments ---- number	81	185	423	Materials, parts, containers, etc., consumed[2] ---- mil dol	258.3	1 181.8	950.4
With 1 to 19 employees ---- number	54	82	255	Resales ---- mil dol	32.3	88.0	53.1
With 20 to 99 employees ---- number	8	52	113	Fuels ---- mil dol	9.4	5.6	9.5
With 100 employees or more ---- number	19	51	55	Purchased electricity ---- mil dol	15.1	22.0	17.0
				Contract work ---- mil dol	6.5	20.3	20.7
Employment and labor costs:							
Employees ---- 1,000	6.5	17.4	18.1	Quantity of electric energy used for heat and power:			
Compensation, total ---- mil dol	259.1	573.0	627.3	Purchased ---- mil kWh	357.3	340.2	262.1
Annual payroll ---- mil dol	200.8	444.5	502.6	Generated less sold ---- mil kWh	–	(D)	–
Fringe benefits ---- mil dol	58.3	128.5	124.6				
Social Security and other legally required payments ---- mil dol	23.5	48.2	55.0	Total value of shipments ---- mil dol	829.4	2 700.7	2 303.0
Employer voluntary payments ---- mil dol	34.8	80.3	69.7	Value added ---- mil dol	499.4	1 358.5	1 251.9
Production workers:				Inventories by stage of fabrication:			
Average for year ---- 1,000	5.0	13.3	11.0	Beginning of 1992 ---- mil dol	148.8	433.8	371.7
March ---- 1,000	5.0	13.4	10.4	Finished goods ---- mil dol	71.7	185.3	131.7
May ---- 1,000	5.0	13.2	10.6	Work in process ---- mil dol	42.4	134.1	91.2
August ---- 1,000	5.0	13.4	11.4	Materials and supplies ---- mil dol	34.7	114.4	148.9
November ---- 1,000	4.9	13.3	11.6				
				End of 1992 ---- mil dol	139.6	424.5	375.4
Hours ---- millions	10.6	26.7	25.1	Finished goods ---- mil dol	65.7	165.8	133.6
				Work in process ---- mil dol	40.2	129.1	88.8
Wages ---- mil dol	137.8	285.0	243.8	Materials and supplies ---- mil dol	33.8	129.6	152.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal sanitary ware (SIC 3431)	Plumbing fixture fittings and trim (SIC 3432)	Heating equipment, except electric (SIC 3433)	Item	Metal sanitary ware (SIC 3431)	Plumbing fixture fittings and trim (SIC 3432)	Heating equipment, except electric (SIC 3433)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	255.7	640.5	563.7	Beginning of year—Con.			
New capital expenditures[1]	18.3	74.2	37.3	New capital expenditures[1]	16.9	67.2	29.3
Used capital expenditures	1.0	4.7	6.3	Used capital expenditures	.9	3.5	5.9
Retirements	41.4	16.5	20.5	Retirements	32.2	16.2	18.3
End of year	233.6	702.9	586.8	End of year	181.7	526.8	435.5
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	59.5	168.2	145.2	Total	18.0	41.8	39.9
New capital expenditures	1.5	6.9	8.0	Buildings and other structures	3.0	6.0	6.7
Used capital expenditures	.1	1.2	.4	Machinery and equipment	15.0	35.7	33.2
Retirements	9.2	.3	2.3				
End of year	51.9	176.0	151.3	Rental payments:			
Machinery and equipment:				Total	8.0	15.8	27.6
Beginning of year	196.2	472.3	418.6	Buildings and other structures	6.1	9.7	15.5
				Machinery and equipment	1.9	6.1	12.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Metal sanitary ware (SIC 3431)		Plumbing fixture fittings and trim (SIC 3432)		Heating equipment, except electric (SIC 3433)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	.5	(X)	3.0	(X)	3.5	(X)
Response coverage ratio (percent)[2]	54.3	(X)	89.6	(X)	85.8	(X)
Machinery	7.0	(X)	14.6	(X)	11.3	(X)
Response coverage ratio (percent)[2]	54.3	(X)	94.1	(X)	86.8	(X)
Other purchased services:						
Communications	1.1	(X)	5.3	(X)	7.0	(X)
Response coverage ratio (percent)[2]	54.3	(X)	89.5	(X)	86.1	(X)
Legal	1.4	(X)	5.6	(X)	7.7	(X)
Response coverage ratio (percent)[2]	54.3	(X)	94.1	(X)	88.8	(X)
Accounting and bookkeeping	.1	(X)	1.8	(X)	2.3	(X)
Response coverage ratio (percent)[2]	51.7	(X)	94.1	(X)	87.9	(X)
Advertising	5.0	(X)	28.9	(X)	22.6	(X)
Response coverage ratio (percent)[2]	54.3	(X)	94.1	(X)	85.1	(X)
Software and other data processing	.1	(X)	6.8	(X)	2.3	(X)
Response coverage ratio (percent)[2]	51.7	(X)	94.1	(X)	82.9	(X)
Refuse removal, including hazardous waste	1.3	(X)	5.8	(X)	2.3	(X)
Response coverage ratio (percent)[2]	51.7	(X)	92.0	(X)	84.7	(X)
New machinery and equipment expenditures	16.9	(X)	67.2	(X)	29.3	(X)
Automobiles, trucks, etc., for highway use	.4	1	1.0	25	.4	33
Computers and peripheral data processing equipment	.4	1	6.1	13	4.4	14
All other	16.1	1	60.1	2	24.4	3
Adjustment ratio[3]	1.4	(X)	1.1	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	258.3	(X)	1 181.8	(X)	950.4	(X)
Materials purchased or transferred from foreign sources[4]	7.8	32	166.6	28	31.1	12
Materials purchased or transferred from domestic sources	250.5	1	1 015.2	5	919.3	1
Adjustment ratio[3]	1.4	(X)	1.7	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3431, METAL SANITARY WARE												
Total	**–**	**81**	**6.5**	**200.8**	**5.0**	**10.6**	**137.8**	**499.4**	**321.6**	**829.4**	**18.3**	**139.6**
Establishments with an average of–												
1 to 4 employees	E9	30	.1	1.5	.1	.1	1.0	3.0	2.4	5.4	.3	.9
5 to 9 employees	E8	12	.1	1.7	.1	.1	1.1	3.2	2.7	5.9	.3	.9
10 to 19 employees	E3	12	.2	4.1	.1	.2	2.3	7.6	5.7	13.2	.4	2.4
20 to 49 employees	E2	5	.4	9.5	.3	.5	4.8	25.9	37.8	64.5	.6	13.1
50 to 99 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	E1	12	1.9	49.3	1.4	2.8	29.4	134.7	123.0	261.8	5.1	45.6
250 to 499 employees	–	5	3.9	134.6	3.1	6.8	99.2	325.0	150.0	478.5	11.6	76.7
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	41	.1	3.4	.1	.2	2.2	6.2	5.1	11.4	.6	1.9
INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM												
Total	**–**	**185**	**17.4**	**444.5**	**13.3**	**26.7**	**285.0**	**1 358.5**	**1 317.6**	**2 700.7**	**74.2**	**424.5**
Establishments with an average of–												
1 to 4 employees	E9	39	.1	1.4	.1	.1	.9	4.9	4.8	9.7	.1	1.7
5 to 9 employees	E8	19	.1	2.7	.1	.2	1.6	8.3	8.4	16.4	.7	4.0
10 to 19 employees	E3	24	.3	7.1	.2	.5	4.5	20.8	23.1	44.6	.4	12.7
20 to 49 employees	E1	33	1.0	21.6	.7	1.5	13.0	70.7	70.9	140.3	1.7	24.5
50 to 99 employees	–	19	1.4	34.6	1.0	2.0	18.6	91.6	119.7	214.6	4.4	42.9
100 to 249 employees	–	31	5.1	127.1	3.7	7.2	68.9	373.7	399.3	777.6	18.6	118.5
250 to 499 employees	–	15	5.3	129.0	4.2	8.9	88.7	398.9	447.6	855.5	25.9	150.4
500 to 999 employees	–	4	4.1	120.9	3.3	6.4	88.7	389.5	243.9	642.1	22.4	69.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	54	.2	4.1	.2	.3	2.7	11.3	11.0	22.3	.3	3.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC												
Total	**E1**	**423**	**18.1**	**502.6**	**11.0**	**25.1**	**243.8**	**1 251.9**	**1 050.8**	**2 303.0**	**37.3**	**375.4**
Establishments with an average of—												
1 to 4 employees	E9	129	.2	5.0	.1	.3	2.4	12.9	11.8	24.7	.4	4.7
5 to 9 employees	E3	71	.5	10.7	.3	.6	5.6	31.5	29.1	60.4	.6	9.7
10 to 19 employees	E1	55	.7	18.7	.4	2.9	8.3	41.9	34.3	75.2	.7	14.8
20 to 49 employees	E1	71	2.2	63.0	1.4	3.2	29.8	150.9	145.9	297.1	4.9	45.4
50 to 99 employees	E3	42	3.0	85.7	1.8	3.6	39.5	198.6	167.2	363.9	5.2	63.0
100 to 249 employees	–	42	6.6	178.2	4.1	8.5	89.3	412.8	398.2	816.4	14.7	137.5
250 to 499 employees	–	11	4.9	141.4	3.0	6.0	68.7	403.3	264.4	665.3	10.7	100.3
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	157	.4	8.8	.3	.5	4.3	21.5	19.3	40.8	.8	7.6

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3431	**Metal sanitary ware:**										
	All establishments in industry	81	6.5	200.8	5.0	10.6	137.8	499.4	321.6	829.4	18.3
3432	**Plumbing fixture fittings and trim:**										
	All establishments in industry	185	17.4	444.5	13.3	26.7	285.0	1 358.5	1 317.6	2 700.7	74.2
	Establishments with this product class primary:										
34321	Single lever controls, two or three handle bath or shower fittings, and anti-scald bath or shower valves (brass goods)	21	5.6	154.1	4.5	8.8	110.0	573.4	407.7	1 009.3	34.6
34322	Lavatory and sink fittings (except single control), including drains and overflows (brass goods)	23	3.1	78.4	2.3	4.7	49.6	170.7	264.8	431.8	9.3
34323	Miscellaneous plumbing fixtures, fittings, and trim (brass goods)	47	7.2	179.2	5.3	10.9	104.4	539.8	534.5	1 074.0	27.6
3433	**Heating equipment, except electric:**										
	All establishments in industry	423	18.1	502.6	11.0	25.1	243.8	1 251.9	1 050.8	2 303.0	37.3
	Establishments with this product class primary:										
34333	Cast iron heating boilers, radiators, and convectors, except parts	14	1.9	62.0	1.1	2.4	32.0	191.5	157.6	347.5	4.7
34334	Domestic heating stoves, except electric (excluding parts)	46	4.1	90.1	2.8	5.5	47.8	241.4	209.3	448.2	8.7
34335	Steel heating boilers (15 p.s.i. or less), and all hot water heating boilers, excluding parts	15	1.0	27.5	.6	1.4	13.8	58.4	56.7	115.2	1.9
34338	Floor and wall furnaces, unit heaters, infrared heaters, and mechanical stokers	31	2.2	62.5	1.4	2.8	30.9	168.0	157.6	325.0	3.5
34339	Other heating equipment, except electric, (including parts for nonelectric heating equipment and oil burners)	87	6.1	187.2	3.5	9.8	84.2	421.8	317.6	742.7	13.1

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3431, METAL SANITARY WARE			
Total value of shipments	829.4	803.4	620.3
Primary products value of shipments	681.9	722.1	441.2
Secondary products value of shipments	88.9	63.4	148.3
Total miscellaneous receipts	58.5	18.0	30.8
Value of resales	(D)	13.9	26.9
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	12.9	(D)	(D)
Sales of scrap and refuse	3.8	(NA)	1.7
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	–
Primary products specialization ratio	88	92	75
Value of primary products shipments made in all industries	721.4	797.2	455.9
Value of primary products shipments made in this industry	681.9	722.1	441.2
Value of primary products shipments made in other industries	39.5	75.1	14.7
Coverage ratio	95	91	97
INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM			
Total value of shipments	2 700.7	2 355.4	1 300.5
Primary products value of shipments	2 426.0	2 115.2	1 234.9
Secondary products value of shipments	121.5	110.7	32.9
Total miscellaneous receipts	153.2	129.4	32.7
Value of resales	97.8	78.0	19.3
Contract receipts	.6	1.3	(D)
Other miscellaneous receipts	54.8	50.1	(D)
Sales of scrap and refuse	34.9	(NA)	12.7
Other miscellaneous receipts	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	–
Primary products specialization ratio	95	95	97
Value of primary products shipments made in all industries	2 553.0	2 205.0	1 325.3
Value of primary products shipments made in this industry	2 426.0	2 115.2	1 234.9
Value of primary products shipments made in other industries	127.0	89.8	90.4
Coverage ratio	95	96	93
INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC			
Total value of shipments	2 303.0	2 124.0	2 082.5
Primary products value of shipments	2 059.0	1 860.0	1 705.7
Secondary products value of shipments	143.6	142.7	199.2
Total miscellaneous receipts	100.5	121.2	177.6
Value of resales	74.5	103.8	154.5
Contract receipts	9.0	5.8	7.6
Other miscellaneous receipts	17.0	11.6	15.5
Sales of scrap and refuse	3.6	(NA)	.6
Other miscellaneous receipts	12.1	(NA)	(D)
Other miscellaneous receipts, n.s.k.	1.3	(NA)	(D)
Primary products specialization ratio	93	93	90
Value of primary products shipments made in all industries	2 270.9	2 138.5	1 962.3
Value of primary products shipments made in this industry	2 059.0	1 860.0	1 705.7
Value of primary products shipments made in other industries	211.9	278.5	256.6
Coverage ratio	91	87	87

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3431– —	**METAL SANITARY WARE**				
	Total	**(NA)**	**721.4**	**(NA)**	**797.2**
34310	Metal plumbing fixtures	(NA)	721.4	(NA)	797.2
34310 10	Enameled iron and metal plumbing fixtures[3]	32	603.1	36	599.9
34310 98	Other enameled iron and metal plumbing fixtures, including portable chemical toilets, water closet tanks, etc.	15	88.4	25	174.5
34310 00	Metal sanitary ware, n.s.k.[4]	(NA)	15.7	(NA)	1.5
34310 02	Metal sanitary ware, n.s.k.[5]	(NA)	14.2	(NA)	21.3

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3432– —	**PLUMBING FIXTURE FITTINGS AND TRIM**						
	Total	**(NA)**	**(X)**	**2 553.0**	**(NA)**	**(X)**	**2 205.0**
34321	Single lever controls, two or three handle bath or shower fittings, and anti-scald bath or shower valves (brass goods)	(NA)	(X)	791.3	(NA)	(X)	(6)
	Single lever controls:						
34321 02	Lavatory (metallic and nonmetallic) millions	15	5.1	150.9	(NA)	5.8	173.8
34321 05	Kitchen with spray (metallic and nonmetallic) millions	12	3.7	140.7	(NA)	3.2	122.1
34321 08	Kitchen without spray (metallic and nonmetallic) millions	10	2.2	69.3	(NA)	2.9	78.6
34321 10	Shower combination, mechanical millions	10	3.2	55.3	7	1.4	34.8
34321 12	Shower-tub combination, mechanical millions	9	2.5	75.8	12	*2.5	66.7
34321 13	Tub filler, mechanical millions	2	(D)	(D)	5	(S)	14.5
34321 14	Shower control only	2	(X)	(D)	2	(X)	(D)
	Two and three handle bath and shower fittings:						
34321 15	Bathtub fillers millions	15	.6	34.5	15	.6	23.8
34321 17	Shower fittings with shower heads millions	18	*1.7	36.3	14	1.6	26.5
34321 18	Shower heads sold separately millions	11	(S)	37.7	12	(S)	21.7
	Bathtub and shower fittings:						
34321 20	Diverter spout millions	16	1.0	31.4	12	1.4	25.6
34321 22	Three valve diverter millions	14	1.7	47.3	11	1.3	42.6
34321 25	Personal showers (handheld) millions	7	1.3	24.2	6	(S)	22.2
34321 28	Tub and shower control only millions	7	.6	6.7	6	*.3	7.1
34321 30	Other bath and shower fittings, including stall and gang millions	9	2.3	12.4	16	(S)	28.3
	Anti-scald bath and shower valves:						
34321 32	Thermostatic controlled fittings millions	4	(D)	(D)			
34321 34	Thermo/pressure controlled fittings millions	2	(Z)	.8	(NA)	2.1	41.5
34321 36	Pressure balanced controlled fittings millions	11	.9	48.1			
34321 00	Single lever controls, two or three handle bath or shower fittings, and anti-scald bath or shower valves, n.s.k.	(NA)	(X)	6.9	(NA)	(X)	(6)
34322	Lavatory and sink fittings (except single control), including drains and overflows (brass goods)	(NA)	(X)	578.8	(NA)	(X)	(6)
	Lavatory fittings (except basin cocks):						
	4 inch center-set fittings:						
	With pop-up drain:						
34322 01	Metallic millions	19	5.3	154.2	14	5.3	120.0
34322 03	Nonmetallic millions	5	.2	2.8	4	.5	5.5
	Without pop-up drain:						
34322 05	Metallic millions	18	2.1	57.8	13	*1.5	38.0
34322 07	Nonmetallic millions	4	.5	4.4	4	(S)	21.7
	Greater than 4 inches:						
34322 12	With pop-up drain (metallic and nonmetallic) millions	15	1.5	71.1	(NA)	(D)	(D)
34322 15	Without pop-up drain (metallic and nonmetallic) millions	12	**.2	9.9	(NA)	*.6	17.3
34322 18	Basin cocks (one supply line only) millions	7	.3	4.9	10	(S)	8.7
	Sink fittings:						
34322 21	Wallmount combination sink faucet millions	14	.6	24.2	10	*.5	15.9
	Deck faucet, exposed type:						
34322 24	3 inch to 4 inch deck fittings (rough or plated, with or without hose end), excluding double laundry-tray faucets millions	15	1.2	33.7	11	(S)	21.1
34322 27	6 inch to 8 inch with spray (metallic and nonmetallic) millions	13	(S)	45.5	(NA)	(D)	(D)
34322 30	6 inch to 8 inch without spray (metallic and nonmetallic) millions	14	1.5	31.5	(NA)	(NA)	19.9
	Deck faucet, concealed type:						
34322 33	With spray millions	10	1.0	35.8	8	.6	20.5
34322 36	Without spray millions	9	.7	22.5	11	1.5	34.6
34322 39	Single sink faucet (solid flanged female and adjustable male flange) millions	6	6.6	6.6	9	(S)	18.8
34322 45	Other sink fittings (including sink strainers sold separately) millions	11	*2.8	11.1	12	(S)	26.5
34322 50	Drains and overflows (metallic and nonmetallic), including pop-up drains for bath and shower, lavatory, and sink millions	22	*3.3	46.0	(NA)	**1.9	28.8
34322 00	Lavatory and sink fittings (except single control), including drains and overflows (brass goods), n.s.k.	(NA)	(X)	16.9	(NA)	(X)	(6)

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3432– —	**PLUMBING FIXTURE FITTINGS AND TRIM—Con.**						
34323	Miscellaneous plumbing fixtures, fittings, and trim (brass goods)	(NA)	(X)	995.2	(NA)	(X)	(6)
34323 02	IPS mechanical connecting fittings	5	(X)	17.3	4	(X)	18.2
34323 05	Compression stops, including those with drains — millions	10	(D)	(D)	8	27.5	46.7
34323 08	Solder connecting fittings	2	(X)	(D)	3	(X)	(D)
34323 11	Sediment, hydrant, lawn, hose bibb, and sill cock faucets — millions	6	4.8	33.9	7	(S)	64.6
	P-traps:						
34323 14	Metallic	7	(X)	23.2	9	(X)	27.7
34323 17	Nonmetallic	4	(X)	3.0	6	(X)	5.3
	S-traps:						
34323 20	Metallic	9	(X)	16.4	7	(X)	14.0
34323 23	Nonmetallic	–	(X)	.2	3	(X)	4.2
34323 25	Lawn hose nozzles and lawn sprinklers	14	(X)	262.1	16	(X)	226.6
34323 27	Flushometer valves and flush valves (for gravity-type flush tanks)	10	(X)	72.8	(NA)	(X)	(D)
34323 32	Other miscellaneous items and accessories (water closet tank flushing controls, double laundry-tray faucets, etc.)	51	(X)	527.9	(NA)	(X)	345.5
34323 00	Miscellaneous plumbing fixtures, fittings, and trim (brass goods), n.s.k.	(NA)	(X)	–	(NA)	(X)	(6)
34320	Plumbing fixture fittings and trim, n.s.k.	(NA)	(X)	187.7	(NA)	(X)	153.8
34320 00	Plumbing fixture fittings and trim, n.s.k.[7]	(NA)	(X)	165.5	(NA)	(X)	81.2
34320 02	Plumbing fixture fittings and trim, n.s.k.[8]	(NA)	(X)	22.3	(NA)	(X)	72.6
3433– —	**HEATING EQUIPMENT, EXCEPT ELECTRIC**						
	Total	**(NA)**	**(X)**	**2 270.9**	**(NA)**	**(X)**	**2 138.5**
34333	Cast iron heating boilers, radiators, and convectors, except parts	(NA)	(X)	331.0	(NA)	(X)	372.4
	Cast iron boilers:						
34333 21	Gas — thousands	10	133.6	145.0	(NA)	(X)	284.8
34333 35	Other — thousands	9	105.9	132.1			
	Radiators and convectors:						
34333 65	Cast iron and steel — thousands	7	(X)	12.2	(NA)	(X)	(9)
34333 77	Aluminum and other nonferrous metal, including baseboard and finned tube type, residential, industrial, and special type — thousands	7	(S)	41.7	6	41.2	55.2
34333 00	Cast iron heating boilers, radiators, and convectors, except parts, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	932.4
34334	Domestic heating stoves, except electric (excluding parts)	(NA)	(X)	345.1	(NA)	(X)	262.2
34334 10	Gas (all types), including vented and unvented circulators, radiants and laundry stoves — thousands	12	(S)	88.2			
34334 22	Coal, kerosene, gasoline, and fuel oil — thousands	9	180.4	35.6			
34334 30	Freestanding fireplaces and stoves (all types), including circulating and radiants — thousands	21	**300.3	109.8			
34334 40	Pellet fuel-burning heaters — thousands	13	37.5	37.8	(NA)	(X)	262.2
34334 62	Heat exchangers and zero clearance (factory built) fireplaces — thousands	10	(S)	44.8			
34334 74	Fireplace inserts — thousands	14	**22.3	13.0			
34334 00	Domestic heating stoves, except electric (excluding parts), n.s.k.	(NA)	(X)	15.9			
34335	Steel heating boilers (15 p.s.i. or less), and all hot water heating boilers, excluding parts	(NA)	(X)	126.2	(NA)	(X)	122.3
34335 12	400,000 Btu/hr or less — thousands	19	(S)	71.9	18	(S)	46.0
34335 15	Gross output of these boilers — mil Btu/hr	(NA)	(S)	(X)	(NA)	(S)	(X)
34335 20	400,001 Btu/hr or more, including scotch type and horizontal fire box — thousands	8	7.4	47.8	(NA)	(NA)	30.1
34335 25	Gross output of these boilers — mil Btu/hr	(NA)	(S)	(X)	(NA)	(NA)	(X)
34335 00	Steel heating boilers (15 p.s.i. or less), and all hot water heating boilers, excluding parts, n.s.k.	(NA)	(X)	6.4	(NA)	(X)	46.2
34338	Floor and wall furnaces, unit heaters, infrared heaters, and mechanical stokers	(NA)	(X)	363.4	(NA)	(X)	362.3
34338 20	Floor and wall furnaces (gas and oil)	14	(X)	134.9	16	(X)	83.2
	Unit heaters:						
34338 30	Gas-fired, 400,000 Btu/hr or less	10	(X)	93.5	19	(X)	137.1
34338 32	Steam or hot water heating element, centrifugal fan-type (blower) and propeller fan-type	7	(X)	23.9	7	(X)	19.4
34338 38	Gas-fired infrared heaters — thousands	19	*338.6	54.4	11	**117.3	28.5
34338 54	Mechanical stokers	6	(X)	7.5	6	(X)	12.9
34338 88	Parts for floor and wall furnaces, unit heaters, gas-fired infrared heaters, and mechanical stokers	17	(X)	32.7	18	(X)	53.2
34338 00	Floor and wall furnaces, unit heaters, infrared heaters, and mechanical stokers, n.s.k.	(NA)	(X)	16.5	(NA)	(X)	28.0
34339	Other heating equipment, except electric, (including parts for nonelectric heating equipment and oil burners)	(NA)	(X)	799.2	(NA)	(X)	785.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3433– —	**HEATING EQUIPMENT, EXCEPT ELECTRIC—** Con.						
34339	Other heating equipment, except electric, (including parts for nonelectric heating equipment and oil burners)—Con.						
	Oil burners:						
	Sold separately, except range-type:						
34339 06	Residential-type (oil consumption rate less than 6 gal/ hr) ---- thousands	4	(D)	(D)			
34339 08	Commercial- and industrial-type (oil consumption rate 6 gal/ hr or more) ---- thousands	12	(S)	10.6			
34339 11	Residential-type (oil consumption rate less than 6 gal/ hr) ---- thousands	6	(D)	(D)	(NA)	(NA)	99.7
34339 13	Commercial- and industrial-type (oil consumption rate 6 gal/ hr or more) ---- thousands	6	(S)	6.4			
34339 15	Range-type (sleeve- and pot-type, for use in water heaters, stoves, ranges, etc.) ---- thousands	1	(D)	(D)	3	(D)	(D)
34339 85	Parts and attachments for oil burners ----	18	(X)	43.4	12	(X)	19.3
	Gas burners and gas conversion burners, including parts:						
34339 16	400,000 Btu/ hr or less ---- thousands	18	(S)	68.0	14	**167.9	107.7
34339 18	400,001 Btu/ hr or more ----	22	(X)	120.0	16	(X)	61.6
34339 19	Parts and attachments for gas burners (sold separately) ----	20	(X)	26.0	11	(X)	10.0
34339 45	Heat transfer coils (blast coils) ----	3	(X)	4.9	3	(X)	(D)
34339 50	Range boilers, expansion tanks (including basement tanks) and hot water storage tanks ----	2	(X)	(D)	4	(X)	12.4
34339 60	Unit ventilators ----	5	(X)	71.7	4	(X)	17.7
34339 61	Tanks for direct-fired water heaters (sold separately) -- thousands	3	(D)	(D)	3	(D)	(D)
34339 71	Nonelectric prefabricated metal fireplaces for commercial and industrial use ---- thousands	6	(S)	52.0	16	225.1	96.5
34339 75	Solar energy collectors (water or air) ----	9	(X)	35.3	10	(X)	10.7
34339 99	Other heating equipment (dual-fired gas and oil burners, etc.) and other parts for heating equipment, except electric ----	53	(X)	221.6	59	(X)	192.0
34339 00	Other heating equipment, except electric, (including parts for nonelectric heating equipment and oil burners), n.s.k. ----	(NA)	(X)	56.2	(NA)	(X)	128.4
34330	Heating equipment, except electric, n.s.k. ----	(NA)	(X)	306.0	(NA)	(X)	234.0
34330 00	Heating equipment, except electric, n.s.k.[4] ----	(NA)	(X)	262.3	(NA)	(X)	161.7
34330 02	Heating equipment, except electric, n.s.k.[5] ----	(NA)	(X)	43.7	(NA)	(X)	72.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title. see appendix C, part 3.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1992, product codes beginning with 34321, 34322, and 34323 were revised. See appendix B, parts 1 and 2 for comparability.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]For 1987, product codes were combined to avoid disclosing data for individual companies.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34321, SINGLE LEVER CONTROLS, TWO OR THREE HANDLE BATH OR SHOWER FITTINGS, AND ANTI-SCALD BATH OR SHOWER VALVES (BRASS GOODS)		
United States	**791.3**	**(NA)**
California	141.4	(NA)
34322, LAVATORY AND SINK FITTINGS (EXCEPT SINGLE CONTROL), INCLUDING DRAINS AND OVERFLOWS (BRASS GOODS)		
United States	**578.8**	**(NA)**
California	105.0	(NA)
Connecticut	8.6	(NA)
Illinois	46.4	(NA)
Indiana	103.9	(NA)
Ohio	32.4	(NA)
34323, MISCELLANEOUS PLUMBING FIXTURES, FITTINGS, AND TRIM (BRASS GOODS)		
United States	**995.2**	**(NA)**
California	329.9	(NA)
Connecticut	39.8	(NA)
Indiana	36.3	(NA)
Ohio	14.5	(NA)
Texas	73.7	(NA)
Wisconsin	19.6	(NA)
34333, CAST IRON HEATING BOILERS, RADIATORS, AND CONVECTORS, EXCEPT PARTS		
United States	**331.0**	**372.4**
Pennsylvania	100.1	(NA)
34334, DOMESTIC HEATING STOVES, EXCEPT ELECTRIC (EXCLUDING PARTS)		
United States	**345.1**	**262.2**
California	28.5	(NA)
North Carolina	20.1	8.5
Oregon	4.0	6.9
Pennsylvania	2.3	(NA)
Virginia	7.6	(NA)
Washington	51.9	11.9
34335, STEEL HEATING BOILERS (15 P.S.I. OR LESS), AND ALL HOT WATER HEATING BOILERS, EXCLUDING PARTS		
United States	**126.2**	**122.3**
California	25.9	(NA)
Pennsylvania	34.8	34.5
34338, FLOOR AND WALL FURNACES, UNIT HEATERS, INFRARED HEATERS, AND MECHANICAL STOKERS		
United States	**363.4**	**362.3**
Michigan	46.4	49.4
Pennsylvania	58.1	(NA)
34339, OTHER HEATING EQUIPMENT, EXCEPT ELECTRIC, (INCLUDING PARTS FOR NONELECTRIC HEATING EQUIPMENT AND OIL BURNERS)		
United States	**799.2**	**785.3**
California	77.0	170.7
Connecticut	12.8	19.0
Florida	6.0	4.0
Illinois	59.3	45.4
Indiana	57.9	(NA)
Kansas	37.6	23.8
Michigan	12.8	13.4
Minnesota	20.1	14.0
New Jersey	46.6	31.8
New York	35.8	16.3
Oklahoma	30.6	(NA)
Pennsylvania	104.3	87.1
Tennessee	41.9	28.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3431-	**Metal sanitary ware**	**721.4**	**814.5**	**864.9**	**920.8**	**848.5**	**797.2**	**455.9**	**392.3**
34310	Metal plumbing fixtures	721.4	814.5	864.9	920.8	848.5	797.2	455.9	392.3
3432-	**Plumbing fixture fittings and trim**	**2 553.0**	**2 601.3**	**2 737.0**	**2 721.3**	**2 490.7**	**2 205.0**	**1 325.3**	**1 109.1**
34321	Single lever controls, two or three handle bath or shower fittings, and anti-scald bath or shower valves (brass goods)	791.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
34322	Lavatory and sink fittings (except single control), including drains and overflows (brass goods)	578.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
34323	Miscellaneous plumbing fixtures, fittings, and trim (brass goods)	995.2	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
34320	Plumbing fixture fittings and trim, n.s.k.	187.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3433-	**Heating equipment, except electric**	**2 270.9**	**2 081.4**	**2 149.0**	**2 121.7**	**2 185.9**	**2 138.5**	**1 962.3**	**1 396.7**
34333	Cast iron heating boilers, radiators, and convectors, except parts	331.0	386.0	421.7	416.2	405.1	372.4	224.1	187.8
34334	Domestic heating stoves, except electric (excluding parts)	345.1	215.4	222.3	238.8	244.3	262.2	310.2	174.7
34335	Steel heating boilers (15 p.s.i. or less), and all hot water heating boilers, excluding parts	126.2	127.7	127.5	138.4	135.4	122.3	90.9	73.3
34338	Floor and wall furnaces, unit heaters, infrared heaters, and mechanical stokers	363.4	313.1	318.0	328.1	309.4	362.3	272.1	114.9
34339	Other heating equipment, except electric, (including parts for nonelectric heating equipment and oil burners)	799.2	785.6	801.5	774.3	804.6	785.3	888.2	675.5
34330	Heating equipment, except electric, n.s.k.	306.0	253.7	257.9	225.9	287.2	234.0	176.7	170.5

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3431, METAL SANITARY WARE		
	Materials, ingredients, containers, and supplies	**258.3**	**315.5**
	Fabricated metal products, except forgings:		
346901	Metal stampings	12.8	18.0
340085	Other fabricated metal products	9.4	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	(D)	(1)
336006	Copper and copper-base alloy	(D)	1.4
336011	Other nonferrous	(D)	(1)
346000	Forgings	(D)	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	54.8	(1)
	Copper and copper-base alloy:		
333122	Refinery shapes	(D)	(1)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	(D)	16.0
335152	Pipe and tube	,8	4.5
335192	All other copper and copper-base alloy shapes and forms	(D)	(1)
335090	All other nonferrous shapes and forms	(D)	(1)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1.1	1.7
308006	Fabricated plastics products, except gaskets	6.5	4.1
265001	Paperboard containers, boxes, and corrugated paperboard	19.1	19.3
970099	All other materials and components, parts, containers, and supplies	81.0	[1]238.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	29.8	12.3
	INDUSTRY 3432, PLUMBING FIXTURE FITTINGS AND TRIM		
	Materials, ingredients, containers, and supplies	**1 181.8**	**1 026.9**
	Fabricated metal products, except forgings:		
346901	Metal stampings	93.1	26.4
340085	Other fabricated metal products	113.2	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	15.0	(3)
336006	Copper and copper-base alloy	67.5	113.0
336011	Other nonferrous	23.8	24.6
346000	Forgings	9.3	(3)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	17.4	(3)
	Copper and copper-base alloy:		
333122	Refinery shapes	3.7	34.5
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	142.9	104.8
335152	Pipe and tube	38.7	28.2
335192	All other copper and copper-base alloy shapes and forms	31.3	(3)
335090	All other nonferrous shapes and forms	(4)	(3)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	36.1	34.1
308006	Fabricated plastics products, except gaskets	71.9	73.8
265001	Paperboard containers, boxes, and corrugated paperboard	52.8	34.3
970099	All other materials and components, parts, containers, and supplies	[4]304.0	[3]483.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	161.2	69.8
	INDUSTRY 3433, HEATING EQUIPMENT, EXCEPT ELECTRIC		
	Materials, ingredients, containers, and supplies	**950.4**	**871.2**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.8	16.1
349008	Pipe	14.5	(5)
349409	Valves and pipe fittings	20.7	(5)
343309	Parts and attachments specially designed for heating equipment, except electric	35.2	43.8
340065	Other fabricated metal products	44.9	(5)
346000	Forgings	(6)	(5)
	Castings (rough and semifinished):		
332001	Iron and steel	56.5	30.7
336010	Nonferrous (aluminum, copper, etc.)	7.5	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plate	21.6	(5)
331022	Sheet and strip	91.7	(5)
331071	Structural shapes	1.7	(5)
331091	All other steel shapes and forms	16.2	(5)
335105	Copper and copper-base alloy	6.9	12.6
335001	Aluminum and aluminum-base alloy	7.4	7.1
335099	Other nonferrous shapes and forms	2.5	(5)
362101	Electric motors and generators (all types)	28.2	22.2
382201	Automatic temperature controls (thermostats, regulators, etc.)	94.8	55.6
265001	Paperboard containers, boxes, and corrugated paperboard	21.1	14.6
970099	All other materials and components, parts, containers, and supplies	[6]262.9	[5]320.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	201.3	347.6

[1]For 1987, data for material codes 332001, 333122, and 336011 were combined with material code 970099 to avoid disclosing data for individual companies; data for material codes 331002, 335090, 335192, 340085, and 346000 were not collected separately but were included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, data for material code 332001 were combined with material code 970099 to avoid disclosing data for individual companies; data for material codes 340085, 346000, 331002, 335192, and 335090 were not collected separately but were included with material code 970099.
[4]For 1992, data for material code 335090 were combined with material code 970099 to avoid disclosing data for individual companies.
[5]For 1987, data for these material codes were not collected separately but were included with material code 970099.
[6]For 1992, data for material code 346000 were combined with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
34293 00	34293 15
34293 00	34293 17
34298 98	34298 32
34298 98	34298 99
34321	34320
34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
34339 06	34339 10
34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
34433 26	34433 22
34433 28	34433 22
34433 28	34433 49
34433 30	34433 32
34433 34	34433 32
34433 34	34433 49
34433 35	34433 50
34433 37	34433 36
34433 40	34433 36
34433 41	34433 38
34433 44	34433 38
34433 46	34433 42
34433 46	34433 43
34433 47	34433 42
34433 47	34433 43
34433 48	34433 39
34433 48	34433 50
34433 51	34433 50
34434 14	34434 13
34434 14	34434 15
34434 16	34434 17
34434 16	34434 19
34435 20	34435 21
34435 20	34435 23
34435 35	34435 31
34435 35	34435 33
34435 42	34435 37
34435 42	34435 39
34438 08	34438 07
34438 13	34438 14
34438 13	34438 16
34438 20	34438 17
34438 22	34438 19
34443 14	34443 11
34443 14	34443 13
34443 24	34443 21
34443 24	34443 23
34482 18	34482 13
34482 18	34482 23
34626 16	34626 15
34626 16	34626 17
34627 12	34627 11
34627 12	34627 13
34627 16	34627 15
34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
34661 22	34661 00
34662 30	34662 00
34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
34842 26	34842 25
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34842 54	34842 56
34842 65	34842 63
34842 65	34842 67
34842 74	34842 64
34842 74	34842 73
34916 78	34916 77
34916 78	34916 79
3492A	34923
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3492B	34923
3492B 00	34923 00
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3492C 00	34921 00
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3492D 00	34921 00
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3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
34961 52	34961 51
34964 00	34964 41
34964 00	34964 43
34964 00	34964 45
34964 00	34964 51
34964 00	34964 53
34964 00	34964 55
34965 00	34965 17
34965 00	34965 57
34965 00	34965 65
34966 13	34966 23
34966 13	34966 25
34966 21	34966 27
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34968 42	34968 41
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
34211 98	34211 25
34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
34231 32	34231 33
34231 34	34231 33
34231 61	34231 97
34231 98	34231 97
34234 11	34234 14
34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
34293 15	34293 00
34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
34320 10	34321 10
34320 11	34321 08
34320 12	34321 12
34320 13	34321 13
34320 14	34321 14
34320 15	34321 15
34320 17	34321 17
34320 18	34321 18
34320 22	34321 20
34320 25	34321 28
34320 26	34321 22
34320 27	34321 25
34320 29	34321 30
34320 31	34321 32
34320 35	34321 34
34320 39	34321 36
34320 47	34323 20
34320 48	34323 23
34320 49	34322 18
34320 52	34322 21
34320 54	34322 24
34320 57	34322 33
34320 58	34322 36
34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
34320 74	34323 08
34320 75	34323 11
34320 76	34323 14
34320 78	34323 17
34320 80	34322 27
34320 81	34323 25
34320 82	34322 27
34320 83	34323 32
34320 84	34322 30
34320 85	34323 27
34320 86	34322 30
34320 87	34323 27
34320 89	34323 32
34320 90	34322 01
34320 91	34322 03
34320 92	34322 05
34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
34333 17	34333 35
34333 60	34333 65
34333 81	34333 65
34334 00	34334 10
34334 00	34334 22
34334 00	34334 30
34334 00	34334 40
34334 00	34334 62
34334 00	34334 74
34335 31	34335 20
34335 35	34335 25
34335 44	34335 20
34335 46	34335 25
34339 10	34339 06
34339 10	34339 08
34339 10	34339 11
34339 10	34339 13
34411 21	34411 41
34411 22	34411 42
34411 23	34411 43
34411 24	34411 44
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34411 61	34411 41
34411 62	34411 42
34411 63	34411 43
34411 64	34411 44
34411 66	34411 46
34411 67	34411 47
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34412 61	34412 00
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34413 55	34413 26
34413 57	34413 29
34413 58	34413 59
34413 61	34413 16
34413 71	34413 20
34413 82	34413 29
34413 83	34413 23
34413 83	34413 26
34413 83	34413 59
34422 23	34422 30
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34433 13	34433 10
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34433 42	34433 46
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34433 43	34433 46
34433 43	34433 47
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34438 16	34438 13
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34921	3492D
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34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
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34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
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34961 31	34961 34
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34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3412100	MQ34K, Steel Shipping Drums and Palls	3492E00	MA35N, Fluid Power Products, Including Aerospace
34122	MQ34K, Steel Shipping Drums and Palls	3492F00	MA35N, Fluid Power Products, Including Aerospace
3431010	MQ34E, Plumbing Fixtures	3492G00	MA35N, Fluid Power Products, Including Aerospace
3491800	MA38B, Selected Instruments and Related Products	3492H00	MA35N, Fluid Power Products, Including Aerospace
3491900	MA38B, Selected Instruments and Related Products	3492J00	MA35N, Fluid Power Products, Including Aerospace
3492A00	MA35N, Fluid Power Products, Including Aerospace		
3492B00	MA35N, Fluid Power Products, Including Aerospace	3492K00	MA35N, Fluid Power Products, Including Aerospace
3492C00	MA35N, Fluid Power Products, Including Aerospace	3492M00	MA35N, Fluid Power Products, Including Aerospace
3492D00	MA35N, Fluid Power Products, Including Aerospace	3492N00	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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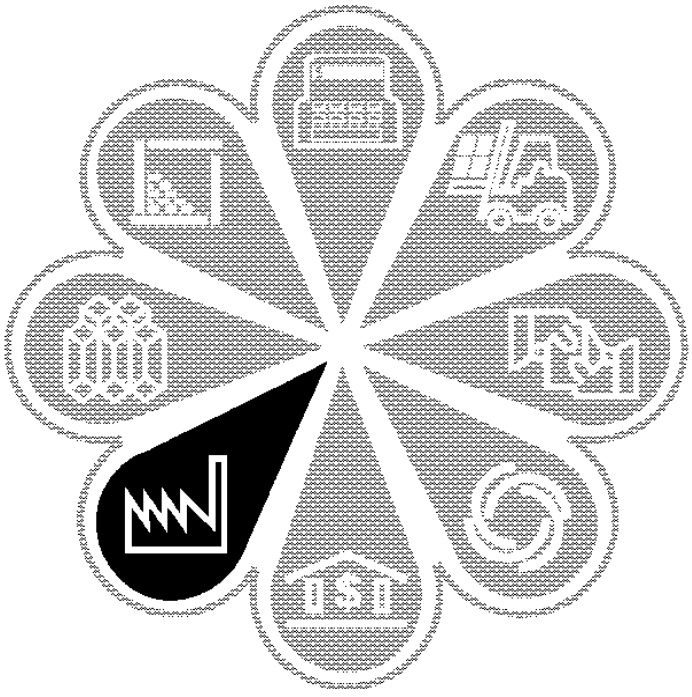
1992
Census of Manufactures

MC92-I-34C

INDUSTRY SERIES

Fabricated Structural Metal Products

Industries 3441, 3442, 3443, 3444, 3446, 3448, and 3449



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-34C

INDUSTRY SERIES

Fabricated Structural Metal Products

Industries 3441, 3442, 3443, 3444, 3446, 3448, and 3449

U.S. Department of Commerce
Ronald H. Brown, Secretary

Economics and Statistics Administration
Paul A. London, Acting Under Secretary for Economic Affairs

BUREAU OF THE CENSUS
Harry A. Scarr, Acting Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **Mendel D. Gayle**, Section Chief, with primary staff assistance by **Brenda Campbell.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3441	Fabricated Structural Metal
3442	Metal Doors, Sash, and Trim
3443	Fabricated Plate Work (Boiler Shops)
3444	Sheet Metal Work
3446	Architectural Metal Work
3448	Prefabricated Metal Buildings
3449	Miscellaneous Metal Work

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3441, FABRICATED STRUCTURAL METAL

This industry is made up of establishments primarily engaged in fabricated iron and steel or other metal for structural purposes, such as bridges, buildings, and sections for ships, boats, and barges. Establishments primarily engaged in manufacturing metal doors, sash, frames, molding, and trim are classified in industry 3442; and establishments doing fabrication work at the site of construction are classified in Division C, Construction.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3441, Fabricated Structural Metal, had employment of 72.0 thousand. The employment figure was 11 percent below the 80.9 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, California, Pennsylvania, and Louisiana, accounting for approximately 28 percent of the industry's employment. This represents a shift from 1987 when California, Texas, Pennsylvania, and Rhode Island were the leading States.

The total value of shipments for establishments classified in this industry was $8.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3441 shipped $7.7 billion of products considered primary to the industry, $398.8 million of secondary products, and had $837.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 95 percent.

The products primary to industry 3441, no matter in what industry they were produced, appear in table 6a and aggregate to $8.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated structural metal industry amounted to $4.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

INDUSTRY 3442, METAL DOORS, SASH, AND TRIM

This industry is made up of establishments primarily engaged in ferrous and nonferrous metal doors, sash, window and door frames and screens, molding, and trim. Establishments primarily engaged in manufacturing metal covered wood doors, windows, sash, frames, molding, and trim are classified in industry 2431.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3442, Metal Doors, Sash, and Trim, had employment of 67.8 thousand. The employment figure was 9 percent below the 74.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Texas, Pennsylvania, and Florida, accounting for approximately 33 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3442 shipped $6.2 billion of products considered primary to the industry, $613.6 million of secondary products, and had $343.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3442, no matter in what industry they were produced, appear in table 6a and aggregate to $6.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal doors, sash, and trim industry amounted to $3.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)

This industry is made up of establishments primarily engaged in manufacturing power and marine boilers, pressure and nonpressure tanks, processing and storage vessels, heat exchangers, weldments and similar products, by the process of cutting, forming, and joining metal plates, shapes, bars, sheet, pipe mill products, and tubing to custom or standard design for factory or field assembly. Establishments primarily engaged in manufacturing warm air heating furnaces are classified in industry 3585; those manufacturing other nonelectric heating apparatus, except power boilers, are classified in industry 3433; those manufacturing household cooking apparatus are classified in industry 3631; and those manufacturing industrial process furnaces and ovens are classified in industry 3567.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3443, Fabricated Plate Work (Boiler Shops), had employment of 79.3 thousand. The employment figure was 6 percent above the 74.7 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Pennsylvania, Ohio, and New York, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Texas, Pennsylvania, California, and Ohio accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3443 shipped $8.0 billion of products considered primary to the industry, $618.0 million of secondary products, and had $539.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3443, no matter in what industry they were produced, appear in table 6a and aggregate to $8.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated plate work (boiler shops) industry amounted to $4.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3444, SHEET METAL WORK

This industry is made up of establishments primarily engaged in manufacturing sheet metal work for buildings (not including fabrication work done by construction contractors at the place of construction), and manufacturing stovepipes, light tanks, and other products of sheet metal.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3444, Sheet Metal Work, had employment of 104.3 thousand. The employment figure was 4 percent above the 100.2 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Texas, and Illinois, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, Texas, Ohio, and New York accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $11.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3444 shipped $10.0 billion of products considered primary to the industry, $894.7 million of secondary products, and had $608.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3444, no matter in what industry they were produced, appear in table 6a and aggregate to $10.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sheet metal work industry amounted to $5.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3446, ARCHITECTURAL METAL WORK

This industry is made up of establishments primarily engaged in manufacturing architectural and ornamental metal work, such as stairs and staircases, open steel flooring (grating), fire escapes, grilles, railings, and fences and gates, except those made from wire. Establishments primarily engaged in manufacturing fences and gates from purchased wire are classified in industry 3496; those manufacturing prefabricated metal buildings and parts are classified in industry 3448; and those manufacturing miscellaneous metal work are classified in industry 3449.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3446, Architectural Metal Work, had employment of 26.1 thousand. The employment figure was 7 percent below the 28.0 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Texas, California, and Ohio, accounting for approximately 34 percent of the industry's employment. This represents a shift from 1987 when Texas, California, Florida, and Illinois accounted for approximately 33 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3446 shipped $2.0 billion of products considered primary to the industry, $207.7 million of secondary products, and had $132.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3446, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the architectural metal work industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3448, PREFABRICATED METAL BUILDINGS

This industry is made up of establishments primarily engaged in manufacturing portable and other prefabricated exterior metal panels.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3448, Prefabricated Metal Buildings and Components, had employment of 20.8 thousand. The employment figure was 19 percent below the 25.8 thousand reported in 1987.

The leading States in employment in 1992 were California, Indiana, Pennsylvania, and Texas. This represents a shift from 1987 when Texas, California, Illinois, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3448 shipped $2.5 billion of products considered primary to the industry, $155.8 million of secondary products, and had $143.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3448, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the prefabricated metal buildings industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3449, MISCELLANEOUS METAL WORK

This industry is made up of establishments primarily engaged in manufacturing miscellaneous structural metal work, such as metal plaster bases, fabricated bar joists, and concrete reinforcing bars. Also included in this industry are establishments primarily engaged in custom roll forming of metal.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3449, Miscellaneous Structural Metal Work, had employment of 21.6 thousand. The employment figure was 6 percent below the 22.9 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Ohio, Pennsylvania, and California, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Florida, Illinois, Pennsylvania, and Texas accounted for approximately 35 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3449 shipped $2.9 billion of products considered primary to the industry, $240.6 million of secondary products, and had $251.4 million of miscellaneous receipts, resales, and

contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3449, no matter in what industry they were produced, appear in table 6a and aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the miscellaneous metal work industry amounted to $2.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3441, FABRICATED STRUCTURAL METAL															
1992 Census	2 437	2 539	912	72.0	1 958.9	50.8	107.8	1 183.7	3 934.4	4 872.8	8 898.4	132.2	1 090.1	95	95
1991 ASM	(NA)	(NA)	(NA)	77.0	2 064.4	54.2	113.7	1 256.8	3 899.9	5 206.2	9 078.6	118.7	1 158.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	82.7	2 151.7	59.1	121.6	1 308.8	4 035.4	5 725.8	9 788.1	159.8	1 219.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	81.9	2 036.5	58.1	120.4	1 251.1	3 934.9	5 437.0	9 377.1	158.8	1 305.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	80.1	1 944.2	57.9	118.9	1 213.1	3 811.7	5 317.3	8 999.3	174.0	1 346.8	(NA)	(NA)
1987 Census	2 334	2 453	1 013	80.9	1 879.8	57.8	117.3	1 162.8	3 629.2	5 070.1	8 678.0	130.6	1 215.5	94	95
1986 ASM	(NA)	(NA)	(NA)	84.6	1 904.6	61.3	122.5	1 216.3	3 378.5	5 236.0	8 731.5	161.8	1 233.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	90.6	1 949.6	66.9	130.3	1 266.5	3 626.3	5 389.0	8 910.4	154.7	1 314.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	92.1	1 848.1	67.4	133.6	1 198.8	3 340.8	4 981.8	8 198.3	166.3	1 325.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	93.8	1 842.4	67.2	134.5	1 169.9	3 219.1	4 759.6	7 959.4	133.6	1 348.6	(NA)	(NA)
1982 Census	2 588	2 740	1 161	103.6	1 990.2	75.5	151.5	1 296.4	3 639.1	5 015.4	8 853.1	188.9	1 383.0	94	95
1981 ASM	(NA)	(NA)	(NA)	115.6	2 059.7	87.3	173.3	1 360.7	3 701.4	5 374.9	9 059.7	277.9	1 446.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	117.9	1 930.1	88.7	175.5	1 265.2	3 696.5	4 958.1	8 548.1	266.8	1 491.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	109.0	1 656.1	81.5	161.0	1 085.3	3 152.4	4 355.4	7 418.1	258.7	1 394.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	100.6	1 438.1	74.7	147.4	935.5	2 648.8	3 519.6	6 144.0	174.8	1 309.7	(NA)	(NA)
1977 Census	2 319	2 462	1 074	99.3	1 313.6	72.8	144.2	836.9	2 559.8	3 018.0	5 505.2	144.1	1 220.9	92	92
INDUSTRY 3442, METAL DOORS, SASH, AND TRIM															
1992 Census	1 254	1 416	579	67.8	1 528.2	48.8	99.2	908.1	3 221.2	3 905.0	7 123.3	108.7	898.3	91	96
1991 ASM	(NA)	(NA)	(NA)	64.4	1 378.0	46.0	95.9	810.0	2 877.5	3 554.5	6 438.3	89.8	894.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	72.2	1 486.8	51.3	105.6	882.3	3 053.5	3 881.7	6 981.5	92.6	998.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	75.9	1 489.7	54.2	109.6	887.5	3 245.5	4 134.8	7 347.6	129.8	1 076.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	74.2	1 447.2	54.3	110.2	872.6	3 136.0	3 837.4	6 952.8	116.0	1 051.2	(NA)	(NA)
1987 Census	1 428	1 592	695	74.7	1 413.8	54.6	110.6	860.6	2 993.8	3 600.1	6 591.0	131.3	989.3	92	94
1986 ASM	(NA)	(NA)	(NA)	73.4	1 377.6	52.9	107.4	838.7	2 894.9	3 560.3	6 453.7	139.2	932.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	71.2	1 268.0	51.8	101.5	774.4	2 800.5	3 321.8	6 137.2	115.0	847.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	68.4	1 146.1	50.0	97.0	698.5	2 456.4	3 108.6	5 561.7	129.5	865.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	70.5	1 110.9	52.0	98.5	672.0	2 385.6	2 857.4	5 202.7	95.0	867.0	(NA)	(NA)
1982 Census	1 564	1 738	673	66.3	1 015.8	47.6	92.0	608.1	2 175.1	2 514.1	4 685.3	98.6	755.8	91	94
1981 ASM	(NA)	(NA)	(NA)	71.8	1 022.0	53.0	104.6	593.3	2 208.5	2 513.1	4 695.2	114.2	780.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	70.4	909.0	52.4	100.4	539.6	1 930.9	2 218.4	4 141.1	103.9	654.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	73.3	864.6	54.6	105.6	529.3	1 829.1	2 220.2	4 034.6	83.5	628.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	71.4	747.3	53.7	104.1	479.5	1 588.5	2 020.1	3 581.1	80.6	575.6	(NA)	(NA)
1977 Census	1 498	1 672	644	65.8	671.3	50.1	97.0	425.0	1 418.3	1 751.5	3 135.6	70.7	519.0	93	91
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)															
1992 Census	1 800	1 942	880	79.3	2 345.6	56.1	115.1	1 410.0	4 877.6	4 259.2	9 117.6	207.8	1 383.1	93	94
1991 ASM	(NA)	(NA)	(NA)	73.5	2 126.5	51.2	105.5	1 301.0	4 396.3	4 207.4	8 683.6	205.8	1 344.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	76.1	2 113.2	53.1	107.2	1 278.6	4 198.5	4 448.2	8 653.7	220.6	1 444.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	73.0	1 969.7	51.5	104.8	1 212.4	4 013.7	4 150.3	8 118.7	145.9	1 403.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	78.5	1 997.1	55.0	107.7	1 217.4	4 032.4	3 965.1	7 814.3	156.8	1 485.3	(NA)	(NA)
1987 Census	1 584	1 740	802	74.7	1 842.4	51.5	101.7	1 107.9	3 466.6	3 311.0	6 810.2	174.5	1 216.0	92	93
1986 ASM	(NA)	(NA)	(NA)	71.2	1 723.1	48.2	97.5	1 033.4	3 023.3	3 038.1	6 153.9	110.1	1 010.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	79.0	1 854.8	55.3	109.7	1 144.5	3 482.7	3 285.2	6 801.2	150.2	1 189.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	82.2	1 848.0	57.5	114.3	1 149.4	3 427.7	3 281.1	6 649.1	145.8	1 360.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	88.5	1 921.1	61.6	119.3	1 200.8	3 459.9	3 433.7	7 076.7	135.8	1 324.9	(NA)	(NA)
1982 Census	1 743	1 929	967	102.9	2 180.3	73.3	141.5	1 393.2	4 135.7	3 924.5	8 225.3	200.7	1 516.5	93	91
1981 ASM	(NA)	(NA)	(NA)	115.8	2 336.0	83.5	164.6	1 536.5	4 994.4	4 798.8	9 923.4	258.9	1 644.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	125.3	2 316.4	89.4	174.9	1 480.8	5 044.0	4 667.2	9 745.8	239.8	1 832.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	131.3	2 185.0	94.4	186.1	1 420.3	4 922.5	4 308.5	9 091.3	229.6	1 860.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	126.4	1 964.0	91.3	178.1	1 268.9	4 291.3	3 810.2	8 040.2	187.0	1 694.6	(NA)	(NA)
1977 Census	1 683	1 864	944	123.5	1 777.8	87.7	171.6	1 125.8	4 075.3	3 395.3	7 432.4	179.8	1 566.9	89	92
INDUSTRY 3444, SHEET METAL WORK															
1992 Census	4 452	4 702	1 474	104.3	2 850.9	75.6	157.5	1 751.5	5 743.8	5 791.8	11 482.2	224.5	1 756.2	92	94
1991 ASM	(NA)	(NA)	(NA)	94.9	2 410.9	70.7	144.0	1 552.3	4 752.9	5 188.3	9 960.8	210.1	1 483.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	99.1	2 445.3	73.5	150.5	1 564.8	4 867.4	5 425.8	10 249.1	208.9	1 691.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	99.2	2 373.4	73.7	149.8	1 540.8	4 885.9	5 403.3	10 236.8	244.1	1 707.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	102.9	2 403.3	77.3	154.9	1 556.3	4 912.4	5 489.7	10 343.9	136.0	1 634.2	(NA)	(NA)
1987 Census	4 078	4 296	1 387	100.2	2 236.7	74.9	149.4	1 437.5	4 813.5	4 961.7	9 698.9	209.6	1 530.1	91	91
1986 ASM	(NA)	(NA)	(NA)	79.9	1 728.0	58.4	117.4	1 093.3	3 658.6	4 117.8	7 724.8	126.2	1 253.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	81.3	1 703.4	60.0	117.7	1 083.7	3 399.2	4 296.2	7 686.1	159.9	1 239.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	84.0	1 689.1	61.4	122.1	1 073.0	3 426.7	4 373.3	7 795.3	177.4	1 263.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	81.8	1 584.7	58.9	114.8	980.2	3 282.7	4 006.2	7 166.1	135.0	1 441.1	(NA)	(NA)
1982 Census	3 579	3 795	1 131	81.1	1 494.6	58.9	114.4	949.8	3 024.1	3 767.8	6 853.9	145.6	1 185.3	'93	92
1981 ASM	(NA)	(NA)	(NA)	81.4	1 326.8	59.4	120.2	844.8	2 788.7	3 978.9	6 754.4	136.4	1 103.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	83.7	1 266.3	60.5	117.4	789.3	2 624.3	3 754.4	6 408.3	165.4	1 039.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	83.2	1 171.6	61.9	120.4	751.5	2 628.6	3 649.6	6 209.6	141.8	1 026.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	81.3	1 078.3	59.6	112.5	711.0	2 357.5	3 308.2	5 624.9	152.9	893.6	(NA)	(NA)
1977 Census	3 222	3 430	1 008	77.4	980.2	56.7	109.5	636.6	2 095.1	2 809.0	4 863.5	110.6	841.9	92	90
INDUSTRY 3446, ARCHITECTURAL METAL WORK															
1992 Census	1 429	1 476	314	26.1	644.8	17.9	35.9	363.7	1 278.6	1 098.2	2 383.4	34.0	310.0	91	85
1991 ASM	(NA)	(NA)	(NA)	26.5	636.6	19.0	36.7	363.8	1 277.5	1 085.2	2 356.1	38.9	320.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.0	695.0	21.6	40.5	410.6	1 350.8	1 155.4	2 492.9	39.5	336.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.0	689.0	20.5	41.2	402.1	1 302.4	1 217.3	2 511.1	58.8	359.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.9	580.3	19.2	38.1	344.0	1 117.1	1 095.7	2 199.6	38.2	353.9	(NA)	(NA)
1987 Census	1 300	1 345	335	28.0	573.1	19.7	39.0	340.7	1 191.5	1 079.0	2 268.8	43.6	354.9	'88	86
1986 ASM	(NA)	(NA)	(NA)	25.3	505.6	17.9	33.7	309.0	1 022.2	979.1	2 017.2	44.4	278.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.4	473.1	17.8	35.5	299.8	966.8	954.7	1 921.1	48.1	293.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.3	426.2	16.7	33.7	267.1	842.5	820.5	1 648.0	41.3	281.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.8	400.9	16.7	33.9	257.5	772.2	708.1	1 481.7	21.6	263.1	(NA)	(NA)
1982 Census	1 380	1 417	241	22.8	366.0	16.0	30.7	230.6	705.0	658.0	1 367.5	26.8	243.2	91	84
1981 ASM	(NA)	(NA)	(NA)	24.3	345.2	16.7	32.6	210.6	742.2	683.7	1 393.5	25.8	243.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	23.7	322.4	16.8	32.9	200.6	686.9	606.8	1 281.5	27.8	208.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.9	297.3	16.8	32.8	185.6	605.5	546.8	1 144.5	19.9	194.0	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3446, ARCHITECTURAL METAL WORK—Con.														
1978 ASM	(NA)	(NA)	(NA)	21.4	264.7	16.0	30.0	163.1	543.9	519.7	1 042.4	23.1	182.6	(NA)	(NA)
1977 Census	1 477	1 511	225	20.8	247.7	15.1	29.4	152.3	505.5	450.8	947.1	22.2	167.3	90	86
	INDUSTRY 3448, PREFABRICATED METAL BUILDINGS														
1992 Census	487	536	211	20.8	527.2	13.4	28.1	283.3	1 181.8	1 673.0	2 845.9	28.8	328.6	94	97
1991 ASM	(NA)	(NA)	(NA)	21.0	470.0	13.5	26.3	257.8	1 086.2	1 642.4	2 745.7	31.0	302.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.8	518.4	14.8	28.7	283.9	1 183.0	1 781.7	2 984.1	33.2	344.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.0	518.6	15.3	30.8	291.7	1 297.6	1 905.6	3 182.4	31.3	390.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.7	565.9	17.5	34.5	316.4	1 336.9	1 931.5	3 269.1	58.4	408.2	(NA)	(NA)
1987 Census	486	560	244	25.8	558.6	17.1	34.1	310.1	1 337.9	1 796.2	3 137.8	50.8	391.8	r93	r96
1986 ASM	(NA)	(NA)	(NA)	22.7	484.8	15.7	30.6	271.0	1 143.4	1 589.8	2 736.0	47.4	425.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.8	459.6	15.7	30.7	263.5	1 049.8	1 465.3	2 499.6	50.4	451.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.0	431.7	14.6	29.4	242.9	978.8	1 384.8	2 329.0	51.7	447.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.3	424.3	14.6	28.3	230.2	970.2	1 300.1	2 249.7	49.3	430.5	(NA)	(NA)
1982 Census	518	570	239	23.7	435.7	15.2	29.9	242.8	877.4	1 410.5	2 324.6	46.1	403.4	r94	95
1981 ASM	(NA)	(NA)	(NA)	24.4	411.9	16.2	31.6	237.1	930.9	1 497.7	2 408.2	49.9	397.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.2	377.8	16.8	32.1	221.2	810.4	1 358.3	2 192.9	69.7	323.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	25.6	361.2	18.2	35.5	220.2	842.0	1 434.9	2 265.6	50.4	359.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	24.4	333.2	16.9	33.6	200.7	878.8	1 245.3	2 106.1	38.7	338.6	(NA)	(NA)
1977 Census	414	466	199	22.7	289.7	15.9	31.6	174.9	694.5	1 100.6	1 779.2	32.2	304.6	94	95
	INDUSTRY 3449, MISCELLANEOUS METAL WORK														
1992 Census	564	658	292	21.6	589.8	14.4	29.1	350.5	1 139.1	2 222.1	3 366.4	60.0	454.2	92	90
1991 ASM	(NA)	(NA)	(NA)	21.6	556.3	14.6	28.7	343.4	1 022.8	2 233.0	3 285.3	52.9	388.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.0	580.2	15.6	31.7	356.3	1 245.9	2 537.6	3 786.8	62.7	478.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.0	570.3	16.4	32.6	354.6	1 342.0	2 401.2	3 733.6	52.0	490.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.1	611.4	17.2	35.4	367.6	1 334.1	2 486.1	3 810.6	49.9	524.0	(NA)	(NA)
1987 Census	496	597	278	22.9	537.7	15.6	32.3	317.0	1 250.6	1 999.3	3 231.4	62.0	440.7	88	86
1986 ASM	(NA)	(NA)	(NA)	20.7	455.6	13.3	26.3	261.6	931.5	1 652.5	2 616.8	68.2	314.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.8	474.2	13.8	27.8	270.7	996.9	1 731.2	2 727.8	56.6	376.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.1	459.4	15.0	29.5	269.2	995.9	1 859.1	2 815.1	58.6	439.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.9	404.8	13.0	25.4	222.4	914.4	1 548.3	2 441.8	33.2	360.1	(NA)	(NA)
1982 Census	401	492	257	21.5	414.7	14.1	26.7	234.8	909.9	1 653.9	2 594.6	44.9	359.9	88	84
1981 ASM	(NA)	(NA)	(NA)	17.9	323.0	11.7	24.5	182.4	855.7	1 503.5	2 376.0	43.4	319.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.5	306.6	12.0	24.6	176.6	809.7	1 469.4	2 281.1	29.4	304.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.1	281.6	12.0	25.2	162.7	734.7	1 375.6	2 073.1	27.9	308.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.8	242.5	10.7	20.9	132.1	531.4	1 063.4	1 577.7	34.9	263.8	(NA)	(NA)
1977 Census	308	412	185	16.3	211.5	10.2	20.2	115.7	436.9	893.6	1 330.8	20.5	211.8	91	78

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3441, FABRICATED STRUCTURAL METAL								
1992 Census	27 207	71	2 122	10.98	55	77	54 644	50	36.50
1991 ASM	26 810	70	2 098	11.05	57	80	50 648	53	34.30
1990 ASM	26 018	71	2 058	10.76	58	80	48 796	53	33.19
1989 ASM	24 866	71	2 072	10.39	58	80	48 045	52	32.68
1988 ASM	24 272	72	2 054	10.20	59	81	47 587	51	32.06
1987 Census	23 236	71	2 029	9.91	58	80	44 860	52	30.94
1986 ASM	22 513	72	1 998	9.93	60	82	39 935	56	27.58
1985 ASM	21 519	74	1 948	9.72	60	82	40 025	54	27.83
1984 ASM	20 066	73	1 982	8.97	61	83	36 274	55	25.01
1983 ASM	19 642	72	2 001	8.70	60	83	34 319	57	23.93
1982 Census	19 210	73	2 007	8.56	57	79	35 126	55	24.02
1981 ASM	17 817	76	1 985	7.85	59	82	32 019	56	21.36
1980 ASM	16 371	75	1 979	7.21	58	81	31 353	52	21.06
1979 ASM	15 194	75	1 975	6.74	59	81	28 921	53	19.58
1978 ASM	14 295	74	1 973	6.35	57	81	26 330	54	17.97
1977 Census	13 229	73	1 981	5.80	55	79	25 778	51	17.75

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3442, METAL DOORS, SASH, AND TRIM									
1992 Census	22 540	72	2 033	9.15	55	76	47 510	47	32.47
1991 ASM	21 398	71	2 085	8.45	55	77	44 682	48	30.01
1990 ASM	20 593	71	2 058	8.36	56	77	42 292	49	28.92
1989 ASM	19 627	71	2 022	8.10	56	77	42 760	46	29.61
1988 ASM	19 504	73	2 029	7.92	55	76	42 264	46	28.46
1987 Census	18 926	73	2 026	7.78	55	76	40 078	47	27.07
1986 ASM	18 768	72	2 030	7.81	55	77	39 440	48	26.95
1985 ASM	17 809	73	1 959	7.63	54	75	39 333	45	27.59
1984 ASM	16 756	73	1 940	7.20	56	76	35 912	47	25.32
1983 ASM	15 757	74	1 894	6.82	55	76	33 838	47	24.22
1982 Census	15 321	72	1 933	6.61	54	75	32 807	47	23.64
1981 ASM	14 234	74	1 974	5.67	54	75	30 759	46	21.11
1980 ASM	12 912	74	1 916	5.37	54	76	27 428	47	19.23
1979 ASM	11 795	74	1 934	5.01	55	76	24 954	47	17.32
1978 ASM	10 466	75	1 939	4.61	56	77	22 248	47	15.26
1977 Census	10 202	76	1 936	4.38	56	77	21 555	47	14.62
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)									
1992 Census	29 579	71	2 052	12.25	47	72	61 508	48	42.38
1991 ASM	28 932	70	2 061	12.33	48	73	59 814	48	41.67
1990 ASM	27 769	70	2 019	11.93	51	76	55 171	50	39.17
1989 ASM	26 982	71	2 035	11.57	51	75	54 982	49	38.30
1988 ASM	25 441	70	1 958	11.30	51	76	51 368	50	37.44
1987 Census	24 664	69	1 975	10.89	49	76	46 407	53	34.09
1986 ASM	24 201	68	2 023	10.60	49	77	42 462	57	31.01
1985 ASM	23 478	70	1 984	10.43	48	76	44 085	53	31.75
1984 ASM	22 482	70	1 988	10.06	49	77	41 700	54	29.99
1983 ASM	21 707	70	1 937	10.07	49	76	39 095	56	29.00
1982 Census	21 189	71	1 930	9.85	48	74	40 191	53	29.23
1981 ASM	20 173	72	1 971	9.33	48	72	43 130	47	30.34
1980 ASM	18 487	71	1 956	8.47	48	72	40 255	46	28.84
1979 ASM	16 641	72	1 971	7.63	47	71	37 490	44	26.45
1978 ASM	15 538	72	1 951	7.12	47	72	33 950	46	24.09
1977 Census	14 395	71	1 957	6.56	46	70	32 998	44	23.75
INDUSTRY 3444, SHEET METAL WORK									
1992 Census	27 334	72	2 083	11.12	50	75	55 070	50	36.47
1991 ASM	25 405	74	2 037	10.78	52	76	50 083	51	33.01
1990 ASM	24 675	74	2 048	10.40	53	77	49 116	50	32.34
1989 ASM	23 925	74	2 033	10.29	53	76	49 253	49	32.62
1988 ASM	23 356	75	2 004	10.05	53	76	47 740	49	31.71
1987 Census	22 322	75	1 995	9.62	51	74	48 039	46	32.22
1986 ASM	21 627	73	2 010	9.31	53	76	45 790	47	31.16
1985 ASM	20 952	74	1 962	9.21	56	78	41 811	50	28.88
1984 ASM	20 108	73	1 989	8.79	56	78	40 794	49	28.06
1983 ASM	19 373	72	1 949	8.54	56	78	40 131	48	28.59
1982 Census	18 429	73	1 942	8.30	55	77	37 289	49	26.43
1981 ASM	16 300	73	2 024	7.03	59	79	34 259	48	23.20
1980 ASM	15 129	72	1 940	6.72	59	78	31 354	48	22.35
1979 ASM	14 082	74	1 945	6.24	59	78	31 594	45	21.83
1978 ASM	13 263	73	1 888	6.32	59	78	28 998	46	20.96
1977 Census	12 664	73	1 931	5.81	58	78	27 068	47	19.13
INDUSTRY 3446, ARCHITECTURAL METAL WORK									
1992 Census	24 705	69	2 006	10.13	46	73	48 989	50	35.62
1991 ASM	24 023	72	1 932	9.91	46	73	48 208	50	34.81
1990 ASM	23 167	72	1 875	10.14	46	74	45 027	51	33.35
1989 ASM	23 759	71	2 010	9.76	48	76	44 910	53	31.61
1988 ASM	21 572	71	1 984	9.03	50	76	41 528	52	29.32
1987 Census	20 468	70	1 980	8.74	48	73	42 554	48	30.55
1986 ASM	19 984	71	1 883	9.17	49	74	40 403	49	30.33
1985 ASM	19 389	73	1 994	8.45	50	74	39 623	49	27.23
1984 ASM	18 292	72	2 018	7.93	50	76	36 159	51	25.00
1983 ASM	17 583	73	2 030	7.60	48	75	33 868	52	22.78
1982 Census	16 053	70	1 919	7.51	48	75	30 921	52	22.96
1981 ASM	14 206	69	1 952	6.46	49	74	30 543	47	22.77
1980 ASM	13 603	71	1 958	6.10	47	73	28 983	47	20.88
1979 ASM	12 983	73	1 952	5.66	48	74	26 441	49	18.46
1978 ASM	12 369	75	1 875	5.44	50	75	25 416	49	18.13
1977 Census	11 909	73	1 947	5.18	48	74	24 303	49	17.19
INDUSTRY 3448, PREFABRICATED METAL BUILDINGS									
1992 Census	25 346	64	2 097	10.08	59	77	56 817	45	42.06
1991 ASM	22 381	64	1 948	9.80	60	77	51 724	43	41.30
1990 ASM	22 737	65	1 939	9.89	60	77	51 886	44	41.22
1989 ASM	22 548	67	2 013	9.47	60	76	56 417	40	42.13
1988 ASM	22 019	68	1 971	9.17	59	76	52 019	42	38.75
1987 Census	21 651	66	1 994	9.09	57	75	51 857	42	39.23
1986 ASM	21 357	69	1 949	8.86	58	76	50 370	42	37.37
1985 ASM	20 158	69	1 955	8.58	59	77	46 044	44	34.20
1984 ASM	19 623	66	2 014	8.26	59	78	44 491	44	33.29
1983 ASM	19 027	65	1 938	8.13	58	77	43 507	44	34.28
1982 Census	18 384	64	1 967	8.12	61	79	37 021	50	29.34
1981 ASM	16 881	66	1 951	7.50	62	79	38 152	44	29.46
1980 ASM	14 992	67	1 911	6.89	62	79	32 159	47	25.25
1979 ASM	14 109	71	1 951	6.20	63	79	32 891	43	23.72
1978 ASM	13 656	69	1 988	5.97	59	75	36 016	38	26.15
1977 Census	12 762	70	1 987	5.53	62	78	30 595	42	21.98

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3449, MISCELLANEOUS METAL WORK								
1992 Census	27 306	67	2 021	12.04	66	84	52 736	52	39.14
1991 ASM	25 755	68	1 966	11.97	68	85	47 352	54	35.64
1990 ASM	25 226	68	2 032	11.24	67	82	54 170	47	39.30
1989 ASM	23 762	68	1 988	10.88	64	80	55 917	42	41.17
1988 ASM	24 359	69	2 058	10.38	65	81	53 151	46	37.69
1987 Census	23 480	68	2 071	9.81	62	79	54 611	43	38.72
1986 ASM	22 010	64	1 977	9.95	63	81	45 000	49	35.42
1985 ASM	21 752	63	2 014	9.74	63	81	45 729	48	35.86
1984 ASM	20 787	68	1 967	9.13	66	82	45 063	46	33.76
1983 ASM	20 342	65	1 954	8.76	63	80	45 950	44	36.00
1982 Census	19 288	66	1 894	8.79	64	80	42 321	46	34.08
1981 ASM	18 045	65	2 094	7.44	63	77	47 804	38	34.93
1980 ASM	16 573	65	2 050	7.18	64	78	43 768	38	32.91
1979 ASM	15 558	66	2 100	6.46	66	80	40 591	38	29.15
1978 ASM	14 435	64	1 953	6.32	67	83	31 631	46	25.43
1977 Census	12 975	63	1 980	5.73	67	83	26 804	48	21.63

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3441, FABRICATED STRUCTURAL METAL														
United States	**E1**	**2 539**	**912**	**72.0**	**1 958.9**	**50.8**	**107.8**	**1 183.7**	**3 934.4**	**4 872.8**	**8 898.4**	**132.2**	**80.9**	**3 629.2**
Alabama	E1	91	41	3.1	75.6	2.2	4.8	45.1	165.3	157.1	320.1	7.2	3.0	94.2
Alaska	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	24	10	.9	24.2	.6	1.2	11.4	41.4	66.4	106.4	1.4	1.0	21.2
Arkansas	–	21	9	.7	17.0	.5	1.1	10.5	47.5	44.8	93.7	2.0	.7	31.5
California	E1	240	70	5.5	174.9	3.4	7.5	94.9	339.1	354.0	710.0	7.1	7.1	411.7
Colorado	E2	33	10	.6	15.3	.4	.9	9.0	34.3	38.7	73.2	2.8	.7	27.8
Connecticut	E1	27	5	.5	21.9	.3	.6	8.5	47.3	28.6	76.3	.7	1.2	56.9
Delaware	–	7	2	.2	5.2	.1	.4	3.4	9.7	14.8	24.6	.2	.2	7.9
Florida	E1	88	31	2.1	51.7	1.4	3.0	29.7	89.0	162.9	255.4	2.6	2.7	118.9
Georgia	E1	57	26	1.6	38.4	1.1	2.4	22.0	65.2	123.5	193.4	1.8	1.7	73.7
Idaho	E2	11	4	.2	5.5	.1	.3	3.4	8.2	15.7	24.2	.2	.2	2.9
Illinois	E1	115	36	3.1	93.7	2.1	4.5	52.1	182.4	233.4	446.8	6.1	3.3	173.5
Indiana	–	66	28	1.5	44.7	1.0	2.2	25.2	91.1	139.0	229.1	3.1	2.1	94.0
Iowa	E1	28	14	1.0	24.2	.6	1.4	13.1	53.2	78.6	132.8	4.7	.8	31.1
Kansas	E1	23	10	.7	16.7	.5	1.1	10.8	44.4	47.0	91.3	1.2	.7	27.8
Kentucky	E2	28	11	.7	14.3	.4	.8	7.8	20.9	36.4	57.4	.5	F	(D)
Louisiana	–	46	27	3.6	96.5	3.1	7.3	76.4	183.9	190.0	398.3	7.8	1.5	55.6
Maine	E5	14	6	.4	12.3	.3	.6	7.0	31.7	22.9	53.9	.7	.5	20.3
Maryland	E2	33	9	.6	14.8	.4	.9	9.2	29.4	34.5	64.1	.5	1.0	43.8
Massachusetts	E2	41	10	.8	27.0	.6	1.2	15.5	53.8	42.4	97.8	1.3	1.3	72.0
Michigan	E2	96	22	1.7	45.8	1.2	2.6	28.3	104.2	118.1	222.2	2.4	2.3	106.2
Minnesota	–	41	12	.8	23.2	.5	1.1	13.7	60.1	86.9	146.7	1.8	F	(D)
Mississippi	E3	28	11	1.5	36.1	1.0	2.0	22.6	70.6	90.9	162.4	6.8	1.5	52.4
Missouri	–	64	22	1.7	49.2	1.3	2.5	27.6	110.3	171.9	283.3	3.0	2.0	89.2
Montana	E2	10	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Nebraska	–	15	9	.5	11.3	.3	.6	6.3	23.9	27.5	50.4	1.3	E	(D)
Nevada	E3	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	8.4
New Hampshire	–	13	4	.3	9.0	.2	.4	4.6	18.3	28.8	47.1	.8	E	(D)
New Jersey	E1	70	14	1.3	44.5	.8	1.8	23.6	87.3	87.5	176.1	1.2	1.7	86.9
New Mexico	–	14	5	.2	5.4	.2	.4	3.4	8.4	12.3	20.7	.7	.2	10.3
New York	E1	127	32	2.2	64.3	1.5	3.0	38.7	120.5	145.4	265.1	5.2	(NA)	(D)
North Carolina	E1	75	27	2.1	57.4	1.4	3.0	31.4	100.6	199.1	296.9	3.1	2.0	89.8
North Dakota	E8	7	4	.2	4.4	.1	.3	2.6	8.0	10.6	18.7	.4	E	(D)
Ohio	E4	143	49	3.2	94.7	2.3	4.9	57.6	195.6	259.7	452.9	6.0	3.8	183.4
Oklahoma	E1	50	26	1.4	30.8	1.0	2.0	18.1	68.8	81.4	152.0	3.1	1.4	76.0
Oregon	E3	49	16	1.1	32.1	.7	1.6	19.5	62.9	89.2	150.6	1.5	1.2	53.8
Pennsylvania	E1	140	58	4.5	122.5	3.3	6.4	73.4	254.9	287.8	549.2	5.3	5.6	272.7
Rhode Island	–	9	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	E2	51	15	1.7	40.7	1.3	2.8	26.6	78.8	156.2	232.9	1.2	2.0	68.5
South Dakota	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3441, FABRICATED STRUCTURAL METAL—Con.														
Tennessee	E1	71	22	1.8	46.5	1.4	3.0	30.1	93.5	94.1	188.1	3.5	1.5	54.8
Texas	E2	194	85	6.3	148.1	4.6	10.1	91.7	308.4	394.1	712.5	7.8	6.8	230.6
Utah	E2	50	19	1.2	29.4	.9	1.8	19.4	63.4	90.6	153.4	3.1	1.0	42.2
Virginia	E3	65	30	2.1	51.0	1.5	3.3	32.7	92.3	141.3	234.0	1.5	2.9	85.8
Washington	–	65	18	1.0	31.6	.7	1.6	19.7	62.5	70.3	132.1	1.0	.9	43.2
West Virginia	E5	20	13	.7	16.4	.5	.9	9.8	28.6	38.8	67.1	1.3	F	(D)
Wisconsin	E1	60	26	1.7	44.7	1.2	2.5	26.9	93.9	132.8	228.7	9.7	2.2	88.7
INDUSTRY 3442, METAL DOORS, SASH, AND TRIM														
United States	**–**	**1 416**	**579**	**67.8**	**1 528.2**	**48.8**	**99.2**	**908.1**	**3 221.2**	**3 905.0**	**7 123.3**	**108.7**	**74.7**	**2 993.8**
Alabama	–	21	6	.7	13.7	.5	1.0	8.8	30.1	35.3	64.2	.9	1.1	42.6
Arizona	–	31	13	1.5	30.9	1.1	2.0	17.8	66.9	68.1	133.9	2.3	1.1	37.0
Arkansas	–	19	8	1.6	38.9	1.2	2.7	25.7	74.5	122.3	198.0	2.4	1.3	55.9
California	E1	192	85	7.7	180.3	5.4	10.8	99.5	349.5	406.6	756.8	8.0	8.8	348.5
Colorado	E3	16	6	.3	5.7	.3	.4	3.3	11.0	13.8	24.8	.2	.8	28.6
Connecticut	–	12	5	.9	17.6	.5	.9	9.6	38.9	43.0	81.0	1.0	F	(D)
Delaware	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	116	41	4.2	90.3	3.0	6.5	50.7	182.4	211.7	386.2	6.3	4.7	157.1
Georgia	–	42	20	2.7	56.5	2.0	4.0	34.2	126.0	169.1	296.8	5.1	2.8	122.8
Idaho	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	64	19	2.4	64.7	1.6	3.7	36.5	135.1	143.6	276.7	5.0	2.6	133.2
Indiana	–	40	24	2.9	62.9	2.2	4.1	38.6	166.8	215.3	382.0	5.3	2.4	88.4
Iowa	–	15	7	1.0	24.3	.7	1.4	13.6	57.2	62.9	119.5	3.2	.8	37.7
Kansas	–	17	8	.9	15.9	.7	1.6	11.5	38.1	54.8	92.3	(D)	.7	14.1
Kentucky	–	11	4	.3	6.2	.2	.5	3.5	11.7	12.2	23.9	.3	E	(D)
Louisiana	E1	17	5	.4	7.7	.3	.7	4.9	17.6	17.4	34.4	.5	.4	12.2
Maryland	E2	14	3	.3	8.2	.2	.4	4.7	15.0	9.8	24.7	.3	.7	22.5
Massachusetts	–	27	8	.5	11.5	.3	.6	6.5	22.8	20.2	43.1	.5	1.2	47.2
Michigan	E1	55	20	2.2	51.0	1.7	3.2	34.7	81.8	163.7	245.6	7.7	2.9	93.7
Minnesota	E1	22	11	.5	12.3	.3	.8	6.6	24.9	27.4	52.1	.7	F	(D)
Mississippi	–	16	6	1.1	17.2	1.0	2.1	13.7	48.6	37.4	87.1	1.2	1.2	41.1
Missouri	–	32	12	1.9	37.2	1.2	2.7	20.7	71.4	113.1	184.4	2.7	2.1	101.8
Nebraska	–	8	3	.3	7.6	.2	.4	4.2	15.3	40.0	54.8	(D)	E	(D)
New Jersey	–	55	18	2.0	49.3	1.3	2.8	24.1	89.4	88.6	180.3	4.2	2.5	100.3
New York	E1	102	33	2.9	74.3	2.0	4.2	42.8	142.2	118.2	260.7	2.1	(NA)	(D)
North Carolina	–	27	15	1.9	37.5	1.6	3.1	26.8	82.7	81.0	164.2	2.1	G	(D)
Ohio	–	62	33	4.2	102.8	3.2	6.4	68.3	269.7	330.1	601.2	10.1	4.4	262.1
Oklahoma	–	11	8	1.3	35.3	.9	1.5	18.3	84.5	69.5	154.3	2.7	1.3	69.5
Oregon	–	19	9	1.1	27.3	.8	1.8	15.7	62.8	71.8	135.2	2.5	1.1	43.7
Pennsylvania	–	67	35	4.6	108.7	3.2	6.2	62.5	182.3	272.8	460.5	6.3	5.7	183.2
Rhode Island	–	9	3	.2	3.0	.1	.2	1.6	6.0	7.4	13.5	(D)	E	(D)
South Carolina	E1	10	6	.4	7.6	.3	.6	4.4	18.0	25.7	43.8	(D)	.5	20.1
South Dakota	–	6	3	.5	10.9	.3	.7	5.9	13.2	38.6	55.6	(D)	(NA)	(NA)
Tennessee	–	42	20	3.6	81.5	2.7	5.4	51.6	208.7	197.0	403.4	6.0	4.2	136.4
Texas	–	105	35	5.6	111.9	4.2	9.1	68.3	226.9	319.8	545.5	4.2	5.2	189.9
Utah	–	9	4	.5	16.3	.4	.7	8.2	33.9	34.4	68.0	2.5	.4	28.3
Virginia	–	13	6	.7	14.0	.5	.9	8.5	38.0	45.4	83.1	(D)	1.3	47.3
Washington	–	30	13	.9	24.0	.6	1.3	13.5	44.2	51.6	95.8	1.0	1.1	45.7
Wisconsin	–	27	17	2.2	50.1	1.5	3.1	30.6	106.3	129.2	232.6	3.5	1.9	85.6
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)														
United States	**E1**	**1 942**	**880**	**79.3**	**2 345.6**	**56.1**	**115.1**	**1 410.0**	**4 877.6**	**4 259.2**	**9 117.6**	**207.8**	**74.7**	**3 466.6**
Alabama	–	41	21	1.9	52.0	1.3	2.7	31.5	110.1	107.2	217.8	4.7	1.5	61.6
Arizona	E1	16	3	.2	3.8	.1	.2	2.5	10.5	6.2	16.9	.2	(NA)	(NA)
Arkansas	E2	15	9	.6	13.7	.5	.9	9.3	25.3	36.8	62.9	.5	.5	22.4
California	E2	181	70	4.7	156.1	3.2	6.5	85.4	352.2	235.5	576.7	13.7	4.3	240.2
Colorado	–	18	6	.5	15.2	.3	.7	7.8	29.9	19.8	50.0	1.3	.3	12.1
Connecticut	E1	24	4	.3	10.2	.2	.5	5.6	19.0	12.6	31.8	.8	.7	51.8
Delaware	E6	6	2	.1	3.3	.1	.1	1.9	7.4	4.3	11.9	.3	(NA)	(NA)
Florida	E2	51	18	1.1	31.0	.8	1.8	18.6	57.9	62.3	120.7	3.4	2.2	107.0
Georgia	E1	34	18	1.6	42.3	1.2	2.3	26.4	86.4	105.3	193.2	6.0	1.5	58.0
Idaho	E1	15	4	.2	4.6	.1	.3	3.0	7.5	6.3	13.9	.4	(NA)	(NA)
Illinois	E2	90	43	3.0	86.0	2.2	4.6	54.6	229.7	190.3	422.0	11.3	2.6	128.2
Indiana	E2	52	29	2.4	62.2	1.9	3.8	41.3	135.9	95.2	231.7	6.7	2.3	38.0
Iowa	–	21	11	.8	18.9	.6	1.2	13.3	69.7	44.6	115.0	.9	.7	30.6
Kansas	–	27	18	1.6	55.1	1.2	2.2	26.2	87.5	81.7	175.5	1.9	1.4	55.6
Kentucky	–	34	19	2.4	72.1	1.6	3.4	42.9	133.5	150.2	293.9	9.8	1.7	77.4
Louisiana	–	39	17	2.1	55.5	1.6	3.4	38.0	92.7	92.7	180.5	2.6	1.5	61.9
Maine	E5	9	3	.1	4.1	.1	.2	2.2	9.2	8.1	17.4	.3	(NA)	(NA)
Maryland	E5	16	3	.2	7.9	.2	.3	4.2	13.9	12.4	25.6	.2	.3	14.6
Massachusetts	E4	42	16	1.3	39.6	.9	1.8	21.9	75.6	60.7	135.5	3.1	1.4	59.1
Michigan	E1	67	27	2.3	68.6	1.7	3.6	45.9	137.5	102.8	240.6	8.4	1.9	94.0

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)—Con.														
Minnesota	E2	37	16	2.0	65.0	1.2	2.5	31.1	131.5	142.6	276.4	4.4	1.8	104.4
Mississippi	–	17	13	1.7	45.8	1.3	2.7	32.0	118.9	57.0	172.7	(D)	1.2	58.5
Missouri	–	43	23	3.1	98.7	2.1	4.2	56.9	160.2	166.3	325.8	4.7	3.1	144.7
Montana	–	7	2	.2	4.0	.1	.3	2.8	6.1	7.3	13.5	(D)	(NA)	(NA)
Nebraska	–	8	4	.6	13.4	.4	.7	9.7	28.5	39.9	68.5	(D)	F	(D)
New Hampshire	E1	11	3	.3	10.7	.2	.5	6.4	22.6	13.7	36.2	.4	E	(D)
New Jersey	E3	52	22	1.7	55.7	1.1	2.1	29.0	108.2	86.8	193.3	4.1	2.0	99.2
New Mexico	E2	12	2	.1	3.7	.1	.2	2.4	5.2	4.9	10.0	.3	.2	6.4
New York	E1	91	37	4.9	165.1	3.3	6.3	94.8	310.4	212.5	530.4	10.0	4.5	203.1
North Carolina	E1	43	17	1.1	29.5	.6	1.5	16.2	60.0	61.8	121.5	4.4	F	(D)
North Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	111	47	4.9	153.8	3.5	7.1	94.5	327.5	260.2	575.5	9.3	6.4	307.9
Oklahoma	–	83	46	4.5	129.8	3.2	6.8	78.7	266.3	276.4	549.0	8.7	2.3	114.3
Oregon	–	30	7	.5	15.1	.3	.6	7.1	29.0	24.7	54.5	.3	.3	16.8
Pennsylvania	E1	127	68	6.7	211.1	4.4	8.4	114.7	431.1	432.8	864.3	28.1	7.8	384.9
Rhode Island	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	E3	18	11	.8	24.2	.6	1.4	14.2	49.7	40.1	92.4	1.0	.5	46.6
Tennessee	E3	37	24	2.4	67.8	1.9	3.8	44.5	171.3	133.2	303.2	10.1	2.9	134.9
Texas	E1	210	96	8.7	241.1	6.5	14.1	159.4	535.1	482.9	987.5	17.5	6.4	265.9
Utah	–	21	12	1.0	24.3	.7	1.5	16.6	56.0	62.9	123.7	(D)	.9	39.6
Virginia	E1	31	13	.8	20.4	.5	1.0	11.5	43.9	46.8	90.0	3.7	E	(D)
Washington	–	32	13	.8	25.6	.5	1.1	15.5	39.5	39.7	81.9	1.1	1.6	90.3
West Virginia	–	11	8	.4	9.2	.3	.5	6.6	16.7	13.1	29.7	.9	.2	9.6
Wisconsin	–	87	45	4.0	107.3	2.8	5.9	66.3	217.5	168.6	383.5	8.0	3.9	166.1
INDUSTRY 3444, SHEET METAL WORK														
United States	**E1**	**4 702**	**1 474**	**104.3**	**2 850.9**	**75.6**	**157.5**	**1 751.5**	**5 743.8**	**5 791.8**	**11 482.2**	**224.5**	**100.2**	**4 813.5**
Alabama	–	78	25	1.6	33.5	1.2	2.4	21.1	89.4	100.3	188.5	3.2	1.0	38.3
Arizona	E1	82	20	1.4	35.8	1.1	2.3	22.2	78.8	72.9	151.0	3.7	1.2	51.3
Arkansas	–	37	9	.8	19.3	.6	1.2	10.5	66.0	43.5	105.0	1.3	.6	28.5
California	E1	731	227	14.4	407.7	10.3	21.9	247.5	772.6	619.7	1 395.9	32.8	13.8	651.1
Colorado	E1	65	23	1.4	35.8	1.0	2.1	21.9	69.4	62.1	131.9	3.1	1.2	40.1
Connecticut	E1	88	19	1.1	34.2	.8	1.6	19.4	67.3	69.7	134.7	1.9	1.4	81.2
Delaware	–	12	4	.5	14.3	.4	.8	10.8	22.1	21.6	46.0	.6	.6	23.2
Florida	E2	234	66	4.7	110.5	3.4	6.7	64.2	214.6	225.3	436.0	6.9	3.9	151.1
Georgia	E1	107	36	2.1	53.2	1.6	3.3	32.5	131.4	192.9	323.6	2.9	2.1	116.5
Hawaii	E9	6	3	.1	4.2	.1	.2	2.7	8.2	9.5	17.7	.3	(NA)	(NA)
Idaho	–	17	8	.5	12.4	.4	1.0	8.7	42.0	22.4	54.2	.8	.3	18.1
Illinois	–	198	80	6.1	176.7	4.6	9.6	111.1	361.8	438.3	798.8	15.5	4.9	260.2
Indiana	E1	143	50	3.7	97.6	2.6	5.3	61.3	207.2	227.7	433.6	8.2	3.7	157.2
Iowa	–	30	11	.6	15.7	.4	.9	9.3	39.9	42.9	82.4	2.5	.7	33.3
Kansas	E1	41	18	1.2	31.2	.9	1.9	19.1	77.8	78.8	152.4	2.8	.8	40.1
Kentucky	E2	52	21	.9	23.1	.7	1.3	14.1	50.7	65.1	116.7	1.9	.7	32.0
Louisiana	E1	32	8	.8	14.5	.6	1.1	9.3	31.8	30.3	61.2	.8	.4	21.2
Maine	–	17	5	.4	12.5	.3	.5	6.1	18.8	23.6	42.4	.4	.4	23.1
Maryland	–	53	14	1.3	32.9	.8	1.6	20.5	66.9	63.9	129.9	3.2	1.5	127.8
Massachusetts	E2	179	53	3.7	113.4	2.5	5.2	70.1	191.6	160.4	351.5	7.6	4.1	192.1
Michigan	E1	175	52	3.1	87.3	2.2	4.7	52.7	167.9	141.0	303.7	7.7	3.3	184.6
Minnesota	–	111	44	2.9	83.3	2.2	4.5	54.1	157.4	136.7	293.5	10.3	2.9	129.4
Mississippi	–	30	14	1.1	18.4	.9	1.6	12.6	54.6	54.2	108.3	2.3	.7	34.7
Missouri	–	96	33	1.8	48.2	1.3	2.7	29.5	101.0	108.3	210.5	3.3	1.8	74.6
Nebraska	–	11	5	.3	6.4	.2	.3	2.9	11.1	30.7	43.7	(D)	.4	17.8
Nevada	E1	21	6	.4	11.5	.2	.5	6.1	18.3	31.6	43.0	1.7	.2	6.0
New Hampshire	E1	39	10	.6	18.0	.4	.9	11.1	32.5	19.3	51.2	1.5	.6	26.0
New Jersey	–	183	49	3.4	113.9	2.5	6.1	72.9	215.8	221.7	439.1	7.2	4.4	249.0
New Mexico	E1	16	3	.2	2.9	.1	.2	1.9	6.7	7.3	13.8	.1	.2	6.2
New York	E1	270	72	5.8	165.0	4.4	9.3	111.8	316.4	235.9	553.3	10.5	6.3	282.1
North Carolina	E1	106	40	2.6	64.0	2.0	4.2	40.8	141.3	149.7	280.6	6.5	(NA)	(D)
Ohio	–	239	79	8.4	242.8	6.0	11.7	137.8	542.4	583.2	1 127.3	17.2	8.2	465.7
Oklahoma	E2	57	14	.7	19.0	.5	1.0	10.7	36.9	36.5	73.5	1.1	.7	29.1
Oregon	E1	84	19	1.6	38.2	1.2	2.3	25.5	80.9	71.5	151.4	2.8	1.1	45.2
Pennsylvania	–	215	77	5.9	171.3	4.3	9.2	104.9	344.2	380.7	718.2	12.0	5.7	286.5
Rhode Island	E3	20	2	.2	5.0	.1	.3	2.9	8.6	8.0	16.6	.5	.3	12.4
South Carolina	E1	49	17	1.0	23.7	.7	1.5	15.0	41.7	36.2	78.4	1.8	.8	28.4
Tennessee	E1	62	22	1.5	33.9	1.1	2.2	20.4	74.3	86.8	159.1	3.6	2.0	83.9
Texas	E1	360	106	7.1	186.3	5.0	10.7	111.6	358.7	394.6	754.5	13.9	7.0	274.3
Utah	–	33	8	.8	21.3	.6	1.3	13.3	37.7	32.8	70.7	2.3	.7	26.0
Vermont	–	13	5	.3	6.8	.2	.4	4.4	12.2	10.1	22.0	.2	(NA)	(NA)
Virginia	E1	61	26	1.4	38.8	1.1	2.3	26.2	62.4	49.3	111.9	2.4	1.1	56.0
Washington	E1	104	27	1.9	57.8	1.3	2.8	33.1	106.7	139.4	243.1	5.5	1.8	91.0
West Virginia	–	13	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	102	34	3.1	85.9	2.2	4.6	51.3	160.5	138.1	298.0	6.0	2.8	131.9

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 6
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992											1987	
		All establishments		All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3446, ARCHITECTURAL METAL WORK														
United States	**E1**	**1 476**	**314**	**26.1**	**644.8**	**17.9**	**35.9**	**363.7**	**1 278.6**	**1 098.2**	**2 383.4**	**34.0**	**28.0**	**1 191.5**
Alabama	E1	40	11	1.7	42.0	1.1	2.3	22.6	84.3	73.0	158.4	1.5	1.1	41.4
Arizona	E3	40	7	.7	14.6	.6	1.3	10.7	32.9	26.3	59.8	.8	1.1	32.1
Arkansas	E3	12	2	.1	2.1	.1	.2	1.4	3.9	3.8	7.7	(D)	(NA)	(NA)
California	E1	197	29	2.1	60.3	1.5	2.9	32.2	111.1	98.7	211.5	2.9	3.0	118.8
Colorado	E1	27	3	.2	4.4	.2	.3	3.3	9.3	10.1	19.4	.1	.2	6.7
Connecticut	E2	20	8	.6	16.2	.4	.7	9.4	34.4	31.3	65.9	.4	E	(D)
Florida	E2	104	14	1.4	27.4	1.2	2.5	18.4	65.9	44.2	109.7	1.0	2.3	87.6
Georgia	E2	33	7	.6	13.5	.4	.8	7.4	26.9	26.0	52.2	1.4	.7	26.9
Illinois	–	63	20	1.5	47.1	1.0	2.1	25.5	92.9	105.2	199.7	1.7	1.8	108.2
Indiana	E1	30	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.7	34.1
Iowa	E5	13	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	E1	19	8	.4	6.9	.3	.7	4.8	13.3	11.3	24.8	.2	(NA)	(D)
Louisiana	–	17	7	.3	6.4	.2	.3	3.4	12.4	18.3	30.4	.4	(NA)	(D)
Maine	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	27	9	.6	16.1	.4	.8	10.5	31.6	39.5	71.1	.5	.9	36.6
Massachusetts	E4	38	4	.4	11.3	.3	.6	6.5	24.7	17.3	42.0	.3	E	(D)
Michigan	–	35	9	1.1	23.7	.8	1.4	13.3	69.5	33.4	103.1	4.4	1.0	55.3
Minnesota	–	21	6	.3	8.8	.2	.4	4.5	14.4	14.3	28.8	.2	E	(D)
Missouri	–	29	6	.5	14.6	.3	.6	7.1	20.8	19.8	40.2	.3	.8	31.6
New Jersey	E1	46	4	.4	12.5	.3	.6	6.9	19.7	26.0	47.0	.7	.7	36.4
New York	E1	115	25	1.4	38.1	.9	1.8	21.3	69.8	60.1	129.5	1.5	G	(D)
North Carolina	E1	29	6	.3	7.1	.2	.4	4.0	13.7	10.4	23.9	(D)	E	(D)
Ohio	–	78	28	1.8	48.9	1.3	2.5	27.0	101.9	92.6	195.5	2.7	1.5	71.4
Oklahoma	–	15	2	.5	11.2	.5	.9	9.2	31.2	13.3	44.5	(D)	.7	32.4
Oregon	–	25	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	.2	8.4
Pennsylvania	–	95	28	2.7	66.5	1.5	3.0	31.1	88.9	81.7	169.9	3.1	1.7	67.2
South Carolina	E8	17	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Tennessee	–	25	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	23.0
Texas	–	100	20	2.3	47.4	1.5	3.1	26.2	122.1	86.3	208.2	2.9	2.0	72.3
Utah	E1	14	6	.3	6.3	.2	.4	3.8	11.9	12.7	24.8	(D)	(NA)	(D)
Virginia	E3	13	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Washington	E4	30	4	.3	7.6	.2	.5	5.1	15.3	13.6	29.0	.5	.3	15.0
Wisconsin	–	25	8	.7	18.9	.4	.9	8.9	26.3	23.4	50.3	.3	.8	28.5
INDUSTRY 3448, PREFABRICATED METAL BUILDINGS														
United States	**–**	**536**	**211**	**20.8**	**527.2**	**13.4**	**28.1**	**283.3**	**1 181.8**	**1 673.0**	**2 845.9**	**28.8**	**25.8**	**1 337.9**
Alabama	–	17	8	.9	17.5	.5	1.0	8.7	53.2	59.1	111.8	.4	1.0	50.4
Arizona	E3	9	3	.2	3.8	.1	.3	2.4	2.9	7.4	10.9	(Z)	.2	7.6
Arkansas	–	10	2	.3	9.4	.2	.3	3.9	19.7	30.1	49.0	1.4	E	(D)
California	E2	57	27	1.7	42.1	1.0	2.1	20.3	96.4	117.1	213.0	2.4	2.2	115.5
Colorado	–	11	2	.1	3.6	.1	.2	2.0	4.6	9.8	14.4	.1	.2	8.3
Florida	–	42	13	.9	20.7	.7	1.4	11.7	53.0	66.6	119.0	1.0	1.0	33.9
Georgia	–	25	12	.8	17.9	.5	1.1	9.5	37.5	55.6	92.3	.4	1.2	61.4
Illinois	–	18	9	1.3	35.8	1.0	2.1	25.8	68.4	193.7	261.3	.9	1.5	96.5
Indiana	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Iowa	–	13	8	1.0	25.0	.7	1.5	14.7	75.6	80.3	153.3	(D)	.8	45.4
Kentucky	E1	11	3	.1	3.5	.1	.2	1.7	7.7	11.2	19.2	.2	E	(D)
Louisiana	–	9	3	.4	6.8	.2	.4	2.8	12.9	27.4	40.2	.3	.5	19.1
Maryland	–	8	3	.2	5.3	.1	.2	2.1	15.7	18.1	33.8	.3	.3	12.8
Massachusetts	–	4	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	17.5
Michigan	E1	26	7	.5	12.4	.3	.7	6.8	21.7	23.7	45.7	.7	.3	12.1
Minnesota	E1	17	3	.2	4.3	.1	.2	2.0	10.0	10.2	19.9	.1	E	(D)
Mississippi	–	5	2	.5	13.5	.3	.6	4.8	39.0	46.7	85.8	.8	F	(D)
Missouri	–	13	5	.4	10.3	.2	.5	5.1	31.0	32.9	63.3	.3	.5	30.0
Nebraska	–	4	4	1.0	22.2	.7	1.6	13.3	41.2	54.0	95.3	(D)	.9	38.9
Nevada	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
New Jersey	–	12	5	.5	14.4	.3	.6	7.3	29.4	39.1	68.4	.7	.5	18.4
New York	E1	26	7	1.0	24.2	.6	1.3	13.2	51.5	46.5	97.7	2.1	G	(D)
North Carolina	–	18	7	1.0	29.5	.7	1.6	18.6	69.4	97.6	166.6	1.5	1.5	63.8
North Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	24	11	.8	16.9	.4	.8	8.7	40.1	59.7	99.6	1.4	1.1	92.5
Oklahoma	–	11	4	.5	10.8	.3	.7	6.4	29.6	26.7	56.6	.5	.3	7.1
Pennsylvania	E1	22	8	1.1	30.4	.8	1.6	18.5	66.2	76.1	139.8	3.1	1.2	69.7
South Carolina	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Dakota	–	4	3	.2	4.2	.1	.3	2.2	8.2	8.8	17.0	(D)	(NA)	(NA)
Tennessee	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	29.2
Texas	–	46	20	1.9	51.3	1.0	2.7	21.5	97.1	147.2	245.6	1.7	3.1	117.7
Washington	E2	9	4	.2	4.9	.1	.2	2.3	7.7	13.6	21.3	.1	.3	16.0
Wisconsin	–	12	6	.9	23.4	.6	1.1	12.9	48.2	88.8	135.6	1.4	F	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 7
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3449, MISCELLANEOUS METAL WORK														
United States	**E1**	**658**	**292**	**21.6**	**589.8**	**14.4**	**29.1**	**350.5**	**1 139.1**	**2 222.1**	**3 366.4**	**60.0**	**22.9**	**1 250.6**
Alabama	–	22	10	1.0	26.5	.8	1.4	18.3	45.8	69.2	113.1	1.0	1.5	80.3
Arizona	E7	11	5	.3	5.8	.2	.4	3.5	10.0	25.9	36.0	.4	.4	17.0
Arkansas	E1	6	5	.7	15.6	.4	1.0	8.3	28.6	40.1	66.9	(D)	F	(D)
California	E2	61	18	1.4	38.5	.9	1.8	19.9	86.0	160.9	250.6	4.6	1.5	86.9
Colorado	–	9	5	.2	4.2	.1	.3	2.7	6.5	16.6	23.6	.3	.2	9.2
Connecticut	E1	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	41	14	.9	25.2	.5	1.1	13.7	55.6	130.2	187.0	5.1	1.9	94.6
Georgia	E1	22	13	.7	18.0	.4	.9	9.7	40.0	85.4	124.5	1.3	.4	44.8
Illinois	E1	36	12	1.2	35.5	.9	2.0	22.1	64.7	88.8	152.8	3.5	1.8	87.3
Indiana	–	22	12	1.3	33.3	.8	1.7	22.4	36.9	158.2	194.5	3.4	.8	44.6
Iowa	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	8	5	.3	10.1	.2	.5	5.6	21.4	39.5	60.9	1.1	E	(D)
Louisiana	–	9	4	.2	3.1	.1	.2	2.2	7.2	15.2	22.4	.1	(NA)	(NA)
Maryland	–	11	5	.4	9.0	.2	.5	5.6	19.6	31.3	51.6	.2	.6	42.6
Michigan	E2	28	5	.3	8.3	.2	.4	4.6	20.9	18.2	38.0	.5	E	(D)
Minnesota	–	10	5	.3	9.4	.2	.4	5.9	11.3	13.9	25.3	.2	E	(D)
Mississippi	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Missouri	–	10	4	.5	15.3	.3	.6	7.1	26.4	48.8	76.7	.5	.5	44.8
Nebraska	–	5	4	.5	13.6	.3	.7	8.9	42.2	89.1	129.0	(D)	E	(D)
New Jersey	–	16	8	.4	13.1	.3	.6	7.7	31.8	39.2	71.2	1.3	.5	31.7
New York	–	26	7	.5	15.8	.4	.7	8.5	38.2	55.9	92.4	1.9	F	(D)
North Carolina	–	16	6	.3	8.9	.2	.4	4.7	19.0	33.8	52.3	(D)	E	(D)
Ohio	E1	44	22	1.9	57.1	1.5	3.0	38.9	112.3	183.2	296.7	10.1	1.4	83.0
Oklahoma	E1	5	5	.2	3.4	.1	.3	2.3	5.3	10.7	16.1	(D)	.2	9.6
Oregon	E3	9	4	.2	5.1	.1	.3	3.1	9.7	15.6	25.5	(D)	(NA)	(NA)
Pennsylvania	E2	34	19	1.6	43.0	1.0	1.9	23.6	74.7	147.0	224.0	2.7	2.3	99.2
South Carolina	–	15	7	.8	24.4	.6	1.1	17.3	36.1	68.6	103.9	.7	.8	38.8
Tennessee	–	12	9	.5	10.3	.3	.6	5.1	18.6	34.3	52.8	.4	.3	20.3
Texas	E1	57	35	2.2	55.4	1.4	2.9	32.8	104.5	272.4	381.3	3.8	2.0	92.9
Utah	–	7	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	27.2
Virginia	–	15	9	.8	22.5	.5	1.1	12.9	27.9	63.7	92.8	.4	1.0	46.5
Washington	–	15	7	.3	9.8	.2	.4	4.6	20.1	40.7	60.3	.5	.2	15.3
Wisconsin	E2	14	7	.4	9.9	.2	.5	5.5	19.7	28.4	48.6	.8	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Fabricated structural metal (SIC 3441)	Metal doors, sash, and trim (SIC 3442)	Fabricated plate work (boiler shops) (SIC 3443)	Sheet metal work (SIC 3444)	Architectural metal work (SIC 3446)	Prefabricated metal buildings (SIC 3448)	Miscellaneous metal work (SIC 3449)
Companies	number	2 437	1 254	1 800	4 452	1 429	487	564
All establishments	number	2 539	1 416	1 942	4 702	1 476	536	658
With 1 to 19 employees	number	1 627	837	1 062	3 228	1 162	325	366
With 20 to 99 employees	number	785	396	684	1 305	281	158	250
With 100 employees or more	number	127	183	196	169	33	53	42
Employment and labor costs:								
Employees	1,000	72.0	67.8	79.3	104.3	26.1	20.8	21.6
Compensation, total	mil dol	2 519.9	1 886.7	2 944.8	3 555.7	814.1	649.2	737.7
Annual payroll	mil dol	1 958.9	1 528.2	2 345.6	2 850.9	644.8	527.2	589.8
Fringe benefits	mil dol	561.0	358.5	599.2	704.8	169.3	122.0	147.9
Social Security and other legally required payments	mil dol	270.2	169.2	277.9	301.1	72.0	58.3	71.8
Employer voluntary payments	mil dol	290.8	189.3	321.3	403.7	97.3	63.8	76.1
Production workers:								
Average for year	1,000	50.8	48.8	56.1	75.6	17.9	13.4	14.4
March	1,000	51.5	46.0	56.6	74.8	17.9	12.9	14.5
May	1,000	50.9	48.9	56.2	75.6	17.9	13.3	14.6
August	1,000	50.8	51.0	56.4	77.3	18.3	13.8	14.6
November	1,000	50.2	49.2	55.4	75.2	17.5	13.8	14.0
Hours	millions	107.8	99.2	115.1	157.5	35.9	28.1	29.1
Wages	mil dol	1 183.7	908.1	1 410.0	1 751.5	363.7	283.3	350.5
Cost of materials[1]	mil dol	4 872.8	3 905.0	4 259.2	5 791.8	1 098.2	1 673.0	2 222.1
Materials, parts, containers, etc., consumed[2]	mil dol	3 562.9	3 564.7	3 667.3	4 930.3	944.1	1 510.5	2 004.8
Resales	mil dol	532.1	214.9	180.5	401.2	75.1	108.7	122.5
Fuels	mil dol	33.4	21.6	43.4	45.2	9.6	8.4	9.9
Purchased electricity	mil dol	66.8	49.0	87.2	85.6	19.7	16.6	28.5
Contract work	mil dol	677.6	54.8	280.8	329.4	49.6	28.7	56.4

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fabricated structural metal (SIC 3441)	Metal doors, sash, and trim (SIC 3442)	Fabricated plate work (boiler shops) (SIC 3443)	Sheet metal work (SIC 3444)	Architectural metal work (SIC 3446)	Prefabricated metal buildings (SIC 3448)	Miscellaneous metal work (SIC 3449)
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	1 004.3	746.0	1 392.0	1 252.5	286.5	269.5	473.6
Generated less sold ---- mil kWh	(D)	(D)	(D)	(D)	–	(D)	–
Total value of shipments ---- mil dol	8 898.4	7 123.3	9 117.6	11 482.2	2 383.4	2 845.9	3 366.4
Value added ---- mil dol	3 934.4	3 221.2	4 877.6	5 743.8	1 278.6	1 181.8	1 139.1
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	1 202.6	876.2	1 362.0	1 696.5	320.0	297.4	458.9
Finished goods ---- mil dol	201.5	256.1	204.2	472.0	110.5	64.1	131.2
Work in process ---- mil dol	585.0	153.2	642.3	488.9	81.0	52.2	86.0
Materials and supplies ---- mil dol	416.1	467.0	515.5	735.7	128.5	181.2	241.6
End of 1992 ---- mil dol	1 090.1	898.3	1 383.1	1 756.2	310.0	328.6	454.2
Finished goods ---- mil dol	194.0	261.1	214.3	498.3	105.3	67.8	132.1
Work in process ---- mil dol	501.4	151.0	651.4	515.9	79.6	57.2	80.0
Materials and supplies ---- mil dol	394.7	486.2	517.4	742.0	125.1	203.5	242.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fabricated structural metal (SIC 3441)	Metal doors, sash, and trim (SIC 3442)	Fabricated plate work (boiler shops) (SIC 3443)	Sheet metal work (SIC 3444)	Architectural metal work (SIC 3446)	Prefabricated metal buildings (SIC 3448)	Miscellaneous metal work (SIC 3449)
Gross book value of depreciable assets:							
Total:							
Beginning of year	2 076.1	1 512.4	2 694.8	2 915.1	558.5	593.3	808.5
New capital expenditures[1]	132.2	108.7	207.8	224.5	34.0	28.8	60.0
Used capital expenditures	25.4	15.3	27.9	43.2	12.1	4.4	6.5
Retirements	37.8	22.5	49.6	49.2	18.7	16.3	32.4
End of year	2 195.8	1 613.8	2 880.9	3 133.7	585.9	610.2	842.6
Buildings and other structures:							
Beginning of year	544.0	502.2	645.2	675.1	157.7	156.2	188.7
New capital expenditures	32.6	20.2	44.1	30.3	3.2	7.3	11.8
Used capital expenditures	3.7	8.3	7.1	7.0	2.2	1.6	1.5
Retirements	9.7	3.0	5.1	3.6	1.5	4.1	6.3
End of year	570.7	527.6	691.3	708.8	161.6	161.0	195.6
Machinery and equipment:							
Beginning of year	1 532.1	1 010.2	2 049.6	2 240.0	400.8	437.1	619.8
New capital expenditures[1]	99.6	88.5	163.6	194.3	30.8	21.4	48.2
Used capital expenditures	21.6	7.0	20.9	36.2	9.9	2.8	5.0
Retirements	28.1	19.5	44.5	45.6	17.2	12.2	26.0
End of year	1 625.1	1 086.2	2 189.6	2 424.9	424.3	449.2	647.0
Depreciation charges during 1992:							
Total	121.0	112.0	157.2	224.3	40.4	39.2	61.1
Buildings and other structures	23.2	23.2	27.7	32.8	7.9	7.0	8.9
Machinery and equipment	97.9	88.8	129.4	191.5	32.5	32.2	52.2
Rental payments:							
Total	123.2	93.2	101.8	231.0	36.8	30.3	31.7
Buildings and other structures	80.2	57.4	62.1	134.2	20.5	19.8	22.3
Machinery and equipment	43.0	35.8	39.6	96.8	16.3	10.5	9.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fabricated structural metal (SIC 3441)		Metal doors, sash, and trim (SIC 3442)		Fabricated plate work (boiler shops) (SIC 3443)		Sheet metal work (SIC 3444)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	7.5	(X)	6.3	(X)	15.9	(X)	14.4	(X)
Response coverage ratio (percent)[2]	72.3	(X)	73.6	(X)	75.4	(X)	70.6	(X)
Machinery	42.5	(X)	25.1	(X)	61.3	(X)	51.9	(X)
Response coverage ratio (percent)[2]	75.3	(X)	74.5	(X)	75.8	(X)	71.7	(X)
Other purchased services:								
Communications	15.3	(X)	20.5	(X)	17.6	(X)	25.2	(X)
Response coverage ratio (percent)[2]	72.9	(X)	72.7	(X)	72.9	(X)	67.6	(X)
Legal	12.0	(X)	6.1	(X)	20.5	(X)	17.6	(X)
Response coverage ratio (percent)[2]	73.9	(X)	73.9	(X)	75.4	(X)	69.4	(X)
Accounting and bookkeeping	10.3	(X)	6.3	(X)	8.9	(X)	16.3	(X)
Response coverage ratio (percent)[2]	73.2	(X)	73.6	(X)	74.8	(X)	70.9	(X)
Advertising	9.8	(X)	32.9	(X)	15.5	(X)	28.6	(X)
Response coverage ratio (percent)[2]	73.5	(X)	74.4	(X)	74.8	(X)	70.1	(X)
Software and other data processing	6.9	(X)	5.3	(X)	8.7	(X)	36.2	(X)
Response coverage ratio (percent)[2]	72.6	(X)	72.6	(X)	72.6	(X)	69.0	(X)
Refuse removal, including hazardous waste	4.2	(X)	6.9	(X)	8.8	(X)	8.2	(X)
Response coverage ratio (percent)[2]	73.5	(X)	72.4	(X)	74.7	(X)	70.4	(X)
New machinery and equipment expenditures	99.6	(X)	88.5	(X)	163.6	(X)	194.3	(X)
Automobiles, trucks, etc., for highway use	12.3	16	6.8	13	6.3	22	17.7	11
Computers and peripheral data processing equipment	9.8	12	5.8	12	13.7	8	19.7	12
All other	77.5	4	76.0	3	143.7	1	156.8	3
Adjustment ratio[3]	1.7	(X)	1.2	(X)	1.4	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	3 562.9	(X)	3 564.7	(X)	3 667.3	(X)	4 930.3	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	177.7	8	(S)	(X)	576.6	44
Materials purchased or transferred from domestic sources	(S)	(X)	3 387.0	1	(S)	(X)	4 353.7	7
Adjustment ratio[3]	(S)	(X)	1.9	(X)	(S)	(X)	1.8	(X)

Item	Architectural metal work (SIC 3446)		Prefabricated metal buildings (SIC 3448)		Miscellaneous metal work (SIC 3449)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.8	(X)	1.7	(X)	4.1	(X)
Response coverage ratio (percent)[2]	70.1	(X)	60.9	(X)	84.2	(X)
Machinery	11.0	(X)	5.2	(X)	21.6	(X)
Response coverage ratio (percent)[2]	72.0	(X)	66.3	(X)	85.5	(X)
Other purchased services:						
Communications	6.6	(X)	4.9	(X)	8.7	(X)
Response coverage ratio (percent)[2]	70.3	(X)	61.2	(X)	80.1	(X)
Legal	4.1	(X)	4.1	(X)	3.3	(X)
Response coverage ratio (percent)[2]	72.1	(X)	67.6	(X)	83.0	(X)
Accounting and bookkeeping	4.4	(X)	2.7	(X)	2.7	(X)
Response coverage ratio (percent)[2]	68.7	(X)	68.1	(X)	81.1	(X)
Advertising	8.0	(X)	5.2	(X)	5.0	(X)
Response coverage ratio (percent)[2]	70.3	(X)	68.1	(X)	84.1	(X)
Software and other data processing	2.0	(X)	2.0	(X)	2.8	(X)
Response coverage ratio (percent)[2]	69.8	(X)	62.5	(X)	81.1	(X)
Refuse removal, including hazardous waste	1.5	(X)	4.5	(X)	2.2	(X)
Response coverage ratio (percent)[2]	74.1	(X)	67.5	(X)	84.5	(X)
New machinery and equipment expenditures	30.8	(X)	21.4	(X)	48.2	(X)
Automobiles, trucks, etc., for highway use	1.2	29	(S)	(X)	5.2	13
Computers and peripheral data processing equipment	5.2	53	(S)	(X)	5.9	43
All other	24.4	12	(S)	(X)	37.1	8
Adjustment ratio[3]	1.0	(X)	(S)	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	944.1	(X)	1 510.5	(X)	2 004.8	(X)
Materials purchased or transferred from foreign sources[4]	19.7	40	(S)	(X)	90.8	12
Materials purchased or transferred from domestic sources	924.5	1	(S)	(X)	1 914.0	1
Adjustment ratio[3]	1.6	(X)	(S)	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3441, FABRICATED STRUCTURAL METAL												
Total	**E1**	**2 539**	**72.0**	**1 958.9**	**50.8**	**107.8**	**1 183.7**	**3 934.4**	**4 872.8**	**8 898.4**	**132.2**	**1 090.1**
Establishments with an average of—												
1 to 4 employees	E8	609	1.2	27.1	.8	1.7	16.3	63.7	93.0	157.8	2.3	14.7
5 to 9 employees	E4	485	3.3	76.7	2.4	5.0	47.3	149.5	174.9	324.3	4.3	33.5
10 to 19 employees	E1	533	7.5	191.4	5.2	10.8	112.1	341.7	462.8	834.0	12.7	90.6
20 to 49 employees	E1	562	17.3	457.4	12.1	25.5	272.9	936.7	1 138.1	2 079.9	24.5	235.7
50 to 99 employees	E1	223	15.2	413.0	10.6	22.5	243.8	786.6	1 127.7	1 924.7	33.6	205.1
100 to 249 employees	E1	102	14.1	405.4	9.8	21.6	238.2	894.5	1 096.6	1 994.8	26.8	283.3
250 to 499 employees	E1	20	6.7	195.0	4.8	10.6	115.8	337.7	513.1	877.3	11.8	150.2
500 to 999 employees	E1	4	6.8	192.8	5.1	10.2	137.3	424.0	266.6	705.6	16.1	77.0
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	799	2.9	52.2	2.1	4.1	31.8	84.7	122.8	207.5	4.3	22.6
INDUSTRY 3442, METAL DOORS, SASH, AND TRIM												
Total	**–**	**1 416**	**67.8**	**1 528.2**	**48.8**	**99.2**	**908.1**	**3 221.2**	**3 905.0**	**7 123.3**	**108.7**	**898.3**
Establishments with an average of—												
1 to 4 employees	E7	392	.7	14.8	.5	1.0	8.6	32.8	44.6	77.4	.7	10.6
5 to 9 employees	E4	250	1.6	35.2	1.2	2.3	20.4	70.2	84.1	154.3	1.4	22.6
10 to 19 employees	E1	195	2.7	59.1	1.8	3.6	31.7	127.9	134.9	262.9	2.6	39.4
20 to 49 employees	E1	257	8.3	193.3	5.6	11.5	104.7	410.1	455.4	866.5	8.1	115.4
50 to 99 employees	E1	139	9.7	223.3	6.8	14.1	125.1	443.7	517.5	961.5	15.6	132.7
100 to 249 employees	–	127	19.5	432.4	14.2	29.1	257.2	933.7	1 246.6	2 171.6	36.6	286.0
250 to 499 employees	–	38	12.5	284.4	9.2	19.0	176.6	637.7	814.7	1 459.3	22.8	169.7
500 to 999 employees	–	16	12.8	285.7	9.5	18.5	183.9	565.0	607.2	1 169.8	20.9	121.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	475	1.4	27.2	1.0	2.0	15.8	51.5	68.0	119.6	1.4	16.2
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)												
Total	**E1**	**1 942**	**79.3**	**2 345.6**	**56.1**	**115.1**	**1 410.0**	**4 877.6**	**4 259.2**	**9 117.6**	**207.8**	**1 383.1**
Establishments with an average of—												
1 to 4 employees	E8	402	.7	20.7	.5	1.1	12.2	43.9	41.5	85.5	1.8	13.0
5 to 9 employees	E3	318	2.2	59.6	1.6	3.1	36.0	146.2	102.4	219.0	3.7	78.7
10 to 19 employees	E1	342	4.7	136.7	3.4	6.7	76.0	254.9	207.6	466.8	8.0	63.5
20 to 49 employees	E1	473	15.1	425.1	11.0	22.6	257.5	849.9	686.6	1 537.9	29.8	209.0
50 to 99 employees	E1	211	14.5	425.0	10.2	21.4	251.3	877.4	755.5	1 628.6	32.4	246.0
100 to 249 employees	E1	156	23.1	694.1	16.1	33.7	418.0	1 523.7	1 332.8	2 857.0	66.6	414.1
250 to 499 employees	E1	26	9.0	281.1	6.7	12.7	182.0	597.4	634.1	1 226.1	34.5	180.3
500 to 999 employees	–	12	9.8	303.4	6.6	13.9	177.0	584.2	498.7	1 096.7	31.0	178.5
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	494	1.7	40.9	1.2	2.4	24.8	71.2	71.4	142.6	3.3	23.0
INDUSTRY 3444, SHEET METAL WORK												
Total	**E1**	**4 702**	**104.3**	**2 850.9**	**75.6**	**157.5**	**1 751.5**	**5 743.8**	**5 791.8**	**11 482.2**	**224.5**	**1 756.2**
Establishments with an average of—												
1 to 4 employees	E7	1 363	2.4	61.1	1.7	4.1	40.1	133.5	149.8	276.0	4.9	62.5
5 to 9 employees	E2	849	5.8	140.0	4.2	8.5	92.3	305.3	262.5	566.6	8.1	106.4
10 to 19 employees	E1	1 016	14.1	382.2	9.9	20.5	232.3	782.6	731.7	1 504.9	24.8	230.7
20 to 49 employees	E1	965	29.1	801.1	20.7	43.4	480.9	1 610.1	1 519.8	3 114.5	63.3	421.8
50 to 99 employees	E1	340	22.9	632.6	16.7	35.2	389.4	1 262.8	1 096.2	2 351.0	50.0	327.5
100 to 249 employees	–	156	22.8	606.7	16.9	35.0	383.8	1 197.0	1 417.0	2 598.6	55.5	448.7
250 to 499 employees	–	8	2.7	82.8	2.2	4.4	50.9	160.3	241.3	403.7	7.3	40.7
500 to 999 employees	–	4	4.6	144.3	3.3	6.4	81.7	292.1	373.6	666.9	10.6	118.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 261	2.8	58.7	2.0	4.1	37.4	124.9	143.7	268.7	4.9	43.5
INDUSTRY 3446, ARCHITECTURAL METAL WORK												
Total	**E1**	**1 476**	**26.1**	**644.8**	**17.9**	**35.9**	**363.7**	**1 278.6**	**1 098.2**	**2 383.4**	**34.0**	**310.0**
Establishments with an average of—												
1 to 4 employees	E7	639	1.1	23.5	.8	1.7	14.8	56.6	43.1	98.9	1.0	12.2
5 to 9 employees	E2	261	1.8	38.8	1.3	2.5	24.6	69.5	55.9	125.7	1.0	13.0
10 to 19 employees	E1	262	3.5	89.1	2.5	4.9	51.9	159.2	134.9	295.6	3.1	32.5
20 to 49 employees	E1	203	6.2	167.9	4.2	8.5	92.0	302.0	281.6	584.3	7.4	74.0
50 to 99 employees	–	78	5.3	144.5	3.6	7.3	78.3	289.8	292.1	583.0	7.6	82.8
100 to 249 employees	–	21	3.1	73.2	2.3	4.4	43.4	164.9	144.9	310.5	6.8	48.6
250 to 499 employees	–	10	5.0	107.8	3.2	6.6	58.7	236.6	145.8	385.4	7.0	46.8
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	565	1.0	20.8	.8	1.6	12.6	46.1	37.8	83.9	.9	9.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3448, PREFABRICATED METAL BUILDINGS												
Total	**–**	**536**	**20.8**	**527.2**	**13.4**	**28.1**	**283.3**	**1 181.8**	**1 673.0**	**2 845.9**	**28.8**	**328.6**
Establishments with an average of—												
1 to 4 employees	E7	161	.3	6.6	.2	.4	3.3	16.8	27.1	43.9	.5	4.5
5 to 9 employees	E5	71	.5	10.7	.3	.6	5.9	26.1	37.1	63.3	.7	6.9
10 to 19 employees	E1	93	1.3	29.4	.8	1.7	16.6	69.3	80.8	149.7	1.3	16.5
20 to 49 employees	E1	110	3.5	87.5	2.1	4.5	42.5	206.0	219.0	425.6	5.8	48.3
50 to 99 employees	E1	48	3.3	77.8	2.1	4.3	42.7	176.6	226.7	404.4	4.5	48.8
100 to 249 employees	–	38	6.0	152.0	4.0	8.1	84.5	331.2	537.0	863.7	6.8	98.0
250 to 499 employees	–	12	4.0	113.9	2.4	5.5	54.6	269.7	385.8	654.1	9.2	63.3
500 to 999 employees	–	3	1.9	49.3	1.5	2.9	33.3	86.0	159.3	241.2	(D)	42.3
Covered by administrative records[2]	E9	184	.5	11.0	.3	.7	5.8	23.7	34.9	58.6	.6	6.7
INDUSTRY 3449, MISCELLANEOUS METAL WORK												
Total	**E1**	**658**	**21.6**	**589.8**	**14.4**	**29.1**	**350.5**	**1 139.1**	**2 222.1**	**3 366.4**	**60.0**	**454.2**
Establishments with an average of—												
1 to 4 employees	E8	151	.3	7.8	.2	.4	4.6	13.8	28.9	42.6	.8	5.7
5 to 9 employees	E3	103	.7	17.3	.5	1.0	10.8	38.0	68.4	107.5	2.6	17.3
10 to 19 employees	E1	112	1.6	41.6	1.0	2.1	23.5	82.8	138.3	221.2	3.2	26.0
20 to 49 employees	E1	182	5.8	152.9	3.8	7.8	83.8	325.9	631.1	960.7	10.9	122.9
50 to 99 employees	–	68	4.8	124.7	3.2	6.5	71.6	268.3	564.5	827.2	11.1	108.6
100 to 249 employees	E1	29	4.4	125.9	3.0	5.9	74.9	222.3	361.4	592.8	31.5	85.1
250 to 499 employees	–	13	4.1	119.5	2.6	5.4	81.3	188.0	429.5	614.4	(D)	88.7
Covered by administrative records[2]	E9	162	.4	9.9	.3	.6	6.3	17.2	35.8	53.0	.8	6.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3441	**Fabricated structural metal:**										
	All establishments in industry	2 539	72.0	1 958.9	50.8	107.8	1 183.7	3 934.4	4 872.8	8 898.4	132.2
	Establishments with this product class primary:										
34411	Fabricated structural metal for buildings	915	34.2	966.6	23.1	49.9	546.1	2 009.3	2 864.5	4 925.6	51.5
34412	Fabricated structural metal for bridges	61	4.7	131.9	3.6	6.8	80.5	268.4	291.8	558.8	7.1
34413	Other fabricated structural metal	297	18.6	520.9	13.7	29.5	348.2	1 037.3	899.4	1 978.8	45.1
3442	**Metal doors, sash, and trim:**										
	All establishments in industry	1 416	67.8	1 528.2	48.8	99.2	908.1	3 221.2	3 905.0	7 123.3	108.7
	Establishments with this product class primary:										
34421	Metal doors and frames (except storm doors)	315	25.2	604.9	17.7	36.1	352.7	1 426.2	1 753.9	3 168.3	47.1
34422	Metal window sash and frames (except storm sash)	233	23.7	500.0	17.3	35.7	303.4	934.3	1 078.5	2 012.6	32.8
34423	Metal molding and trim and store fronts	46	2.6	66.1	1.7	3.6	36.7	131.7	171.5	304.8	4.0
34424	Metal combination screen, storm sash, and storm doors	61	4.5	90.1	3.6	7.2	62.2	169.3	248.0	422.6	7.6
34425	Metal window and door screens, (except combination) and metal weather strip	41	2.5	64.7	1.8	3.4	36.1	170.7	171.3	343.4	7.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3443	**Fabricated plate work (boiler shops):**										
	All establishments in industry	1 942	79.3	2 345.6	56.1	115.1	1 410.0	4 877.6	4 259.2	9 117.6	207.8
	Establishments with this product class primary:										
34431	Heat exchangers and steam condensers (except for nuclear applications)	128	13.3	418.3	9.2	19.0	250.1	887.6	846.4	1 724.7	41.5
34432	Fabricated steel plate (stacks and weldments)	469	15.3	449.3	11.2	23.0	269.2	880.3	694.9	1 558.0	32.0
34433	Steel power boilers, parts, and attachments (stationary and marine but excluding nuclear applications)	43	7.7	239.5	5.2	10.9	143.7	455.4	498.3	948.4	38.8
34434	Gas cylinders	16	2.3	68.6	1.8	3.7	50.4	189.2	152.5	339.4	6.0
34435	Metal tanks, complete at factory (standard line pressure)	54	4.3	116.4	3.2	6.3	70.5	266.8	283.0	551.5	11.0
34436	Nuclear reactor steam supply systems	11	2.0	70.3	1.2	2.7	37.4	145.4	59.2	204.9	2.8
34437	Metal tanks, complete at factory (standard line nonpressure)	91	4.1	115.6	2.8	6.1	66.5	220.5	212.8	432.5	8.1
34438	Metal tanks and vessels, custom fabricated at the factory	204	12.3	368.8	8.7	18.4	223.1	707.7	600.4	1 332.5	23.4
34439	Metal tanks and vessels, custom fabricated and field erected	90	6.1	176.6	4.1	8.0	98.9	497.4	379.2	871.1	15.3
3444	**Sheet metal work:**										
	All establishments in industry	4 702	104.3	2 850.9	75.6	157.5	1 751.5	5 743.8	5 791.8	11 482.2	224.5
	Establishments with this product class primary:										
34441	Air-conditioning ducts and stove pipe	317	11.2	298.6	8.7	18.1	200.2	588.3	499.1	1 087.2	20.0
34442	Culverts, flumes, irrigation pipes, etc.	88	1.7	47.5	1.1	2.4	25.0	123.7	217.2	332.4	2.7
34443	Bins and vats	32	1.5	39.2	1.2	2.3	29.7	84.1	151.0	236.9	4.0
34444	Metal roofing and roof drainage equipment	145	4.2	117.4	2.7	5.6	61.5	320.1	734.2	1 046.4	13.1
34445	Metal flooring and siding	70	3.6	94.0	2.3	4.8	52.3	297.8	632.1	924.8	8.1
34447	Metal awnings, canopies, cornices, and soffits	108	5.5	168.1	3.6	7.0	80.4	374.2	507.4	883.1	11.5
34448	Electronic enclosures	557	21.1	600.0	15.5	33.3	367.3	1 060.6	649.1	1 706.8	54.8
34449	Other sheet metal work	1 072	31.1	876.8	22.7	47.2	549.4	1 716.5	1 348.2	3 040.5	60.6
3446	**Architectural metal work:**										
	All establishments in industry	1 476	26.1	644.8	17.9	35.9	363.7	1 278.6	1 098.2	2 383.4	34.0
	Establishments with this product class primary:										
34461	Grilles, registers, and air diffusers	33	4.4	83.7	3.6	7.4	59.4	228.6	123.9	352.5	7.7
34462	Stairs, railings, fences, and gates (other than wire)	371	7.1	180.9	4.3	8.5	91.4	267.5	218.4	488.9	6.1
34463	Open flooring, grating, and studs	56	2.3	64.4	1.6	3.2	37.0	144.6	169.5	316.8	6.4
34464	Scaffolding; shoring and forming for concrete work	60	2.3	61.6	1.6	3.0	34.2	131.5	111.6	244.4	2.1
34465	Other architectural and ornamental work	185	5.7	155.2	3.7	7.8	82.6	314.2	313.5	627.8	7.6
3448	**Prefabricated metal buildings:**										
	All establishments in industry	536	20.8	527.2	13.4	28.1	283.3	1 181.8	1 673.0	2 845.9	28.8
	Establishments with this product class primary:										
34481	Prefabricated metal building systems (excluding farm service buildings, residential buildings, and parts)	138	13.3	351.5	8.6	18.3	189.3	798.7	1 194.3	1 985.6	17.9
34482	Other prefabricated and portable metal buildings and parts	122	5.4	125.7	3.5	7.0	67.9	272.6	339.4	611.1	8.0
3449	**Miscellaneous metal work:**										
	All establishments in industry	658	21.6	589.8	14.4	29.1	350.5	1 139.1	2 222.1	3 366.4	60.0
	Establishments with this product class primary:										
34494	Fabricated bar joists and concrete reinforcing bars	111	6.0	170.7	3.7	7.5	99.9	335.2	732.1	1 068.6	9.2
34496	Metal plaster bases	5	.2	6.1	.1	.3	3.4	15.0	30.8	45.3	(D)
34497	Curtain wall	25	2.0	55.7	1.2	2.4	28.0	90.0	161.3	256.0	1.9
34498	Custom roll form products	237	10.4	282.9	7.3	14.8	172.0	570.2	1 074.9	1 644.6	43.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3441, FABRICATED STRUCTURAL METAL			
Total value of shipments	8 898.4	8 678.0	8 853.1
Primary products value of shipments	7 662.2	7 362.2	7 564.0
Secondary products value of shipments	398.8	485.6	475.6
Total miscellaneous receipts	837.5	830.2	813.5
Value of resales	583.5	577.8	499.4
Contract receipts	51.2	74.2	45.3
Other miscellaneous receipts	202.8	178.2	268.8
Sales of scrap and refuse	7.0	(NA)	8.3
Receipts for installation (or construction) of products of this establishment	122.3	95.7	193.7
Receipts for research and development	1.1	(NA)	.1
Other miscellaneous receipts	39.1	(NA)	35.1
Other miscellaneous receipts, n.s.k.	33.3	(NA)	31.6
Primary products specialization ratio	95	94	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3441, FABRICATED STRUCTURAL METAL—Con.			
Value of primary products shipments made in all industries	8 061.3	7 746.0	7 956.3
Value of primary products shipments made in this industry	7 662.2	7 362.2	7 564.0
Value of primary products shipments made in other industries	399.1	383.8	392.3
Coverage ratio	95	95	95
INDUSTRY 3442, METAL DOORS, SASH, AND TRIM			
Total value of shipments	7 123.3	6 591.0	4 685.3
Primary products value of shipments	6 166.4	5 637.2	4 081.1
Secondary products value of shipments	613.6	472.4	381.1
Total miscellaneous receipts	343.3	481.5	223.1
Value of resales	254.3	378.9	163.4
Contract receipts	15.9	29.7	3.9
Other miscellaneous receipts	73.1	72.9	55.8
Primary products specialization ratio	91	92	91
Value of primary products shipments made in all industries	6 412.3	5 986.0	4 349.8
Value of primary products shipments made in this industry	6 166.4	5 637.2	4 081.1
Value of primary products shipments made in other industries	246.0	348.8	268.8
Coverage ratio	96	94	94
INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)			
Total value of shipments	9 117.6	6 810.2	8 225.3
Primary products value of shipments	7 959.7	5 758.8	7 338.3
Secondary products value of shipments	618.0	493.8	546.3
Total miscellaneous receipts	539.9	557.6	340.7
Value of resales	242.9	172.2	131.2
Contract receipts	94.4	216.7	67.4
Other miscellaneous receipts	202.6	168.7	142.1
Primary products specialization ratio	93	92	93
Value of primary products shipments made in all industries	8 491.8	6 202.6	8 094.5
Value of primary products shipments made in this industry	7 959.7	5 758.8	7 338.3
Value of primary products shipments made in other industries	532.1	443.8	756.2
Coverage ratio	94	93	91
INDUSTRY 3444, SHEET METAL WORK			
Total value of shipments	11 482.2	9 698.9	6 853.9
Primary products value of shipments	9 979.1	8 218.5	6 021.1
Secondary products value of shipments	894.7	832.4	466.4
Total miscellaneous receipts	608.4	648.0	366.5
Value of resales	408.4	482.4	287.4
Contract receipts	114.6	97.6	43.8
Other miscellaneous receipts	85.4	68.0	35.3
Primary products specialization ratio	92	91	[1]93
Value of primary products shipments made in all industries	10 650.6	9 009.2	6 572.6
Value of primary products shipments made in this industry	9 979.1	8 218.5	6 021.1
Value of primary products shipments made in other industries	671.5	790.7	551.5
Coverage ratio	94	91	92
INDUSTRY 3446, ARCHITECTURAL METAL WORK			
Total value of shipments	2 383.4	2 268.8	1 367.5
Primary products value of shipments	2 043.4	1 894.3	1 199.4
Secondary products value of shipments	207.7	255.3	122.2
Total miscellaneous receipts	132.3	119.2	45.8
Value of resales	92.4	84.1	26.3
Contract receipts	17.8	17.4	4.2
Other miscellaneous receipts	22.1	17.7	15.3
Primary products specialization ratio	91	[1]88	[1]91
Value of primary products shipments made in all industries	2 411.7	2 193.4	1 422.0
Value of primary products shipments made in this industry	2 043.4	1 894.3	1 199.4
Value of primary products shipments made in other industries	368.2	299.1	222.6
Coverage ratio	85	86	84

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3448, PREFABRICATED METAL BUILDINGS			
Total value of shipments	2 845.9	3 137.8	2 324.7
Primary products value of shipments	2 547.0	2 703.9	2 098.5
Secondary products value of shipments	155.8	211.4	124.7
Total miscellaneous receipts	143.2	222.5	101.5
Value of resales	124.9	170.6	85.5
Contract receipts	8.9	35.9	7.7
Other miscellaneous receipts	9.4	16.1	8.3
Primary products specialization ratio	94	[1]93	[1]94
Value of primary products shipments made in all industries	2 637.6	2 825.0	2 215.1
Value of primary products shipments made in this industry	2 547.0	2 703.9	2 098.5
Value of primary products shipments made in other industries	90.7	121.1	116.6
Coverage ratio	97	[1]96	95
INDUSTRY 3449, MISCELLANEOUS METAL WORK			
Total value of shipments	3 366.4	3 231.4	2 594.6
Primary products value of shipments	2 874.4	2 574.5	2 096.9
Secondary products value of shipments	240.6	340.6	281.4
Total miscellaneous receipts	251.4	316.3	216.3
Value of resales	142.6	270.3	178.2
Contract receipts	40.5	17.3	9.6
Other miscellaneous receipts	68.3	28.7	28.5
Primary products specialization ratio	92	88	88
Value of primary products shipments made in all industries	3 197.7	2 998.5	2 489.9
Value of primary products shipments made in this industry	2 874.4	2 574.5	2 096.9
Value of primary products shipments made in other industries	323.3	424.0	393.0
Coverage ratio	90	86	84

Note: For qualifications of data, see footnotes on table 1a.

[1]Revised.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3441– –	**FABRICATED STRUCTURAL METAL**				
	Total	**(NA)**	**8 061.3**	**(NA)**	**7 746.0**
34411	Fabricated structural metal for buildings	(NA)	4 261.4	(NA)	4 259.6
	Iron and steel:				
34411 41	Industrial[3]	678	1 572.5	(NA)	1 542.2
34411 42	Commercial[3]	651	1 485.4	(NA)	1 664.2
34411 43	Residential[3]	117	150.2	(NA)	103.0
34411 44	Institutional, medical, and religious[3]	239	292.3	(NA)	196.1
34411 46	Public and educational[3]	257	338.5	(NA)	172.9
34411 47	Public utilities[3]	72	82.0	(NA)	134.3
34411 71	Aluminum	20	51.1	9	29.7
34411 00	Fabricated structural metal for buildings, n.s.k.	(NA)	289.3	(NA)	[r]417.2
34412	Fabricated structural metal for bridges	(NA)	503.0	(NA)	550.9
34412 00	Fabricated structural metal for bridges[3]	97	503.0	(NA)	550.9
34413	Other fabricated structural metal	(NA)	2 020.2	(NA)	1 702.0
	Iron and steel:				
34413 16	For ships, boats, and barges[3]	45	534.8	(NA)	568.7
34413 20	For transmission towers, substations, radio antenna towers, and supporting structures[3]	51	221.3	(NA)	143.2
34413 23	For offshore oil and gas platforms[3]	15	295.9	(NA)	(NA)
34413 26	For tunnelling and subway work[3]	7	32.7	(NA)	(NA)
34413 29	For aerospace and defense[3]	53	170.9	(NA)	135.8
34413 59	Other fabricated structural iron and steel[3]	275	562.8	(NA)	(NA)
34413 84	Aluminum for ships, boats, barges, transmission towers, and other structures	28	52.2	8	11.4
34413 98	Structural metal other than iron, steel, or aluminum	16	12.4	7	9.4
34413 00	Other fabricated structural metal, n.s.k.	(NA)	137.2	(NA)	143.4
34410	Fabricated structural metal, n.s.k.	(NA)	1 276.7	(NA)	1 233.5
34410 00	Fabricated structural metal, n.s.k.[4]	(NA)	1 069.3	(NA)	[r]875.9
34410 02	Fabricated structural metal, n.s.k.[5]	(NA)	207.5	(NA)	357.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3442– —	**METAL DOORS, SASH, AND TRIM**						
	Total	**(NA)**	**(X)**	**6 412.3**	**(NA)**	**(X)**	**5 986.0**
34421	Metal doors and frames (except storm doors)	(NA)	(X)	3 048.4	(NA)	(X)	2 498.5
	Aluminum doors (excluding shower doors and tub enclosures):						
	Industrial:						
34421 05	Overhead thousands	15	(S)	32.3	23	(S)	31.5
34421 07	Sliding thousands	6	65.5	34.5	12	(S)	51.9
34421 09	All other	13	(X)	24.0	13	(X)	30.4
	Residential:						
34421 11	Swing thousands	33	*1 024.3	101.1	31	*1 810.6	107.5
34421 16	Sliding (glass, patio-type) thousands	78	**1 088.9	192.4	100	(S)	261.8
34421 19	All other (including garage and closet doors)	21	(X)	64.2	23	(X)	52.5
	Commercial and institutional:						
34421 21	Overhead and sliding thousands	20	(S)	61.7	14	(S)	29.8
34421 22	Swing thousands	23	(S)	63.4	27	(S)	74.9
34421 23	All other	28	(X)	50.3	29	(X)	74.2
	Iron and steel doors (excluding shower doors and tub enclosures):						
	Industrial:						
34421 24	Overhead thousands	41	(S)	223.9	31	(S)	169.1
34421 25	Swing thousands	25	**357.3	70.6	26	(S)	80.7
34421 26	All other (including sliding)	29	(X)	76.5	20	(X)	70.3
	Residential:						
34421 27	Garage thousands	53	(S)	603.6	35	(S)	178.1
34421 28	Steel composite doors (steel clad with foam wood components) thousands	8	(D)	(D)	9	(S)	41.6
34421 30	Insulated steel entrance doors thousands	27	*6 476.3	429.5	29	(S)	350.9
34421 31	All other (including slide, swing, and closet)	27	(X)	(D)	15	(X)	74.8
	Commercial and institutional:						
34421 32	Overhead and sliding thousands	21	(S)	75.7	21	(S)	103.4
34421 34	Swing thousands	59	(S)	278.0	34	*1 463.7	140.4
34421 36	All other	30	(X)	61.1	25	(X)	77.6
34421 39	Metal doors other than steel or aluminum	6	(X)	7.9	8	(X)	10.9
	Metal door frames (including trim sold as integral part of door frame):						
34421 42	Aluminum	28	(X)	81.8	27	(X)	95.5
	Steel:						
34421 43	16 gauge and heavier thousands	58	*4 488.0	151.8	46	(S)	137.7
34421 44	Lighter than 16 gauge thousands	20	(S)	39.2	14	(S)	36.2
34421 45	Shower doors and tub enclosures (all metals)	28	(X)	172.7	21	(X)	93.1
34421 00	Metal doors and frames (except storm doors), n.s.k.	(NA)	(X)	10.2	(NA)	(X)	123.7
34422	Metal window sash and frames (except storm sash)	(NA)	(X)	1 549.2	(NA)	(X)	1 540.5
	Residential:						
34422 20	Steel	13	(X)	41.2	6	(X)	9.2
	Aluminum:						
34422 21	Single and double hung thousands	142	**10 666.7	619.0	146	*11 110.3	543.8
34422 22	Awning thousands	22	*517.0	46.8	32	(S)	44.9
34422 24	Horizontal sliding thousands	88	(S)	236.1	81	(S)	211.3
34422 30	All other, including jalousie[3]	66	(X)	143.8	(NA)	(X)	135.3
	Other (including commercial, industrial, etc.):						
34422 35	Steel	25	(X)	45.0	9	(X)	15.5
	Aluminum:						
34422 41	Single and double hung thousands	45	(S)	110.5	49	(S)	171.3
34422 42	Awning thousands	12	(S)	34.7	7	(S)	15.3
34422 43	Projected thousands	28	(S)	63.1	26	(S)	74.6
34422 49	All other	52	(X)	165.1	51	(X)	168.9
34422 98	Metal window sash and frames, other than steel or aluminum	8	(X)	37.9	12	(X)	42.4
34422 00	Metal window sash and frames (except storm sash), n.s.k.	(NA)	(X)	6.0	(NA)	(X)	108.0
34423	Metal molding and trim and store fronts	(NA)	(X)	311.4	(NA)	(X)	364.5
	Metal molding and trim:						
34423 21	Steel	14	(X)	67.8	10	(X)	39.8
34423 25	Aluminum	47	(X)	188.8	50	(X)	275.2
34423 51	Store fronts, sold complete at factory	17	(X)	46.2	13	(X)	23.7
34423 00	Metal molding and trim and store fronts, n.s.k.	(NA)	(X)	8.7	(NA)	(X)	25.8
34424	Metal combination screen, storm sash, and storm doors	(NA)	(X)	390.6	(NA)	(X)	412.9
34424 11	Metal storm sash (except combination)	18	(X)	16.3	31	(X)	86.0
34424 12	Combination screen and storm sash	69	(X)	117.7	107	(X)	164.2
34424 13	Storm doors thousands	87	**2 872.1	256.3	104	(S)	153.8
34424 00	Metal combination screen, storm sash, and storm doors, n.s.k.	(NA)	(X)	.4	(NA)	(X)	8.9
34425	Metal window and door screens, (except combination) and metal weather strip	(NA)	(X)	254.4	(NA)	(X)	227.2
34425 11	Door screens	29	(X)	64.9	41	(X)	51.4
34425 12	Window screens, with metal frames (including tension and roll types)	60	(X)	125.8	60	(X)	98.7
34425 51	Weather strip	19	(X)	61.8	23	(X)	65.2
34425 00	Metal window and door screens, (except combination) and metal weather strip, n.s.k.	(NA)	(X)	1.9	(NA)	(X)	12.0
34420	Metal doors, sash, and trim, n.s.k.	(NA)	(X)	858.3	(NA)	(X)	942.3
34420 00	Metal doors, sash, and trim, n.s.k.[4]	(NA)	(X)	738.7	(NA)	(X)	765.7
34420 02	Metal doors, sash, and trim, n.s.k.[5]	(NA)	(X)	119.6	(NA)	(X)	176.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3443– ––	**FABRICATED PLATE WORK (BOILER SHOPS)**				
	Total	**(NA)**	**8 491.8**	**(NA)**	**6 202.6**
34431	Heat exchangers and steam condensers (except for nuclear applications)	(NA)	1 626.9	(NA)	916.6
	Heat exchangers, closed types, industrial:				
34431 13	Bare tube	112	738.1	69	411.7
34431 18	Fin tube	76	675.3	43	293.3
34431 55	Steam condensers	36	130.4	15	94.1
34431 00	Heat exchangers and steam condensers (except for nuclear applications), n.s.k.	(NA)	83.1	(NA)	117.5
34432	Fabricated steel plate (stacks and weldments)	(NA)	1 573.6	(NA)	1 031.3
34432 21	Shielding for use in nuclear reactor buildings	13	17.4	1	(6)
34432 36	Pipe, penstocks, tunnel lining, stacks, and breeching	59	114.6	50	85.4
	Containers (trash and other) steel plate:				
34432 44	Less than 13 gallons	2	20.4	6	10.4
34432 46	13 gallons to 79 gallons	8		12	46.2
34432 48	More than 79 gallons	45	105.5	26	72.3
	Sound control equipment:				
34432 52	Jet engine test facilities (including hush houses, demountable run-up silencers, demountable test cells, etc.)	9	43.7	3	7.2
34432 54	Gas turbine sound systems (enclosed) (including natural gas compression, electric generation, marine propulsion, etc.)	7	78.5	(NA)	42.9
34432 56	Other (including sound panels, one piece enclosures, industrial silencers, and air duct silencers)	26	46.2		
34432 98	Weldments and fabricated steel plate for other purposes	767	1 088.0	265	6663.0
34432 00	Fabricated steel plate (stacks and weldments), n.s.k.	(NA)	59.2	(NA)	103.9
34433	Steel power boilers, parts, and attachments (stationary and marine but excluding nuclear applications)	(NA)	793.1	(NA)	654.8
	Water tube:				
34433 08	10,000 lb/ hr or less 15 p.s.i. steam working pressure or less[3]	3	.9	(NA)	(NA)
	More than 15 p.s.i. steam working pressure:				
	10,000 lb/ hr or less:				
34433 10	Saturated[3]	1	(D)	(NA)	(NA)
34433 15	Super heated[3]	1	(D)	(NA)	(NA)
	10,001 lb/ hr to 100,000 lb/ hr:				
34433 19	Saturated[3]	6	50.6	(NA)	(NA)
34433 24	Super heated[3]	8	41.8	(NA)	(NA)
	100,001 lb/ hr to 250,000 lb/ hr:				
34433 26	Saturated[3]	4	(D)	(NA)	(NA)
34433 28	Super heated[3]	7	110.7	(NA)	(NA)
	250,001 lb/ hr or more:				
34433 30	Saturated[3]	3	11.3	(NA)	(NA)
34433 34	Super heated[3]	7	112.0	(NA)	(NA)
34433 35	Other water tube (including 10,001 lb/ hr or more with 15 p.s.i. steam working pressure or less)[3]	1	(D)	(NA)	(NA)
	Fire tube:				
	Horizontal return tubular:				
34433 37	15 p.s.i. steam working pressure or less[3]	2	(D)	(NA)	(NA)
34433 40	More than 15 p.s.i. steam working pressure[3]	6	(D)	(NA)	(NA)
	Firebox:				
34433 41	15 p.s.i. steam working pressure or less[3]	4	(D)	(NA)	(NA)
34433 44	More than 15 p.s.i. steam working pressure[3]	2	(D)	(NA)	(NA)
	Scotch type pressure:				
34433 46	15 p.s.i. steam working pressure or less[3]	3	(D)	(NA)	(NA)
34433 47	More than 15 p.s.i. steam working pressure[3]	5	34.3	(NA)	(NA)
34433 48	Vertical and other fire tube type[3]	2	(D)	(NA)	(NA)
34433 51	Other steel power boilers (stationary and marine) (except nuclear applications)[3]	7	17.8	(NA)	(NA)
34433 52	Parts and attachments for steel power boilers (sold separately)	36	253.5	28	78.4
34433 00	Steel power boilers, parts, and attachments (stationary and marine but excluding nuclear applications), n.s.k.	(NA)	16.1	(NA)	40.3
34434	Gas cylinders	(NA)	355.5	(NA)	237.6
34434 14	Seamless ferrous and nonferrous[3]	12	191.5	(NA)	229.6
34434 16	Welded ferrous and nonferrous[3]	15	162.5		
34434 00	Gas cylinders, n.s.k.	(NA)	1.5	(NA)	8.0
34435	Metal tanks, complete at factory (standard line pressure)	(NA)	488.9	(NA)	466.6
34435 20	Liquefied petroleum gas tanks (all types), ferrous and nonferrous[3]	18	107.1	(NA)	146.1
34435 35	Air receivers, ferrous and nonferrous[3]	20	80.0	(NA)	58.1
34435 42	Other pressure tanks (including anhydrous ammonia tanks), ferrous and nonferrous[3]	57	257.8	(NA)	186.7
34435 00	Metal tanks, complete at factory (standard line pressure), n.s.k.	(NA)	43.9	(NA)	r75.7
34436	Nuclear reactor steam supply systems	(NA)	239.7	(NA)	335.8
34436 00	Nuclear reactor steam supply systems, heat exchangers and condensers, pressurizers, components, and auxiliary equipment	18	239.7	26	335.8
34437	Metal tanks, complete at factory (standard line nonpressure)	(NA)	466.4	(NA)	416.9
	Storage tanks:				
	4,000 gallon capacity or less:				
34437 12	Ferrous	82	141.8	71	92.8
34437 15	Nonferrous	22	29.8	22	40.9
	More than 4,000 gallon capacity:				
34437 17	Ferrous	76	104.0	61	86.1
34437 19	Nonferrous	27	21.9	17	24.1
	Other nonpressure tanks (including tanks for trailers, metal septic tanks, etc.):				
34437 48	Ferrous	35	119.5	28	68.4
34437 50	Nonferrous	14	11.9	10	38.3
34437 00	Metal tanks, complete at factory (standard line nonpressure), n.s.k.	(NA)	37.5	(NA)	66.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3443– —	**FABRICATED PLATE WORK (BOILER SHOPS)**—Con.				
34438	Metal tanks and vessels, custom fabricated at the factory	(NA)	1 079.3	(NA)	656.9
	Pressure (more than 24 inches outside diameter and not less than 5 cu ft capacity):				
	Ferrous:				
34438 03	Refineries, chemical plants, and paper mills	134	334.3	104	265.6
34438 05	Other processing industries	80	205.1	19	79.8
34438 08	Nonferrous process vessels, tanks, and kettles for refineries, chemical plants, and paper mills	53	76.2	40	61.5
34438 13	Liquefied petroleum gas tanks, ferrous and nonferrous[3]	9	45.8	(NA)	28.0
	All other tanks and vessels, custom fabricated at the factory:				
34438 20	Ferrous[3]	138	282.1	38	89.3
34438 22	Nonferrous[3]	54	94.1	17	57.6
34438 00	Metal tanks and vessels, custom fabricated at the factory, n.s.k.	(NA)	41.7	(NA)	75.1
34439	Metal tanks and vessels, custom fabricated and field erected	(NA)	757.7	(NA)	305.2
	Bulk storage tanks:				
	Elevated type:				
	Ferrous:				
34439 15	Dry materials	23	24.0	9	9.8
34439 17	Water	15	139.4	5	30.5
34439 19	Other liquids	19	50.2	7	4.1
34439 23	Nonferrous	1	.2	3	2.6
	Ground storage type:				
	Ferrous:				
34439 31	Dry materials	8	15.3	9	11.3
34439 32	Petroleum products	27	118.0	19	33.2
34439 33	Water	28	69.3	23	26.1
34439 34	Other	14	43.5	11	15.3
34439 36	Nonferrous	6	1.3	6	21.2
	Pressure vessels and tanks (including gas holders and process vessels, etc.):				
	Ferrous:				
34439 51	Refineries, chemical plants, and paper mills	45	147.4	12	69.2
34439 53	Other processing industries	32	95.9	14	41.9
34439 58	Nonferrous	13	38.1	4	1.8
34439 00	Metal tanks and vessels, custom fabricated and field erected, n.s.k.	(NA)	15.1	(NA)	38.2
34430	Fabricated plate work (boiler shops), n.s.k.	(NA)	1 110.6	(NA)	1 180.9
34430 00	Fabricated plate work (boiler shops), n.s.k.[4]	(NA)	967.5	(NA)	850.0
34430 02	Fabricated plate work (boiler shops), n.s.k.[5]	(NA)	143.1	(NA)	330.9

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3444– —	**SHEET METAL WORK**						
	Total	**(NA)**	**(X)**	**10 650.6**	**(NA)**	**(X)**	**9 009.2**
34441	Air-conditioning ducts and stove pipe	(NA)	(X)	1 024.2	(NA)	(X)	786.0
	Air-conditioning ducts (including dust collecting ducts):						
34441 21	Steel	314	(X)	603.9	280	(X)	546.9
34441 23	Aluminum	55	(X)	60.8	43	(X)	42.3
	Stove pipe, furnace smoke pipe, and elbows:						
34441 27	Steel	84	(X)	274.8	61	(X)	141.5
34441 29	Aluminum	18	(X)	56.4	11	(X)	48.5
34441 00	Air-conditioning ducts and stove pipe, n.s.k.	(NA)	(X)	28.4	(NA)	(X)	6.7
34442	Culverts, flumes, irrigation pipes, etc.	(NA)	(X)	328.0	(NA)	(X)	266.6
34442 13	Steel	48	(X)	267.2	46	(X)	198.1
34442 15	Aluminum	17	(X)	44.9	11	(X)	40.5
34442 19	Other metals	8	(X)	7.0	(NA)	(X)	28.0
34442 00	Culverts, flumes, irrigation pipes, etc., n.s.k.	(NA)	(X)	8.9			
34443	Bins and vats	(NA)	(X)	209.7	(NA)	(X)	145.0
34443 14	Grain, excluding drying floors, fans, and heaters (steel and aluminum)[3]	26	(X)	103.4	(NA)	(X)	89.2
34443 24	Other, including feed storage bins and sheet metal vats (steel and aluminum)[3]	60	(X)	103.0	(NA)	(X)	51.9
34443 00	Bins and vats, n.s.k.	(NA)	(X)	3.3	(NA)	(X)	3.9
34444	Metal roofing and roof drainage equipment	(NA)	(X)	1 134.0	(NA)	(X)	856.3
	Metal roofing:						
34444 11	Steel, all types 1,000 s tons	113	(S)	669.5	91	(S)	431.2
34444 17	Aluminum and other metals, all types 1,000 s tons	37	**44.5	110.1	34	**43.1	129.0
	Roof drainage equipment (including eave troughs, etc.):						
34444 23	Steel 1,000 s tons	50	(S)	115.2	42	(S)	109.0
34444 29	Aluminum 1,000 s tons	43	(S)	184.3	39	(S)	113.0
34444 31	All other metals 1,000 s tons	15	(S)	29.2	11	(S)	15.5
34444 00	Metal roofing and roof drainage equipment, n.s.k.	(NA)	(X)	25.6	(NA)	(X)	58.5

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 18
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3444– —	**SHEET METAL WORK**—Con.						
34445	Metal flooring and siding	(NA)	(X)	840.7	(NA)	(X)	920.4
34445 05	Fabricated metal flooring, 1,000 s tons	30	(S)	180.1	32	(S)	230.9
	Metal siding:						
34445 16	Steel, 1,000 s tons	45	(S)	286.3	37	(S)	268.9
	Aluminum:						
34445 17	Residential (including mobile homes), 1,000 s tons	20	(S)	271.5	24	(S)	260.5
34445 18	Other (commercial, industrial, farm buildings, etc.), 1,000 s tons	20	(S)	67.2	15	(S)	38.3
34445 19	Other metals, 1,000 s tons	4	(S)	4.1	9	(S)	89.5
34445 00	Metal flooring and siding, n.s.k.	(NA)	(X)	31.5	(NA)	(X)	32.3
34447	Metal awnings, canopies, cornices, and soffits	(NA)	(X)	493.2	(NA)	(X)	550.1
	Awnings, canopies, carports, patios:						
34447 21	Steel	34	(X)	122.6	36	(X)	45.7
34447 25	Aluminum	66	(X)	80.6	79	(X)	140.5
34447 31	Cornices, skylights, domes, copings (steel and aluminum)	38	(X)	103.0	43	(X)	146.2
34447 41	Soffits, fascia, and shutters (steel and aluminum)	47	(X)	178.0	49	(X)	216.9
34447 00	Metal awnings, canopies, cornices, and soffits, n.s.k.	(NA)	(X)	9.1	(NA)	(X)	.8
34448	Electronic enclosures	(NA)	(X)	1 661.3	(NA)	(X)	1 115.3
	Computer and peripheral equipment:						
34448 11	Steel	338	(X)	669.7	303	(X)	461.6
34448 13	Aluminum	267	(X)	298.0	257	(X)	255.8
34448 19	Other electronic enclosures (including machine and motor housings, panels, and guards), steel and aluminum	419	(X)	638.8	282	(X)	374.9
34448 00	Electronic enclosures, n.s.k.	(NA)	(X)	54.8	(NA)	(X)	23.0
34449	Other sheet metal work	(NA)	(X)	2 845.0	(NA)	(X)	2 292.6
34449 31	Roof ventilators	75	(X)	157.0	39	(X)	88.7
34449 41	Louvers and dampers for heating, ventilation, and air-conditioning (steel and aluminum)	103	(X)	231.1	97	(X)	243.6
	Restaurant and hotel kitchen sheet metal equipment:						
34449 53	Steel	139	(X)	260.7	137	(X)	233.1
34449 55	Aluminum	22	(X)	18.6	22	(X)	31.5
	Other sheet metal work:						
34449 62	Steel	953	(X)	1 455.5	581	(X)	1 187.5
34449 65	Aluminum	360	(X)	427.4	236	(X)	365.7
34449 98	Metals other than steel or aluminum	171	(X)	239.0	118	(X)	107.9
34449 00	Other sheet metal work, n.s.k.	(NA)	(X)	55.6	(NA)	(X)	r34.6
34440	Sheet metal work, n.s.k.	(NA)	(X)	2 114.3	(NA)	(X)	2 077.1
34440 00	Sheet metal work, n.s.k.[4]	(NA)	(X)	1 845.7	(NA)	(X)	1 757.0
34440 02	Sheet metal work, n.s.k.[5]	(NA)	(X)	268.7	(NA)	(X)	320.1
3446– —	**ARCHITECTURAL METAL WORK**						
	Total	**(NA)**	**(X)**	**2 411.7**	**(NA)**	**(X)**	**2 193.4**
34461	Grilles, registers, and air diffusers	(NA)	(X)	321.5	(NA)	(X)	280.8
	Warm air or air-conditioning grilles, registers, and air diffusers:						
34461 10	Iron and steel, 1,000 s tons	26	(S)	210.7	25	(S)	147.7
34461 12	Aluminum	20	(X)	79.3	17	(X)	62.1
	Other grilles (including open mesh partitions):						
34461 15	Iron and steel	9	(X)	12.1	13	(X)	34.3
34461 17	Aluminum	11	(X)	14.7	13	(X)	22.0
34461 00	Grilles, registers, and air diffusers, n.s.k.	(NA)	(X)	4.8	(NA)	(X)	14.7
34462	Stairs, railings, fences, and gates (other than wire)	(NA)	(X)	557.0	(NA)	(X)	411.3
	Stairs, staircases, and fire escapes:						
34462 10	Iron and steel	452	(X)	263.2	313	(X)	222.6
34462 12	Aluminum	53	(X)	43.0	41	(X)	28.5
	Fences and gates (other than wire):						
34462 20	Iron and steel	155	(X)	123.9	106	(X)	70.2
34462 22	Aluminum	31	(X)	16.9	13	(X)	12.1
34462 26	Railings and window guards (iron, steel, and aluminum)	177	(X)	105.9	128	(X)	73.8
34462 00	Stairs, railings, fences, and gates (other than wire), n.s.k.	(NA)	(X)	4.2	(NA)	(X)	4.1
34463	Open flooring, grating, and studs	(NA)	(X)	318.5	(NA)	(X)	295.8
	Open flooring and grating for building construction:						
34463 10	Iron and steel	96	(X)	219.9	58	(X)	116.5
34463 12	Aluminum	18	(X)	27.2	21	(X)	30.3
34463 20	Nonload-bearing studs (iron, steel, and aluminum)	10	(X)	49.8	13	(X)	106.1
34463 22	Load-bearing studs (iron, steel, and aluminum)	10	(X)	21.7	13	(X)	42.4
34463 00	Open flooring, grating, and studs, n.s.k.	(NA)	(X)	–	(NA)	(X)	.5

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 19
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3446– —	**ARCHITECTURAL METAL WORK**—Con.						
34464	Scaffolding; shoring and forming for concrete work	(NA)	(X)	236.9	(NA)	(X)	255.7
34464 10	Suspended scaffolding (including midpoint, two point, multilevel, boatswain chairs, etc.) (iron, steel, and aluminum)	14	(X)	49.2	10	(X)	28.4
34464 13	Access scaffolding, including tube and coupler system, prefabricated mobil scaffolds, etc. (iron, steel, and aluminum)	24	(X)	48.8	22	(X)	47.6
34464 16	Shoring (including flying forms, postshores, ellis clamps, reshores, etc.) (iron, steel, and aluminum)	7	(X)	18.3	11	(X)	49.5
34464 18	Forming (including modular, prefabricated, etc.) (iron, steel, aluminum, and all other material-metal combinations)	44	(X)	120.7	48	(X)	116.8
34464 00	Scaffolding; shoring and forming for concrete work, n.s.k.	(NA)	(X)	–	(NA)	(X)	13.4
34465	Other architectural and ornamental work	(NA)	(X)	650.2	(NA)	(X)	545.7
34465 10	Iron and steel (1,000 s tons)	216	(S)	422.6	181	(S)	231.3
34465 12	Aluminum	86	(X)	135.3	77	(X)	159.9
34465 30	Other than iron, steel, or aluminum	52	(X)	50.0	30	(X)	85.6
34465 00	Other architectural and ornamental work, n.s.k.	(NA)	(X)	42.4	(NA)	(X)	r69.0
34460	Architectural metal work, n.s.k.	(NA)	(X)	327.4	(NA)	(X)	404.0
34460 00	Architectural metal work, n.s.k.[4]	(NA)	(X)	243.5	(NA)	(X)	307.4
34460 02	Architectural metal work, n.s.k.[5]	(NA)	(X)	83.9	(NA)	(X)	96.6
3448– —	**PREFABRICATED METAL BUILDINGS**						
	Total	**(NA)**	**(X)**	**2 637.6**	**(NA)**	**(X)**	**2 825.0**
34481	Prefabricated metal building systems (excluding farm service buildings, residential buildings, and parts)	(NA)	(X)	1 694.7	(NA)	(X)	1 806.7
34481 15	Industrial and commercial (1,000 s tons)	114	(S)	1 468.3	106	(S)	1 482.4
34481 17	Institutional, medical, and religious (1,000 s tons)	29	(S)	79.6	29	(S)	146.4
34481 18	Public and educational (1,000 s tons)	39	(S)	126.5	29	(S)	112.1
34481 00	Prefabricated metal building systems (excluding farm service buildings, residential buildings, and parts), n.s.k.	(NA)	(X)	20.3	(NA)	(X)	65.8
34482	Other prefabricated and portable metal buildings and parts	(NA)	(X)	717.8	(NA)	(X)	647.0
34482 11	Greenhouses, steel and aluminum	25	(X)	82.6	20	(X)	78.8
34482 14	Grain storage buildings (including farm and commercial types), steel and aluminum	14	(X)	23.7	13	(X)	70.3
34482 15	Other farm service buildings (livestock shelters, machinery storage, etc.), steel and aluminum	28	(X)	49.2	18	(X)	46.7
34482 18	Dwellings (including vacation homes and camps), steel and aluminum[3]	10	(X)	29.8	(NA)	(X)	27.0
	Small utility buildings (including toolsheds, cabanas, storage houses, etc.):						
34482 16	Steel	18	(X)	73.0	15	(X)	82.9
34482 26	Aluminum	23	(X)	58.7	12	(X)	30.4
	Other (including garages, etc.):						
34482 17	Steel	29	(X)	75.2	19	(X)	40.4
34482 27	Aluminum	26	(X)	107.9	14	(X)	77.8
34482 54	Panels, parts, or sections for prefabricated buildings, not sold as a complete unit; steel and aluminum	61	(X)	207.3	35	(X)	122.7
34482 00	Other prefabricated and portable metal buildings and parts, n.s.k.	(NA)	(X)	10.2	(NA)	(X)	r70.1
34480	Prefabricated metal buildings, n.s.k.	(NA)	(X)	225.2	(NA)	(X)	371.2
34480 00	Prefabricated metal buildings, n.s.k.[4]	(NA)	(X)	158.8	(NA)	(X)	281.9
34480 02	Prefabricated metal buildings, n.s.k.[5]	(NA)	(X)	66.4	(NA)	(X)	89.3
3449– —	**MISCELLANEOUS METAL WORK**						
	Total	**(NA)**	**(X)**	**3 197.7**	**(NA)**	**(X)**	**2 998.5**
34494	Fabricated bar joists and concrete reinforcing bars	(NA)	(X)	997.0	(NA)	(X)	1 142.3
	Fabricated bar joists:						
34494 47	Long span (1,000 s tons)	30	**325.0	191.3	26	251.4	133.7
34494 43	Short span (open web) (1,000 s tons)	33	342.3	195.7	36	**455.1	235.6
34494 52	Fabricated concrete reinforcing bars (1,000 s tons)	72	**1 313.8	582.5	86	**1 578.4	584.3
34494 00	Fabricated bar joists and concrete reinforcing bars, n.s.k.	(NA)	(X)	27.5	(NA)	(X)	188.7
34496	Metal plaster bases	(NA)	(X)	68.2	(NA)	(X)	81.7
34496 11	Expanded metal lath (mil sq yd)	9	**19.7	22.7	4	20.1	26.1
34496 32	Metal plaster base accessories (including corner beads, screeds, grounds, etc.)	9	(X)	45.5	14	(X)	42.1
34496 00	Metal plaster bases, n.s.k.	(NA)	(X)	–	(NA)	(X)	13.5

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 20
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3449– —	**MISCELLANEOUS METAL WORK**—Con.						
34497	Curtain wall	(NA)	(X)	226.4	(NA)	(X)	284.2
34497 73	Steel (including stainless)	13	(X)	72.2	12	(X)	61.2
34497 75	Aluminum	30	(X)	140.3	(NA)	(X)	210.6
34497 79	All other (including combination of metals)	2	(X)	.9			
34497 00	Curtain wall, n.s.k.	(NA)	(X)	13.0	(NA)	(X)	12.4
34498	Custom roll form products	(NA)	(X)	1 567.5	(NA)	(X)	1 145.5
34498 11	Carbon steel	204	(X)	956.9	136	(X)	719.3
34498 13	Stainless steel	111	(X)	168.8	61	(X)	94.1
34498 15	Aluminum	69	(X)	260.4	67	(X)	174.0
34498 17	Other metals	54	(X)	162.9	33	(X)	127.9
34498 00	Custom roll form products, n.s.k.	(NA)	(X)	18.4	(NA)	(X)	30.2
34490	Miscellaneous metal work, n.s.k.	(NA)	(X)	338.5	(NA)	(X)	344.7
34490 00	Miscellaneous metal work, n.s.k.[4]	(NA)	(X)	285.5	(NA)	(X)	221.5
34490 02	Miscellaneous metal work, n.s.k.[5]	(NA)	(X)	53.0	(NA)	(X)	123.2

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1987, product codes were combined to avoid disclosing data for individual companies.

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34411, FABRICATED STRUCTURAL METAL FOR BUILDINGS		
United States	**4 261.4**	**4 259.6**
Alabama	160.9	153.3
Arizona	85.4	57.7
Arkansas	75.8	63.2
California	449.9	490.8
Colorado	38.7	38.0
Connecticut	51.7	97.7
Florida	136.2	169.0
Georgia	116.4	103.9
Idaho	11.2	8.8
Illinois	250.6	184.4
Indiana	107.3	94.6
Iowa	60.2	43.9
Kansas	37.8	44.9
Kentucky	25.6	44.0
Louisiana	33.6	24.1
Maryland	40.8	29.9
Massachusetts	24.9	52.3
Michigan	149.5	125.1
Minnesota	85.4	44.3
Mississippi	70.7	45.7
Missouri	178.3	144.3
Nebraska	31.9	8.3
New Hampshire	34.6	40.9
New Jersey	79.4	65.8
New Mexico	5.8	(NA)
New York	114.9	155.7
North Carolina	154.5	153.2
Ohio	174.8	196.0
Oklahoma	58.1	86.4
Oregon	67.6	25.7
Pennsylvania	288.9	377.7
Rhode Island	15.6	10.1
South Carolina	127.6	126.9
Tennessee	91.0	65.2
Texas	374.3	403.8
Utah	66.9	39.7
Virginia	90.9	168.0
Washington	77.4	57.6
West Virginia	9.7	20.8
Wisconsin	103.4	85.1
34412, FABRICATED STRUCTURAL METAL FOR BRIDGES		
United States	**503.0**	**550.9**
Connecticut	6.3	(NA)
Ohio	24.7	12.8
Utah	12.9	(NA)
Virginia	32.0	12.2
34413, OTHER FABRICATED STRUCTURAL METAL		
United States	**2 020.2**	**1 702.0**
Alabama	31.2	28.0
Arizona	6.7	(NA)
Arkansas	4.0	(NA)
California	131.3	125.1
Colorado	3.4	5.9
Connecticut	2.9	(NA)
Florida	18.2	58.5
Georgia	21.5	13.4
Illinois	68.1	99.8
Indiana	43.8	32.2

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 21
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34413, OTHER FABRICATED STRUCTURAL METAL—Con.		
Iowa	26.5	(NA)
Kansas	42.5	15.2
Kentucky	19.8	5.2
Louisiana	322.9	80.2
Massachusetts	33.0	28.2
Michigan	22.3	26.6
Minnesota	16.5	4.8
Mississippi	58.8	38.4
Missouri	30.3	8.7
Nebraska	9.3	(NA)
New Jersey	15.0	17.4
New Mexico	2.0	(NA)
New York	28.8	25.1
Ohio	80.8	95.2
Oklahoma	45.2	41.3
Oregon	40.0	30.3
Pennsylvania	71.8	37.6
South Carolina	50.1	70.1
Tennessee	33.3	7.9
Texas	132.1	78.8
Utah	38.8	41.6
Virginia	11.6	21.2
Washington	19.7	23.6
Wisconsin	24.2	60.6
34421, METAL DOORS AND FRAMES (EXCEPT STORM DOORS)		
United States	**3 048.4**	**2 498.5**
Alabama	51.5	36.5
Arizona	50.1	25.5
Arkansas	109.2	71.7
California	260.9	263.5
Colorado	6.6	24.9
Florida	173.8	161.4
Georgia	174.0	149.0
Illinois	132.7	102.5
Indiana	172.9	119.3
Kansas	56.1	(NA)
Kentucky	4.6	(NA)
Massachusetts	14.8	20.9
Michigan	130.8	122.1
Minnesota	19.1	19.5
Mississippi	22.1	25.3
Missouri	28.9	(NA)
New Jersey	80.7	64.7
New York	80.4	101.8
North Carolina	55.3	40.3
Ohio	462.2	257.9
Oklahoma	20.9	(NA)
Oregon	65.2	32.0
Pennsylvania	145.0	139.4
Tennessee	232.7	146.2
Texas	149.6	120.6
Utah	35.5	(NA)
Virginia	56.4	45.1
Washington	8.0	27.0
Wisconsin	52.9	29.0
34422, METAL WINDOW SASH AND FRAMES (EXCEPT STORM SASH)		
United States	**1 549.2**	**1 540.5**
Alabama	10.1	19.8
Arizona	50.4	38.9
California	185.3	166.5
Florida	92.7	115.8
Georgia	36.3	34.0
Illinois	22.8	34.8
Indiana	75.9	51.1
Iowa	8.6	3.9
Kentucky	11.0	(NA)
Louisiana	9.1	(NA)
Massachusetts	10.9	15.8
Michigan	75.2	63.2
Minnesota	9.7	15.9
Missouri	133.2	94.3
New Jersey	30.4	34.6
New York	61.1	95.7
North Carolina	30.7	28.6
Ohio	40.5	70.2
Oregon	55.9	43.9
Pennsylvania	100.4	176.8
Tennessee	92.0	76.0
Texas	151.1	142.6
Virginia	5.8	19.8
Washington	46.7	35.1
Wisconsin	65.5	(D)
34423, METAL MOLDING AND TRIM AND STORE FRONTS		
United States	**311.4**	**364.5**
California	72.1	40.1
Florida	5.6	(NA)
Georgia	33.7	(NA)
Illinois	25.5	39.8
Michigan	4.7	(NA)
Missouri	2.2	(NA)
New Jersey	5.2	(NA)
Ohio	19.0	47.1
Tennessee	2.7	(NA)
Texas	20.7	42.0
Wisconsin	8.0	(NA)
34424, METAL COMBINATION SCREEN, STORM SASH, AND STORM DOORS		
United States	**390.6**	**412.9**
Connecticut	4.9	9.7
Florida	3.2	2.3
Georgia	3.1	(NA)
Illinois	12.9	11.8
Kansas	3.6	5.6
Michigan	2.9	4.4
Missouri	4.4	6.6
New Jersey	5.4	12.5
New York	10.5	27.6
North Carolina	53.8	34.5
Ohio	10.0	20.7
Oklahoma	3.3	(NA)
Tennessee	20.0	30.2
Texas	14.2	30.9
Virginia	4.3	7.0
Wisconsin	6.9	(NA)
34425, METAL WINDOW AND DOOR SCREENS, (EXCEPT COMBINATION) AND METAL WEATHER STRIP		
United States	**254.4**	**227.2**
California	44.9	43.4
Florida	9.3	12.7
Georgia	6.5	(NA)
Kentucky	2.2	(NA)
Mississippi	2.7	(NA)
New Jersey	2.7	(NA)
New York	3.3	(NA)
Ohio	9.0	17.4
Texas	14.6	8.1
Washington	12.4	(NA)
Wisconsin	51.3	(NA)
34431, HEAT EXCHANGERS AND STEAM CONDENSERS (EXCEPT FOR NUCLEAR APPLICATIONS)		
United States	**1 626.9**	**916.6**
California	40.2	23.8
Louisiana	30.3	(NA)
Michigan	8.0	(NA)
New Jersey	58.7	51.8
New York	294.2	162.3
Ohio	40.1	23.0
Oklahoma	322.6	138.7
Oregon	10.7	6.9
Pennsylvania	69.2	(NA)
Texas	213.9	97.8
Virginia	36.0	(NA)
Wisconsin	66.2	37.8
34432, FABRICATED STEEL PLATE (STACKS AND WELDMENTS)		
United States	**1 573.6**	**1 031.3**
Alabama	47.5	20.0
Arizona	10.0	(NA)
Arkansas	2.6	3.7
California	100.0	52.4
Colorado	18.8	(NA)
Connecticut	12.5	6.5
Florida	23.2	17.2
Georgia	13.4	15.8
Idaho	3.2	(NA)
Illinois	125.2	67.2
Indiana	51.3	45.1
Iowa	10.1	(NA)
Kansas	23.5	4.8
Kentucky	15.1	(NA)
Louisiana	28.6	22.1

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34432, FABRICATED STEEL PLATE (STACKS AND WELDMENTS)—Con.		
Maine	4.8	(NA)
Maryland	7.6	(NA)
Massachusetts	38.1	30.6
Michigan	86.1	68.4
Minnesota	23.9	16.4
Mississippi	27.1	8.1
Missouri	34.9	25.3
New Jersey	39.3	14.2
New Mexico	4.0	(NA)
New York	36.9	35.8
North Carolina	33.3	13.2
Ohio	173.7	117.4
Oklahoma	100.9	(NA)
Oregon	14.8	10.5
Pennsylvania	150.6	140.9
Rhode Island	2.1	(NA)
South Carolina	9.2	(NA)
Tennessee	29.1	30.6
Texas	77.9	67.8
Utah	18.4	25.1
Virginia	7.2	4.6
Washington	17.9	12.5
West Virginia	6.7	12.5
Wisconsin	106.1	49.8
34433, STEEL POWER BOILERS, PARTS, AND ATTACHMENTS (STATIONARY AND MARINE BUT EXCLUDING NUCLEAR APPLICATIONS)		
United States	**793.1**	**654.8**
California	30.3	(NA)
New York	30.9	14.8
Oklahoma	20.3	(NA)
Pennsylvania	168.5	138.2
Texas	103.9	(NA)
34434, GAS CYLINDERS		
United States	**355.5**	**237.6**
34435, METAL TANKS, COMPLETE AT FACTORY (STANDARD LINE PRESSURE)		
United States	**488.9**	**466.6**
California	20.1	38.2
Georgia	27.2	43.9
Indiana	34.8	54.6
North Carolina	17.9	10.9
Oklahoma	8.7	(NA)
Pennsylvania	10.5	8.7
Texas	22.3	(NA)
Wisconsin	28.9	46.9
34436, NUCLEAR REACTOR STEAM SUPPLY SYSTEMS		
United States	**239.7**	**335.8**
Pennsylvania	71.4	95.5
34437, METAL TANKS, COMPLETE AT FACTORY (STANDARD LINE NONPRESSURE)		
United States	**466.4**	**416.9**
Alabama	18.7	25.3
California	40.9	17.4
Florida	11.9	16.2
Illinois	36.7	20.3
Indiana	3.2	18.9
Iowa	2.6	(NA)
Kansas	51.2	23.7
Louisiana	4.9	(NA)
Michigan	31.1	9.7
Minnesota	25.3	23.3
Missouri	36.5	25.1
New Jersey	9.7	(NA)
New York	12.3	11.4
North Carolina	3.5	6.9
Pennsylvania	15.5	38.4
Tennessee	13.7	7.8
Texas	15.1	25.1
Washington	3.4	9.0
Wisconsin	24.7	30.7
34438, METAL TANKS AND VESSELS, CUSTOM FABRICATED AT THE FACTORY		
United States	**1 079.3**	**656.9**
Alabama	29.1	10.6
California	82.8	64.2
Florida	18.1	3.5
Georgia	10.6	7.4
Idaho	2.6	(NA)
Illinois	24.5	16.2
Indiana	53.7	5.8
Kansas	28.8	19.8
Kentucky	13.2	(NA)
Louisiana	71.7	24.5
Michigan	6.8	(NA)
Minnesota	35.6	(NA)
Mississippi	28.3	(NA)
Missouri	63.5	(NA)
New Jersey	20.3	12.1
New York	46.6	(NA)
North Carolina	12.3	17.0
Ohio	16.2	40.9
Oklahoma	19.0	7.8
Oregon	6.9	(NA)
Pennsylvania	80.2	54.9
South Carolina	8.3	11.9
Tennessee	47.0	10.2
Texas	218.2	71.1
Washington	17.6	6.6
West Virginia	4.6	(NA)
Wisconsin	36.9	35.9
34439, METAL TANKS AND VESSELS, CUSTOM FABRICATED AND FIELD ERECTED		
United States	**757.7**	**305.2**
Alabama	39.4	(NA)
California	54.9	16.9
Georgia	61.8	(NA)
Indiana	13.8	(NA)
Kentucky	53.1	(NA)
Louisiana	14.7	12.2
Missouri	8.8	(NA)
New York	4.6	4.0
Oklahoma	12.6	3.5
Pennsylvania	60.7	33.3
Texas	89.3	27.3
Wisconsin	5.7	(NA)
34441, AIR-CONDITIONING DUCTS AND STOVE PIPE		
United States	**1 024.2**	**786.0**
Alabama	12.5	7.1
California	78.8	68.2
Connecticut	3.8	(NA)
Florida	88.8	35.6
Georgia	23.3	13.9
Illinois	23.2	34.8
Indiana	53.7	44.2
Iowa	5.4	(NA)
Kentucky	11.5	3.1
Louisiana	6.4	3.3
Maryland	14.0	10.7
Massachusetts	33.8	35.5
Michigan	10.3	24.8
Minnesota	53.3	40.6
Mississippi	46.0	21.4
Missouri	31.9	8.0
Nevada	3.0	(NA)
New Jersey	27.4	23.6
New York	59.4	79.6
North Carolina	11.9	19.0
Ohio	70.8	34.2
Oklahoma	2.2	(NA)
Oregon	5.5	6.9
Pennsylvania	100.2	81.0
South Carolina	9.8	9.0
Texas	74.5	65.3
Utah	14.0	(NA)
Virginia	22.6	29.5
Washington	15.7	10.8
Wisconsin	11.0	8.2

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34442, CULVERTS, FLUMES, IRRIGATION PIPES, ETC.		
United States	**328.0**	**266.6**
California	14.6	(NA)
Florida	23.0	25.7
Georgia	17.8	(NA)
Kansas	17.2	(NA)
Nebraska	15.5	(NA)
New York	12.9	28.3
North Carolina	14.8	(NA)
Ohio	7.6	14.4
Texas	18.5	10.4
Wisconsin	2.9	2.5
34443, BINS AND VATS		
United States	**209.7**	**145.0**
Iowa	6.9	(NA)
New Jersey	2.7	(NA)
Ohio	5.4	7.0
Pennsylvania	2.0	(NA)
Wisconsin	12.5	(NA)
34444, METAL ROOFING AND ROOF DRAINAGE EQUIPMENT		
United States	**1 134.0**	**856.3**
Alabama	22.9	26.3
Arizona	3.8	2.1
California	71.4	77.3
Florida	72.0	36.3
Georgia	79.8	23.3
Illinois	59.6	14.9
Kentucky	29.1	2.1
Louisiana	4.3	(NA)
Michigan	12.0	12.1
Missouri	29.4	(NA)
New Jersey	17.3	38.9
New York	23.2	10.6
North Carolina	26.6	8.9
Ohio	87.2	125.3
Oregon	13.8	3.4
Pennsylvania	118.2	84.4
Tennessee	52.2	25.3
Texas	107.7	32.8
Virginia	11.6	(NA)
Washington	43.9	(NA)
34445, METAL FLOORING AND SIDING		
United States	**840.7**	**920.4**
California	70.6	42.5
Florida	6.2	31.2
Georgia	44.8	54.9
Illinois	96.1	64.3
Indiana	17.4	44.0
Michigan	3.5	15.0
New York	2.7	(NA)
Ohio	107.1	158.0
Oregon	9.8	(NA)
Pennsylvania	69.9	124.6
Texas	46.2	49.7
34447, METAL AWNINGS, CANOPIES, CORNICES, AND SOFFITS		
United States	**493.2**	**550.1**
Arizona	13.8	3.2
California	35.4	65.1
Florida	32.8	33.9
Illinois	71.8	80.3
Indiana	10.3	20.9
Maryland	4.2	4.9
Michigan	14.6	4.4
Ohio	117.3	83.9
Oregon	9.7	(NA)
Pennsylvania	8.0	12.8
Tennessee	6.3	12.9
Texas	33.6	34.4
Washington	5.8	(NA)
Wisconsin	9.6	8.4
34448, ELECTRONIC ENCLOSURES		
United States	**1 661.3**	**1 115.3**
Alabama	14.8	(NA)
Arizona	26.4	18.7
California	465.2	258.7
Colorado	36.5	18.6
Connecticut	17.1	14.0
Florida	45.5	23.1
Georgia	16.9	5.4
Illinois	99.3	42.5
Indiana	35.2	19.9
Kentucky	3.3	(NA)
Maryland	15.6	17.3
Massachusetts	126.5	130.7
Michigan	48.7	41.2
Minnesota	75.5	76.4
Missouri	12.6	5.0
New Hampshire	17.9	24.0
New Jersey	81.0	96.0
New York	101.9	53.0
North Carolina	21.1	21.1
Ohio	60.0	32.0
Oklahoma	5.8	6.7
Oregon	18.6	15.0
Pennsylvania	77.7	56.4
South Carolina	4.2	(NA)
Texas	52.6	37.7
Virginia	8.4	4.3
Washington	40.8	20.0
Wisconsin	77.7	33.5
34449, OTHER SHEET METAL WORK		
United States	**2 845.0**	**2 292.6**
Alabama	41.1	13.2
Arizona	54.4	31.7
California	270.3	268.6
Colorado	25.8	22.9
Connecticut	47.8	52.7
Florida	42.7	32.5
Georgia	58.5	89.2
Idaho	7.0	(NA)
Illinois	208.8	131.8
Indiana	149.3	100.2
Iowa	18.0	4.1
Kansas	55.2	31.7
Kentucky	43.0	35.1
Louisiana	14.9	(NA)
Maryland	19.4	10.1
Massachusetts	86.3	59.1
Michigan	143.7	158.3
Minnesota	84.8	48.5
Mississippi	15.9	13.8
Missouri	44.5	20.9
Nebraska	4.9	3.3
New Hampshire	10.6	(NA)
New Jersey	78.1	50.4
New Mexico	2.8	6.4
New York	193.4	92.8
North Carolina	68.7	56.4
Ohio	242.3	260.8
Oklahoma	19.1	12.4
Oregon	39.0	23.9
Pennsylvania	167.3	121.5
Rhode Island	2.6	2.8
South Carolina	15.3	23.4
Tennessee	35.5	28.4
Texas	163.2	146.2
Utah	23.5	(NA)
Vermont	3.4	(NA)
Virginia	20.7	14.4
Washington	56.8	21.2
Wisconsin	151.0	152.3
34461, GRILLES, REGISTERS, AND AIR DIFFUSERS		
United States	**321.5**	**280.8**
Florida	50.2	18.6
New York	4.2	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34462, STAIRS, RAILINGS, FENCES, AND GATES (OTHER THAN WIRE)		
United States	**557.0**	**411.3**
Alabama	23.3	9.8
Arizona	3.8	3.4
California	58.1	45.1
Colorado	8.2	7.2
Connecticut	21.1	13.6
Florida	28.6	10.6
Georgia	11.5	13.9
Idaho	2.3	(NA)
Illinois	25.4	24.5
Indiana	9.9	6.7
Iowa	5.2	2.9
Kansas	2.9	3.3
Kentucky	4.4	(NA)
Louisiana	6.1	(NA)
Maryland	13.6	16.2
Massachusetts	17.8	12.2
Michigan	13.5	5.5
Minnesota	14.8	7.2
Mississippi	8.2	(NA)
Missouri	12.1	14.7
New Jersey	18.5	8.0
New York	40.3	40.3
North Carolina	14.7	7.5
Ohio	24.7	39.3
Oklahoma	4.6	3.4
Oregon	5.1	(NA)
Pennsylvania	34.7	28.4
South Carolina	2.6	2.7
Tennessee	8.4	7.7
Texas	31.0	14.1
Utah	15.0	6.8
Virginia	6.7	9.0
Washington	5.3	(NA)
Wisconsin	15.7	7.7
34463, OPEN FLOORING, GRATING, AND STUDS		
United States	**318.5**	**295.8**
California	27.1	31.4
Florida	3.9	13.9
Illinois	36.5	63.7
Louisiana	2.2	(NA)
Massachusetts	2.1	(NA)
Missouri	3.5	(NA)
New York	7.7	(NA)
Ohio	32.9	14.6
Oregon	2.2	(NA)
Pennsylvania	24.4	14.3
Texas	34.7	(NA)
34464, SCAFFOLDING; SHORING AND FORMING FOR CONCRETE WORK		
United States	**236.9**	**255.7**
California	9.1	27.2
Michigan	2.8	3.1
Missouri	12.7	6.9
Nebraska	3.7	(NA)
New York	2.6	(NA)
Ohio	33.3	10.7
Pennsylvania	24.2	19.1
Washington	13.5	(NA)
Wisconsin	5.8	12.8
34465, OTHER ARCHITECTURAL AND ORNAMENTAL WORK		
United States	**650.2**	**545.7**
Alabama	32.2	41.6
Arizona	13.6	4.8
California	66.9	44.4
Connecticut	13.6	5.8
Florida	2.1	50.7
Georgia	27.2	22.4
Illinois	72.6	21.8
Indiana	6.4	(NA)
Kentucky	19.9	(NA)
Louisiana	18.4	13.1
Maryland	48.7	51.2
Massachusetts	11.7	6.9
Michigan	19.4	3.2
Minnesota	9.8	12.2
Missouri	3.0	7.8
34465, OTHER ARCHITECTURAL AND ORNAMENTAL WORK—Con.		
New Jersey	4.2	(NA)
New York	60.3	45.5
North Carolina	6.7	7.3
Ohio	42.4	30.3
Pennsylvania	39.9	16.4
Texas	85.3	42.3
Wisconsin	4.4	6.7
34481, PREFABRICATED METAL BUILDING SYSTEMS (EXCLUDING FARM SERVICE BUILDINGS, RESIDENTIAL BUILDINGS, AND PARTS)		
United States	**1 694.7**	**1 806.7**
Alabama	98.5	97.3
California	110.3	158.6
Florida	51.9	22.6
Georgia	64.8	94.5
Michigan	17.9	(NA)
Mississippi	70.7	68.5
New York	26.9	(NA)
North Carolina	122.3	142.8
Ohio	55.6	143.1
Pennsylvania	42.8	60.7
Texas	165.2	241.9
34482, OTHER PREFABRICATED AND PORTABLE METAL BUILDINGS AND PARTS		
United States	**717.8**	**647.0**
Alabama	6.3	10.2
California	45.8	27.6
Colorado	3.8	(NA)
Florida	31.0	37.5
Georgia	20.1	15.2
Illinois	68.6	76.3
Iowa	34.3	24.7
Kentucky	12.4	(NA)
Louisiana	11.2	(NA)
Michigan	18.1	7.5
Minnesota	12.7	54.8
Missouri	17.5	17.3
Nebraska	19.5	35.3
New York	44.4	59.4
North Carolina	16.8	34.8
Ohio	22.2	8.3
Pennsylvania	72.4	64.7
Tennessee	3.0	(NA)
Texas	38.0	36.5
Wisconsin	52.2	6.2
34494, FABRICATED BAR JOISTS AND CONCRETE REINFORCING BARS		
United States	**997.0**	**1 142.3**
Alabama	45.3	(NA)
Alaska	2.7	(NA)
Arizona	24.9	22.8
California	39.6	19.9
Georgia	16.1	21.9
Illinois	12.8	32.9
Kansas	12.1	(NA)
Maryland	24.1	32.1
Missouri	17.2	(NA)
Ohio	27.9	39.9
Pennsylvania	120.6	101.1
South Carolina	60.9	84.0
Texas	110.8	160.1
Utah	48.5	32.5
Virginia	47.8	48.1
Washington	21.1	16.7
Wisconsin	5.5	(NA)
34496, METAL PLASTER BASES		
United States	**68.2**	**81.7**
California	23.9	35.4
Florida	9.5	(NA)
34497, CURTAIN WALL		
United States	**226.4**	**284.2**
California	31.5	30.9
Georgia	17.6	26.4
Illinois	4.9	(NA)
Ohio	37.1	(NA)
Texas	25.8	24.3

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 25
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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34498, CUSTOM ROLL FORM PRODUCTS			**34498, CUSTOM ROLL FORM PRODUCTS—Con.**		
United States	**1 567.5**	**1 145.5**	Minnesota	10.7	7.8
Alabama	30.1	92.6	New Jersey	58.7	23.7
Arizona	3.3	(NA)	New York	67.9	52.8
California	117.6	76.0	North Carolina	13.8	14.3
Colorado	7.1	5.0	Ohio	164.3	124.2
Connecticut	9.9	(NA)	Oklahoma	9.8	(NA)
Florida	123.3	94.8	Oregon	13.5	(NA)
Georgia	77.6	55.2	Pennsylvania	125.8	83.6
Illinois	92.9	146.7	Rhode Island	9.0	(NA)
Indiana	79.0	31.5	Tennessee	10.2	12.2
Kentucky	43.7	25.8	Texas	195.1	59.2
Louisiana	4.6	(NA)	Virginia	12.0	6.5
Michigan	43.7	18.5	Washington	20.8	7.6
			Wisconsin	26.8	9.5

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3441-	**Fabricated structural metal**	**8 061.3**	**8 579.5**	**9 072.1**	**8 668.4**	**8 050.3**	**7 746.0**	**7 956.3**	**4 860.9**
34411	Fabricated structural metal for buildings	4 261.4	4 222.1	4 797.6	4 840.7	4 453.6	4 259.6	4 588.0	2 578.5
34412	Fabricated structural metal for bridges	503.0	609.0	660.9	550.1	578.8	550.9	422.8	280.2
34413	Other fabricated structural metal	2 020.2	2 168.8	2 036.8	1 929.9	1 782.8	1 702.0	2 153.6	1 474.1
34410	Fabricated structural metal, n.s.k.	1 276.7	1 579.6	1 576.8	1 347.7	1 235.1	1 233.5	792.0	528.0
3442-	**Metal doors, sash, and trim**	**6 412.3**	**5 974.7**	**6 473.8**	**6 785.5**	**6 154.6**	**5 986.0**	**4 349.8**	**2 974.1**
34421	Metal doors and frames (except storm doors)	3 048.4	2 393.2	2 551.5	2 699.1	2 577.8	2 498.5	1 668.6	1 089.3
34422	Metal window sash and frames (except storm sash)	1 549.2	1 507.5	1 685.0	1 767.8	1 576.9	1 540.5	1 279.6	801.9
34423	Metal molding and trim and store fronts	311.4	385.2	388.2	461.2	409.0	364.5	285.6	191.1
34424	Metal combination screen, storm sash, and storm doors	390.6	503.0	523.4	518.2	396.2	412.9	565.6	401.7
34425	Metal window and door screens, (except combination) and metal weather strip	254.4	302.7	306.3	301.0	198.6	227.2	168.6	152.4
34420	Metal doors, sash, and trim, n.s.k.	858.3	883.2	1 019.4	1 038.3	996.2	942.3	381.8	337.7
3443-	**Fabricated plate work (boiler shops)**	**8 491.8**	**7 874.2**	**8 065.3**	**7 643.2**	**7 210.8**	**6 202.6**	**8 094.5**	**6 641.2**
34431	Heat exchangers and steam condensers (except for nuclear applications)	1 626.9	1 349.4	1 298.1	1 259.2	1 084.2	916.6	1 220.5	900.5
34432	Fabricated steel plate (stacks and weldments)	1 573.6	1 300.7	1 457.2	1 377.4	1 223.0	1 031.3	1 656.9	1 095.5
34433	Steel power boilers, parts, and attachments (stationary and marine but excluding nuclear applications)	793.1	872.4	835.0	884.9	783.0	654.8	963.1	960.3
34434	Gas cylinders	355.5	390.3	389.2	365.7	293.2	237.6	221.5	173.3
34435	Metal tanks, complete at factory (standard line pressure)	488.9	514.9	606.0	508.3	582.8	466.6	446.7	298.5
34436	Nuclear reactor steam supply systems	239.7	329.9	343.0	359.9	430.4	335.8	634.4	695.4
34437	Metal tanks, complete at factory (standard line nonpressure)	466.4	440.9	455.8	479.4	510.7	416.9	603.1	486.2
34438	Metal tanks and vessels, custom fabricated at the factory	1 079.3	1 036.3	1 024.5	906.0	813.6	656.9	1 164.2	770.6
34439	Metal tanks and vessels, custom fabricated and field erected	757.7	517.8	533.2	416.9	355.2	305.2	452.4	663.2
34430	Fabricated plate work (boiler shops), n.s.k.	1 110.6	1 121.5	1 123.4	1 085.4	1 134.6	1 180.9	731.6	597.7
3444-	**Sheet metal work**	**10 650.6**	**9 198.3**	**9 397.4**	**9 122.7**	**9 659.7**	**9 009.2**	**6 572.6**	**4 607.5**
34441	Air-conditioning ducts and stove pipe	1 024.2	787.9	792.6	826.7	859.8	786.0	(NA)	(NA)
34442	Culverts, flumes, irrigation pipes, etc.	328.0	367.5	371.7	362.2	457.9	266.6	396.3	371.2
34443	Bins and vats	209.7	151.9	148.2	96.1	74.5	145.0	(NA)	(NA)
34444	Metal roofing and roof drainage equipment	1 134.0	867.1	970.2	990.0	868.9	856.3	655.5	597.7
34445	Metal flooring and siding	840.7	938.7	996.3	999.4	911.2	920.4	950.7	775.8
34447	Metal awnings, canopies, cornices, and soffits	493.2	554.9	591.7	533.2	519.2	550.1	(NA)	(NA)
34448	Electronic enclosures	1 661.3	1 167.2	1 134.2	1 109.6	919.8	1 115.3	(NA)	(NA)
34449	Other sheet metal work	2 845.0	2 164.3	2 060.5	2 107.2	2 352.7	2 292.6	(NA)	(NA)
34440	Sheet metal work, n.s.k.	2 114.3	2 198.7	2 332.0	2 098.2	2 695.8	2 077.1	1 103.4	741.4
3446-	**Architectural metal work**	**2 411.7**	**2 243.9**	**2 300.5**	**2 306.0**	**2 261.5**	**2 193.4**	**1 422.0**	**950.9**
34461	Grilles, registers, and air diffusers	321.5	305.1	340.7	337.0	254.9	280.8	(NA)	(NA)
34462	Stairs, railings, fences, and gates (other than wire)	557.0	496.0	500.5	465.8	427.6	411.3	(NA)	(NA)
34463	Open flooring, grating, and studs	318.5	327.5	353.6	346.5	327.5	295.8	(NA)	(NA)
34464	Scaffolding; shoring and forming for concrete work	236.9	234.6	263.4	263.6	234.5	255.7	(NA)	(NA)
34465	Other architectural and ornamental work	650.2	570.1	542.0	521.2	589.2	545.7	(NA)	(NA)
34460	Architectural metal work, n.s.k.	327.4	310.6	300.3	371.8	427.7	404.0	(NA)	(NA)
3448-	**Prefabricated metal buildings**	**2 637.6**	**2 778.1**	**2 920.7**	**3 013.6**	**2 881.3**	**2 825.0**	**2 215.1**	**1 656.0**
34481	Prefabricated metal building systems (excluding farm service buildings, residential buildings, and parts)	1 694.7	1 750.6	1 828.1	1 968.7	1 928.6	1 806.7	1 385.6	912.2
34482	Other prefabricated and portable metal buildings and parts	717.8	497.2	570.4	629.8	589.8	647.0	709.8	630.2
34480	Prefabricated metal buildings, n.s.k.	225.2	530.3	522.3	415.1	362.9	371.2	119.8	113.6
3449-	**Miscellaneous metal work**	**3 197.7**	**3 055.6**	**3 605.8**	**3 664.7**	**3 580.0**	**2 998.5**	**2 489.9**	**1 332.9**
34494	Fabricated bar joists and concrete reinforcing bars	997.0	920.2	1 232.3	1 346.1	1 377.7	1 142.3	1 231.3	900.1
34496	Metal plaster bases	68.2	64.8	71.4	79.8	82.4	81.7	167.5	(NA)
34497	Curtain wall	226.4	188.5	225.4	260.9	319.3	284.2	395.0	(NA)
34498	Custom roll form products	1 567.5	1 512.3	1 672.1	1 651.3	1 401.3	1 145.5	599.2	359.2
34490	Miscellaneous metal work, n.s.k.	338.5	369.9	404.6	326.6	399.2	344.7	96.8	73.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3441, FABRICATED STRUCTURAL METAL		
	Materials, ingredients, containers, and supplies	**3 562.9**	**3 850.7**
	Fabricated metal products (except castings and forgings):		
349008	Pipe	52.9	71.5
349409	Valves and pipe fittings	2.1	
344309	Parts specially designed for steel power boilers, not elsewhere classified	(D)	1.5
340066	All other fabricated metal products	214.0	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	30.3	8.0
336005	Aluminum and aluminum-base alloy	3.0	2.4
336003	Other nonferrous	3.7	
346000	Forgings	5.3	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331064	Bars and bar shapes, except concrete reinforcing bars	116.2	(NA)
331009	Concrete reinforcing bars	77.1	(NA)
331022	Sheet and strip	258.6	(NA)
331082	Plate	297.3	(NA)
	Structural shapes (except sheet pilings):		
331040	Wide flange beams	574.0	(NA)
331052	All other structural shapes	272.8	(NA)
331039	All other shapes and forms (including sheet pilings)	163.2	(NA)
333002	Nonferrous refinery shapes	(D)	(NA)
	Copper and copper-base alloy:		
335152	Pipe and tube	.6	3.1
335190	All other shapes and forms	2.4	1.6
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	32.1	(NA)
335011	All other (except sheet, plate, foil, and welded tubing)	17.4	(NA)
335043	All other nonferrous shapes and forms	7.7	(NA)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	38.1	20.8
354800	Welding electrodes	24.0	12.4
970099	All other materials and components, parts, containers, and supplies	424.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	944.7	1 057.6
	INDUSTRY 3442, METAL DOORS, SASH, AND TRIM		
	Materials, ingredients, containers, and supplies	**3 564.7**	**3 185.4**
	Fabricated metal products (except castings and forgings):		
342940	Builders' hardware (including door locks, locksets, lock trim, miscellaneous sash, screen hardware, etc.)	207.5	154.6
345001	Bolts, nuts, screws, rivets, and screw machine products	41.7	50.8
340069	All other fabricated metal products	117.9	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	9.6	34.3
336010	Nonferrous (aluminum, copper, etc.)	21.7	22.4
346000	Forgings		(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	15.1	(NA)
331022	Sheet and strip	319.5	(NA)
331071	Structural shapes	55.0	(NA)
331027	Wire and wire products	13.7	(NA)
331088	All other steel shapes and forms	112.6	(NA)
335105	Copper and copper-base alloy	.6	2.0
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	168.9	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	600.2	597.4
330008	All other aluminum and aluminum-base alloy shapes and forms, including refinery shapes	186.3	(NA)
335099	All other nonferrous shapes and forms	41.1	(NA)
190020	Aluminum and aluminum-base alloy scrap (excluding home scrap)	88.2	10.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	109.3	60.0
321101	Flat glass (plate, float, and sheet)	291.1	263.3
970099	All other materials and components, parts, containers, and supplies	745.4	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	419.0	640.5
	INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)		
	Materials, ingredients, containers, and supplies	**3 667.3**	**2 841.8**
	Fabricated metal products (except castings and forgings):		
349008	Pipe	97.0	66.9
349409	Valves and pipe fittings	106.4	
344309	Parts specially designed for steel power boilers, not elsewhere classified	61.9	14.1
340066	All other fabricated metal products	307.2	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	93.2	50.4
336005	Aluminum and aluminum-base alloy	17.3	12.3
336003	Other nonferrous	10.9	4.2
346000	Forgings	38.8	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3443, FABRICATED PLATE WORK (BOILER SHOPS)—Con.		
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331064	Bars and bar shapes, except concrete reinforcing bars	86.4	(NA)
331009	Concrete reinforcing bars		(NA)
331022	Sheet and strip	350.5	(NA)
331082	Plate	455.7	(NA)
	Structural shapes (except sheet pilings):		
331040	Wide flange beams	30.4	(NA)
331052	All other structural shapes	41.8	(NA)
331039	All other shapes and forms (including sheet pilings)	127.6	(NA)
333002	Nonferrous refinery shapes	8.0	(NA)
	Copper and copper-base alloy:		
335152	Pipe and tube	30.4	28.5
335190	All other shapes and forms	16.6	10.3
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	59.8	(NA)
335011	All other (except sheet, plate, foil, and welded tubing)	48.0	(NA)
335043	All other nonferrous shapes and forms	41.0	(NA)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	43.0	21.5
354800	Welding electrodes	49.2	26.4
970099	All other materials and components, parts, containers, and supplies	695.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	851.3	1 015.6
	INDUSTRY 3444, SHEET METAL WORK		
	Materials, ingredients, containers, and supplies	**4 930.3**	**4 202.9**
	Fabricated metal products (except castings and forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	86.5	46.5
340098	All other fabricated metal products	346.0	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	30.2	6.7
336010	Nonferrous (aluminum, copper, etc.)	12.3	(NA)
346000	Forgings	1.2	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	63.4	(NA)
331009	Concrete reinforcing bars		(NA)
331022	Sheet and strip	1 327.6	(NA)
331071	Structural shapes	72.5	(NA)
331037	All other steel shapes and forms	208.5	(NA)
335105	Copper and copper-base alloy	7.8	17.8
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	657.6	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	77.1	80.5
330008	All other aluminum and aluminum-base alloy shapes and forms, including refinery shapes	152.0	(NA)
335099	All other nonferrous shapes and forms	20.7	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)	19.5	11.1
321101	Flat glass (plate, float, and sheet)	17.4	22.1
265001	Paperboard containers, boxes, and corrugated paperboard	52.8	41.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	78.6	83.5
970099	All other materials and components, parts, containers, and supplies	554.2	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	1 144.5	1 219.8
	INDUSTRY 3446, ARCHITECTURAL METAL WORK		
	Materials, ingredients, containers, and supplies	**944.1**	**925.2**
	Fabricated metal products (except castings and forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.0	10.6
340098	Other fabricated metal products	27.8	(NA)
330091	Castings (rough and semifinished)	21.2	(NA)
346000	Forgings	1.7	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	49.8	(NA)
331009	Concrete reinforcing bars	4.3	(NA)
331022	Sheet and strip	207.2	(NA)
331071	Structural shapes	38.2	(NA)
331037	All other steel shapes and forms	44.5	(NA)
335105	Copper and copper-base alloy	4.2	3.6
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	27.1	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	54.9	63.6
330008	All other aluminum and aluminum-base alloy shapes and forms, including refinery shapes	9.7	(NA)
335099	All other nonferrous shapes and forms	5.0	(NA)
190023	Iron and steel scrap, excluding home scrap	.6	1.7
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	17.8	12.5
970099	All other materials and components, parts, containers, and supplies	133.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	282.9	337.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3448, PREFABRICATED METAL BUILDINGS		
	Materials, ingredients, containers, and supplies	**1 510.5**	**1 607.4**
	Fabricated metal products (except castings and forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	45.8	41.2
340098	Other fabricated metal products	58.5	(NA)
330091	Castings (rough and semifinished)	1.0	(NA)
346000	Forgings	(D)	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	135.4	(NA)
331009	Concrete reinforcing bars	(D)	(NA)
331022	Sheet and strip	559.6	(NA)
331071	Structural shapes	51.7	(NA)
331037	All other steel shapes and forms	166.9	(NA)
335105	Copper and copper-base alloy	(D)	(NA)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	60.8	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	24.3	37.4
330008	All other aluminum and aluminum-base alloy shapes and forms, including refinery shapes	26.3	(NA)
335099	All other nonferrous shapes and forms	2.2	(NA)
190023	Iron and steel scrap, excluding home scrap	(D)	(NA)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	18.1	38.8
970099	All other materials and components, parts, containers, and supplies	135.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	152.8	280.1
	INDUSTRY 3449, MISCELLANEOUS METAL WORK		
	Materials, ingredients, containers, and supplies	**2 004.8**	**1 729.7**
	Fabricated metal products (except castings and forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	12.7	1.9
340098	Other fabricated metal products	43.1	(NA)
330091	Castings (rough and semifinished)	16.6	(NA)
346000	Forgings	(D)	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	326.0	(NA)
331009	Concrete reinforcing bars	263.7	(NA)
331022	Sheet and strip	475.8	(NA)
331071	Structural shapes	68.4	(NA)
331037	All other steel shapes and forms	135.6	(NA)
335105	Copper and copper-base alloy	8.2	(D)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	72.6	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	19.2	32.5
330008	All other aluminum and aluminum-base alloy shapes and forms, including refinery shapes	59.2	(NA)
335099	All other nonferrous shapes and forms	(D)	(NA)
190023	Iron and steel scrap, excluding home scrap	30.8	(D)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	22.5	11.5
970099	All other materials and components, parts, containers, and supplies	168.3	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	251.3	378.5

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 1:10 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 29
TSF:34C_92.DAT;1 3/27/95 13:56:57 UTF:34C_93.DAT;3 4/25/95 13:08:17 META:TIPS96-13092093.DAT;1 4/25/95 13:10:09

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
34293 00	34293 15
34293 00	34293 17
34298 98	34298 32
34298 98	34298 99
34321	34320
34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
34339 06	34339 10
34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
34433 26	34433 22
34433 28	34433 22
34433 28	34433 49
34433 30	34433 32
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34433 46	34433 42
34433 46	34433 43
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34433 47	34433 43
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34433 48	34433 50
34433 51	34433 50
34434 14	34434 13
34434 14	34434 15
34434 16	34434 17
34434 16	34434 19
34435 20	34435 21
34435 20	34435 23
34435 35	34435 31
34435 35	34435 33
34435 42	34435 37
34435 42	34435 39
34438 08	34438 07
34438 13	34438 14
34438 13	34438 16
34438 20	34438 17
34438 22	34438 19
34443 14	34443 11
34443 14	34443 13
34443 24	34443 21
34443 24	34443 23
34482 18	34482 13
34482 18	34482 23
34626 16	34626 15
34626 16	34626 17
34627 12	34627 11
34627 12	34627 13
34627 16	34627 15
34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
34661 22	34661 00
34662 30	34662 00
34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
34842 26	34842 25
34842 26	34842 27
34842 54	34842 51
34842 54	34842 53
34842 54	34842 56
34842 65	34842 63
34842 65	34842 67
34842 74	34842 64
34842 74	34842 73
34916 78	34916 77
34916 78	34916 79
3492A	34923
3492A 00	34923 00
3492B	34923
3492B 00	34923 00
3492C	34921
3492C 00	34921 00
3492D	34921
3492D 00	34921 00
3492E	34922
3492E 00	34922 00
3492F	34922
3492F 00	34922 00
3492G	34927
3492G 00	34927 00
3492H	34926
3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
34961 52	34961 51
34964 00	34964 41
34964 00	34964 43
34964 00	34964 45
34964 00	34964 51
34964 00	34964 53
34964 00	34964 55
34965 00	34965 17
34965 00	34965 57
34965 00	34965 65
34966 13	34966 23
34966 13	34966 25
34966 21	34966 27
34966 21	34966 29
34968 42	34968 41
34968 42	34968 45
34968 42	34968 46
34968 42	34968 47
34968 63	34968 61
34968 63	34968 65
34968 98	34968 77
34968 98	34968 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
34211 98	34211 25
34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
34231 32	34231 33
34231 34	34231 33
34231 61	34231 97
34231 98	34231 97
34234 11	34234 14
34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
34293 15	34293 00
34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
34320 10	34321 10
34320 11	34321 08
34320 12	34321 12
34320 13	34321 13
34320 14	34321 14
34320 15	34321 15
34320 17	34321 17
34320 18	34321 18
34320 22	34321 20
34320 25	34321 28
34320 26	34321 22
34320 27	34321 25
34320 29	34321 30
34320 31	34321 32
34320 35	34321 34
34320 39	34321 36
34320 47	34323 20
34320 48	34323 23
34320 49	34322 18
34320 52	34322 21
34320 54	34322 24
34320 57	34322 33
34320 58	34322 36
34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
34320 74	34323 08
34320 75	34323 11
34320 76	34323 14
34320 78	34323 17
34320 80	34322 27
34320 81	34323 25
34320 82	34322 27
34320 83	34323 32
34320 84	34322 30
34320 85	34323 27
34320 86	34322 30
34320 87	34323 27
34320 89	34323 32
34320 90	34322 01
34320 91	34322 03
34320 92	34322 05
34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
34333 17	34333 35
34333 60	34333 65
34333 81	34333 65
34334 00	34334 10
34334 00	34334 22
34334 00	34334 30
34334 00	34334 40
34334 00	34334 62
34334 00	34334 74
34335 31	34335 20
34335 35	34335 25
34335 44	34335 20
34335 46	34335 25
34339 10	34339 06
34339 10	34339 08
34339 10	34339 11
34339 10	34339 13
34411 21	34411 41
34411 22	34411 42
34411 23	34411 43
34411 24	34411 44
34411 26	34411 46
34411 27	34411 47
34411 61	34411 41
34411 62	34411 42
34411 63	34411 43
34411 64	34411 44
34411 66	34411 46
34411 67	34411 47
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34413 82	34413 29
34413 83	34413 23
34413 83	34413 26
34413 83	34413 59
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34433 17	34433 19
34433 17	34433 24
34433 22	34433 26
34433 22	34433 28
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34433 43	34433 46
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34433 49	34433 15
34433 49	34433 24
34433 49	34433 28
34433 49	34433 34
34433 50	34433 08
34433 50	34433 35
34433 50	34433 48
34433 50	34433 51
34434 13	34434 14
34434 15	34434 14
34434 17	34434 16
34434 19	34434 16
34435 21	34435 20
34435 23	34435 20
34435 31	34435 35
34435 33	34435 35
34435 37	34435 42
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34438 19	34438 22
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34626 17	34626 16
34627 11	34627 12
34627 13	34627 12
34627 15	34627 16
34627 17	34627 16
34628 11	34628 12
34628 13	34628 12
34628 15	34628 16
34628 17	34628 16
34661 00	34661 05
34661 00	34661 20
34661 00	34661 22
34662 00	34662 30
34662 00	34662 32
34699 98	34699 51
34699 98	34699 97
34790 00	34790 77
34842 15	34842 16
34842 17	34842 16
34842 25	34842 26
34842 27	34842 26
34842 51	34842 54
34842 53	34842 54
34842 56	34842 54
34842 63	34842 65
34842 64	34842 74
34842 67	34842 65
34842 73	34842 74
34916 77	34916 78
34916 79	34916 78
34921	3492C
34921	3492D
34921 00	3492C 00
34921 00	3492D 00
34922	3492E
34922	3492F
34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
34924	3492J
34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
34961 22	34961 52
34961 31	34961 34
34961 33	34961 34
34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
34964 43	34964 00
34964 45	34964 00
34964 51	34964 00
34964 53	34964 00
34964 55	34964 00
34965 17	34965 00
34965 57	34965 00
34965 65	34965 00
34966 23	34966 13
34966 25	34966 13
34966 27	34966 21
34966 29	34966 21
34968 41	34968 42
34968 45	34968 42
34968 46	34968 42
34968 47	34968 42
34968 61	34968 63
34968 65	34968 63
34968 77	34968 98
34968 99	34968 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-34D

INDUSTRY SERIES

Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services

Industries 3451, 3452, 3462, 3463, 3465, 3466, 3469, 3471, and 3479

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-34D

INDUSTRY SERIES

Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services

Industries 3451, 3452, 3462, 3463, 3465, 3466, 3469, 3471, and 3479

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Richard Wiesler.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

Contents

Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services

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Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3451 shipped $3.5 billion of screw machine products considered primary to the industry, $191.3 million of secondary products, and had $183.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3451, no matter in what industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the screw machine products industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS

This industry is made up of establishments primarily engaged in manufacturing metal bolts, nuts, screws, rivets, washers, formed and threaded wire goods, and special industrial fasteners. Rolling mills engaged in manufacturing similar products are classified in major group 33. Establishments primarily engaged in manufacturing screw machine products are classified in industry 3451. Establishments primarily engaged in manufacturing plastics fasteners are classified in industry 3089.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3452, Bolts, Nuts, Rivets, and Washers, had employment of 44.0 thousand. The employment figure was 15 percent below the 52.0 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Michigan, and Ohio, accounting for approximately 56 percent of the industry's employment. This represents a shift from 1987 when California, Illinois, Michigan, and Pennsylvania accounted for approximately 57 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3452 shipped $4.6 billion of bolts, nuts, rivets, and washers considered primary to the industry, $250.0 million of secondary products, and had $300.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 3452, no matter in what industry they were produced, appear in table 6a and aggregate to $4.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the bolts, nuts, screws, rivets, and washers industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3462, IRON AND STEEL FORGINGS

This industry is made up of establishments primarily engaged in manufacturing iron and steel forgings, with or without the use of dies. This industry includes establishments primarily engaged in manufacturing metal forgings. These establishments generally operate on a job or order basis, manufacturing forgings for sale to others or for interplant transfer. Establishments which produce metal forgings for incorporation in end products produced in the same establishment are classified on the basis of the end product. Establishments further processing forgings are classified according to the particular product or process.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3462, Iron and Steel Forgings, had employment of 24.2 thousand. The employment figure was 9 percent below the 26.6 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Pennsylvania, Texas, and Wisconsin, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3462 shipped $2.9 billion of iron and steel forgings products considered primary to the industry, $222.4 million of secondary products, and had $90.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 92 percent.

The products primary to industry 3462, no matter in what industry they were produced, appear in table 6a and aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the iron and steel forgings industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3463, NONFERROUS FORGINGS

This industry is made up of establishments primarily engaged in manufacturing nonferrous forgings with or without the use of dies. This industry includes establishments primarily engaged in manufacturing metal forgings. These establishments generally operate on a job or order basis, manufacturing forgings for sale to others or for interplant transfer. Establishments which produce metal forgings for incorporation in end products produced in the same establishment are classified on the basis of the end product. Establishments further processing forgings are classified according to the particular product or process.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3463, Nonferrous Forgings, had employment of 7.9 thousand. The employment figure was 8 percent above the 7.3 thousand reported in 1987. Compared with 1991, employment increased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Massachusetts, and Illinois. This represents a shift from 1987 when California, Ohio, Massachusetts, and Michigan were the leading States.

The total value of shipments for establishments classified in this industry was $1.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3463 shipped $1.0 billion of nonferrous forgings products considered primary to the industry, $130.0 million of secondary products, and had $32.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 76 percent.

The products primary to industry 3463, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the nonferrous forgings industry amounted to $622.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3465, AUTOMOTIVE STAMPINGS

This industry is made up of establishments primarily engaged in manufacturing automotive stampings such as body parts, hubs, and trim. This industry includes establishments primarily engaged in manufacturing metal stampings. These establishments generally operate on a job or order basis, manufacturing metal stampings for sales to others or for interplant transfer. Establishments which produce metal stampings for incorporation in end products produced in the same establishments are classified on the basis of the end of products. Establishments further processing stampings are classified according to the particular product or process.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3465, Automotive Stampings, had employment of 105.2 thousand. The employment figure was 12 percent below the 119.8 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, Indiana, and Illinois, accounting for approximately 80 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 79 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $15.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3465 shipped $14.5 billion of automotive stampings industry products considered primary to the industry, $985.9 million of secondary products, and had $370.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3465, no matter in what industry they were produced, appear in table 6a and aggregate to $15.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the automotive stampings industry amounted to $8.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3466, CROWNS AND CLOSURES

This industry is made up of establishments primarily engaged in manufacturing metal crowns and closures.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3466, Crowns and Closures, had employment of 4.8 thousand. The employment figure was 21 percent below the 6.1 thousand reported in 1987. Compared with 1991, employment increased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Illinois, Indiana, and Connecticut. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $832.9 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3466 shipped $786.8 million of crowns and closures products considered primary to the industry, $36.8 million of secondary products, and had $9.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3466, no matter in what industry they were produced, appear in table 6a and aggregate to $811.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the crowns and closures industry amounted to $437.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose

reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3469, METAL STAMPINGS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing metal stampings and spur products, not elsewhere classified, including porcelain enameled products. Products of this industry include household appliance housing and parts; cooking and kitchen utensils; and other nonautomotive job stampings. These establishments generally operate on a job or order basis, manufacturing metal stampings for sale to others or for interplant transfer. Establishments which produce metal stampings for incorporation in end products produced in the same establishment are classified on the basis of the end product. Establishments further processing stampings are classified according to the particular product or process.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3469, Metal Stampings, N.E.C., had employment of 92.7 thousand. The employment figure was 3 percent below the 95.5 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Ohio, Wisconsin, and California, accounting for approximately 40 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3469 shipped $8.2 billion of metal stampings, not elsewhere classified, industry considered primary to the industry, $1.1 billion of secondary products, and had $397.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 91 percent.

The products primary to industry 3469, no matter in what industry they were produced, appear in table 6a and aggregate to $9.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal stampings, not elsewhere classified, industry amounted to $4.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3471, PLATING AND POLISHING

This industry is made up of establishments primarily engaged in all types of electroplating, plating, anodizing, coloring, and finishing of metals and formed products for the trade. Also included in this industry are establishments which perform these types of activities, on their own account, on purchased metals or formed products. Establishments that both manufacture and finish products are classified according to the products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3471, Plating and Polishing, had employment of 65.4 thousand. The employment figure was 8 percent below the 71.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Ohio, Illinois, and Michigan, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 41 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3471 shipped $4.2 billion of products considered primary to the industry, $311.1 million of secondary products, and had $208.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 3471, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the plating and polishing industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3479, METAL COATING AND ALLIED SERVICES

This industry is made up of establishments primarily engaged in performing the following types of services on metals for the trade: (1) enameling, lacquering, and varnishing metal products; (2) hot dip galvanizing of mill sheets, plates and bars, castings, and formed products fabricated of iron and steel; hot dip coating such items with aluminum, lead, or zinc; retinning cans and utensils; (3) engraving, chasing and etching jewelry, silverware, notarial and other seals, and other metal products for purposes other than printing; and (4) other metal services; not elsewhere classified. Also included in this industry are establishments which perform these types of activities on their own account on purchased metals or formed products. Establishments that both manufacture and finish products are classified according to the products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3479, Metal Coating and Allied Services, had employment of 43.7 thousand. The employment figure was 5 percent above the 41.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Michigan, Ohio, and Illinois, accounting for approximately 42 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 45 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3479 shipped $4.7 billion of products considered primary to the industry, $197.6 million of secondary products, and had $224.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 92 percent.

The products primary to industry 3479, no matter in what industry they were produced, appear in table 6a and aggregate to $5.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal coating and allied services industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3451, SCREW MACHINE PRODUCTS															
1992 Census	1 671	1 706	646	46.4	1 270.8	36.5	77.6	876.1	2 393.5	1 443.5	3 830.1	135.1	478.2	95	94
1991 ASM	(NA)	(NA)	(NA)	40.6	1 017.0	32.3	70.5	721.5	1 888.1	1 110.3	2 974.7	101.4	405.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	42.4	1 035.6	34.3	73.4	743.6	1 956.0	1 100.5	3 034.4	125.4	409.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	44.8	1 049.9	35.8	75.9	741.7	2 024.6	1 132.3	3 124.3	129.0	405.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	43.7	1 019.7	34.7	74.5	702.8	2 015.8	1 159.6	3 158.8	81.8	378.8	(NA)	(NA)
1987 Census	1 610	1 635	635	42.7	945.3	34.1	72.9	666.1	1 770.5	1 048.9	2 806.2	99.7	355.5	95	93
1986 ASM	(NA)	(NA)	(NA)	43.5	908.2	34.6	69.2	658.7	1 776.7	1 158.7	2 928.3	98.5	355.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.4	892.8	35.8	71.4	640.0	1 870.2	1 179.5	2 947.8	109.4	483.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	45.2	882.1	36.9	73.3	641.7	1 778.0	1 167.1	2 903.8	91.9	361.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	40.9	737.6	33.0	66.6	518.1	1 448.6	898.9	2 337.8	59.9	315.8	(NA)	(NA)
1982 Census	1 744	1 787	643	41.8	718.9	33.7	65.2	503.2	1 328.0	831.6	2 173.1	77.2	297.0	96	94
1981 ASM	(NA)	(NA)	(NA)	47.7	786.5	39.4	80.7	557.5	1 471.2	1 061.4	2 537.7	79.4	323.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	52.3	777.0	42.8	84.9	557.8	1 476.9	1 055.5	2 520.2	96.4	324.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.7	739.8	43.9	89.3	537.6	1 534.1	990.9	2 483.0	79.8	312.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	48.5	638.4	40.8	82.3	463.0	1 257.4	857.5	2 097.5	80.0	273.5	(NA)	(NA)
1977 Census	1 727	1 770	654	43.8	551.6	36.0	74.3	395.5	1 023.9	762.2	1 771.7	71.9	230.6	96	92
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS															
1992 Census	806	930	436	44.0	1 350.0	31.8	66.4	849.6	2 866.4	2 309.2	5 183.1	150.9	997.6	95	96
1991 ASM	(NA)	(NA)	(NA)	50.0	1 419.5	36.3	77.4	916.0	3 108.8	2 402.0	5 508.8	174.6	1 030.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	52.8	1 489.5	39.0	84.4	961.0	3 194.4	2 474.3	5 688.6	166.6	1 057.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	54.9	1 468.1	40.7	86.6	981.7	3 229.3	2 466.4	5 605.9	181.1	1 129.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	54.3	1 426.8	40.4	85.9	954.0	3 219.2	2 299.4	5 483.7	155.8	1 023.1	(NA)	(NA)
1987 Census	834	937	471	52.0	1 325.0	38.7	80.5	886.9	2 995.8	2 115.7	5 084.0	150.4	955.5	95	96
1986 ASM	(NA)	(NA)	(NA)	49.7	1 197.0	36.6	74.2	800.4	2 640.9	2 061.7	4 713.6	144.5	866.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	52.8	1 206.8	38.9	79.2	793.7	2 621.8	2 139.6	4 794.8	138.2	900.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	51.0	1 139.0	38.5	78.2	765.3	2 605.8	2 001.1	4 568.7	124.1	973.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	49.5	1 040.4	35.7	71.6	689.8	2 224.6	1 691.8	3 897.3	[9]120.1	975.7	(NA)	(NA)
1982 Census	780	903	450	52.2	1 008.1	37.2	69.1	644.6	1 981.2	1 588.1	3 661.3	109.8	945.0	93	95
1981 ASM	(NA)	(NA)	(NA)	63.2	1 176.3	47.0	93.4	787.3	2 573.9	1 932.0	4 484.9	148.4	969.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.8	1 115.2	49.0	97.9	752.2	2 465.2	1 865.9	4 311.5	168.5	927.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	69.7	1 114.5	52.4	106.6	769.7	2 465.0	1 981.0	4 366.8	144.9	890.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	64.5	986.9	48.9	100.5	678.8	2 113.7	1 745.6	3 811.3	139.5	804.8	(NA)	(NA)
1977 Census	722	857	448	60.9	862.4	45.6	93.9	587.6	1 840.3	1 510.1	3 319.5	112.3	714.3	94	94
INDUSTRY 3462, IRON AND STEEL FORGINGS															
1992 Census	367	403	199	24.2	765.9	18.0	36.8	499.9	1 586.3	1 631.7	3 232.3	114.4	576.0	93	92
1991 ASM	(NA)	(NA)	(NA)	26.2	819.4	19.7	39.5	541.6	1 608.0	1 910.5	3 540.0	133.8	678.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.4	861.2	21.3	43.0	578.5	1 764.9	2 088.3	3 858.8	130.1	787.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	28.4	831.2	21.2	44.0	566.8	1 818.8	2 012.6	3 777.9	144.7	790.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.4	751.4	19.6	40.5	502.9	1 587.8	1 757.9	3 284.6	105.3	711.9	(NA)	(NA)
1987 Census	379	406	202	26.6	746.5	19.1	37.8	484.3	1 394.0	1 553.5	3 003.6	108.2	610.8	91	92
1986 ASM	(NA)	(NA)	(NA)	25.2	675.6	18.3	35.0	449.3	1 247.1	1 368.6	2 602.1	74.4	552.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.5	728.9	20.1	38.5	487.7	1 309.6	1 509.9	2 857.9	95.6	568.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	29.8	754.7	22.0	42.0	519.3	1 386.1	1 531.3	3 014.8	97.3	640.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.0	597.4	18.5	33.8	402.6	1 103.3	1 247.2	2 380.7	80.2	477.9	(NA)	(NA)
1982 Census	336	380	220	30.7	690.7	22.4	40.7	462.9	1 347.6	1 520.7	2 943.5	158.0	618.7	89	81
1981 ASM	(NA)	(NA)	(NA)	38.1	845.3	29.3	56.2	594.6	1 855.6	2 040.6	3 864.2	181.0	564.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	38.8	780.3	29.8	57.7	555.7	1 544.7	1 918.8	3 475.6	148.6	528.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	40.2	759.9	31.3	63.3	562.8	1 557.1	1 970.3	3 490.8	153.8	575.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	41.4	725.7	32.6	64.6	538.6	1 474.7	1 739.2	3 191.3	118.3	506.6	(NA)	(NA)
1977 Census	312	358	231	39.1	641.5	31.0	60.8	474.8	1 301.4	1 505.4	2 795.7	126.7	452.7	92	84
INDUSTRY 3463, NONFERROUS FORGINGS															
1992 Census	72	78	44	7.9	276.2	5.9	12.4	175.4	588.3	622.0	1 196.5	53.0	239.3	89	87
1991 ASM	(NA)	(NA)	(NA)	6.9	229.7	5.3	10.4	150.8	322.4	609.8	971.4	26.9	239.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.2	249.7	5.5	11.4	169.1	495.2	649.5	1 159.1	58.1	291.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.3	241.4	5.6	11.8	164.5	408.4	734.4	1 146.5	51.4	321.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.0	222.8	5.3	11.6	152.0	404.0	664.2	1 029.5	33.5	323.2	(NA)	(NA)
1987 Census	72	79	41	7.3	218.1	5.4	11.4	145.4	428.2	565.6	1 003.7	29.8	278.7	86	76
1986 ASM	(NA)	(NA)	(NA)	7.9	247.2	5.6	10.9	161.3	497.8	586.1	1 086.1	43.8	347.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.3	245.5	6.0	11.7	159.6	543.6	648.3	1 181.2	45.1	354.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.1	258.8	6.6	12.7	169.8	516.2	733.5	1 237.4	45.5	393.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.6	225.7	6.1	11.2	142.1	540.7	572.9	1 151.5	53.7	345.8	(NA)	(NA)
1982 Census	59	64	46	7.9	200.7	5.7	10.6	128.7	461.2	569.3	1 093.8	100.3	302.6	84	73
1981 ASM	(NA)	(NA)	(NA)	8.6	203.3	6.4	13.3	140.9	510.0	651.2	1 168.5	42.5	288.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.0	189.7	6.8	13.3	132.0	483.0	604.3	1 048.6	39.0	295.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.0	158.6	6.0	12.7	116.4	416.9	453.4	823.5	27.4	238.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.2	115.8	4.7	9.6	83.2	274.9	315.5	569.8	24.6	163.5	(NA)	(NA)
1977 Census	43	47	31	5.4	93.7	4.2	8.2	64.8	240.7	234.9	456.7	12.2	123.8	87	67
INDUSTRY 3465, AUTOMOTIVE STAMPINGS															
1992 Census	585	700	506	105.2	4 098.9	87.1	184.0	3 268.2	7 241.8	8 598.1	15 821.4	519.9	1 064.5	94	91
1991 ASM	(NA)	(NA)	(NA)	99.3	3 680.6	82.1	169.1	2 912.8	5 662.7	7 700.0	13 403.6	722.0	1 023.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	110.6	3 887.6	91.3	189.0	3 088.2	6 300.2	8 282.8	14 544.5	912.4	1 146.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	115.7	4 082.9	95.9	200.6	3 249.8	6 713.8	8 902.5	15 625.7	827.9	1 152.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	117.1	4 164.0	98.3	211.9	3 343.6	7 064.5	8 863.7	15 874.5	947.2	1 208.9	(NA)	(NA)
1987 Census	596	713	502	119.8	3 976.9	99.9	213.3	3 157.5	6 659.3	8 582.2	15 251.6	1 285.0	1 153.9	95	93
1986 ASM	(NA)	(NA)	(NA)	119.1	3 942.7	99.9	216.5	3 162.5	6 521.2	8 310.9	14 826.5	1 183.0	1 123.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	119.2	3 795.5	100.6	217.4	3 058.3	6 850.5	8 183.8	15 037.7	830.6	1 175.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	112.4	3 368.9	95.2	203.8	2 717.1	6 631.8	7 594.8	14 137.4	462.3	1 154.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	96.6	2 729.6	81.1	172.2	2 175.5	5 409.5	5 846.8	11 176.4	234.9	973.0	(NA)	(NA)
1982 Census	566	668	434	90.5	2 292.6	74.5	145.2	1 792.4	4 114.4	4 621.6	8 777.4	465.0	804.7	92	88
1981 ASM	(NA)	(NA)	(NA)	95.1	2 393.8	79.2	151.2	1 873.7	4 444.7	4 553.0	8 960.7	844.4	849.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	100.9	2 253.6	83.8	155.9	1 738.1	4 182.5	4 271.0	8 497.3	610.0	864.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	125.3	2 552.6	106.4	208.0	2 013.1	4 940.0	5 491.8	10 425.9	390.9	1 000.8	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3465, AUTOMOTIVE STAMPINGS—Con.															
1978 ASM	(NA)	(NA)	(NA)	136.7	2 642.1	116.6	237.1	2 120.1	5 180.1	5 583.8	10 697.6	401.4	1 087.1	(NA)	(NA)
1977 Census	495	591	432	132.4	2 446.0	112.5	236.8	1 956.6	4 654.5	5 130.8	9 739.2	292.2	948.3	92	91
INDUSTRY 3466, CROWNS AND CLOSURES															
1992 Census	43	51	31	4.8	143.4	3.9	8.1	97.5	407.6	437.4	832.9	18.4	128.1	96	97
1991 ASM	(NA)	(NA)	(NA)	4.1	121.1	3.3	6.8	82.3	324.5	352.6	673.8	12.3	112.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.4	122.3	3.5	7.0	85.9	358.2	353.9	720.2	13.0	101.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.6	128.6	3.7	7.6	90.5	328.8	363.6	702.4	18.8	114.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	4.7	131.9	3.9	8.4	95.0	353.1	351.7	700.8	11.2	126.3	(NA)	(NA)
1987 Census	46	57	34	6.1	161.6	4.9	10.3	119.8	382.1	443.1	819.8	26.5	151.9	96	95
1986 ASM	(NA)	(NA)	(NA)	6.4	159.6	5.1	10.6	116.6	376.7	532.5	914.5	38.7	145.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.7	161.6	5.3	10.1	120.8	353.7	509.7	862.5	22.0	147.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.8	158.5	5.5	11.0	119.1	344.8	499.0	805.3	20.2	158.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.1	161.1	5.7	11.4	121.6	373.0	494.9	866.5	19.8	157.6	(NA)	(NA)
1982 Census	48	64	36	6.7	143.5	5.4	10.6	106.8	372.4	441.7	804.8	21.6	140.7	92	92
1981 ASM	(NA)	(NA)	(NA)	7.1	143.9	5.8	11.7	107.7	335.0	437.5	765.8	30.1	127.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	128.2	5.8	11.5	96.3	293.3	390.3	678.7	19.4	123.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.9	114.2	5.6	11.3	86.1	276.8	349.1	631.1	17.0	117.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.3	108.9	5.9	11.6	81.6	277.0	310.5	574.1	14.1	125.0	(NA)	(NA)
1977 Census	42	56	43	7.9	104.8	6.5	12.6	80.2	265.4	283.2	536.9	17.1	121.0	95	86
INDUSTRY 3469, METAL STAMPINGS, N.E.C.															
1992 Census	2 635	2 748	1 142	92.7	2 487.5	70.7	146.3	1 592.3	5 192.2	4 520.5	9 695.0	298.1	1 193.4	88	91
1991 ASM	(NA)	(NA)	(NA)	95.0	2 400.0	71.9	145.1	1 553.7	4 810.8	4 556.1	9 338.2	257.0	1 209.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	98.4	2 382.9	74.7	148.7	1 551.6	4 747.3	4 634.2	9 380.2	277.7	1 202.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	100.9	2 357.9	76.8	151.6	1 543.5	4 795.6	4 840.8	9 576.1	300.7	1 327.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	97.1	2 259.5	74.2	153.1	1 476.7	4 670.5	4 461.7	9 042.7	221.4	1 293.6	(NA)	(NA)
1987 Census	2 702	2 815	1 162	95.5	2 131.9	73.2	146.2	1 402.0	4 311.4	4 034.4	8 331.1	268.9	1 145.3	90	91
1986 ASM	(NA)	(NA)	(NA)	95.9	2 067.6	73.3	142.4	1 364.6	4 032.4	3 584.1	7 625.5	256.9	1 076.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	107.1	2 216.9	82.6	164.7	1 446.5	4 261.4	3 773.5	8 084.3	305.0	1 193.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	110.5	2 193.5	85.7	167.4	1 448.4	4 436.0	4 062.4	8 410.2	290.9	1 310.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	102.9	1 920.7	78.6	155.6	1 251.8	3 836.7	3 269.3	7 079.3	192.5	1 147.1	(NA)	(NA)
1982 Census	2 718	2 843	1 156	100.4	1 782.7	75.6	146.3	1 154.0	3 414.2	2 986.4	6 437.7	200.1	1 014.7	88	88
1981 ASM	(NA)	(NA)	(NA)	112.8	1 796.9	90.4	176.1	1 241.4	3 648.9	3 538.8	7 160.6	217.1	948.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	113.8	1 643.5	91.6	175.3	1 134.5	3 353.1	3 215.3	6 577.5	221.5	914.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	114.5	1 542.4	93.1	180.2	1 084.3	3 234.5	3 097.2	6 278.2	202.0	918.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	106.2	1 356.3	85.6	168.8	932.6	2 705.9	2 664.9	5 329.1	179.3	793.0	(NA)	(NA)
1977 Census	2 544	2 663	1 138	103.2	1 225.4	82.0	161.2	842.5	2 451.5	2 318.0	4 735.7	154.7	715.7	88	88
INDUSTRY 3471, PLATING AND POLISHING															
1992 Census	3 161	3 296	950	65.4	1 563.5	50.3	103.9	988.1	3 192.8	1 567.0	4 725.7	207.9	363.6	[10]93	[10]94
1991 ASM	(NA)	(NA)	(NA)	66.6	1 459.5	52.5	106.8	962.5	2 716.3	1 396.6	4 124.0	163.8	248.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	73.2	1 534.4	57.9	115.8	1 015.6	2 981.0	1 538.4	4 513.3	167.1	294.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	76.6	1 516.0	60.8	121.0	1 011.0	2 957.3	1 502.7	4 452.4	172.8	254.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	76.3	1 530.2	58.2	118.5	979.8	2 810.7	1 523.7	4 324.0	148.6	269.0	(NA)	(NA)
1987 Census	3 353	3 451	1 043	71.1	1 335.5	55.9	112.0	884.7	2 633.6	1 235.3	3 866.9	140.2	226.9	[10]97	[10]94
1986 ASM	(NA)	(NA)	(NA)	65.8	1 179.1	51.5	104.6	784.3	2 252.3	1 149.2	3 408.3	137.7	208.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	69.0	1 182.3	55.7	113.3	802.2	2 203.2	1 245.5	3 445.8	160.4	241.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	68.7	1 143.4	55.7	112.6	793.9	2 207.8	1 254.8	3 457.4	184.5	221.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	65.7	961.6	52.5	104.9	680.4	1 777.9	1 113.0	2 849.4	79.7	253.4	(NA)	(NA)
1982 Census	3 367	3 450	898	61.9	919.0	49.7	98.1	631.9	1 693.9	1 038.4	2 731.4	109.2	225.5	[10]97	[10]97
1981 ASM	(NA)	(NA)	(NA)	62.0	855.4	50.2	98.6	598.8	1 613.1	969.6	2 594.6	102.4	163.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	63.1	803.6	52.1	101.5	551.6	1 613.9	956.5	2 556.9	105.1	205.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	64.1	729.9	53.8	106.1	508.8	1 487.8	928.6	2 412.7	110.3	151.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	65.9	724.1	55.4	111.5	507.2	1 413.1	784.3	2 194.9	194.6	140.4	(NA)	(NA)
1977 Census	3 344	3 447	904	61.2	634.8	51.2	101.3	446.1	1 181.8	674.1	1 848.5	73.2	128.3	(NA)	(NA)
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES															
1992 Census	1 821	1 945	640	43.7	1 093.0	33.8	69.5	718.0	2 504.7	2 680.7	5 160.7	159.3	522.0	[10]96	[10]92
1991 ASM	(NA)	(NA)	(NA)	43.4	1 004.3	33.8	66.6	691.5	2 070.7	2 563.2	4 634.3	120.8	492.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	44.3	999.9	34.7	70.5	689.1	2 429.3	2 503.6	4 928.7	158.8	511.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	44.6	949.3	35.3	73.4	652.7	2 299.7	2 464.2	4 756.3	133.1	467.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	47.0	984.2	36.3	75.3	655.4	2 647.1	2 230.7	4 867.4	128.2	446.8	(NA)	(NA)
1987 Census	1 702	1 814	616	41.5	831.5	32.3	65.0	558.8	1 995.4	1 936.9	3 922.6	105.3	417.3	[10]93	[10]92
1986 ASM	(NA)	(NA)	(NA)	42.7	824.2	32.8	66.1	545.9	1 735.0	1 824.2	3 573.7	137.9	361.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	43.3	814.2	34.2	68.3	527.0	1 641.2	1 618.7	3 253.2	150.5	350.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	40.6	715.5	32.5	65.1	479.2	1 502.7	1 525.8	3 008.3	111.3	349.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	33.2	579.6	25.7	53.2	396.0	1 154.5	1 235.2	2 391.9	88.9	261.6	(NA)	(NA)
1982 Census	1 524	1 620	507	35.0	599.1	27.5	54.1	403.7	1 202.6	1 195.9	2 393.4	91.0	292.1	[10]96	[10]93
1981 ASM	(NA)	(NA)	(NA)	39.6	623.3	32.0	65.4	440.6	1 399.9	1 137.4	2 528.6	136.8	194.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	38.5	541.4	31.2	60.9	383.5	1 175.3	1 094.7	2 278.7	53.7	205.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.1	516.3	31.0	61.4	371.3	1 124.8	1 037.9	2 156.5	81.8	206.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.7	415.3	27.2	54.5	285.8	895.5	937.6	1 825.1	70.9	175.2	(NA)	(NA)
1977 Census	1 556	1 648	469	32.3	373.7	25.8	52.2	260.2	781.1	831.7	1 607.7	47.9	159.0	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[9]This estimate for new capital expenditures has an associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

[10]Due to the predominance of miscellaneous receipts, particularly receipts of contract and commission work on materials owned by others, these specialization and coverage ratios should be used with caution.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3451, SCREW MACHINE PRODUCTS									
1992 Census	27 388	79	2 126	11.29	38	71	51 584	53	30.84
1991 ASM	25 049	80	2 183	10.23	37	72	46 505	54	26.78
1990 ASM	24 425	81	2 140	10.13	36	70	46 132	53	26.65
1989 ASM	23 435	80	2 120	9.77	36	70	45 192	52	26.67
1988 ASM	23 334	79	2 147	9.43	37	69	46 128	51	27.06
1987 Census	22 138	80	2 138	9.14	37	71	41 464	53	24.29
1986 ASM	20 878	80	2 000	9.52	40	71	40 844	51	25.67
1985 ASM	20 108	81	1 994	8.96	40	70	42 122	48	26.19
1984 ASM	19 515	82	1 986	8.75	40	71	39 336	50	24.26
1983 ASM	18 034	81	2 018	7.78	38	70	35 418	51	21.75
1982 Census	17 199	81	1 935	7.72	38	71	31 770	54	20.37
1981 ASM	16 488	83	2 048	6.91	42	73	30 843	53	18.23
1980 ASM	14 857	82	1 984	6.57	42	73	28 239	53	17.40
1979 ASM	14 309	85	2 034	6.02	40	70	29 673	48	17.18
1978 ASM	13 163	84	2 017	5.63	41	71	25 926	51	15.28
1977 Census	12 594	82	2 064	5.32	43	74	23 377	54	13.78
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS									
1992 Census	30 682	72	2 088	12.80	45	71	65 145	47	43.17
1991 ASM	28 390	73	2 132	11.83	44	69	62 176	46	40.17
1990 ASM	28 210	74	2 164	11.39	43	70	60 500	47	37.85
1989 ASM	26 741	74	2 128	11.34	44	70	58 821	45	37.29
1988 ASM	26 276	74	2 126	11.11	42	68	59 285	44	37.48
1987 Census	25 481	74	2 080	11.02	42	68	57 612	44	37.21
1986 ASM	24 085	74	2 027	10.79	44	69	53 137	45	35.59
1985 ASM	22 856	74	2 036	10.02	45	70	49 655	46	33.10
1984 ASM	22 333	75	2 031	9.79	44	69	51 094	44	33.32
1983 ASM	21 018	72	2 006	9.63	43	70	44 941	47	31.07
1982 Census	19 312	71	1 858	9.33	43	71	37 954	51	28.67
1981 ASM	18 612	74	1 987	8.43	43	69	40 726	46	27.56
1980 ASM	16 948	74	1 998	7.68	43	69	37 465	45	25.18
1979 ASM	15 990	75	2 034	7.22	45	71	35 366	45	23.12
1978 ASM	15 301	76	2 055	6.75	46	72	32 771	47	21.03
1977 Census	14 161	75	2 059	6.26	45	71	30 218	47	19.60
INDUSTRY 3462, IRON AND STEEL FORGINGS									
1992 Census	31 649	74	2 044	13.58	50	74	65 550	48	43.11
1991 ASM	31 275	75	2 005	13.71	54	77	61 374	51	40.71
1990 ASM	30 324	75	2 019	13.45	54	76	62 144	49	41.04
1989 ASM	29 268	75	2 075	12.88	53	75	64 042	46	41.34
1988 ASM	28 462	74	2 066	12.42	54	76	60 144	47	39.20
1987 Census	28 064	72	1 979	12.81	52	77	52 406	54	36.88
1986 ASM	26 810	73	1 913	12.84	53	79	49 488	54	35.63
1985 ASM	26 505	73	1 915	12.67	53	78	47 622	56	34.02
1984 ASM	25 326	74	1 909	12.36	51	76	46 513	54	33.00
1983 ASM	23 896	74	1 827	11.91	52	77	44 132	54	32.64
1982 Census	22 498	73	1 817	11.37	52	75	43 896	51	33.11
1981 ASM	22 186	77	1 918	10.58	53	75	48 703	46	33.02
1980 ASM	20 111	77	1 936	9.63	55	78	39 812	51	26.77
1979 ASM	18 903	78	2 022	8.89	56	78	38 734	49	24.60
1978 ASM	17 529	79	1 982	8.34	54	77	35 621	49	22.83
1977 Census	16 407	79	1 961	7.81	54	77	33 284	49	21.40
INDUSTRY 3463, NONFERROUS FORGINGS									
1992 Census	34 962	75	2 102	14.15	52	75	74 468	47	47.44
1991 ASM	33 290	77	1 962	14.50	63	86	46 725	71	31.00
1990 ASM	34 681	76	2 073	14.83	56	78	68 778	50	43.44
1989 ASM	33 068	77	2 107	13.94	64	85	55 945	59	34.61
1988 ASM	31 829	76	2 189	13.10	65	86	57 714	55	34.83
1987 Census	29 877	74	2 111	12.75	56	78	58 658	51	37.56
1986 ASM	31 291	71	1 946	14.80	54	77	63 013	50	45.67
1985 ASM	29 578	72	1 950	13.64	55	76	65 494	45	46.46
1984 ASM	28 440	73	1 924	13.37	59	80	56 725	50	40.65
1983 ASM	26 244	71	1 836	12.69	50	69	62 872	42	48.28
1982 Census	25 405	72	1 860	12.14	52	70	58 380	44	43.51
1981 ASM	23 640	74	2 078	10.59	56	73	59 302	40	38.35
1980 ASM	21 078	76	1 956	9.92	58	76	53 667	39	36.32
1979 ASM	19 825	75	2 117	9.17	55	74	52 113	38	32.83
1978 ASM	18 677	76	2 043	8.67	55	76	44 339	42	28.64
1977 Census	17 352	78	1 952	7.90	51	72	44 574	39	29.35

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3465, AUTOMOTIVE STAMPINGS									
1992 Census	38 963	83	2 113	17.76	54	80	68 838	57	39.36
1991 ASM	37 065	83	2 060	17.23	57	85	57 026	65	33.49
1990 ASM	35 150	83	2 070	16.34	57	84	56 964	62	33.33
1989 ASM	35 289	83	2 092	16.20	57	83	58 028	61	33.47
1988 ASM	35 559	84	2 156	15.78	56	82	60 329	59	33.34
1987 Census	33 196	83	2 135	14.80	56	82	55 587	60	31.22
1986 ASM	33 104	84	2 167	14.61	56	83	54 754	60	30.12
1985 ASM	31 841	84	2 161	14.07	54	80	57 471	55	31.51
1984 ASM	29 972	85	2 141	13.33	54	78	59 002	51	32.54
1983 ASM	28 257	84	2 123	12.63	52	77	55 999	50	31.41
1982 Census	25 333	82	1 949	12.34	53	79	45 463	56	28.34
1981 ASM	25 171	83	1 909	12.39	51	78	46 737	54	29.40
1980 ASM	22 335	83	1 860	11.15	50	77	41 452	54	26.83
1979 ASM	20 372	85	1 955	9.68	53	77	39 425	52	23.75
1978 ASM	19 328	85	2 033	8.94	52	77	37 894	51	21.85
1977 Census	18 474	85	2 105	8.26	53	78	35 155	53	19.66
INDUSTRY 3466, CROWNS AND CLOSURES									
1992 Census	29 875	81	2 077	12.04	53	70	84 917	35	50.32
1991 ASM	29 537	80	2 061	12.10	52	70	79 146	37	47.72
1990 ASM	27 795	80	2 000	12.27	49	66	81 409	34	51.17
1989 ASM	27 957	80	2 054	11.91	52	70	71 478	39	43.26
1988 ASM	28 064	83	2 154	11.31	50	69	75 128	37	42.04
1987 Census	26 492	80	2 102	11.63	54	74	62 639	42	37.10
1986 ASM	24 938	80	2 078	11.00	58	76	58 859	42	35.54
1985 ASM	24 119	79	1 906	11.96	59	78	52 791	46	35.02
1984 ASM	23 309	81	2 000	10.83	62	82	50 706	46	31.35
1983 ASM	22 690	80	2 000	10.67	57	76	52 535	43	32.72
1982 Census	21 418	81	1 963	10.08	55	73	55 582	39	35.13
1981 ASM	20 268	82	2 017	9.21	57	76	47 183	43	28.63
1980 ASM	17 806	81	1 983	8.37	58	76	40 736	44	25.50
1979 ASM	16 551	81	2 018	7.62	55	73	40 116	41	24.50
1978 ASM	14 918	81	1 966	7.03	54	73	37 945	39	23.88
1977 Census	13 266	82	1 938	6.37	53	72	33 595	39	21.06
INDUSTRY 3469, METAL STAMPINGS, N.E.C.									
1992 Census	26 834	76	2 069	10.88	47	72	56 011	48	35.49
1991 ASM	25 263	76	2 018	10.71	49	74	50 640	50	33.16
1990 ASM	24 216	76	1 991	10.43	49	75	48 245	50	31.93
1989 ASM	23 369	76	1 974	10.18	51	75	47 528	49	31.63
1988 ASM	23 270	76	2 063	9.65	49	74	48 100	48	30.51
1987 Census	22 324	77	1 997	9.59	48	74	45 146	49	29.49
1986 ASM	21 560	76	1 943	9.58	47	74	42 048	51	28.32
1985 ASM	20 699	77	1 994	8.78	47	74	39 789	52	25.87
1984 ASM	19 851	78	1 953	8.65	48	74	40 145	49	26.50
1983 ASM	18 666	76	1 980	8.04	46	73	37 286	50	24.66
1982 Census	17 756	75	1 935	7.89	46	74	34 006	52	23.34
1981 ASM	15 930	80	1 948	7.05	49	75	32 348	49	20.72
1980 ASM	14 442	80	1 914	6.47	49	74	29 465	49	19.13
1979 ASM	13 471	81	1 936	6.02	49	74	28 249	48	17.95
1978 ASM	12 771	81	1 972	5.52	50	75	25 479	50	16.03
1977 Census	11 874	79	1 966	5.23	49	75	23 755	50	15.21
INDUSTRY 3471, PLATING AND POLISHING									
1992 Census	23 907	77	2 066	9.51	33	66	48 820	49	30.73
1991 ASM	21 914	79	2 034	9.01	34	69	40 785	54	25.43
1990 ASM	20 962	79	2 000	8.77	34	68	40 724	51	25.74
1989 ASM	19 791	79	1 990	8.36	34	68	38 607	51	24.44
1988 ASM	20 055	76	2 036	8.27	35	71	36 837	54	23.72
1987 Census	18 783	79	2 004	7.90	32	66	37 041	51	23.51
1986 ASM	17 919	78	2 031	7.50	34	68	34 229	52	21.53
1985 ASM	17 135	81	2 034	7.08	36	70	31 930	54	19.45
1984 ASM	16 643	81	2 022	7.05	36	69	32 137	52	19.61
1983 ASM	14 636	80	1 998	6.49	39	73	27 061	54	16.95
1982 Census	14 847	80	1 974	6.44	38	72	27 365	54	17.27
1981 ASM	13 797	81	1 964	6.07	37	70	26 018	53	16.36
1980 ASM	12 735	83	1 948	5.43	37	69	25 577	50	15.90
1979 ASM	11 387	84	1 972	4.80	38	69	23 211	49	14.02
1978 ASM	10 988	84	2 013	4.55	36	69	21 443	51	12.67
1977 Census	10 373	84	1 979	4.40	36	71	19 310	54	11.67
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES									
1992 Census	25 011	77	2 056	10.33	52	73	57 316	44	36.04
1991 ASM	23 141	78	1 970	10.38	55	77	47 712	49	31.09
1990 ASM	22 571	78	2 032	9.77	51	71	54 837	41	34.46
1989 ASM	21 285	79	2 079	8.89	52	72	51 563	41	31.33
1988 ASM	20 940	77	2 074	8.70	46	66	56 321	37	35.15
1987 Census	20 036	78	2 012	8.60	49	71	48 082	42	30.70
1986 ASM	19 302	77	2 015	8.26	51	74	40 632	48	26.25
1985 ASM	18 804	79	1 997	7.72	50	75	37 903	50	24.03
1984 ASM	17 623	80	2 003	7.36	51	75	37 012	48	23.08
1983 ASM	17 458	77	2 070	7.44	52	76	34 774	50	21.70

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3479, METAL COATING AND ALLIED SERVICES—Con.								
1982 Census	17 117	79	1 967	7.46	50	75	34 360	50	22.23
1981 ASM	15 740	81	2 044	6.74	45	70	35 351	45	21.41
1980 ASM	14 062	81	1 952	6.30	48	72	30 527	46	19.30
1979 ASM	13 551	81	1 981	6.05	48	72	29 522	46	18.32
1978 ASM	12 323	81	2 004	5.24	51	74	26 573	46	16.43
1977 Census	11 570	80	2 023	4.98	52	75	24 183	48	14.96

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3451, SCREW MACHINE PRODUCTS														
United States	–	**1 706**	**646**	**46.4**	**1 270.8**	**36.5**	**77.6**	**876.1**	**2 393.5**	**1 443.5**	**3 830.1**	**135.1**	**42.7**	**1 770.5**
Arizona	E1	17	7	.5	15.6	.4	.9	10.8	43.5	23.5	64.9	(D)	.3	17.2
Arkansas	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	188	53	4.0	122.2	3.0	6.4	75.7	208.2	83.6	287.0	7.9	3.9	167.4
Colorado	–	11	4	.2	4.8	.2	.3	3.4	8.7	3.7	12.6	.4	(NA)	(NA)
Connecticut	E1	125	37	2.4	62.9	1.8	3.8	45.1	107.6	55.1	163.7	2.9	3.5	134.3
Florida	–	38	11	.9	19.7	.7	1.5	14.3	44.5	32.7	77.5	1.5	.5	18.8
Georgia	–	7	1	.1	3.1	.1	.2	2.0	4.9	1.7	6.6	.1	(NA)	(NA)
Illinois	–	188	78	5.1	139.0	3.8	8.3	92.9	245.3	137.5	379.9	15.2	5.1	208.1
Indiana	–	70	34	2.3	61.9	1.9	3.8	41.8	111.9	64.5	175.5	8.3	G	(D)
Iowa	–	9	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	.4	17.3
Kentucky	E1	12	4	.2	4.9	.2	.3	3.7	11.2	7.9	18.9	.3	(NA)	(NA)
Massachusetts	–	55	20	1.1	33.7	.8	1.7	22.0	59.6	27.1	86.2	3.0	G	(D)
Michigan	–	213	101	7.0	201.3	5.6	11.7	140.0	404.5	324.5	728.7	21.6	(NA)	(D)
Minnesota	–	48	21	1.5	45.0	1.2	2.7	33.3	85.2	34.9	119.8	6.7	G	(D)
Missouri	E1	45	19	1.5	46.8	1.1	2.5	31.0	82.9	44.6	127.5	3.1	F	(D)
Nebraska	–	7	3	.3	6.7	.3	.6	5.4	13.4	5.6	19.0	.4	.2	7.2
Nevada	E1	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
New Hampshire	–	17	5	.2	7.0	.2	.4	4.3	14.4	5.8	20.2	.7	.2	6.5
New Jersey	–	63	17	1.2	36.0	.9	2.1	24.6	56.2	24.8	81.9	2.3	1.6	64.0
New York	–	97	36	3.4	88.2	2.6	5.4	58.9	160.5	135.5	295.6	7.2	3.5	133.5
North Carolina	–	11	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(NA)	(D)
Ohio	–	181	72	5.8	159.1	4.7	10.1	112.7	328.5	203.2	534.2	27.3	4.8	207.5
Oklahoma	–	12	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	17	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	64	27	1.9	47.8	1.5	3.2	35.0	94.9	51.4	146.7	5.1	1.1	41.2
Rhode Island	E1	22	5	.4	9.4	.3	.7	7.7	16.7	7.1	23.6	.8	.5	14.1
South Carolina	E3	9	6	.3	5.5	.2	.4	3.9	11.6	6.6	19.0	(D)	.2	11.2
Tennessee	–	15	9	.9	21.9	.7	1.6	16.9	42.8	30.3	73.4	5.8	F	(D)
Texas	E2	35	9	.6	13.4	.5	1.0	9.3	25.2	14.1	39.0	.8	.5	16.8
Vermont	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	71	30	2.1	51.1	1.7	3.6	37.4	93.1	47.7	139.3	5.1	1.6	60.7
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS														
United States	**E1**	**930**	**436**	**44.0**	**1 350.0**	**31.8**	**66.4**	**849.6**	**2 866.4**	**2 309.2**	**5 183.1**	**150.9**	**52.0**	**2 995.8**
Alabama	E3	12	7	.5	13.1	.4	.8	8.0	29.5	38.6	68.5	1.0	E	(D)
Arizona	–	6	4	.3	8.2	.2	.5	5.9	20.4	8.4	28.6	(D)	.2	10.3
Arkansas	E3	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	114	49	8.8	299.7	6.5	13.4	191.7	569.4	250.1	817.7	29.9	11.2	712.5
Connecticut	–	40	19	2.1	69.9	1.2	2.8	37.5	158.4	89.8	250.6	8.4	1.9	117.6
Florida	–	16	5	.5	14.3	.4	.8	9.0	22.4	15.8	38.9	.7	.8	31.9
Illinois	–	134	70	8.2	257.1	6.0	12.3	163.1	512.8	490.6	1 007.1	20.0	8.3	459.9
Indiana	–	22	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.9	1.3	78.2
Iowa	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.0	.5	20.0
Kentucky	–	11	7	.5	12.5	.3	.8	8.2	35.3	44.6	80.1	1.1	F	(D)
Massachusetts	–	29	14	.9	25.2	.6	1.2	13.1	47.3	55.5	101.5	2.2	G	(D)
Michigan	E1	98	53	3.9	125.2	3.0	6.3	83.6	306.9	332.6	640.9	23.8	5.5	394.3
Minnesota	–	8	4	.2	7.4	.2	.4	5.1	14.5	9.7	24.4	.7	E	(D)
Mississippi	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Missouri	–	12	6	.3	7.4	.2	.4	4.0	15.0	10.6	25.1	.5	.3	14.7

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS—Con.														
Nevada	E1	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
New Hampshire	–	6	4	.2	4.4	.1	.2	2.5	8.6	4.9	13.4	.4	(NA)	(NA)
New Jersey	–	40	14	1.7	56.0	1.1	2.4	32.2	120.5	56.5	175.9	5.7	2.3	119.4
New York	E3	54	20	2.0	55.2	1.4	2.9	33.9	116.7	100.1	214.3	4.2	2.3	110.9
North Carolina	–	9	2	.3	7.4	.2	.4	4.7	11.9	13.3	25.1	.7	F	(D)
Ohio	–	86	48	3.6	108.4	2.6	5.4	63.9	248.4	235.8	484.5	13.8	4.1	256.6
Oklahoma	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E2	49	26	3.2	94.9	2.3	4.6	60.4	205.1	168.3	377.2	8.1	4.7	252.1
Rhode Island	–	11	6	.4	9.9	.3	.6	6.5	14.2	10.7	24.5	.3	.5	20.8
South Carolina	–	7	4	.2	6.3	.2	.3	3.7	10.6	9.2	19.4	(D)	.2	4.7
Tennessee	E2	13	8	.5	16.4	.4	.8	10.5	40.6	35.0	75.2	2.4	.4	16.3
Texas	–	41	15	1.3	30.9	.9	2.0	18.7	68.1	60.7	126.2	5.0	1.0	46.8
Utah	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	8	6	.5	13.7	.4	.9	10.6	29.3	51.3	81.5	(D)	F	(D)
Wisconsin	–	29	16	1.2	30.8	.9	1.9	21.3	77.7	60.3	136.4	4.3	1.1	60.5
INDUSTRY 3462, IRON AND STEEL FORGINGS														
United States	**E1**	**403**	**199**	**24.2**	**765.9**	**18.0**	**36.8**	**499.9**	**1 586.3**	**1 631.7**	**3 232.3**	**114.4**	**26.6**	**1 394.0**
Alabama	–	8	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	35	11	1.2	43.2	.8	1.7	22.1	83.8	138.8	227.2	9.4	1.1	69.5
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	4	3	.4	10.3	.3	.5	7.1	18.1	25.5	42.3	(D)	.5	23.9
Florida	E1	11	2	.3	11.3	.2	.5	6.8	13.2	17.5	28.5	.8	(NA)	(NA)
Illinois	E1	41	24	2.3	68.2	1.7	3.4	44.2	141.0	124.4	264.9	8.3	2.5	157.3
Indiana	E2	13	6	.9	23.8	.6	1.3	15.8	47.9	52.3	100.1	(D)	F	(D)
Iowa	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	(NA)	(D)
Kansas	E3	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	6	3	.4	14.5	.3	.5	7.6	27.9	31.0	56.1	(D)	G	(D)
Michigan	–	42	25	2.3	71.6	1.8	3.5	52.1	198.5	168.1	367.2	13.2	2.4	175.5
Missouri	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	.3	16.1
New York	–	18	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	F	(D)
North Carolina	E1	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	E	(D)
Ohio	E1	51	36	3.5	114.0	2.7	5.7	76.1	235.9	288.9	528.9	17.2	(NA)	(D)
Oklahoma	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	E4	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	34	20	2.9	97.1	2.1	4.4	60.6	208.7	181.2	390.4	16.6	3.2	131.7
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	9	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.2	F	(D)
Texas	–	33	18	2.8	88.4	2.0	4.0	56.2	167.8	169.4	346.2	14.4	3.2	105.3
Wisconsin	–	14	8	2.7	94.4	2.0	3.8	67.7	172.0	155.6	324.6	12.3	2.9	185.0
INDUSTRY 3463, NONFERROUS FORGINGS														
United States	**–**	**78**	**44**	**7.9**	**276.2**	**5.9**	**12.4**	**175.4**	**588.3**	**622.0**	**1 196.5**	**53.0**	**7.3**	**428.2**
California	E1	20	18	2.2	76.3	1.7	3.6	49.4	108.6	123.2	232.3	5.9	2.4	131.4
Connecticut	–	4	3	.2	9.5	.2	.4	5.3	19.8	12.2	31.3	(D)	(NA)	(D)
Illinois	–	5	4	.7	21.0	.5	1.0	15.0	61.3	42.6	106.9	2.2	E	(D)
Massachusetts	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	E5	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.5	G	(D)
Pennsylvania	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	E	(D)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3465, AUTOMOTIVE STAMPINGS														
United States	**–**	**700**	**506**	**105.2**	**4 098.9**	**87.1**	**184.0**	**3 268.2**	**7 241.8**	**8 598.1**	**15 821.4**	**519.9**	**119.8**	**6 659.3**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E7	20	8	1.3	29.2	1.1	2.5	21.7	49.2	57.2	106.5	(D)	1.9	51.7
Connecticut	–	8	5	.5	19.6	.4	.9	14.5	68.4	31.4	100.4	1.0	(NA)	(NA)
Florida	E1	7	5	.5	9.4	.4	.8	5.7	19.1	26.5	45.4	(D)	1.0	38.6
Georgia	–	9	9	1.4	30.4	1.2	2.5	23.3	67.8	74.8	143.0	(D)	G	(D)
Illinois	–	32	21	3.4	155.8	2.8	6.3	126.5	283.1	332.8	615.1	(D)	6.6	452.2
Indiana	–	50	40	10.9	446.1	9.1	19.0	370.2	839.9	753.4	1 585.6	69.7	11.2	585.9
Iowa	–	7	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	6	5	.8	25.6	.7	1.7	19.1	155.8	169.9	325.4	11.8	(NA)	(NA)
Maryland	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	322	232	45.0	1 788.4	36.6	77.1	1 390.1	3 079.3	3 828.9	6 901.2	224.1	48.2	2 859.3
Minnesota	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	3	3	.6	13.0	.5	1.0	9.6	23.2	41.2	65.8	1.6	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3465, AUTOMOTIVE STAMPINGS—Con.														
Missouri	–	6	6	.6	18.2	.4	.9	11.9	34.5	35.0	70.0	1.6	.6	30.9
New Jersey	E3	6	4	.3	7.3	.2	.5	5.6	15.3	15.0	29.5	(D)	E	(D)
New York	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	134	100	25.2	1 092.8	21.4	46.2	909.2	1 577.2	2 181.5	3 753.1	87.6	28.5	1 494.6
Pennsylvania	–	20	14	3.3	144.0	2.7	6.5	117.7	226.9	176.3	404.3	28.7	5.0	335.3
South Carolina	–	7	5	1.0	24.8	.8	1.6	17.1	67.5	81.6	148.8	5.9	G	(D)
Tennessee	–	11	9	2.3	60.1	2.0	4.2	46.3	137.3	210.5	343.4	(D)	1.8	80.8
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	12	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.8	(NA)	(D)
INDUSTRY 3466, CROWNS AND CLOSURES														
United States	**–**	**51**	**31**	**4.8**	**143.4**	**3.9**	**8.1**	**97.5**	**407.6**	**437.4**	**832.9**	**18.4**	**6.1**	**382.1**
California	–	6	3	.3	9.5	.2	.3	4.4	23.8	23.0	47.4	(D)	.5	37.1
Connecticut	–	6	4	.4	13.1	.4	.7	10.1	30.1	18.7	48.3	.7	.9	34.8
Illinois	–	7	5	.8	26.0	.7	1.4	16.5	80.6	51.4	127.3	(D)	F	(D)
Indiana	–	4	4	.8	24.5	.6	1.2	15.4	71.9	104.4	174.4	(D)	1.2	72.3
New Jersey	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	G	(D)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3469, METAL STAMPINGS, N.E.C.														
United States	**–**	**2 748**	**1 142**	**92.7**	**2 487.5**	**70.7**	**146.3**	**1 592.3**	**5 192.2**	**4 520.5**	**9 695.0**	**298.1**	**95.5**	**4 311.4**
Alabama	–	21	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	31.3
Arizona	–	29	15	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	29.9
Arkansas	–	11	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	352	110	7.1	192.6	5.3	11.2	123.5	423.5	280.9	701.7	15.5	8.3	389.2
Colorado	–	30	6	.7	19.6	.5	1.0	9.6	44.7	26.9	71.3	2.8	.4	19.9
Connecticut	–	122	54	4.3	137.6	3.3	7.7	87.1	286.6	210.7	495.5	18.9	5.5	239.4
Florida	E1	62	21	1.5	35.9	1.2	2.4	23.2	79.3	58.7	138.1	2.4	1.3	53.1
Georgia	–	32	17	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.4	G	(D)
Illinois	–	316	161	13.1	385.6	10.1	21.6	252.3	803.6	840.2	1 639.9	44.7	13.0	670.5
Indiana	–	82	40	2.8	71.8	2.2	4.6	42.5	161.9	147.8	303.4	8.9	3.8	159.5
Iowa	–	16	7	1.1	31.0	.8	1.4	17.6	42.5	42.8	85.0	(D)	G	(D)
Kansas	–	18	5	.5	9.3	.4	.8	6.3	28.5	22.7	49.6	.6	E	(D)
Kentucky	–	37	27	2.7	60.9	2.1	4.2	40.3	127.2	121.6	247.9	15.5	G	(D)
Louisiana	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Maryland	E1	13	5	.3	8.4	.2	.4	4.5	15.1	10.3	25.2	.7	.6	21.5
Massachusetts	–	107	42	3.4	95.6	2.5	5.1	56.6	173.5	134.8	308.2	8.5	3.9	165.4
Michigan	E1	151	55	3.7	94.9	2.8	5.9	59.3	203.8	200.6	404.3	10.3	3.5	188.5
Minnesota	–	91	43	4.6	128.6	3.5	7.1	83.9	250.7	166.2	412.4	12.0	(NA)	(D)
Mississippi	–	15	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	52	14	1.3	35.4	1.1	2.2	25.5	96.4	82.4	178.7	4.2	1.5	69.8
New Hampshire	E1	15	4	.3	7.2	.2	.4	3.7	12.4	7.6	20.1	1.0	E	(D)
New Jersey	–	133	49	3.7	113.2	2.8	5.8	71.0	182.0	147.1	333.2	7.6	4.2	182.9
New Mexico	–	6	3	.2	5.0	.2	.3	3.5	9.9	4.9	13.8	.4	(NA)	(NA)
New York	E1	206	80	6.3	163.0	4.7	9.4	101.9	271.2	268.9	544.1	12.5	6.3	266.9
North Carolina	–	41	19	1.1	27.1	.9	1.9	19.1	57.9	47.3	105.3	2.6	1.5	66.4
Ohio	–	251	116	9.0	236.7	6.9	14.2	154.5	535.6	479.1	1 011.4	27.6	9.7	464.5
Oklahoma	–	16	5	.3	7.6	.3	.5	4.3	20.8	17.5	38.1	.9	(NA)	(D)
Oregon	–	29	7	.5	12.1	.4	.7	6.7	26.7	18.7	45.3	.8	.3	13.4
Pennsylvania	E2	129	56	5.1	131.1	3.8	7.6	79.2	294.6	255.2	550.1	14.9	5.3	216.9
Rhode Island	–	35	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	36.3
South Carolina	–	11	3	.2	4.3	.1	.2	2.6	8.2	10.3	18.6	(D)	(NA)	(NA)
Tennessee	–	43	20	1.3	26.9	1.0	2.1	18.1	61.2	52.9	112.8	3.4	1.0	36.6
Texas	–	86	36	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	102.8
Utah	E1	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	14	5	.3	6.5	.2	.5	4.6	16.1	25.0	41.2	.4	(NA)	(D)
Washington	E1	20	4	.3	9.6	.3	.5	6.7	13.9	13.2	28.0	1.2	.5	31.2
West Virginia	E2	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	110	71	8.1	223.0	6.3	12.9	147.1	486.6	443.6	929.3	36.7	7.4	338.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3471, PLATING AND POLISHING														
United States	**E1**	**3 296**	**950**	**65.4**	**1 563.5**	**50.3**	**103.9**	**988.1**	**3 192.8**	**1 567.0**	**4 725.7**	**207.9**	**71.1**	**2 633.6**
Alabama	E1	33	9	.6	11.5	.5	.9	7.3	23.3	8.9	31.7	.8	.8	23.8
Arizona	–	43	12	.7	14.3	.5	1.1	9.7	23.1	9.7	32.9	1.8	.7	19.8
Arkansas	E1	17	2	.2	4.1	.1	.3	2.4	7.6	6.4	14.0	.7	E	(D)
California	E1	561	154	11.2	266.0	8.8	18.3	169.6	522.3	236.3	757.4	25.2	12.7	458.2
Colorado	E1	30	8	.4	8.2	.3	.6	4.9	15.1	6.0	21.0	.5	.4	11.0
Connecticut	E2	101	40	2.6	78.9	1.8	4.2	47.4	144.8	76.2	221.9	7.5	2.6	114.4
Florida	E2	93	14	.9	21.0	.7	1.4	13.0	43.5	15.3	58.7	2.1	1.1	40.3
Georgia	E3	23	7	.6	12.8	.5	1.1	8.7	25.9	11.2	37.1	1.1	.5	13.5
Illinois	E1	280	87	5.9	148.9	4.6	9.5	92.5	300.5	133.9	433.5	17.8	5.5	205.2
Indiana	E1	91	42	3.1	75.5	2.3	4.9	47.6	173.2	152.9	295.6	41.1	2.6	98.2
Iowa	E1	15	2	.2	2.9	.1	.2	1.7	5.6	1.6	7.3	.1	(NA)	(NA)
Kansas	E1	20	2	.2	4.4	.1	.3	2.7	11.4	2.5	13.9	.5	E	(D)
Kentucky	–	24	9	.6	11.5	.5	1.0	8.1	24.4	9.7	34.1	1.7	E	(D)
Louisiana	E1	14	2	.1	3.0	.1	.2	1.9	7.4	3.6	11.1	.3	.2	4.5
Maryland	E3	26	5	.3	6.0	.2	.4	3.7	10.8	3.7	14.6	.3	.3	10.3
Massachusetts	–	98	40	2.2	59.5	1.6	3.4	36.9	113.3	39.8	153.0	3.2	2.6	94.4
Michigan	E1	252	89	5.8	137.7	4.4	9.1	84.5	286.3	129.4	415.4	16.3	7.0	289.3
Minnesota	E1	73	26	1.9	48.1	1.5	3.1	34.3	91.9	40.9	132.8	2.7	G	(D)
Mississippi	E1	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	66	15	1.7	35.0	1.4	2.7	24.1	74.3	34.8	109.1	3.7	2.2	94.2
Nebraska	–	7	3	.2	6.2	.2	.4	3.7	13.4	3.8	17.6	.3	(NA)	(D)
Nevada	E3	14	4	.2	4.8	.1	.3	2.6	8.1	2.2	10.3	.3	(NA)	(NA)
New Jersey	E1	116	28	1.7	43.2	1.3	2.6	26.3	78.5	40.1	119.2	3.3	2.2	91.0
New York	E1	167	41	2.7	60.9	2.1	4.4	38.9	119.3	53.4	172.6	3.5	4.3	148.8
North Carolina	–	55	14	1.1	28.3	.8	1.6	18.8	64.7	67.6	131.8	(D)	1.2	41.2
Ohio	E1	275	96	6.3	146.2	5.0	10.0	95.9	346.3	132.7	478.1	16.1	6.2	239.8
Oklahoma	E1	36	9	.5	10.7	.3	.7	5.4	20.5	5.5	26.3	.4	.4	14.3
Oregon	E1	33	6	.4	7.3	.3	.6	5.1	17.0	4.2	21.2	.4	.3	9.7
Pennsylvania	E1	143	31	2.4	58.8	1.8	3.6	36.9	124.4	113.7	238.4	6.1	2.6	93.4
Rhode Island	–	101	25	1.9	40.0	1.5	3.0	26.7	84.8	36.2	121.2	6.0	2.8	79.8
South Carolina	E1	24	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.6	E	(D)
Tennessee	E1	61	24	2.1	48.3	1.7	3.4	30.2	98.4	76.1	172.4	9.7	2.0	77.4
Texas	E1	167	41	2.4	55.0	1.8	3.8	32.6	107.1	43.6	150.9	4.4	2.4	90.5
Utah	E3	9	2	.1	3.0	.1	.2	2.0	6.9	.9	7.7	.2	(NA)	(NA)
Virginia	–	19	4	.3	7.1	.2	.5	4.3	13.3	2.7	16.0	1.2	E	(D)
Washington	E1	51	8	.7	17.3	.5	1.0	10.3	29.8	9.9	39.7	1.9	.7	29.5
West Virginia	E5	10	4	.3	7.8	.3	.5	5.9	16.0	5.5	21.5	(D)	(NA)	(D)
Wisconsin	E1	92	27	1.8	44.0	1.4	2.9	26.4	87.1	28.6	115.7	5.5	1.8	58.2
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES														
United States	**E1**	**1 945**	**640**	**43.7**	**1 093.0**	**33.8**	**69.5**	**718.0**	**2 504.7**	**2 680.7**	**5 160.7**	**159.3**	**41.5**	**1 995.4**
Alabama	E2	17	7	.5	10.3	.3	.7	6.7	16.5	19.1	35.7	1.2	.4	15.4
Arizona	–	25	5	.4	9.7	.3	.7	6.5	26.7	8.5	34.7	2.0	.2	6.8
California	E1	307	107	5.9	142.3	4.5	9.2	91.0	289.6	321.1	611.0	19.2	5.9	261.4
Colorado	E1	27	8	.3	7.2	.3	.5	5.0	14.8	23.1	40.6	.9	.2	7.3
Connecticut	E1	43	18	1.1	33.0	.9	1.8	22.7	62.4	25.5	88.5	3.7	1.3	59.2
Florida	E3	56	6	.5	11.8	.4	.9	8.0	32.3	19.5	51.8	1.4	.8	30.1
Georgia	E1	16	7	.5	12.0	.4	.8	8.1	38.1	33.5	71.8	3.0	.2	9.0
Illinois	–	121	40	3.3	92.5	2.5	5.3	62.1	197.7	276.1	474.0	12.5	3.1	207.6
Indiana	E1	66	28	2.2	50.4	1.7	3.4	35.3	123.2	98.1	220.5	12.8	2.3	110.3
Iowa	E2	9	2	.3	5.2	.3	.6	4.3	13.6	6.3	19.9	.2	(NA)	(NA)
Kansas	E1	10	5	.4	9.1	.3	.7	6.4	16.5	5.0	21.3	.9	(NA)	(D)
Kentucky	–	14	7	.5	10.9	.4	.7	6.7	20.6	38.6	59.2	2.5	(NA)	(D)
Louisiana	–	18	12	.4	10.0	.3	.8	6.6	24.5	20.5	44.9	2.4	.4	22.8
Maryland	E2	17	4	.4	10.7	.3	.5	7.7	19.8	17.9	37.7	.9	.5	25.2
Massachusetts	E2	82	19	1.2	30.2	.9	1.9	19.9	60.1	32.9	93.1	3.0	1.5	56.7
Michigan	E1	165	72	5.1	110.3	4.1	8.1	74.0	242.3	128.9	373.8	14.2	(NA)	(D)
Minnesota	E2	43	16	1.1	25.4	.9	1.7	15.4	45.5	22.7	67.8	1.8	G	(D)
Missouri	–	37	10	.7	23.7	.6	1.3	15.2	57.1	19.6	76.9	3.2	.7	33.0
New Jersey	E1	62	23	1.2	35.1	.9	2.0	20.5	63.4	34.0	97.4	2.4	1.2	52.9
New York	–	101	27	2.1	53.0	1.5	3.0	33.0	129.0	59.2	189.3	9.3	1.9	73.3
North Carolina	–	29	7	.5	12.3	.4	.8	8.0	32.3	18.5	49.6	(D)	E	(D)
Ohio	–	138	46	4.2	116.0	3.2	6.6	80.4	291.6	613.7	883.1	15.4	4.9	348.6
Oklahoma	E1	26	6	.5	16.8	.5	1.0	12.4	42.1	27.0	68.3	4.7	.4	14.9
Oregon	E1	25	8	.4	8.0	.3	.6	5.4	20.3	9.8	30.1	.8	.3	12.0
Pennsylvania	E1	103	38	2.2	64.2	1.6	3.3	37.4	170.7	261.1	430.2	7.4	2.1	119.8
Rhode Island	E2	38	8	.9	17.9	.8	1.5	11.0	37.2	12.3	49.6	.9	.5	10.0
South Carolina	E1	13	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	E	(D)
Tennessee	–	25	13	.7	13.1	.6	1.2	8.9	33.3	21.7	55.2	6.4	.5	22.3
Texas	E2	142	43	2.7	69.4	2.1	4.8	44.3	169.0	139.6	307.3	11.4	2.9	140.0
Utah	E3	14	4	.2	4.7	.2	.3	3.1	8.8	7.4	16.3	.4	(NA)	(NA)
Virginia	E6	15	3	.1	3.0	.1	.2	1.9	6.8	6.7	13.5	.2	(NA)	(NA)
Washington	E4	30	8	.4	11.5	.4	.7	8.0	27.4	18.3	45.8	1.4	.4	15.8
West Virginia	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E2	52	21	1.5	31.0	1.2	2.4	21.8	60.8	34.1	95.5	4.3	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)	Bolts, nuts, rivets, and washers (SIC 3452)	Iron and steel forgings (SIC 3462)	Nonferrous forgings (SIC 3463)	Automotive stampings (SIC 3465)	Crowns and closures (SIC 3466)	Metal stampings, n.e.c. (SIC 3469)	Plating and polishing (SIC 3471)	Metal coating and allied services (SIC 3479)
Companies ---- number	1 671	806	367	72	585	43	2 635	3 161	1 821
All establishments ---- number	1 706	930	403	78	700	51	2 748	3 296	1 945
With 1 to 19 employees ---- number	1 060	494	204	34	194	20	1 606	2 346	1 305
With 20 to 99 employees ---- number	568	325	125	25	290	14	939	869	575
With 100 employees or more ---- number	78	111	74	19	216	17	203	81	65
Employment and labor costs:									
Employees ---- 1,000	46.4	44.0	24.2	7.9	105.2	4.8	92.7	65.4	43.7
Compensation, total ---- mil dol	1 568.5	1 704.6	1 025.1	368.4	5 774.9	198.0	3 110.8	1 912.8	1 355.6
Annual payroll ---- mil dol	1 270.8	1 350.0	765.9	276.2	4 098.9	143.4	2 487.5	1 563.5	1 093.0
Fringe benefits ---- mil dol	297.8	354.5	259.2	92.2	1 676.1	54.6	623.3	349.3	262.6
Social Security and other legally required payments ---- mil dol	131.0	144.6	96.9	34.6	439.0	21.6	277.8	173.5	115.9
Employer voluntary payments ---- mil dol	166.8	209.9	162.3	57.7	1 237.1	33.0	345.5	175.8	146.7
Production workers:									
Average for year ---- 1,000	36.5	31.8	18.0	5.9	87.1	3.9	70.7	50.3	33.8
March ---- 1,000	36.6	32.1	18.1	5.9	85.2	3.9	70.2	50.2	33.7
May ---- 1,000	36.7	32.1	18.0	6.0	89.6	3.9	70.6	50.4	34.1
August ---- 1,000	36.8	31.8	18.1	6.0	84.1	3.9	71.4	50.7	34.4
November ---- 1,000	36.2	31.4	17.7	5.9	89.7	3.8	71.0	50.2	33.0
Hours ---- millions	77.6	66.4	36.8	12.4	184.0	8.1	146.3	103.9	69.5
Wages ---- mil dol	876.1	849.6	499.9	175.4	3 268.2	97.5	1 592.3	988.1	718.0
Cost of materials[1] ---- mil dol	1 443.5	2 309.2	1 631.7	622.0	8 598.1	437.4	4 520.5	1 567.0	2 680.7
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 050.1	1 721.8	1 313.2	474.0	7 813.2	409.6	3 802.1	1 200.4	2 416.2
Resales ---- mil dol	83.3	182.5	16.2	3.7	109.7	3.7	188.0	72.0	48.6
Fuels ---- mil dol	12.0	25.4	64.8	17.3	54.9	5.2	48.7	71.9	74.8
Purchased electricity ---- mil dol	48.1	73.8	87.5	24.2	199.1	10.5	102.2	141.3	96.2
Contract work ---- mil dol	249.9	305.7	150.0	102.9	421.3	8.3	379.6	81.4	44.9
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	679.6	974.8	1 415.7	327.8	3 248.1	190.8	1 501.1	2 062.6	1 577.0
Generated less sold ---- mil kWh	–	(D)	(D)	–	–	–	5.3	22.8	–
Total value of shipments ---- mil dol	3 830.1	5 183.1	3 232.3	1 196.5	15 821.4	832.9	9 695.0	4 725.7	5 160.7
Value added ---- mil dol	2 393.5	2 866.4	1 586.3	588.3	7 241.8	407.6	5 192.2	3 192.8	2 504.7
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	468.6	1 017.2	609.0	228.9	1 087.6	120.7	1 187.1	333.0	493.8
Finished goods ---- mil dol	170.2	507.5	78.2	39.1	168.0	54.3	385.5	89.1	112.8
Work in process ---- mil dol	172.7	263.0	307.0	147.4	519.6	26.8	307.4	62.4	104.8
Materials and supplies ---- mil dol	125.7	246.7	223.7	42.5	400.1	39.7	494.2	181.5	276.3
End of 1992 ---- mil dol	478.2	997.6	576.0	239.3	1 064.5	128.1	1 193.4	363.6	522.0
Finished goods ---- mil dol	176.2	502.4	84.5	37.7	169.3	63.6	401.7	123.0	121.7
Work in process ---- mil dol	173.6	260.6	286.4	162.6	536.8	29.4	308.8	62.6	120.5
Materials and supplies ---- mil dol	128.4	234.6	205.1	39.1	358.4	35.0	482.9	177.9	279.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)	Bolts, nuts, rivets, and washers (SIC 3452)	Iron and steel forgings (SIC 3462)	Nonferrous forgings (SIC 3463)	Automotive stampings (SIC 3465)	Crowns and closures (SIC 3466)	Metal stampings, n.e.c. (SIC 3469)	Plating and polishing (SIC 3471)	Metal coating and allied services (SIC 3479)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 717.4	2 216.6	1 989.5	598.0	9 521.1	305.6	3 465.8	2 640.9	1 516.9
New capital expenditures[1]	135.1	150.9	114.4	53.0	519.9	18.4	298.1	207.9	159.3
Used capital expenditures	27.7	45.5	24.4	10.3	41.1	2.2	50.0	24.5	16.5
Retirements	27.1	39.9	30.5	27.0	270.6	6.7	62.9	138.0	21.3
End of year	1 853.2	2 373.0	2 097.8	634.3	9 811.5	319.4	3 751.0	2 735.2	1 671.3
Buildings and other structures:									
Beginning of year	274.2	369.0	334.3	122.1	1 751.2	58.6	717.8	551.8	303.7
New capital expenditures	20.6	21.8	14.1	8.8	42.1	.8	45.6	32.0	30.7
Used capital expenditures	3.6	5.4	(D)	(D)	5.9	.1	8.6	6.2	2.1
Retirements	2.0	2.0	(D)	(D)	4.4	.3	9.5	14.7	2.3
End of year	296.4	394.2	350.7	131.5	1 794.8	59.2	762.5	575.3	334.1
Machinery and equipment:									
Beginning of year	1 443.3	1 847.6	1 655.2	475.9	7 769.9	247.0	2 747.9	2 089.1	1 213.2
New capital expenditures[1]	114.5	129.1	100.4	44.2	477.8	17.5	252.5	175.8	128.6
Used capital expenditures	24.0	40.1	(D)	(D)	35.1	2.1	41.5	18.4	14.4
Retirements	25.1	38.0	(D)	(D)	266.2	6.4	53.4	123.3	19.0
End of year	1 556.8	1 978.9	1 747.0	502.8	8 016.7	260.2	2 988.5	2 160.0	1 337.2
Depreciation charges during 1992:									
Total	108.0	142.6	131.7	41.7	460.2	19.4	239.4	178.6	108.6
Buildings and other structures	10.5	14.4	17.1	4.4	51.3	2.4	30.3	27.0	13.6
Machinery and equipment	97.4	128.2	114.6	37.4	408.9	17.0	209.2	151.7	95.0
Rental payments:									
Total	68.2	63.9	19.3	8.9	124.2	8.4	149.5	93.9	105.4
Buildings and other structures	36.9	36.7	12.7	4.9	55.4	6.9	92.1	53.7	71.8
Machinery and equipment	31.3	27.2	6.6	4.0	68.8	1.5	57.4	40.1	33.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)		Bolts, nuts, rivets, and washers (SIC 3452)		Iron and steel forgings (SIC 3462)		Nonferrous forgings (SIC 3463)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	10.4	(X)	13.3	(X)	14.2	(X)	2.8	(X)
Response coverage ratio (percent)[2]	82.2	(X)	79.2	(X)	78.7	(X)	94.4	(X)
Machinery	40.7	(X)	55.4	(X)	76.9	(X)	11.4	(X)
Response coverage ratio (percent)[2]	85.2	(X)	80.4	(X)	83.4	(X)	94.4	(X)
Other purchased services:								
Communications	8.3	(X)	15.9	(X)	5.2	(X)	1.9	(X)
Response coverage ratio (percent)[2]	82.3	(X)	80.2	(X)	81.7	(X)	87.5	(X)
Legal	7.6	(X)	12.6	(X)	8.1	(X)	1.4	(X)
Response coverage ratio (percent)[2]	84.4	(X)	79.9	(X)	81.3	(X)	94.4	(X)
Accounting and bookkeeping	10.1	(X)	5.8	(X)	2.8	(X)	1.0	(X)
Response coverage ratio (percent)[2]	82.5	(X)	80.5	(X)	79.1	(X)	94.4	(X)
Advertising	5.0	(X)	10.1	(X)	1.9	(X)	1.2	(X)
Response coverage ratio (percent)[2]	84.5	(X)	78.6	(X)	83.3	(X)	94.4	(X)
Software and other data processing	4.7	(X)	7.3	(X)	2.2	(X)	1.5	(X)
Response coverage ratio (percent)[2]	82.2	(X)	81.2	(X)	76.9	(X)	94.4	(X)
Refuse removal, including hazardous waste	4.3	(X)	10.3	(X)	4.0	(X)	2.4	(X)
Response coverage ratio (percent)[2]	83.5	(X)	80.9	(X)	83.1	(X)	94.4	(X)
New machinery and equipment expenditures	114.5	(X)	129.1	(X)	100.4	(X)	44.2	(X)
Automobiles, trucks, etc., for highway use	5.6	30	7.2	14	1.9	17	.5	75
Computers and peripheral data processing equipment	4.1	21	13.4	21	6.9	18	3.6	5
All other	104.8	3	108.5	4	91.5	3	40.1	1
Adjustment ratio[3]	1.0	(X)	1.2	(X)	1.1	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	1 050.1	(X)	1 721.8	(X)	1 313.2	(X)	474.0	(X)
Materials purchased or transferred from foreign sources[4]	29.9	28	178.1	14	38.7	11	11.9	15
Materials purchased or transferred from domestic sources	1 020.2	1	1 543.7	2	1 274.5	1	462.1	1
Adjustment ratio[3]	1.5	(X)	1.3	(X)	1.3	(X)	1.4	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automotive stampings (SIC 3465)		Crowns and closures (SIC 3466)		Metal stampings, n.e.c. (SIC 3469)		Plating and polishing (SIC 3471)		Metal coating and allied services (SIC 3479)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	27.0	(X)	1.3	(X)	179.0	(X)	11.5	(X)	9.8	(X)
Response coverage ratio (percent)[2]	90.1	(X)	87.2	(X)	83.1	(X)	72.9	(X)	73.6	(X)
Machinery	162.5	(X)	7.4	(X)	150.6	(X)	67.2	(X)	64.9	(X)
Response coverage ratio (percent)[2]	91.1	(X)	100.0	(X)	84.5	(X)	74.8	(X)	78.3	(X)
Other purchased services:										
Communications	11.4	(X)	1.4	(X)	20.6	(X)	11.5	(X)	7.7	(X)
Response coverage ratio (percent)[2]	83.6	(X)	100.0	(X)	81.9	(X)	68.9	(X)	70.4	(X)
Legal	7.0	(X)	.3	(X)	71.8	(X)	11.4	(X)	6.1	(X)
Response coverage ratio (percent)[2]	91.1	(X)	50.5	(X)	82.6	(X)	71.6	(X)	75.9	(X)
Accounting and bookkeeping	7.0	(X)	.3	(X)	16.0	(X)	12.4	(X)	5.3	(X)
Response coverage ratio (percent)[2]	89.4	(X)	50.5	(X)	80.3	(X)	73.9	(X)	75.6	(X)
Advertising	3.2	(X)	.4	(X)	123.4	(X)	10.4	(X)	6.4	(X)
Response coverage ratio (percent)[2]	88.5	(X)	50.5	(X)	83.4	(X)	71.6	(X)	77.9	(X)
Software and other data processing	12.7	(X)	.6	(X)	11.9	(X)	6.8	(X)	2.0	(X)
Response coverage ratio (percent)[2]	90.5	(X)	77.8	(X)	81.1	(X)	70.6	(X)	72.5	(X)
Refuse removal, including hazardous waste	389.8	(X)	1.4	(X)	9.7	(X)	32.6	(X)	14.3	(X)
Response coverage ratio (percent)[2]	91.0	(X)	100.0	(X)	82.4	(X)	73.9	(X)	77.3	(X)
New machinery and equipment expenditures	477.8	(X)	17.5	(X)	252.5	(X)	175.8	(X)	128.6	(X)
Automobiles, trucks, etc., for highway use	5.2	19	.2	75	7.8	16	5.7	20	7.0	29
Computers and peripheral data processing equipment	15.4	8	.6	2	17.5	11	5.3	18	7.8	14
All other	457.2	1	16.7	1	227.2	2	164.8	1	113.8	3
Adjustment ratio[3]	1.3	(X)	1.5	(X)	1.1	(X)	1.2	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	7 813.2	(X)	409.6	(X)	3 802.1	(X)	1 200.4	(X)	2 416.2	(X)
Materials purchased or transferred from foreign sources[4]	220.5	13	1.9	7	149.1	17	39.0	14	202.6	6
Materials purchased or transferred from domestic sources	7 592.7	1	407.7	1	3 653.0	1	1 161.4	1	2 213.6	1
Adjustment ratio[3]	1.5	(X)	1.9	(X)	1.7	(X)	1.7	(X)	1.9	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3451, SCREW MACHINE PRODUCTS												
Total	**–**	**1 706**	**46.4**	**1 270.8**	**36.5**	**77.6**	**876.1**	**2 393.5**	**1 443.5**	**3 830.1**	**135.1**	**478.2**
Establishments with an average of–												
1 to 4 employees	E6	295	.6	15.7	.5	1.1	11.7	34.2	18.0	52.3	1.4	5.8
5 to 9 employees	E2	334	2.3	54.1	1.8	3.9	40.3	97.4	50.8	148.3	3.8	14.2
10 to 19 employees	–	431	5.9	147.0	4.7	10.0	101.1	258.8	139.7	397.8	13.9	39.8
20 to 49 employees	–	391	11.9	318.2	9.3	19.7	213.4	589.8	344.9	938.4	25.6	109.5
50 to 99 employees	–	177	12.5	349.5	9.9	20.7	239.1	682.7	420.4	1 095.7	35.7	136.9
100 to 249 employees	–	66	9.3	266.6	7.4	16.1	192.0	499.4	326.7	822.7	38.0	109.9
250 to 499 employees	–	12	3.8	119.6	2.9	6.1	78.5	231.3	142.9	375.0	16.6	62.2
Covered by administrative records[2]	E9	316	.9	18.9	.7	1.5	13.9	38.2	20.1	58.3	2.2	7.1
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS												
Total	**E1**	**930**	**44.0**	**1 350.0**	**31.8**	**66.4**	**849.6**	**2 866.4**	**2 309.2**	**5 183.1**	**150.9**	**997.6**
Establishments with an average of–												
1 to 4 employees	E9	152	.3	7.6	.2	.5	4.9	15.5	11.3	27.0	.8	4.7
5 to 9 employees	E6	169	1.1	28.5	.9	1.9	17.7	57.1	42.4	98.7	2.7	26.0
10 to 19 employees	E2	173	2.4	59.9	1.7	3.5	34.6	123.5	104.4	227.2	4.9	34.5
20 to 49 employees	–	216	6.9	192.8	5.1	10.6	117.9	420.4	403.0	821.3	19.3	136.2
50 to 99 employees	E1	109	7.8	223.2	5.7	12.0	139.9	493.2	548.9	1 047.6	25.0	176.6
100 to 249 employees	–	82	12.7	402.2	8.9	18.5	244.8	873.0	768.9	1 642.0	52.0	304.9
250 to 499 employees	E1	22	7.5	245.2	5.2	11.2	151.2	526.9	268.6	802.9	24.4	188.6
500 to 999 employees	–	7	5.2	190.7	4.1	8.3	138.6	356.9	161.8	516.5	21.8	126.0
Covered by administrative records[2]	E9	297	1.5	32.2	1.1	2.4	20.4	61.9	45.8	107.7	3.2	19.1

See footnotes at end of table.

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[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3462, IRON AND STEEL FORGINGS												
Total	**E1**	**403**	**24.2**	**765.9**	**18.0**	**36.8**	**499.9**	**1 586.3**	**1 631.7**	**3 232.3**	**114.4**	**576.0**
Establishments with an average of—												
1 to 4 employees	E9	89	.1	3.7	.1	.2	2.5	8.1	7.8	15.8	.7	3.4
5 to 9 employees	E7	58	.4	10.0	.3	.6	6.6	18.8	20.1	38.9	1.7	7.5
10 to 19 employees	E3	57	.8	21.4	.6	1.3	13.4	49.7	45.0	94.3	2.2	14.5
20 to 49 employees	E1	77	2.6	73.9	1.9	4.2	46.5	158.3	178.3	341.0	9.6	52.8
50 to 99 employees	E1	48	3.4	99.6	2.5	5.0	63.1	188.1	263.6	450.8	21.2	80.8
100 to 249 employees	E1	60	9.8	321.6	7.4	15.3	210.2	729.5	740.2	1 476.0	52.8	234.9
250 to 499 employees	–	10	3.3	103.8	2.6	5.1	75.4	206.4	164.4	368.9	7.8	62.8
500 to 999 employees	–	2	3.8	131.9	2.6	5.1	82.1	227.4	212.3	446.7	18.4	119.3
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	138	.5	12.4	.4	.9	8.5	21.0	23.7	44.8	1.5	8.6
INDUSTRY 3463, NONFERROUS FORGINGS												
Total	**–**	**78**	**7.9**	**276.2**	**5.9**	**12.4**	**175.4**	**588.3**	**622.0**	**1 196.5**	**53.0**	**239.3**
Establishments with an average of—												
1 to 4 employees	E9	20	(Z)	1.0	(Z)	.1	.7	2.1	2.3	4.4	.4	1.0
5 to 9 employees	E6	7	(Z)	1.5	(Z)	.1	1.0	3.0	3.3	6.3	.5	1.5
10 to 19 employees	E2	7	.1	2.7	.1	.1	1.6	5.6	5.3	10.9	.7	1.9
20 to 49 employees	E3	12	.4	12.8	.3	.8	8.6	27.4	20.3	46.5	2.8	12.6
50 to 99 employees	–	13	.9	30.6	.7	1.5	19.4	82.0	72.5	152.9	5.1	17.6
100 to 249 employees	E2	11	1.7	54.0	1.3	2.8	36.2	86.2	120.8	210.4	5.7	41.0
250 to 499 employees	–	5	1.9	66.4	1.5	3.3	47.7	135.7	113.9	253.1	12.7	34.7
500 to 999 employees	–	2	2.8	107.1	2.0	3.8	60.2	246.4	283.6	511.9	25.0	129.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	23	.1	1.6	(Z)	.1	1.1	3.2	3.4	6.6	.6	1.5
INDUSTRY 3465, AUTOMOTIVE STAMPINGS												
Total	**–**	**700**	**105.2**	**4 098.9**	**87.1**	**184.0**	**3 268.2**	**7 241.8**	**8 598.1**	**15 821.4**	**519.9**	**1 064.5**
Establishments with an average of—												
1 to 4 employees	E6	53	.1	3.8	.1	.2	2.9	7.3	6.6	14.3	.5	1.1
5 to 9 employees	E5	51	.3	8.3	.3	.6	6.5	14.5	16.7	31.1	1.2	2.9
10 to 19 employees	E1	90	1.3	34.6	.9	2.0	21.7	63.9	63.1	127.3	3.0	12.8
20 to 49 employees	–	158	5.2	148.3	3.9	8.1	89.7	296.9	318.0	616.9	17.5	55.5
50 to 99 employees	–	132	9.6	272.5	7.3	15.0	174.2	658.5	682.7	1 339.2	46.9	121.0
100 to 249 employees	–	146	22.7	638.8	17.8	36.9	431.4	1 463.4	1 733.9	3 176.8	108.9	283.1
250 to 499 employees	–	41	13.7	389.5	11.1	23.0	280.8	1 020.6	1 032.3	2 041.6	116.9	144.9
500 to 999 employees	–	9	6.9	220.2	5.5	10.9	169.5	387.7	425.1	811.2	23.9	59.5
1,000 to 2,499 employees	–	12	45.5	2 382.9	40.3	87.3	2 091.5	3 329.1	4 319.7	7 663.1	201.0	383.8
2,500 employees or more	–	8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	86	.5	10.0	.4	.8	8.1	14.9	18.4	33.3	1.8	2.6
INDUSTRY 3466, CROWNS AND CLOSURES												
Total	**–**	**51**	**4.8**	**143.4**	**3.9**	**8.1**	**97.5**	**407.6**	**437.4**	**832.9**	**18.4**	**128.1**
Establishments with an average of—												
1 to 4 employees	E8	7	(Z)	.6	(Z)	(Z)	.4	1.3	1.0	2.3	.1	.3
5 to 9 employees	E5	7	(Z)	1.3	(Z)	.1	1.0	2.7	2.7	5.4	.1	.7
10 to 19 employees	–	6	.1	2.5	.1	.1	1.8	5.4	8.7	14.1	.3	2.1
20 to 49 employees	E1	10	.3	7.9	.2	.4	5.2	13.2	16.8	29.8	.4	3.0
50 to 99 employees	–	4	.3	9.6	.2	.5	6.1	33.8	44.8	79.1	.4	12.1
100 to 249 employees	–	13	2.3	70.7	1.9	4.0	49.9	191.8	212.2	392.3	12.4	59.8
250 to 499 employees	–	3	1.7	50.9	1.4	2.9	33.2	159.4	151.2	309.9	4.8	50.1
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	9	(Z)	.9	(Z)	(Z)	.7	2.5	2.3	4.8	.1	.7
INDUSTRY 3469, METAL STAMPINGS, N.E.C.												
Total	**–**	**2 748**	**92.7**	**2 487.5**	**70.7**	**146.3**	**1 592.3**	**5 192.2**	**4 520.5**	**9 695.0**	**298.1**	**1 193.4**
Establishments with an average of—												
1 to 4 employees	E8	699	1.2	28.8	1.0	2.0	19.1	63.9	64.8	128.7	4.0	16.2
5 to 9 employees	E4	452	3.0	70.3	2.3	4.5	47.0	136.7	113.9	250.5	5.6	29.2
10 to 19 employees	E1	455	6.4	163.9	4.7	9.3	101.5	317.0	244.5	561.9	12.7	61.0
20 to 49 employees	–	623	19.7	534.0	14.7	30.7	326.5	1 072.1	847.5	1 917.1	53.5	212.0
50 to 99 employees	–	316	22.2	596.9	16.7	34.6	372.8	1 218.4	1 037.3	2 251.6	69.7	270.2
100 to 249 employees	–	170	25.1	678.0	19.3	40.6	434.1	1 466.6	1 302.8	2 757.2	89.9	347.2
250 to 499 employees	–	26	9.0	247.6	7.1	14.6	166.5	559.2	409.4	964.4	37.1	129.8
500 to 999 employees	–	5	6.0	167.9	4.9	10.0	124.8	358.3	500.2	863.7	25.6	127.9
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	877	2.8	52.9	2.1	4.2	34.6	101.5	106.9	208.5	6.4	26.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3471, PLATING AND POLISHING												
Total	**E1**	**3 296**	**65.4**	**1 563.5**	**50.3**	**103.9**	**988.1**	**3 192.8**	**1 567.0**	**4 725.7**	**207.9**	**363.6**
Establishments with an average of—												
1 to 4 employees	E6	962	1.8	38.7	1.5	2.9	25.9	86.4	40.9	127.2	5.6	9.4
5 to 9 employees	E2	668	4.5	103.2	3.4	6.9	68.0	202.9	77.1	279.8	11.0	18.4
10 to 19 employees	E1	716	9.9	226.9	7.6	15.4	143.4	431.4	159.6	590.9	16.6	43.2
20 to 49 employees	E1	650	19.8	479.9	15.1	31.1	294.1	933.3	385.9	1 319.3	41.1	81.3
50 to 99 employees	E1	219	15.1	367.1	11.6	24.9	229.3	786.4	340.7	1 126.0	34.4	77.2
100 to 249 employees	–	71	9.8	245.5	7.7	15.7	163.5	558.1	432.0	958.9	76.7	100.6
250 to 499 employees	–	8	4.4	102.1	3.5	6.9	63.9	194.2	130.8	323.5	22.5	33.4
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	940	2.4	41.3	1.8	3.5	26.0	83.0	40.4	123.4	3.9	9.1
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES												
Total	**E1**	**1 945**	**43.7**	**1 093.0**	**33.8**	**69.5**	**718.0**	**2 504.7**	**2 680.7**	**5 160.7**	**159.3**	**522.0**
Establishments with an average of—												
1 to 4 employees	E7	595	1.0	23.8	.8	1.7	16.3	62.6	64.6	127.2	5.4	13.4
5 to 9 employees	E3	328	2.2	47.6	1.7	3.4	32.5	97.2	70.3	167.4	4.3	17.6
10 to 19 employees	E2	382	5.3	121.8	4.1	8.1	78.4	249.4	182.0	432.3	13.2	40.9
20 to 49 employees	E1	438	13.7	327.7	10.6	22.0	212.0	711.7	468.2	1 181.2	40.2	105.8
50 to 99 employees	E1	137	10.0	258.1	7.6	15.8	162.0	621.6	651.9	1 273.0	37.8	119.5
100 to 249 employees	–	56	8.3	228.4	6.5	13.4	155.3	523.5	752.0	1 269.2	48.0	132.3
250 to 499 employees	–	9	3.2	85.6	2.6	5.0	61.5	238.8	491.6	710.5	10.4	92.5
Covered by administrative records[2]	E9	589	1.3	25.7	1.1	2.2	17.3	62.5	75.3	137.8	5.3	15.6

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3451	**Screw machine products:**										
	All establishments in industry	1 706	46.4	1 270.8	36.5	77.6	876.1	2 393.5	1 443.5	3 830.1	135.1
	Establishments with this product class primary:										
34511	Automotive screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	190	10.6	306.1	8.5	18.0	215.8	614.7	469.9	1 084.6	49.2
34512	Other screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	895	29.8	817.9	23.3	49.5	557.6	1 509.5	843.7	2 347.2	71.0
3452	**Bolts, nuts, rivets, and washers:**										
	All establishments in industry	930	44.0	1 350.0	31.8	66.4	849.6	2 866.4	2 309.2	5 183.1	150.9
	Establishments with this product class primary:										
34524	Externally threaded metal fasteners, except aircraft types	267	16.2	489.1	11.7	24.9	306.1	1 094.6	1 149.1	2 250.7	60.3
34525	Internally threaded metal fasteners, except aircraft types	62	4.3	129.5	3.0	6.3	81.9	292.7	235.7	526.0	16.0
34526	Nonthreaded metal fasteners, except aircraft types	95	6.0	176.2	4.1	8.0	96.6	394.5	286.9	681.5	14.6
34527	Aircraft (including aerospace) fasteners other than plastics (meet specifications for flying vehicles)	52	9.3	318.2	6.8	14.1	210.6	596.4	257.2	856.6	33.9
34528	Other formed parts not made of plastics (made on fastener machines)	47	4.5	148.0	3.4	7.1	96.7	304.2	251.8	558.0	16.7
3462	**Iron and steel forgings:**										
	All establishments in industry	403	24.2	765.9	18.0	36.8	499.9	1 586.3	1 631.7	3 232.3	114.4
	Establishments with this product class primary:										
34625	Hot impression die impact, press, and upset steel forgings	129	16.4	529.6	12.1	24.4	351.3	1 079.0	1 097.6	2 189.7	70.0
34626	Cold impression die impact, press, and upset steel forgings	20	1.8	55.4	1.4	3.0	36.6	143.6	115.9	260.2	14.9
34627	Seamless rolled ring forgings, ferrous (not made in steel mills)	11	1.0	34.8	.7	1.5	18.3	86.9	103.8	193.4	6.8
34628	Open die or smith forgings (hammer or press), ferrous (not made in steel mills)	32	2.3	72.0	1.7	3.6	44.3	148.3	159.6	309.4	11.2

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3463	**Nonferrous forgings:**										
	All establishments in industry	78	7.9	276.2	5.9	12.4	175.4	588.3	622.0	1 196.5	53.0
	Establishments with this product class primary:										
34635	Hot impression die impact, press, and upset nonferrous forgings	32	6.3	226.3	4.8	10.1	148.1	485.0	544.2	1 018.9	39.1
34639	Other nonferrous forgings	5	.8	25.4	.6	1.0	10.6	54.6	28.0	80.4	(D)
3465	**Automotive stampings:**										
	All establishments in industry	700	105.2	4 098.9	87.1	184.0	3 268.2	7 241.8	8 598.1	15 821.4	519.9
3466	**Crowns and closures:**										
	All establishments in industry	51	4.8	143.4	3.9	8.1	97.5	407.6	437.4	832.9	18.4
	Establishments with this product class primary:										
34661	Metal commercial closures and metal home-canning closures, except crowns	37	4.1	125.1	3.3	6.9	82.4	355.1	370.1	721.5	13.6
34662	Metal crowns	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3469	**Metal stampings, n.e.c.:**										
	All establishments in industry	2 748	92.7	2 487.5	70.7	146.3	1 592.3	5 192.2	4 520.5	9 695.0	298.1
	Establishments with this product class primary:										
34692	Job stampings, except automotive	1 087	51.0	1 435.2	38.9	82.0	924.2	2 950.6	2 497.4	5 439.0	179.7
34694	Stamped and spun utensils, cooking and kitchen, aluminum	29	4.5	111.9	3.6	7.2	74.9	277.3	275.6	553.7	17.7
34695	Stamped and spun utensils, cooking and kitchen, except aluminum	21	4.1	114.3	3.2	6.4	73.7	283.6	344.8	624.0	16.7
34696	Metal spinning products	63	1.6	44.2	1.3	2.6	29.9	77.1	39.5	116.6	2.4
34699	Other stamped and pressed metal end products, including vitreous enameled products	320	18.9	493.7	14.2	28.4	300.7	1 058.3	842.8	1 897.7	49.9
3471	**Plating and polishing:**										
	All establishments in industry	3 296	65.4	1 563.5	50.3	103.9	988.1	3 192.8	1 567.0	4 725.7	207.9
3479	**Metal coating and allied services:**										
	All establishments in industry	1 945	43.7	1 093.0	33.8	69.5	718.0	2 504.7	2 680.7	5 160.7	159.3

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3451, SCREW MACHINE PRODUCTS			
Total value of shipments	3 830.1	2 806.2	2 173.1
Primary products value of shipments	3 455.1	2 578.5	2 029.0
Secondary products value of shipments	191.3	137.1	79.0
Total miscellaneous receipts	183.7	90.7	65.1
Value of resales	109.5	39.2	21.7
Contract receipts	24.6	24.8	25.6
Other miscellaneous receipts	49.6	26.7	21.6
Sales of scrap and refuse	42.8	(NA)	12.8
Other miscellaneous receipts	3.9	(NA)	5.1
Other miscellaneous receipts, n.s.k.	2.9	(NA)	3.7
Primary products specialization ratio	95	95	96
Value of primary products shipments made in all industries	3 660.3	2 763.3	2 159.7
Value of primary products shipments made in this industry	3 455.1	2 578.5	2 029.0
Value of primary products shipments made in other industries	205.2	184.8	130.8
Coverage ratio	94	93	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS			
Total value of shipments	5 183.1	5 084.0	3 661.3
Primary products value of shipments	4 632.8	4 592.7	3 239.9
Secondary products value of shipments	250.0	253.3	243.9
Total miscellaneous receipts	300.3	238.0	177.6
Value of resales	268.6	190.1	142.4
Contract receipts	9.2	17.5	11.9
Other miscellaneous receipts	22.6	30.5	23.3
Sales of scrap and refuse	13.5	(NA)	8.7
Other miscellaneous receipts	7.0	(NA)	14.5
Other miscellaneous receipts, n.s.k.	2.1	(NA)	.1
Primary products specialization ratio	95	95	93
Value of primary products shipments made in all industries	4 843.8	4 793.1	3 401.0
Value of primary products shipments made in this industry	4 632.8	4 592.7	3 239.9
Value of primary products shipments made in other industries	211.0	200.4	161.1
Coverage ratio	96	96	95
INDUSTRY 3462, IRON AND STEEL FORGINGS			
Total value of shipments	3 232.3	3 003.6	2 943.5
Primary products value of shipments	2 919.0	2 670.4	2 557.2
Secondary products value of shipments	222.4	267.9	303.8
Total miscellaneous receipts	90.9	65.3	82.5
Value of resales	19.0	20.0	46.3
Contract receipts	28.4	11.4	19.1
Other miscellaneous receipts	43.6	33.9	17.1
Sales of scrap and refuse	30.9	(NA)	12.3
Other miscellaneous receipts	12.7	(NA)	4.8
Primary products specialization ratio	93	91	89
Value of primary products shipments made in all industries	3 175.8	2 903.2	3 161.3
Value of primary products shipments made in this industry	2 919.0	2 670.4	2 557.2
Value of primary products shipments made in other industries	256.8	232.8	604.1
Coverage ratio	92	92	81
INDUSTRY 3463, NONFERROUS FORGINGS			
Total value of shipments	1 196.5	1 003.7	1 093.8
Primary products value of shipments	1 033.8	808.5	886.3
Secondary products value of shipments	130.0	136.5	162.7
Total miscellaneous receipts	32.7	58.7	44.7
Value of resales	4.4	3.7	6.7
Contract receipts	3.9	3.6	(D)
Other miscellaneous receipts	24.4	51.4	(D)
Sales of scrap and refuse	20.1	(NA)	(D)
Other miscellaneous receipts	(D)	(NA)	1.3
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	89	86	84
Value of primary products shipments made in all industries	1 191.4	1 061.4	1 210.9
Value of primary products shipments made in this industry	1 033.8	808.5	886.3
Value of primary products shipments made in other industries	157.6	252.9	324.6
Coverage ratio	87	76	73
INDUSTRY 3465, AUTOMOTIVE STAMPINGS			
Total value of shipments	15 821.4	15 251.6	8 777.4
Primary products value of shipments	14 464.6	13 963.1	7 957.0
Secondary products value of shipments	985.9	765.4	654.7
Total miscellaneous receipts	370.9	523.2	165.7
Value of resales	126.6	79.7	44.4
Contract receipts	26.0	32.0	23.9
Other miscellaneous receipts	218.3	411.5	97.4
Sales of scrap and refuse	203.7	(NA)	78.3
Receipts for research and development	(D)	(NA)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	94	95	92
Value of primary products shipments made in all industries	15 874.4	14 961.0	9 041.2
Value of primary products shipments made in this industry	14 464.6	13 963.1	7 957.0
Value of primary products shipments made in other industries	1 409.8	998.0	1 084.3
Coverage ratio	91	93	88

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3466, CROWNS AND CLOSURES			
Total value of shipments	832.9	819.8	804.8
Primary products value of shipments	786.8	772.7	728.6
Secondary products value of shipments	36.8	35.2	63.7
Total miscellaneous receipts	9.3	11.9	12.5
Value of resales	(D)	3.3	4.4
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	96	96	92
Value of primary products shipments made in all industries	811.0	811.4	790.2
Value of primary products shipments made in this industry	786.8	772.7	728.6
Value of primary products shipments made in other industries	24.2	38.7	61.6
Coverage ratio	97	95	92
INDUSTRY 3469, METAL STAMPINGS, N.E.C.			
Total value of shipments	9 695.0	8 331.1	6 437.7
Primary products value of shipments	8 224.3	7 214.9	5 453.8
Secondary products value of shipments	1 073.5	825.4	732.0
Total miscellaneous receipts	397.3	290.8	251.9
Value of resales	249.5	163.0	126.4
Contract receipts	71.4	49.5	86.7
Other miscellaneous receipts	76.5	78.3	38.8
Sales of scrap and refuse	56.1	(NA)	27.8
Receipts for research and development	.6	(NA)	.7
Other miscellaneous receipts	14.3	(NA)	7.8
Other miscellaneous receipts, n.s.k.	5.5	(NA)	2.5
Primary products specialization ratio	88	90	88
Value of primary products shipments made in all industries	9 003.2	7 970.0	6 172.3
Value of primary products shipments made in this industry	8 224.3	7 214.9	5 453.8
Value of primary products shipments made in other industries	779.0	755.1	718.5
Coverage ratio	91	91	88
INDUSTRY 3471, PLATING AND POLISHING			
Total value of shipments	4 725.7	3 866.9	2 731.4
Primary products value of shipments	4 205.6	3 609.5	2 600.4
Secondary products value of shipments	311.1	106.1	88.8
Total miscellaneous receipts	208.9	151.2	42.2
Value of resales	84.7	63.2	21.7
Contract receipts	99.9	72.9	10.5
Other miscellaneous receipts	24.3	15.1	10.0
Sales of scrap and refuse	5.4	(NA)	4.7
Other miscellaneous receipts	17.1	(NA)	(D)
Other miscellaneous receipts, n.s.k.	1.7	(NA)	(D)
Primary products specialization ratio	[1]93	[1]97	[1]97
Value of primary products shipments made in all industries	4 488.5	3 828.4	2 680.3
Value of primary products shipments made in this industry	4 205.6	3 609.5	2 600.4
Value of primary products shipments made in other industries	282.9	218.8	79.9
Coverage ratio	[1]94	[1]94	[1]97
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES			
Total value of shipments	5 160.7	3 922.6	2 393.4
Primary products value of shipments	4 738.4	3 495.6	2 238.9
Secondary products value of shipments	197.6	271.8	95.4
Total miscellaneous receipts	224.8	155.1	59.1
Value of resales	58.1	57.9	23.0
Contract receipts	93.1	53.8	15.7
Other miscellaneous receipts	73.5	43.4	20.4
Sales of scrap and refuse	11.5	(NA)	8.2
Other miscellaneous receipts	60.5	(NA)	11.8
Other miscellaneous receipts, n.s.k.	1.5	(NA)	.4
Primary products specialization ratio	[1]96	[1]93	[1]96
Value of primary products shipments made in all industries	5 137.9	3 800.2	2 405.2
Value of primary products shipments made in this industry	4 738.4	3 495.6	2 238.9
Value of primary products shipments made in other industries	399.5	304.5	166.3
Coverage ratio	[1]92	[1]92	[1]93

Note: For qualifications of data, see footnotes on table 1a.

[1]Due to the predominance of miscellaneous receipts, particularly receipts of contract and commission work on materials owned by others, these specialization and coverage ratios should be used with caution.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3451– —	**SCREW MACHINE PRODUCTS**				
	Total	**(NA)**	**3 660.3**	**(NA)**	**2 763.3**
34511	Automotive screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	(NA)	1 100.0	(NA)	881.3
34511 00	Automotive	398	1 100.0	367	881.3
34512	Other screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	(NA)	2 141.4	(NA)	1 595.3
34512 31	Aircraft	141	192.1	126	182.9
34512 39	Ordnance	99	94.6	96	85.5
34512 42	Household appliances, including radio and television	196	161.9	146	144.4
34512 52	Electric and electronic equipment, except household appliances	329	333.7	255	261.6
34512 62	Machinery	350	406.4	245	279.7
34512 99	All other end uses	587	903.3	377	588.8
34512 00	Other screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock), n.s.k.	(NA)	49.3	(NA)	52.4
34510	Screw machine products, n.s.k.	(NA)	418.9	(NA)	286.7
34510 00	Screw machine products, n.s.k.[3]	(NA)	360.6	(NA)	175.5
34510 02	Screw machine products, n.s.k.[4]	(NA)	58.3	(NA)	111.1
3452– —	**BOLTS, NUTS, RIVETS, AND WASHERS**				
	Total	**(NA)**	**4 843.8**	**(NA)**	**4 793.1**
34524	Externally threaded metal fasteners, except aircraft types	(NA)	2 013.6	(NA)	1 775.1
	Bolts:				
34524 11	Mine roof bolts	12	203.9	13	180.2
34524 12	Hex bolts, including heavy, tap-and-joint, excluding high-strength structural	55	250.2	56	168.7
34524 19	Other metal bolts, including square, round, plow, high-strength structural, and bent bolts	98	263.7	97	276.2
	Screws:				
34524 39	Cap, set, machine, lag, flange, and self-locking	108	429.3	75	379.1
34524 45	Tapping, including fillister, flat, hex, oval, pan and truss; and wood, including flat, oval, and round	73	410.8	59	309.3
34524 89	Other externally threaded metal fasteners not mentioned above, including studs	117	411.6	85	434.7
34524 00	Externally threaded metal fasteners, except aircraft types, n.s.k.	(NA)	44.2	(NA)	27.0
34525	Internally threaded metal fasteners, except aircraft types	(NA)	556.6	(NA)	534.0
	Nuts:				
34525 04	Hex, including flanges, double chamfered, washer face, flat, jam, slotted, thick, castle, heavy, machine, and locking	77	285.0	59	268.5
34525 29	Square, including flat, washer, crowned, heavy, track, sleeve, and machine; sheet metal; weld; wing; nut retainers; etc.	22	32.4	24	98.9
34525 89	Other internally threaded metal fasteners not mentioned above, including flanged nuts and locknuts	57	227.3	59	156.8
34525 00	Internally threaded metal fasteners, except aircraft types, n.s.k.	(NA)	11.9	(NA)	9.9
34526	Nonthreaded metal fasteners, except aircraft types	(NA)	666.7	(NA)	574.5
	Rivets:				
34526 09	Solid	47	91.8	37	77.4
34526 15	Tubular, split (including rivet caps) and blind	31	133.4	22	126.4
34526 35	Washers	45	165.1	46	138.6
34526 79	Other nonthreaded metal fasteners not mentioned above, including pins (all types)	87	275.5	78	205.7
34526 00	Nonthreaded metal fasteners, except aircraft types, n.s.k.	(NA)	.9	(NA)	26.4
34527	Aircraft (including aerospace) fasteners other than plastics (meet specifications for flying vehicles)	(NA)	767.5	(NA)	873.1
	Externally threaded:				
	Bolts:				
34527 01	Less than 161 KSI tensile	21	115.2	18	163.1
34527 06	161 KSI tensile or more	19	203.0	15	169.9
34527 15	Screws, all types; and studs, all types	20	39.7	24	65.3
	Internally threaded:				
34527 45	Locknuts, including flanged locknuts	15	144.1	15	167.6
34527 59	Other, including flanged nuts (all types except flanged locknuts), hex square nuts (all types) and sheet metal fasteners	13	102.5	25	138.1
	Nonthreaded:				
34527 61	Washers, all types	10	8.4	13	10.3
34527 62	Rivets, all types	9	109.6	13	117.1
34527 63	Pins, all types	21	44.3	13	37.7
34527 00	Aircraft (including aerospace) fasteners other than plastics (meet specifications for flying vehicles), n.s.k.	(NA)	.6	(NA)	4.0
34528	Other formed parts not made of plastics (made on fastener machines)	(NA)	535.5	(NA)	481.7
34528 11	Automotive	44	287.5	43	265.5
34528 21	Household appliances, including radio and television	21	30.9	13	30.6
34528 31	Aircraft	14	51.3	16	41.7
34528 98	All other, including ordnance	48	164.9	64	135.4
34528 00	Other formed parts not made of plastics (made on fastener machines), n.s.k.	(NA)	1.0	(NA)	8.4
34520	Bolts, nuts, rivets, and washers, n.s.k.	(NA)	303.9	(NA)	554.7
34520 00	Bolts, nuts, rivets, and washers, n.s.k.[5]	(NA)	196.2	(NA)	349.9
34520 02	Bolts, nuts, rivets, and washers, n.s.k.[6]	(NA)	107.7	(NA)	204.8

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3462– —	**IRON AND STEEL FORGINGS**						
	Total	**(NA)**	**(X)**	**3 175.8**	**(NA)**	**(X)**	**2 903.2**
34625	Hot impression die impact, press, and upset steel forgings	(NA)	(X)	2 132.7	(NA)	(X)	2 004.7
34625 11	Carbon steel, 1,000 s tons	107	**583.0	913.2	100	*585.7	750.1
34625 13	Alloy steel, excluding stainless and hi-temp, 1,000 s tons	75	490.6	698.5	84	536.2	766.8
34625 15	Stainless, 1,000 s tons	43	15.4	104.7	35	*9.1	91.2
34625 17	Hi-temp (iron, nickel, or cobalt-base alloy), 1,000 s tons	26	5.1	273.2	20	7.4	287.6
34625 00	Hot impression die impact, press, and upset steel forgings, n.s.k.	(NA)	(X)	143.1	(NA)	(X)	108.9
34626	Cold impression die impact, press, and upset steel forgings	(NA)	(X)	255.3	(NA)	(X)	189.8
34626 11	Carbon steel, 1,000 s tons	13	*47.6	108.5	16	*38.2	101.1
34626 13	Alloy steel, 1,000 s tons	8	65.1	102.0	10	50.8	73.0
34626 16	Stainless steel and hi-temp (iron, nickel, or cobalt-base alloy), 1,000 s tons	3	(S)	5.2	(NA)	(NA)	[7]9.4
34626 00	Cold impression die impact, press, and upset steel forgings, n.s.k.	(NA)	(X)	39.6	(NA)	(X)	6.3
34627	Seamless rolled ring forgings, ferrous (not made in steel mills)	(NA)	(X)	198.1	(NA)	(X)	181.2
34627 12	Carbon and alloy steel, excluding stainless and hi-temp	20	(X)	76.2	(NA)	(X)	[7]90.2
34627 16	Stainless steel and hi-temp (iron, nickel, or cobalt-base alloy)	15	(X)	121.9	(NA)	(X)	[7]88.7
34627 00	Seamless rolled ring forgings, ferrous (not made in steel mills), n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	2.4
34628	Open die or smith forgings (hammer or press), ferrous (not made in steel mills)	(NA)	(X)	330.1	(NA)	(X)	271.8
34628 12	Carbon and alloy steel, excluding stainless and hi-temp	41	(X)	291.6	(NA)	(X)	[7]209.9
34628 16	Stainless steel and hi-temp (iron, nickel, or cobalt-base alloy)	21	(X)	38.2	(NA)	(X)	[7]40.2
34628 00	Open die or smith forgings (hammer or press), ferrous (not made in steel mills), n.s.k.	(NA)	(X)	.3	(NA)	(X)	21.7
34620	Iron and steel forgings, n.s.k.	(NA)	(X)	259.5	(NA)	(X)	255.7
34620 00	Iron and steel forgings, n.s.k.[5]	(NA)	(X)	214.8	(NA)	(X)	144.4
34620 02	Iron and steel forgings, n.s.k.[6]	(NA)	(X)	44.8	(NA)	(X)	111.3
3463– —	**NONFERROUS FORGINGS**						
	Total	**(NA)**	**(X)**	**1 191.4**	**(NA)**	**(X)**	**1 061.4**
34635	Hot impression die impact, press, and upset nonferrous forgings	(NA)	(X)	963.8	(NA)	(X)	884.7
34635 21	Aluminum and aluminum alloy, 1,000 s tons	31	*58.9	556.4	38	*72.0	508.5
34635 23	Titanium and titanium alloy, 1,000 s tons	22	4.1	192.7	25	6.8	276.2
34635 25	Copper and copper-base alloy, 1,000 s tons	9	*15.3	86.4	12	16.2	73.2
34635 29	Other hot impression nonferrous forgings, 1,000 s tons	13	(S)	119.4	8	2.8	18.2
34635 00	Hot impression die impact, press, and upset nonferrous forgings, n.s.k.	(NA)	(X)	8.9	(NA)	(X)	8.6
34639	Other nonferrous forgings	(NA)	(X)	131.5	(NA)	(X)	124.4
34639 15	Cold impression die impact, press, and upset nonferrous forgings, 1,000 s tons	5	12.2	79.7	8	10.6	35.9
34639 25	Seamless rolled ring forgings (nonferrous), 1,000 s tons	7	*2.1	30.2	10	3.9	56.8
34639 35	Open die or smith forgings, hammer or press (nonferrous), 1,000 s tons	10	3.2	19.6	13	**4.7	30.9
34639 00	Other nonferrous forgings, n.s.k.	(NA)	(X)	2.0	(NA)	(X)	.8
34630	Nonferrous forgings, n.s.k.	(NA)	(X)	96.1	(NA)	(X)	52.3
34630 00	Nonferrous forgings, n.s.k.[8]	(NA)	(X)	89.5	(NA)	(X)	35.4
34630 02	Nonferrous forgings, n.s.k.[9]	(NA)	(X)	6.6	(NA)	(X)	16.9

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3465– —	**AUTOMOTIVE STAMPINGS**				
	Total	**(NA)**	**15 874.4**	**(NA)**	**14 961.0**
34650	Job stampings, automotive	(NA)	15 874.4	(NA)	14 961.0
34650 00	Automotive job stampings (truck, bus, and passenger car)	781	15 840.0	623	14 789.3
34650 02	Automotive stampings, n.s.k.[4]	(NA)	34.4	(NA)	171.7
3466– —	**CROWNS AND CLOSURES**				
	Total	**(NA)**	**811.0**	**(NA)**	**811.4**
34661	Metal commercial closures and metal home-canning closures, except crowns	(NA)	(D)	(NA)	686.2
34661 05	Metal and metal-composite closures, including home-canning closures	34	635.5	(NA)	[10]686.2
	All other closures, including roll-ons:				
34661 20	Soft drinks	2	(D)	(NA)	([10])
34661 22	All other including beer	4	(D)	(NA)	([10])
34661 00	Metal commercial closures and metal home-canning closures, except crowns, n.s.k.	(NA)	9.4	(NA)	([10])
34662	Metal crowns	(NA)	(D)	(NA)	115.4
34662 30	Soft drinks	2	(D)		
34662 32	All other including beer	2	(D)	7	115.4
34662 00	Metal crowns, n.s.k.	(NA)	–		
34660	Crowns and closures, n.s.k.	(NA)	9.0	(NA)	9.8
34660 00	Crowns and closures, n.s.k.[5]	(NA)	4.2	(NA)	.1
34660 02	Crowns and closures, n.s.k.[6]	(NA)	4.8	(NA)	9.7
3469– —	**METAL STAMPINGS, N.E.C.**				
	Total	**(NA)**	**9 003.2**	**(NA)**	**7 970.0**
34692	Job stampings, except automotive	(NA)	5 030.3	(NA)	4 252.7
34692 01	Recreational vehicle stampings (motor homes, travel trailers, etc.)	71	100.0	48	40.7
34692 05	Motor and generator stampings	117	445.0	81	90.3
34692 11	Aviation stampings	101	165.9	83	216.3
34692 15	Agricultural equipment stampings, including tractor	102	176.4	92	96.3
34692 20	Computer stampings	190	549.0	158	292.7
34692 25	Electrical appliance stampings, except refrigeration and laundry equipment	190	274.1	158	286.0
34692 31	Furniture stampings	93	188.5	88	186.9
34692 41	Office machine stampings, excluding computer	73	166.4	82	110.1
34692 52	Radio and phonograph stampings	22	34.6	34	28.5
34692 53	Television stampings	31	115.3	33	63.3
34692 61	Refrigeration stampings (residential, commercial, and industrial)	75	261.0	57	195.1
34692 71	Stove, heater, and air-conditioner stampings (residential, commercial, and industrial)	102	189.8	80	74.5
34692 84	Laundry equipment stampings (residential, commercial, and industrial)	44	61.5	42	76.6
34692 88	Other industrial equipment stampings	311	471.0	263	346.1
34692 98	Other job stampings	682	1 554.5	544	1 755.7
34692 00	Job stampings, except automotive, n.s.k.	(NA)	277.2	(NA)	393.6
34694	Stamped and spun utensils, cooking and kitchen, aluminum	(NA)	549.4	(NA)	501.2
34694 11	Top of range household utensils (items generally used directly on top of source of heat), including pressure cookers	19	284.0	13	267.3
34694 14	Bakeware, pantryware, and miscellaneous household utensils	21	189.6	18	133.9
34694 17	Camping and outdoor cooking equipment	7	8.5	3	3.1
34694 29	Other, including commercial and hospital	17	66.9	13	53.9
34694 00	Stamped and spun utensils, cooking and kitchen, aluminum, n.s.k.	(NA)	.4	(NA)	43.0
34695	Stamped and spun utensils, cooking and kitchen, except aluminum	(NA)	496.0	(NA)	288.6
	Stainless steel:				
34695 07	Top of range household utensils (items generally used directly on top of source of heat)	14	235.1	17	153.6
34695 09	Bakeware, pantryware, and miscellaneous household utensils	7	39.6	8	15.9
34695 15	Other, including commercial, hospital, and outdoor cooking equipment	21	104.4	18	66.4
	Tinware:				
34695 21	Household	5	(D)	9	18.0
34695 24	Other, including commercial, hospital, and outdoor cooking equipment	4	(D)	4	(D)
34695 27	Vitreous enameled cooking and kitchen utensils	2	(D)	1	(D)
34695 98	Other stamped and spun cooking and kitchen utensils, including copper	8	15.4	9	(D)
34695 00	Stamped and spun utensils, cooking and kitchen, except aluminum, n.s.k.	(NA)	–	(NA)	7.8
34696	Metal spinning products	(NA)	109.5	(NA)	46.5
34696 00	Metal spinning products, excluding cooking and kitchen utensils	71	109.5	45	46.5

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3469– —	**METAL STAMPINGS, N.E.C.**—Con.				
34699	Other stamped and pressed metal end products, including vitreous enameled products	(NA)	1 814.2	(NA)	1 390.8
	Vitreous (porcelain) enameled products, excluding cooking and kitchen utensils:				
34699 41	Architectural parts (exterior and interior), including store front and curtain wall components	11	24.3	8	9.1
34699 48	Other products including refrigerator and laundry equipment parts; and commercial and hospital utensils	15	46.1	11	29.0
34699 51	Chemical milling products; milled contoured metal; and clad and bonded metal products	14	20.2	(NA)	([11])
34699 59	Perforated metal end products	37	201.8	29	84.4
	Pails, ash cans, garbage cans, tubs, etc., excluding shipping containers:				
34699 61	Galvanized steel	14	41.3	9	21.8
34699 69	Other metal, including other grades of steel	16	47.0	18	33.0
34699 71	Electronic enclosures (stamped and/or pressed), excluding computer stampings	124	360.0	88	292.1
34699 85	Mailboxes (commercial and multiple unit residential)	14	61.8	10	42.8
34699 89	Toolboxes	34	337.6	22	235.8
34699 97	Other stamped and pressed metal end products, excluding spinning products	219	645.7	239	[11]630.0
34699 00	Other stamped and pressed metal end products, including vitreous enameled products, n.s.k.	(NA)	28.4	(NA)	12.8
34690	Metal stampings, n.e.c., n.s.k.	(NA)	1 003.8	(NA)	1 490.2
34690 00	Metal stampings, n.e.c., n.s.k.[3]	(NA)	795.3	(NA)	1 220.8
34690 02	Metal stampings, n.e.c., n.s.k.[4]	(NA)	208.5	(NA)	269.4
3471– —	**PLATING AND POLISHING**				
	Total	**(NA)**	**4 488.5**	**(NA)**	**3 828.4**
34710	Electroplating, plating, and polishing	(NA)	4 488.5	(NA)	3 828.4
34710 00	Electroplating, plating, polishing, and anodizing	2 253	4 364.7	2139	3 671.0
34710 02	Plating and polishing, n.s.k.[4]	(NA)	123.8	(NA)	157.3
3479– —	**METAL COATING AND ALLIED SERVICES**				
	Total	**(NA)**	**5 137.9**	**(NA)**	**3 800.2**
34790	Etching, engraving, coating, and allied services	(NA)	5 137.9	(NA)	3 800.2
34790 10	Electronic engraving, excluding metal nameplates	19	38.0	22	27.3
34790 11	Photo chemical etching, including machining (excluding metal nameplates)	48	121.8	45	78.2
34790 13	Etching and engraving nameplates	55	79.1	39	50.1
34790 21	Other engraving and etching	71	74.5	54	65.4
34790 31	Galvanizing and other hot dip coating	115	1 336.9	93	864.5
	Organic coatings, enamels, and lacquers, including alkyds, plastics, etc.:				
34790 61	Coil coating	40	814.9	33	574.4
34790 73	Liquid spray coating, including electrostatic coating	443	763.9	(NA)	587.9
34790 75	Powder coating, including electrostatic and fluidized bed	312	597.9	(NA)	316.8
34790 81	All other, including curtain coating and wash coating	134	288.5	127	382.6
34790 77	Inorganic coatings, including porcelain	107	292.7	(NA)	([12])
34790 00	Metal coating and allied services, n.s.k.[3]	(NA)	592.4	(NA)	[12]700.4
34790 02	Metal coating and allied services, n.s.k.[4]	(NA)	137.5	(NA)	152.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]Typically for establishments with 10 employees or more.
[6]Typically for establishments with less than 10 employees.
[7]For 1992, product code is revised. See appendix C, parts 1 and 2, for comparability.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]For 1987, product codes are combined to avoid disclosing data for individual companies.
[11]For 1987, product codes were combined to avoid disclosing data for individual companies.
[12]For 1987, product codes were combined to avoid disclosing data for individual companies.

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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Seamless rolled ring forgings, ferrous	(NA)	275.4	(NA)	(D)
3312A	Made in steel mills	(NA)	77.3	(NA)	(D)
34627	Not made in steel mills	(NA)	198.1	(NA)	181.2
	Carbon and alloy steel, excluding stainless and hi-temp	(NA)	123.1	(NA)	(D)
3312A 17	Made in steel mills	5	46.9	(NA)	(D)
34627 12	Not made in steel mills	20	76.2	(NA)	90.2
	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)	(NA)	152.3	(NA)	(D)
3312A 26	Made in steel mills	3	30.4	(NA)	(D)
34627 16	Not made in steel mills	15	121.9	(NA)	88.7
	Seamless rolled ring forgings, ferrous, n.s.k.	(NA)	(Z)	(NA)	33.5
3312A 00	Made in steel mills	(NA)	–	(NA)	31.1
34627 00	Not made in steel mills	(NA)	(Z)	(NA)	2.4
	Open die or smith forgings (hammer or press), ferrous	(NA)	444.2	(NA)	(D)
3312B	Made in steel mills	(NA)	114.0	(NA)	(D)
34628	Not made in steel mills	(NA)	330.1	(NA)	271.8
	Carbon and alloy steel (excluding stainless and hi-temp)	(NA)	399.3	(NA)	325.4
3312B 62	Made in steel mills	5	107.7	(NA)	115.5
34628 12	Not made in steel mills	41	291.6	(NA)	209.9
	Stainless and hi-temp (iron, nickel, or cobalt-base alloy)	(NA)	44.6	(NA)	(D)
3312B 66	Made in steel mills	5	6.4	(NA)	(D)
34628 16	Not made in steel mills	21	38.2	(NA)	40.2
	Open die or smith forgings (hammer or press), ferrous, n.s.k.	(NA)	.3	(NA)	21.7
3312B 00	Made in steel mills	(NA)	–	(NA)	–
34628 00	Not made in steel mills	(NA)	.3	(NA)	21.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34511, AUTOMOTIVE SCREW MACHINE PRODUCTS AND TURNED PARTS (NONSTANDARD ITEMS MADE FROM ROD, BAR, OR TUBE STOCK)		
United States	**1 100.0**	**881.3**
California	14.5	29.9
Connecticut	15.0	16.3
Florida	7.0	8.4
Illinois	79.5	138.4
Indiana	70.5	23.4
Massachusetts	6.3	(NA)
Michigan	496.0	393.9
Minnesota	18.8	19.3
Missouri	41.2	24.1
New Jersey	5.3	5.7
New York	90.3	56.8
Ohio	131.2	113.0
Pennsylvania	4.8	7.2
Tennessee	25.8	(NA)
Wisconsin	17.9	16.3
34512, OTHER SCREW MACHINE PRODUCTS AND TURNED PARTS (NONSTANDARD ITEMS MADE FROM ROD, BAR, OR TUBE STOCK)		
United States	**2 141.4**	**1 595.3**
Arizona	43.8	18.3
Arkansas	6.3	(NA)
California	214.6	163.6
Colorado	5.4	(NA)
Connecticut	101.0	134.1
Florida	50.2	9.3
Georgia	5.3	(NA)
34512, OTHER SCREW MACHINE PRODUCTS AND TURNED PARTS (NONSTANDARD ITEMS MADE FROM ROD, BAR, OR TUBE STOCK)—Con.		
Illinois	257.4	160.3
Indiana	87.0	75.4
Iowa	7.4	10.5
Massachusetts	67.4	74.1
Michigan	188.5	151.9
Minnesota	82.9	49.2
Missouri	47.6	37.9
Nebraska	18.7	9.5
Nevada	4.9	(NA)
New Hampshire	14.1	6.4
New Jersey	62.7	66.8
New York	164.5	136.6
North Carolina	9.3	8.3
Ohio	316.2	195.8
Oklahoma	10.7	(NA)
Oregon	26.1	11.8
Pennsylvania	119.2	70.7
Rhode Island	9.8	13.1
South Carolina	8.0	7.0
Tennessee	31.9	42.9
Texas	23.2	17.7
Virginia	9.0	(NA)
Washington	10.2	13.2
Wisconsin	98.1	59.3
34524, EXTERNALLY THREADED METAL FASTENERS, EXCEPT AIRCRAFT TYPES		
United States	**2 013.6**	**1 775.1**
Alabama	43.9	43.8

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34524, EXTERNALLY THREADED METAL FASTENERS, EXCEPT AIRCRAFT TYPES—Con.		
California	35.7	38.6
Connecticut	53.1	47.1
Florida	10.2	(NA)
Illinois	623.1	539.7
Indiana	97.2	52.3
Kentucky	51.4	54.6
Massachusetts	35.0	37.9
Michigan	290.6	300.9
Minnesota	9.9	(NA)
Mississippi	6.2	5.8
Missouri	14.3	(NA)
New Jersey	11.6	12.8
New York	85.7	42.8
Ohio	218.4	217.4
Pennsylvania	131.8	106.7
Rhode Island	11.0	10.2
Tennessee	21.2	(NA)
Texas	68.1	39.6
Virginia	69.4	71.8
34525, INTERNALLY THREADED METAL FASTENERS, EXCEPT AIRCRAFT TYPES		
United States	**556.6**	**534.0**
Illinois	44.0	26.8
Indiana	53.1	37.2
Massachusetts	6.9	14.4
Michigan	120.4	96.6
New York	8.1	6.1
Ohio	86.0	57.4
Pennsylvania	59.8	78.5
Texas	16.4	(NA)
Wisconsin	16.9	13.9
34526, NONTHREADED METAL FASTENERS, EXCEPT AIRCRAFT TYPES		
United States	**666.7**	**574.5**
California	34.0	46.5
Connecticut	69.4	69.6
Illinois	120.3	80.2
Indiana	4.2	11.1
Massachusetts	25.0	14.0
Michigan	67.0	32.2
New Hampshire	5.0	(NA)
New Jersey	54.7	48.2
New York	41.5	54.8
Ohio	56.3	40.8
Pennsylvania	29.4	37.4
South Carolina	14.2	(NA)
Wisconsin	75.6	56.5
34527, AIRCRAFT (INCLUDING AEROSPACE) FASTENERS OTHER THAN PLASTICS (MEET SPECIFICATIONS FOR FLYING VEHICLES)		
United States	**767.5**	**873.1**
California	602.2	660.2
Connecticut	16.6	15.5
Illinois	5.8	3.5
Michigan	6.7	(NA)
New York	2.4	(NA)
Ohio	3.3	6.4
34528, OTHER FORMED PARTS NOT MADE OF PLASTICS (MADE ON FASTENER MACHINES)		
United States	**535.5**	**481.7**
California	48.2	51.3
Connecticut	37.2	(NA)
Illinois	111.0	97.0
Massachusetts	10.1	(NA)
Michigan	113.1	150.5
New Hampshire	6.0	(NA)
New Jersey	36.7	11.0
New York	33.6	(NA)
Ohio	73.3	37.0
Pennsylvania	38.1	33.9
34625, HOT IMPRESSION DIE IMPACT, PRESS, AND UPSET STEEL FORGINGS		
United States	**2 132.7**	**2 004.7**
California	70.3	79.7
Connecticut	39.1	28.5
Illinois	184.9	191.9
Indiana	85.6	76.9
Michigan	244.4	221.7
New York	22.1	(NA)
Ohio	330.1	405.3
Pennsylvania	244.6	203.8
Texas	202.4	193.1
Wisconsin	157.6	191.9
34626, COLD IMPRESSION DIE IMPACT, PRESS, AND UPSET STEEL FORGINGS		
United States	**255.3**	**189.8**
Ohio	107.4	82.2
34627, SEAMLESS ROLLED RING FORGINGS, FERROUS (NOT MADE IN STEEL MILLS)		
United States	**198.1**	**181.2**
California	86.1	40.9
34628, OPEN DIE OR SMITH FORGINGS (HAMMER OR PRESS), FERROUS (NOT MADE IN STEEL MILLS)		
United States	**330.1**	**271.8**
California	22.9	13.4
New York	4.8	19.6
Ohio	29.0	(NA)
Pennsylvania	111.3	86.8
Texas	52.2	36.2
34635, HOT IMPRESSION DIE IMPACT, PRESS, AND UPSET NONFERROUS FORGINGS		
United States	**963.8**	**884.7**
California	176.1	247.8
Connecticut	25.2	23.5
Pennsylvania	94.2	(NA)
Texas	35.2	28.7
34639, OTHER NONFERROUS FORGINGS		
United States	**131.5**	**124.4**
California	18.1	69.3
34661, METAL COMMERCIAL CLOSURES AND METAL HOME-CANNING CLOSURES, EXCEPT CROWNS		
United States	**(D)**	**686.2**
California	48.5	63.5
Connecticut	45.8	65.4
Illinois	131.0	(NA)
Indiana	145.0	110.3
New York	16.6	38.2
34662, METAL CROWNS		
United States	**(D)**	**115.4**
34692, JOB STAMPINGS, EXCEPT AUTOMOTIVE		
United States	**5 030.3**	**4 252.7**
Alabama	53.4	49.8
Arizona	33.9	38.6
Arkansas	10.0	3.5
California	355.8	240.6
Colorado	42.6	11.3
Connecticut	314.8	241.9
Florida	43.9	25.9
Georgia	51.2	25.4
Illinois	939.2	785.4
Indiana	166.4	169.5

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34692, JOB STAMPINGS, EXCEPT AUTOMOTIVE—Con.		
Iowa	16.6	23.3
Kansas	2.5	(NA)
Kentucky	174.9	102.4
Maryland	10.9	21.9
Massachusetts	135.8	122.2
Michigan	271.4	376.2
Minnesota	280.9	206.0
Mississippi	19.8	11.0
Missouri	54.9	50.2
New Hampshire	15.7	11.8
New Jersey	185.2	190.9
New York	230.1	214.3
North Carolina	66.1	64.0
Ohio	624.0	513.2
Oklahoma	11.8	(NA)
Oregon	24.1	7.2
Pennsylvania	291.2	265.9
Rhode Island	31.9	15.5
South Carolina	10.3	8.2
Tennessee	65.3	39.3
Texas	108.8	64.9
Washington	19.3	50.6
West Virginia	6.5	8.0
Wisconsin	333.7	270.8
34694, STAMPED AND SPUN UTENSILS, COOKING AND KITCHEN, ALUMINUM		
United States	**549.4**	**501.2**
California	11.5	5.1
Indiana	60.9	(NA)
New York	3.5	(NA)
34695, STAMPED AND SPUN UTENSILS, COOKING AND KITCHEN, EXCEPT ALUMINUM		
United States	**496.0**	**288.6**
California	2.6	6.8
Illinois	122.4	123.8
Pennsylvania	7.7	(NA)
34695, STAMPED AND SPUN UTENSILS, COOKING AND KITCHEN, EXCEPT ALUMINUM—Con.		
Wisconsin	150.4	102.8
34696, METAL SPINNING PRODUCTS		
United States	**109.5**	**46.5**
California	7.4	4.9
Illinois	16.1	9.1
Indiana	20.6	(NA)
New York	2.6	(NA)
Ohio	6.4	2.8
Pennsylvania	6.8	3.5
Wisconsin	18.2	4.7
34699, OTHER STAMPED AND PRESSED METAL END PRODUCTS, INCLUDING VITREOUS ENAMELED PRODUCTS		
United States	**1 814.2**	**1 390.8**
Alabama	3.1	2.6
Arizona	21.9	6.9
California	161.1	184.2
Colorado	19.3	6.0
Connecticut	120.4	76.0
Florida	48.1	36.1
Georgia	28.6	18.1
Illinois	216.5	154.7
Indiana	18.7	43.8
Kentucky	18.1	43.0
Massachusetts	121.6	57.0
Michigan	67.6	25.8
Minnesota	59.5	42.5
Mississippi	21.6	16.0
Missouri	107.7	55.3
New Jersey	29.5	34.4
New York	93.7	44.0
Ohio	149.7	117.5
Oregon	9.9	12.8
Pennsylvania	132.5	88.3
Tennessee	15.3	(NA)
Texas	59.6	36.1
Washington	3.0	3.8
Wisconsin	77.6	30.0

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3451-	**Screw machine products**	**3 660.3**	**2 926.1**	**3 033.8**	**3 129.5**	**3 114.2**	**2 763.3**	**2 159.7**	**1 771.4**
34511	Automotive screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	1 100.0	969.2	994.1	1 006.5	1 003.0	881.3	686.7	598.4
34512	Other screw machine products and turned parts (nonstandard items made from rod, bar, or tube stock)	2 141.4	1 718.8	1 803.1	1 875.1	1 790.5	1 595.3	1 245.3	958.6
34510	Screw machine products, n.s.k.	418.9	238.0	236.7	247.8	320.8	286.7	227.8	214.4
3452-	**Bolts, nuts, rivets, and washers**	**4 843.8**	**5 275.1**	**5 529.4**	**5 391.0**	**5 225.5**	**4 793.1**	**3 401.0**	**3 130.3**
34524	Externally threaded metal fasteners, except aircraft types	2 013.6	2 032.1	2 042.9	2 020.3	1 997.4	1 775.1	1 451.0	1 451.2
34525	Internally threaded metal fasteners, except aircraft types	556.6	507.7	606.5	621.5	579.8	534.0	408.6	412.6
34526	Nonthreaded metal fasteners, except aircraft types	666.7	608.5	607.8	652.7	618.9	574.5	526.2	517.2
34527	Aircraft (including aerospace) fasteners other than plastics (meet specifications for flying vehicles)	767.5	1 031.7	1 045.0	927.1	862.4	873.1	516.7	237.9
34528	Other formed parts not made of plastics (made on fastener machines)	535.5	444.8	524.6	532.0	536.8	481.7	329.9	284.6
34520	Bolts, nuts, rivets, and washers, n.s.k.	303.9	650.2	702.7	637.4	630.1	554.7	168.5	226.8
3462-	**Iron and steel forgings**	**3 175.8**	**3 542.1**	**3 765.1**	**3 695.4**	**3 209.8**	**2 903.2**	**3 161.3**	**2 966.7**
34625	Hot impression die impact, press, and upset steel forgings	2 132.7	2 193.3	2 357.4	2 372.2	2 105.4	2 004.7	2 265.5	2 155.4
34626	Cold impression die impact, press, and upset steel forgings	255.3	265.0	293.7	301.0	243.0	189.8	219.8	215.7
34627	Seamless rolled ring forgings, ferrous (not made in steel mills)	198.1	257.6	270.6	238.6	228.3	181.2		113.8
34628	Open die or smith forgings (hammer or press), ferrous (not made in steel mills)	330.1	428.4	442.1	397.3	346.0	271.8	591.9	384.7
34620	Iron and steel forgings, n.s.k.	259.5	397.8	401.3	386.3	287.1	255.7	84.1	97.1
3463-	**Nonferrous forgings**	**1 191.4**	**1 093.4**	**1 236.6**	**1 222.7**	**1 128.7**	**1 061.4**	**1 210.9**	**540.4**
34635	Hot impression die impact, press, and upset nonferrous forgings	963.8	844.1	1 001.1	1 031.8	949.3	884.7	1 011.2	468.1
34639	Other nonferrous forgings	131.5	186.2	187.7	141.3	125.8	124.4	193.7	61.2
34630	Nonferrous forgings, n.s.k.	96.1	63.2	47.9	49.7	53.6	52.3	6.0	11.1
3465-	**Automotive stampings**	**15 874.4**	**14 078.5**	**14 518.7**	**15 321.6**	**15 585.7**	**14 961.0**	**9 041.2**	**9 599.8**
34650	Job stampings, automotive	15 874.4	14 078.5	14 518.7	15 321.6	15 585.7	14 961.0	9 041.2	9 599.8

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3466-	**Crowns and closures**	**811.0**	**692.6**	**745.4**	**733.3**	**711.1**	**811.4**	**790.2**	**581.0**
34661	Metal commercial closures and metal home-canning closures, except crowns	(D)	596.0	652.0	630.1	613.7	686.2	627.1	470.7
34662	Metal crowns	(D)	83.4	79.4	88.6	85.5	115.4	145.0	104.8
34660	Crowns and closures, n.s.k.	9.0	13.1	13.9	14.6	11.8	9.8	18.1	5.6
3469-	**Metal stampings, n.e.c.**	**9 003.2**	**9 078.9**	**9 148.0**	**9 134.0**	**8 643.7**	**7 970.0**	**6 172.3**	**4 554.5**
34692	Job stampings, except automotive	5 030.3	5 287.8	5 227.1	5 365.6	4 838.3	4 252.7	2 908.9	2 199.3
34694	Stamped and spun utensils, cooking and kitchen, aluminum	549.4	233.6	269.3	362.9	344.0	501.2	508.2	330.1
34695	Stamped and spun utensils, cooking and kitchen, except aluminum	496.0	346.9	324.2	329.6	319.2	288.6	367.7	385.4
34696	Metal spinning products	109.5	53.2	60.0	63.6	48.4	46.5	(NA)	(NA)
34699	Other stamped and pressed metal end products, including vitreous enameled products	1 814.2	1 664.8	1 816.8	1 722.9	1 483.7	1 390.8	1 584.8	1 073.0
34690	Metal stampings, n.e.c., n.s.k.	1 003.8	1 492.6	1 450.6	1 289.3	1 610.0	1 490.2	802.6	566.7
3471-	**Plating and polishing**	**4 488.5**	**4 023.1**	**4 438.0**	**4 373.8**	**4 274.3**	**3 828.4**	**2 680.3**	**1 775.1**
34710	Electroplating, plating, and polishing	4 488.5	4 023.1	4 438.0	4 373.8	4 274.3	3 828.4	2 680.3	1 775.1
3479-	**Metal coating and allied services**	**5 137.9**	**4 504.3**	**4 786.9**	**4 548.2**	**4 700.8**	**3 800.2**	**2 405.2**	**1 520.5**
34790	Etching, engraving, coating, and allied services	5 137.9	4 504.3	4 786.9	4 548.2	4 700.8	3 800.2	2 405.2	1 520.5

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3451, SCREW MACHINE PRODUCTS		
	Materials, ingredients, containers, and supplies	**1 050.1**	**810.0**
340004	Fabricated metal products, including forgings	42.5	(2)
330091	Castings (rough and semifinished)	15.3	12.9
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes	344.3	288.8
331022	Sheet and strip	18.3	(2)
331027	Wire and wire products	37.6	(2)
331035	All other steel shapes and forms	10.1	(2)
	Copper and copper-base alloy:		
335103	Rod, bar, and bar shapes	136.6	86.4
335143	Plate, sheet, and strip, including military cups and discs	.6	(2)
335110	All other copper and copper-base alloy shapes and forms	3.9	(2)
	Aluminum and aluminum-base alloy:		
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	41.5	23.8
335020	All other (wire, rolled rod and bar, powder, welded tubing, etc.)	23.8	9.7
335099	Other nonferrous shapes and forms	17.3	(2)
265001	Paperboard containers, boxes, and corrugated paperboard	9.8	6.0
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	25.9	12.4
970099	All other materials and components, parts, containers, and supplies	115.9	[2]170.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	206.7	199.8
	INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS		
	Materials, ingredients, containers, and supplies	**1 721.8**	**1 629.6**
340004	Fabricated metal products, including forgings	96.1	(4)
330091	Castings (rough and semifinished)	10.3	(4)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes	207.9	300.3
331022	Sheet and strip	120.6	
331027	Wire and wire products	518.1	563.1
331035	All other steel shapes and forms	67.3	
	Copper and copper-base alloy:		
335103	Rod, bar, and bar shapes	16.0	18.8
335143	Plate, sheet, and strip, including military cups and discs	13.4	13.3
335110	All other copper and copper-base alloy shapes and forms	11.6	(4)
	Aluminum and aluminum-base alloy:		
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	5.7	3.7
335020	All other (wire, rolled rod and bar, powder, welded tubing, etc.)	28.9	25.2
335099	Other nonferrous shapes and forms	66.4	(4)
265001	Paperboard containers, boxes, and corrugated paperboard	21.5	18.3
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	112.9	75.8
970099	All other materials and components, parts, containers, and supplies	244.0	[4]366.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	181.2	245.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3462, IRON AND STEEL FORGINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**1 313.2**	**(X)**	**1 273.2**
340091	Fabricated metal products, except forgings	(X)	18.3	(X)	(5)
346000	Forgings, 1,000 s tons	*46.3	81.7	(NA)	(5)
330091	Castings (rough and semifinished)	(X)	10.8	(X)	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Steel:				
331005	Ingot and semifinished shapes (blooms, billets, and slabs), 1,000 s tons	**275.5	259.6	350.3	262.7
331069	Bars, bar shapes, and other shapes and forms, 1,000 s tons	*803.9	476.0	*849.7	454.4
335601	Titanium and titanium-base alloy, 1,000 s tons	2.7	38.2	(S)	63.5
335105	Copper and copper-base alloy, 1,000 s tons	(S)	.7	(S)	.5
335001	Aluminum and aluminum-base alloy, 1,000 s tons	**3.0	8.3	(S)	9.9
335616	Nickel and nickel-base alloy, including nickel-copper alloys, 1,000 s tons	15.7	52.2	**4.2	18.6
335060	All other nonferrous shapes and forms, 1,000 s tons	(S)	1.3	(NA)	(5)
354411	Forging dies, 1,000 s tons	(S)	17.8	(S)	10.1
970099	All other materials and components, parts, containers, and supplies	(X)	161.4	(X)	[5]281.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	186.6	(X)	172.1
	INDUSTRY 3463, NONFERROUS FORGINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**474.0**	**(X)**	**456.3**
340091	Fabricated metal products, except forgings	(X)	–	(X)	(5)
346000	Forgings, 1,000 s tons	4.2	51.2	(D)	(5)
330091	Castings (rough and semifinished)	(X)	–	(X)	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Steel:				
331005	Ingot and semifinished shapes (blooms, billets, and slabs), 1,000 s tons	3.9	11.1	(NA)	(5)
331069	Bars, bar shapes, and other shapes and forms, 1,000 s tons	(S)	1.6	(NA)	(5)
335601	Titanium and titanium-base alloy, 1,000 s tons	229.6	57.2	(S)	85.6
335105	Copper and copper-base alloy, 1,000 s tons	(D)	(D)	*24.0	26.6
335001	Aluminum and aluminum-base alloy, 1,000 s tons	118.3	171.9	(D)	(5)
335616	Nickel and nickel-base alloy, including nickel-copper alloys, 1,000 s tons	(D)	(D)	4.7	23.9
335060	All other nonferrous shapes and forms, 1,000 s tons	1.5	7.7	(S)	7.3
354411	Forging dies, 1,000 s tons	(S)	11.7	(S)	5.8
970099	All other materials and components, parts, containers, and supplies	(X)	57.3	(X)	[5]278.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	34.1	(X)	28.9
	INDUSTRY 3465, AUTOMOTIVE STAMPINGS				
	Materials, ingredients, containers, and supplies	**(X)**	**7 813.2**	**(X)**	**8 018.4**
	Fabricated metal products, except forgings:				
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	210.7	(X)	148.7
340098	Other fabricated metal products	(X)	845.3	(X)	(5)
	Castings (rough and semifinished):				
332001	Iron and steel	(X)	31.8	(X)	61.5
336010	Nonferrous (aluminum, copper, etc.)	(X)	10.0	(X)	16.0
346000	Forgings	(X)	(6)	(X)	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Steel:				
331072	Bars and bar shapes	(X)	67.7		
331022	Sheet and strip, 1,000 s tons	*6 831.4	4 313.8		
331082	Plate	(X)	8.4		
331027	Wire and wire products	(X)	32.4	(X)	5 266.5
331018	Tinplate, tin free steel, terneplate, and blackplate, 1,000 s tons	(S)	11.2		
331028	All other steel shapes and forms	(X)	326.2		
335105	Copper and copper-base alloy	(X)	25.5	(X)	13.4
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, foil, and welded tubing	(X)	85.2	(X)	95.4
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(X)	4.0	(X)	30.1
335008	Other aluminum and aluminum-base alloy shapes and forms	(X)	13.4	(X)	12.5
335099	Other nonferrous shapes and forms	(X)	16.5	(X)	(5)
	Chemicals and allied products:				
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(X)	31.8	(X)	16.4
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	16.3	(X)	27.8
280088	Other chemicals and allied products	(X)	20.1	(X)	(5)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	32.2	(X)	23.6
	Paper and paperboard products:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	46.5	(X)	39.5
260080	Other paper and paperboard products	(X)	9.4	(X)	5.4
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(X)	287.6	(X)	584.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3465, AUTOMOTIVE STAMPINGS—Con.				
970099	All other materials and components, parts, containers, and supplies	(X)	[6]980.0	(X)	[5]1 051.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	387.2	(X)	625.2
	INDUSTRY 3466, CROWNS AND CLOSURES				
	Materials, ingredients, containers, and supplies	**(X)**	**409.6**	**(X)**	**412.4**
	Fabricated metal products, except forgings:				
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	.8	(X)	1.1
340098	Other fabricated metal products	(X)	(D)	(X)	(5)
	Castings (rough and semifinished):				
332001	Iron and steel	(X)	(D)	(X)	(D)
336010	Nonferrous (aluminum, copper, etc.)	(X)	(D)	(X)	–
346000	Forgings	(X)	–	(X)	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Steel:				
331072	Bars and bar shapes	(X)	(D)		
331022	Sheet and strip 1,000 s tons	(S)	1.9		
331082	Plate	(X)	–	(D)	(D)
331027	Wire and wire products	(X)	–		
331018	Tinplate, tin free steel, terneplate, and blackplate 1,000 s tons	(S)	209.6		
331028	All other steel shapes and forms	(X)	(D)	(X)	(D)
335105	Copper and copper-base alloy	(X)	–	(X)	(D)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, foil, and welded tubing	(X)	47.1	(X)	68.7
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(X)	(D)	(X)	(D)
335008	Other aluminum and aluminum-base alloy shapes and forms	(X)	14.0	(X)	–
335099	Other nonferrous shapes and forms	(X)	–	(X)	(5)
	Chemicals and allied products:				
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(X)	23.1	(X)	20.9
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	28.2	(X)	22.0
280088	Other chemicals and allied products	(X)	14.7	(X)	(5)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	(D)	(X)	13.5
	Paper and paperboard products:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	10.0	(X)	5.6
260080	Other paper and paperboard products	(X)	4.7	(X)	8.2
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(X)	(D)	(X)	3.7
970099	All other materials and components, parts, containers, and supplies	(X)	33.0	(X)	[5]86.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	10.1	(X)	63.4
	INDUSTRY 3469, METAL STAMPINGS, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**3 802.1**	**(X)**	**3 461.8**
	Fabricated metal products, except forgings:				
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	88.1	(X)	50.2
340098	Other fabricated metal products	(X)	309.1	(X)	(5)
	Castings (rough and semifinished):				
332001	Iron and steel	(X)	46.6	(X)	28.7
336010	Nonferrous (aluminum, copper, etc.)	(X)	9.7	(X)	29.8
346000	Forgings	(X)	1.1	(X)	(5)
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Steel:				
331072	Bars and bar shapes	(X)	35.0	(X)	(5)
331022	Sheet and strip 1,000 s tons	(S)	953.5	(NA)	(5)
331082	Plate	(X)	47.1	(X)	(5)
331027	Wire and wire products	(X)	25.3	(X)	(5)
331018	Tinplate, tin free steel, terneplate, and blackplate 1,000 s tons	(S)	49.9	(NA)	(5)
331028	All other steel shapes and forms	(X)	244.5	(X)	(5)
335105	Copper and copper-base alloy	(X)	105.0	(X)	77.4
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, foil, and welded tubing	(X)	193.4	(X)	294.1
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(X)	16.5	(X)	15.4
335008	Other aluminum and aluminum-base alloy shapes and forms	(X)	141.7	(X)	12.8
335099	Other nonferrous shapes and forms	(X)	57.4	(X)	(5)
	Chemicals and allied products:				
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(X)	19.2	(X)	5.3
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(X)	42.4	(X)	27.2
280088	Other chemicals and allied products	(X)	21.8	(X)	(5)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	25.8	(X)	21.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3469, METAL STAMPINGS, N.E.C.—Con.				
	Paper and paperboard products:				
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	71.9	(X)	48.1
260080	Other paper and paperboard products	(X)	20.4	(X)	3.9
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(X)	40.8	(X)	24.9
970099	All other materials and components, parts, containers, and supplies	(X)	527.3	(X)	[5]1 905.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	(X)	708.7	(X)	917.0

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3471, PLATING AND POLISHING		
	Materials, ingredients, containers, and supplies	**1 200.4**	**906.8**
340004	Fabricated metal products, including forgings	105.6	([5])
330091	Castings (rough and semifinished)	12.6	([5])
	Shapes and forms, except castings, forgings and fabricated metal products:		
331002	Steel	111.3	66.7
336002	Nonferrous shapes and forms	9.8	([5])
	Chemicals and allied products:		
282102	Plastics materials and resins	38.8	([5])
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	19.6	26.5
289900	Foundry chemicals, metal treating compounds, and plating compounds	201.8	216.2
280097	Other chemicals and allied products	76.0	([5])
329101	Grinding wheels and other abrasive products, except industrial diamonds	11.0	13.5
970099	All other materials and components, parts, containers, and supplies	243.1	[5]230.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	370.9	353.4
	INDUSTRY 3479, METAL COATING AND ALLIED SERVICES		
	Materials, ingredients, containers, and supplies	**2 416.2**	**1 719.5**
340004	Fabricated metal products, including forgings	112.0	([5])
330091	Castings (rough and semifinished)	6.6	([5])
	Shapes and forms, except castings, forgings and fabricated metal products:		
331002	Steel	986.3	556.8
336002	Nonferrous shapes and forms	40.5	([5])
	Chemicals and allied products:		
282102	Plastics materials and resins	61.6	([5])
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	302.1	228.8
289900	Foundry chemicals, metal treating compounds, and plating compounds	104.1	84.9
280097	Other chemicals and allied products	42.8	([5])
329101	Grinding wheels and other abrasive products, except industrial diamonds	2.8	7.1
970099	All other materials and components, parts, containers, and supplies	282.3	[5]431.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	475.2	410.9

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]For 1987, several material codes are combined with material code 970099 for different reasons: material codes 340004, 331022, 331027, 335110, and 335199, because they were not collected separately; material code 335143, to avoid disclosing data for individual companies; and material code 331035, because it consists of at least one 1987-basis material code whose cost was suppressed to avoid disclosing data for individual companies.

[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[4]For 1987, material codes 340004 and 335099 were not collected separately and are combined with material code 970099; for 1987, material codes 330091 and 335110 are combined with material code 970099 because each consists of at least one 1987-basis material code whose cost was suppressed to avoid disclosing data for individual companies.

[5]For 1987, data for these materials were not collected separately but were included with material code 970099.

[6]For 1992, data of material code 346000 is included in material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
34293 00	34293 15
34293 00	34293 17
34298 98	34298 32
34298 98	34298 99
34321	34320
34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
34339 06	34339 10
34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
34433 26	34433 22
34433 28	34433 22
34433 28	34433 49
34433 30	34433 32
34433 34	34433 32
34433 34	34433 49
34433 35	34433 50
34433 37	34433 36
34433 40	34433 36
34433 41	34433 38
34433 44	34433 38
34433 46	34433 42
34433 46	34433 43
34433 47	34433 42
34433 47	34433 43
34433 48	34433 39
34433 48	34433 50
34433 51	34433 50
34434 14	34434 13
34434 14	34434 15
34434 16	34434 17
34434 16	34434 19
34435 20	34435 21
34435 20	34435 23
34435 35	34435 31
34435 35	34435 33
34435 42	34435 37
34435 42	34435 39
34438 08	34438 07
34438 13	34438 14
34438 13	34438 16
34438 20	34438 17
34438 22	34438 19
34443 14	34443 11
34443 14	34443 13
34443 24	34443 21
34443 24	34443 23
34482 18	34482 13
34482 18	34482 23
34626 16	34626 15
34626 16	34626 17
34627 12	34627 11
34627 12	34627 13
34627 16	34627 15
34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
34661 22	34661 00
34662 30	34662 00
34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
34842 26	34842 25
34842 26	34842 27
34842 54	34842 51
34842 54	34842 53
34842 54	34842 56
34842 65	34842 63
34842 65	34842 67
34842 74	34842 64
34842 74	34842 73
34916 78	34916 77
34916 78	34916 79
3492A	34923
3492A 00	34923 00
3492B	34923
3492B 00	34923 00
3492C	34921
3492C 00	34921 00
3492D	34921
3492D 00	34921 00
3492E	34922
3492E 00	34922 00
3492F	34922
3492F 00	34922 00
3492G	34927
3492G 00	34927 00
3492H	34926
3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
34961 52	34961 51
34964 00	34964 41
34964 00	34964 43
34964 00	34964 45
34964 00	34964 51
34964 00	34964 53
34964 00	34964 55
34965 00	34965 17
34965 00	34965 57
34965 00	34965 65
34966 13	34966 23
34966 13	34966 25
34966 21	34966 27
34966 21	34966 29
34968 42	34968 41
34968 42	34968 45
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34968 63	34968 61
34968 63	34968 65
34968 98	34968 77
34968 98	34968 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
34211 98	34211 25
34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
34231 32	34231 33
34231 34	34231 33
34231 61	34231 97
34231 98	34231 97
34234 11	34234 14
34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
34293 15	34293 00
34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
34320 10	34321 10
34320 11	34321 08
34320 12	34321 12
34320 13	34321 13
34320 14	34321 14
34320 15	34321 15
34320 17	34321 17
34320 18	34321 18
34320 22	34321 20
34320 25	34321 28
34320 26	34321 22
34320 27	34321 25
34320 29	34321 30
34320 31	34321 32
34320 35	34321 34
34320 39	34321 36
34320 47	34323 20
34320 48	34323 23
34320 49	34322 18
34320 52	34322 21
34320 54	34322 24
34320 57	34322 33
34320 58	34322 36
34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
34320 74	34323 08
34320 75	34323 11
34320 76	34323 14
34320 78	34323 17
34320 80	34322 27
34320 81	34323 25
34320 82	34322 27
34320 83	34323 32
34320 84	34322 30
34320 85	34323 27
34320 86	34322 30
34320 87	34323 27
34320 89	34323 32
34320 90	34322 01
34320 91	34322 03
34320 92	34322 05
34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
34333 17	34333 35
34333 60	34333 65
34333 81	34333 65
34334 00	34334 10
34334 00	34334 22
34334 00	34334 30
34334 00	34334 40
34334 00	34334 62
34334 00	34334 74
34335 31	34335 20
34335 35	34335 25
34335 44	34335 20
34335 46	34335 25
34339 10	34339 06
34339 10	34339 08
34339 10	34339 11
34339 10	34339 13
34411 21	34411 41
34411 22	34411 42
34411 23	34411 43
34411 24	34411 44
34411 26	34411 46
34411 27	34411 47
34411 61	34411 41
34411 62	34411 42
34411 63	34411 43
34411 64	34411 44
34411 66	34411 46
34411 67	34411 47
34412 12	34412 00
34412 16	34412 00
34412 17	34412 00
34412 61	34412 00
34413 11	34413 16
34413 41	34413 20
34413 53	34413 23
34413 55	34413 26
34413 57	34413 29
34413 58	34413 59
34413 61	34413 16
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34413 82	34413 29
34413 83	34413 23
34413 83	34413 26
34413 83	34413 59
34422 23	34422 30
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34433 13	34433 10
34433 13	34433 15
34433 17	34433 19
34433 17	34433 24
34433 22	34433 26
34433 22	34433 28
34433 32	34433 30
34433 32	34433 34
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34433 36	34433 40
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34433 50	34433 35
34433 50	34433 48
34433 50	34433 51
34434 13	34434 14
34434 15	34434 14
34434 17	34434 16
34434 19	34434 16
34435 21	34435 20
34435 23	34435 20
34435 31	34435 35
34435 33	34435 35
34435 37	34435 42
34435 39	34435 42
34438 07	34438 08
34438 14	34438 13
34438 16	34438 13
34438 17	34438 20
34438 19	34438 22
34443 11	34443 14
34443 13	34443 14
34443 21	34443 24
34443 23	34443 24
34482 13	34482 18
34482 23	34482 18
34626 15	34626 16
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34628 17	34628 16
34661 00	34661 05
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34661 00	34661 22
34662 00	34662 30
34662 00	34662 32
34699 98	34699 51
34699 98	34699 97
34790 00	34790 77
34842 15	34842 16
34842 17	34842 16
34842 25	34842 26
34842 27	34842 26
34842 51	34842 54
34842 53	34842 54
34842 56	34842 54
34842 63	34842 65
34842 64	34842 74
34842 67	34842 65
34842 73	34842 74
34916 77	34916 78
34916 79	34916 78
34921	3492C
34921	3492D
34921 00	3492C 00
34921 00	3492D 00
34922	3492E
34922	3492F
34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
34924	3492J
34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
34961 22	34961 52
34961 31	34961 34
34961 33	34961 34
34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
34964 43	34964 00
34964 45	34964 00
34964 51	34964 00
34964 53	34964 00
34964 55	34964 00
34965 17	34965 00
34965 57	34965 00
34965 65	34965 00
34966 23	34966 13
34966 25	34966 13
34966 27	34966 21
34966 29	34966 21
34968 41	34968 42
34968 45	34968 42
34968 46	34968 42
34968 47	34968 42
34968 61	34968 63
34968 65	34968 63
34968 77	34968 98
34968 99	34968 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-34E

INDUSTRY SERIES

Ordnance and Accessories, Not Elsewhere Classified

Industries 3482, 3483, 3484, and 3489

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-34E

INDUSTRY SERIES

Ordnance and Accessories, Not Elsewhere Classified

Industries 3482, 3483, 3484, and 3489

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **Mendel D. Gayle**, Section Chief, with primary staff assistance by **Brenda Campbell.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
3482	Small Arms Ammunition
3483	Ammunition, Except for Small Arms, N.E.C.
3484	Small Arms
3489	Ordnance and Accessories, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3482, SMALL ARMS AMMUNITION

This industry is made up of establishments primarily engaged in manufacturing ammunition for small arms having a bore of 30 mm (or 1.18 inch) or less. Establishments primarily engaged in manufacturing ammunition, except for small arms are classified in industry 3483. Establishments primarily engaged in manufacturing blasting and detonation caps and safety fuses are classified in industry 2892; and those manufacturing fireworks are classified in industry 2899.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3482, Small Arms Ammunition, had employment of 8.1 thousand. The employment figure was 10 percent below the 9.0 thousand reported in 1987.

The leading States in employment in 1992 were Arkansas, Illinois, Minnesota, and Missouri, accounting for approximately 75 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts.

Establishments in this industry accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was not shown.

The products primary to industry 3482, no matter in what industry they were produced, appear in table 6a and aggregate to $962.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the small arms ammunition industry amounted to $397.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing ammunition, not elsewhere classified or in loading and assembling ammunition more than 30 mm (or more than 1.18 inch), including component parts. Also included in this industry are establishments primarily engaged in manufacturing bombs, mines, torpedoes, grenades, depth charges, chemical warfare projectiles, and their component parts. Establishments primarily engaged in manufacturing small arms ammunition are classified in industry 3482. Establishments primarily engaged in manufacturing explosives are classified in industry 2892; and those manufacturing military pyrotechnics are classified in industry 2899.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3483, Ammunition, Except for Small Arms, N.E.C., had employment of 23.4 thousand. The employment figure was 44 percent below the 41.5 thousand reported in 1987. Compared with 1991, employment decreased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Minnesota, Texas, Pennsylvania, and Tennessee, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when California, Minnesota, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3483 shipped $2.0 billion of ammunition, except for small arms, n.e.c., considered primary to the industry, $474.9 million of secondary products, and had $631.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 81 percent (specialization ratio). In 1987, the specialization ratio was 82 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3483, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ammunition, except for small arms, n.e.c., industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3484, SMALL ARMS

This industry is made up of establishments primarily engaged in manufacturing small firearms having a bore 30 mm (or 1.18 inch) or less, and parts for small firearms. Also included in this industry are establishments primarily engaged in manufacturing certain weapons more than 30 mm which are carried and employed by the individual, such as grenade launchers and heavy field machine guns. Establishments primarily engaged in manufacturing artillery and mortars having a bore more than 30 mm (or more than 1.18 inch), and component parts, are classified in industry 3489.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3484, Small Arms, had employment of 11.8 thousand. The employment figure was 12 percent below the 13.3 thousand reported in 1987.

The leading States in employment in 1992 were Connecticut, Massachusetts, New Hampshire, and New York. This represents a shift from 1987 when Connecticut, New York, Massachusetts, and Vermont were the leading States.

The total value of shipments for establishments classified in this industry was $1.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3484 shipped $1.2 billion of small arms considered primary to the industry, $79.9 million of secondary products, and had $74.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3484, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the small arms industry amounted to $401.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing ordnance and accessories, not elsewhere classified, such as naval, aircraft, antiaircraft, tank, coast, and field artillery having a bore more than 30 mm (or more than 1.18 inch), and components. Establishments primarily engaged in manufacturing small arms and parts 30 mm (or 1.18 inch) or less are classified in industry 3484. Establishments primarily engaged in manufacturing tanks are classified in industry 3795; and those manufacturing guided missiles are classified in industry group 376.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3489, Ordnance and Accessories, N.E.C., had employment of 22.0 thousand. The employment figure was 8 percent below the 23.9 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Colorado, Minnesota, Missouri, and Texas, accounting for approximately 76 percent of the industry's employment. This represents a shift from 1987 when Missouri, California, Colorado, and Minnesota were the leading States.

The total value of shipments for establishments classified in this industry was $1.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3489 shipped $535.8 million of ordnance and accessories, n.e.c., considered primary to the industry, $24.2 million of secondary products, and had $826.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 66 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 67 percent.

The products primary to industry 3489, no matter in what industry they were produced, appear in table 6a and aggregate to $811.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ordnance and accessories, n.e.c., industry amounted to $224.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3482, SMALL ARMS AMMUNITION															
1992 Census	101	103	19	8.1	258.6	6.1	12.6	176.9	694.5	397.6	1 088.6	31.4	222.8	(D)	86
1991 ASM	(NA)	(NA)	(NA)	8.5	249.6	6.4	12.7	169.9	520.3	369.5	941.5	24.0	231.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.5	242.9	6.3	12.5	164.9	535.9	344.5	844.1	29.4	284.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.7	242.2	6.6	13.2	161.5	637.3	354.4	963.0	11.6	247.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.7	240.8	6.5	14.0	162.5	608.7	304.3	883.3	20.0	178.1	(NA)	(NA)
1987 Census	75	79	18	9.0	243.5	6.9	14.5	168.2	626.7	242.7	889.2	17.5	147.4	96	(D)
1986 ASM	(NA)	(NA)	(NA)	8.4	222.7	6.8	13.4	163.6	604.2	303.0	918.7	34.3	244.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.6	252.4	7.7	14.9	174.3	624.1	323.6	917.5	28.9	267.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.8	258.6	7.0	13.8	159.8	561.7	261.7	811.4	32.9	233.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.0	238.4	7.1	14.3	150.4	581.1	250.7	837.6	25.8	193.6	(NA)	(NA)
1982 Census	59	66	19	10.1	221.6	7.4	14.1	142.7	518.4	265.6	799.8	23.3	210.5	96	85
1981 ASM	(NA)	(NA)	(NA)	9.7	198.9	7.3	14.8	134.1	453.7	283.3	720.6	21.8	153.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.5	173.1	7.1	14.2	116.3	343.0	268.6	602.3	17.5	133.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.1	163.5	7.6	15.2	111.8	357.3	240.4	553.9	18.1	128.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.2	150.2	7.7	15.2	102.1	295.0	207.0	496.8	14.8	124.2	(NA)	(NA)
1977 Census	59	65	16	10.3	138.1	7.7	15.4	95.3	247.5	183.0	436.2	42.9	117.6	95	90
INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.															
1992 Census	56	70	53	23.4	719.5	13.5	24.0	292.5	1 889.8	1 224.4	3 136.5	35.2	420.1	81	86
1991 ASM	(NA)	(NA)	(NA)	27.2	775.2	14.9	25.9	345.4	1 870.3	1 121.2	3 102.9	37.2	454.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.1	807.0	14.6	27.8	348.9	1 908.9	1 178.1	3 128.6	39.0	527.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.4	890.3	19.2	36.9	427.3	2 179.7	1 425.9	3 521.4	54.4	652.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	39.9	1 061.9	24.2	49.2	498.8	2 340.4	1 900.3	4 290.8	83.6	746.9	(NA)	(NA)
1987 Census	66	87	64	41.5	1 072.6	25.8	50.1	517.4	2 542.0	1 614.9	3 983.2	77.0	853.0	82	88
1986 ASM	(NA)	(NA)	(NA)	34.8	849.3	22.7	44.0	449.8	2 052.0	1 185.4	3 204.6	56.6	547.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.7	749.8	20.9	39.6	411.7	1 680.5	1 153.7	2 754.2	50.8	418.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.8	640.5	18.1	34.0	352.0	1 499.4	822.4	2 249.8	74.0	186.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.9	565.9	17.3	33.6	312.9	1 340.5	688.6	2 014.0	32.5	110.5	(NA)	(NA)
1982 Census	63	74	53	24.4	497.5	15.9	29.1	265.0	1 125.0	625.2	1 757.1	56.2	108.6	82	76
1981 ASM	(NA)	(NA)	(NA)	21.1	384.8	12.8	23.8	194.4	788.1	431.2	1 199.4	44.6	93.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	21.8	370.2	13.7	25.6	193.3	733.2	475.4	1 210.7	16.7	82.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.5	334.4	14.7	26.5	172.1	651.3	417.0	1 055.7	13.1	94.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.3	301.6	13.7	27.7	163.6	556.6	335.2	873.7	10.2	78.7	(NA)	(NA)
1977 Census	68	81	49	20.5	271.1	13.6	25.8	149.2	482.6	283.6	775.0	10.4	58.3	83	76
INDUSTRY 3484, SMALL ARMS															
1992 Census	177	184	60	11.8	334.9	9.2	18.1	231.4	939.8	401.1	1 384.0	32.0	373.3	94	97
1991 ASM	(NA)	(NA)	(NA)	11.5	321.1	8.5	16.4	219.6	745.9	389.1	1 148.5	26.5	382.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.5	348.6	9.4	18.4	242.3	859.9	317.8	1 108.8	25.7	405.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.7	348.5	9.6	18.2	230.7	824.7	351.2	1 168.6	28.7	321.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.9	364.9	10.3	20.2	237.6	843.6	359.6	1 168.6	35.8	337.2	(NA)	(NA)
1987 Census	146	151	44	13.3	337.0	9.5	19.5	209.2	754.9	338.0	1 093.1	33.4	274.2	99	94
1986 ASM	(NA)	(NA)	(NA)	12.3	308.9	8.5	17.6	182.1	711.3	298.4	1 030.8	32.3	247.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.8	325.4	10.1	20.2	198.9	720.2	337.2	1 085.3	29.6	279.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.3	326.0	10.6	21.4	203.8	763.0	290.4	1 063.0	28.5	298.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.4	296.5	10.4	19.6	179.9	678.3	235.3	938.8	32.4	304.7	(NA)	(NA)
1982 Census	138	144	44	17.4	338.2	13.0	25.0	210.3	715.7	339.9	1 032.1	34.3	345.8	90	99
1981 ASM	(NA)	(NA)	(NA)	19.7	367.6	15.3	31.0	241.1	742.1	398.3	1 125.6	44.5	254.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.5	335.4	15.3	31.6	223.7	680.9	355.1	1 004.1	41.6	237.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.0	285.0	14.4	30.0	192.2	607.6	348.3	945.6	35.0	189.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.2	268.8	14.7	29.7	180.9	558.2	314.5	875.1	37.2	188.0	(NA)	(NA)
1977 Census	105	112	46	17.5	237.8	13.1	27.1	157.3	481.5	286.7	754.9	20.5	166.7	94	99
INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.															
1992 Census	71	72	33	22.0	937.7	9.0	17.0	329.3	1 145.5	224.4	1 386.1	19.4	118.8	96	66
1991 ASM	(NA)	(NA)	(NA)	21.5	858.6	9.3	19.1	314.2	1 241.5	196.3	1 480.2	13.2	125.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.4	857.3	10.8	20.8	345.6	1 436.4	198.1	1 643.6	23.1	172.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.2	807.8	11.5	21.8	342.4	1 476.0	210.8	1 688.6	19.7	165.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.0	822.3	12.2	24.1	367.9	1 401.7	218.1	1 679.1	14.6	170.7	(NA)	(NA)
1987 Census	59	59	33	23.9	805.1	12.1	23.9	364.0	1 425.4	218.4	1 678.1	50.0	235.3	91	67
1986 ASM	(NA)	(NA)	(NA)	26.9	839.5	13.7	26.5	371.7	1 409.9	356.4	1 625.9	32.2	346.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.3	811.4	14.6	27.5	373.8	1 512.8	296.2	1 790.5	28.9	189.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.7	796.0	14.7	28.7	379.2	1 478.8	401.9	1 925.0	25.4	277.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.7	716.2	14.3	27.7	343.6	1 361.9	298.4	1 575.8	17.3	293.7	(NA)	(NA)
1982 Census	65	65	39	27.5	722.4	14.3	27.1	323.1	1 082.4	337.7	1 403.8	24.6	222.5	86	64
1981 ASM	(NA)	(NA)	(NA)	29.6	665.6	16.6	31.5	323.0	1 099.2	337.8	1 404.5	18.6	199.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.6	566.6	15.9	30.1	279.7	954.6	307.3	1 283.1	13.3	172.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	26.9	492.1	15.6	29.5	245.4	810.7	261.4	1 077.5	11.7	188.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.3	423.9	14.8	27.5	207.3	658.0	260.2	890.9	22.7	193.5	(NA)	(NA)
1977 Census	89	89	41	23.6	367.7	13.7	25.8	173.3	559.2	232.4	733.8	10.1	176.2	81	68

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3482, SMALL ARMS AMMUNITION								
1992 Census	31 926	75	2 066	14.04	37	60	85 741	37	55.12
1991 ASM	29 365	75	1 984	13.38	39	66	61 212	48	40.97
1990 ASM	28 576	74	1 984	13.19	41	70	63 047	45	42.87
1989 ASM	27 839	76	2 000	12.23	37	62	73 253	38	48.28
1988 ASM	27 678	75	2 154	11.61	34	62	69 966	40	43.48
1987 Census	27 056	77	2 101	11.60	27	55	69 633	39	43.22
1986 ASM	26 512	81	1 971	12.21	33	57	71 929	37	45.09
1985 ASM	26 292	80	1 935	11.70	35	63	65 010	40	41.89
1984 ASM	26 388	71	1 971	11.58	32	64	57 316	46	40.70
1983 ASM	23 840	71	2 014	10.52	30	58	58 110	41	40.64
1982 Census	21 941	73	1 905	10.12	33	61	51 327	43	36.77
1981 ASM	20 505	75	2 027	9.06	39	67	46 773	44	30.66
1980 ASM	18 221	75	2 000	8.19	45	73	36 105	50	24.15
1979 ASM	16 188	75	2 000	7.36	43	73	35 376	46	23.51
1978 ASM	14 725	75	1 974	6.72	42	72	28 922	51	19.41
1977 Census	13 408	75	2 000	6.19	42	74	24 029	56	16.07
	INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.								
1992 Census	30 748	58	1 778	12.19	39	62	80 761	38	78.74
1991 ASM	28 500	55	1 738	13.34	36	61	68 761	41	72.21
1990 ASM	29 779	54	1 904	12.55	38	63	70 439	42	68.67
1989 ASM	27 478	59	1 922	11.58	40	66	67 275	41	59.07
1988 ASM	26 614	61	2 033	10.14	44	69	58 657	45	47.57
1987 Census	25 846	62	1 942	10.33	41	67	61 253	42	50.74
1986 ASM	24 405	65	1 938	10.22	37	63	58 966	41	46.64
1985 ASM	23 653	66	1 895	10.40	42	69	53 013	45	42.44
1984 ASM	23 040	65	1 878	10.35	37	65	53 935	43	44.10
1983 ASM	21 849	67	1 942	9.31	34	62	51 757	42	39.90
1982 Census	20 389	65	1 830	9.11	36	64	46 107	44	38.66
1981 ASM	18 237	61	1 859	8.17	36	68	37 351	49	33.11
1980 ASM	16 982	63	1 869	7.55	39	70	33 633	50	28.64
1979 ASM	14 862	65	1 803	6.49	39	71	28 947	51	24.58
1978 ASM	14 160	64	2 022	5.91	38	73	26 131	54	20.09
1977 Census	13 224	66	1 897	5.78	37	72	23 541	56	18.71
	INDUSTRY 3484, SMALL ARMS								
1992 Census	28 381	78	1 967	12.78	29	53	79 644	36	51.92
1991 ASM	27 922	74	1 929	13.39	34	62	64 861	43	45.48
1990 ASM	27 888	75	1 957	13.17	29	60	68 792	41	46.73
1989 ASM	27 441	76	1 896	12.68	30	60	64 937	42	45.31
1988 ASM	26 252	74	1 961	11.76	31	62	60 691	43	41.76
1987 Census	25 338	71	2 053	10.73	31	62	56 759	45	38.71
1986 ASM	25 114	69	2 071	10.35	29	59	57 829	43	40.41
1985 ASM	23 580	73	2 000	9.85	31	61	52 188	45	35.65
1984 ASM	22 797	74	2 019	9.52	27	58	53 357	43	35.65
1983 ASM	20 590	72	1 885	9.18	25	57	47 104	44	34.61
1982 Census	19 437	75	1 923	8.41	33	66	41 132	47	28.63
1981 ASM	18 660	78	2 026	7.78	35	68	37 670	50	23.94
1980 ASM	16 361	75	2 065	7.08	35	69	33 215	49	21.55
1979 ASM	15 000	76	2 083	6.41	37	67	31 979	47	20.25
1978 ASM	14 000	77	2 020	6.09	36	67	29 073	48	18.79
1977 Census	13 589	75	2 069	5.80	38	69	27 514	49	17.77
	INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.								
1992 Census	42 623	41	1 889	19.37	16	84	52 068	82	67.38
1991 ASM	39 935	43	2 054	16.45	13	71	57 744	69	65.00
1990 ASM	38 272	48	1 926	16.62	12	64	64 125	60	69.06
1989 ASM	34 819	50	1 896	15.71	12	60	63 621	55	67.71
1988 ASM	34 263	51	1 975	15.27	13	62	58 404	59	58.16
1987 Census	33 686	51	1 975	15.23	13	61	59 640	56	59.64
1986 ASM	31 208	51	1 934	14.03	22	74	52 413	60	53.20
1985 ASM	29 722	53	1 884	13.59	17	62	55 414	54	55.01
1984 ASM	28 736	53	1 952	13.21	21	62	53 386	54	51.53
1983 ASM	26 824	54	1 937	12.40	19	64	51 007	53	49.17
1982 Census	26 269	52	1 895	11.92	24	76	39 360	67	39.94
1981 ASM	22 486	56	1 898	10.25	24	71	37 135	61	34.90
1980 ASM	20 529	58	1 893	9.29	24	68	34 587	59	31.71
1979 ASM	18 294	58	1 891	8.32	24	70	30 138	61	27.48
1978 ASM	16 755	58	1 858	7.54	29	77	26 008	64	23.93
1977 Census	15 581	58	1 883	6.72	32	82	23 695	66	21.67

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3482, SMALL ARMS AMMUNITION														
United States	–	**103**	**19**	**8.1**	**258.6**	**6.1**	**12.6**	**176.9**	**694.5**	**397.6**	**1 088.6**	**31.4**	**9.0**	**626.7**
Arkansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	14	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	E	(D)
Idaho	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Minnesota	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.														
United States	–	**70**	**53**	**23.4**	**719.5**	**13.5**	**24.0**	**292.5**	**1 889.8**	**1 224.4**	**3 136.5**	**35.2**	**41.5**	**2 542.0**
Alabama	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	6	5	1.3	51.3	.7	1.7	23.4	101.3	73.3	170.8	5.0	(NA)	(D)
Florida	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	G	(D)
Iowa	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	G	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	G	(D)
Massachusetts	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	G	(D)
Missouri	E6	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	6	6	1.1	27.4	.8	1.5	14.9	41.8	65.4	107.3	1.0	(NA)	(D)
Pennsylvania	–	8	6	2.3	58.8	1.6	3.2	35.7	135.8	86.9	222.3	(D)	(NA)	(D)
Tennessee	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	5	5	3.0	81.9	1.8	2.7	36.9	118.6	65.5	184.4	6.3	G	(D)
Wisconsin	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3484, SMALL ARMS														
United States	–	**184**	**60**	**11.8**	**334.9**	**9.2**	**18.1**	**231.4**	**939.8**	**401.1**	**1 384.0**	**32.0**	**13.3**	**754.9**
Arizona	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	22	9	.7	14.8	.5	1.1	9.6	45.9	24.4	72.8	(D)	E	(D)
Connecticut	–	12	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	8	3	.2	5.0	.2	.4	3.6	13.1	5.4	18.2	(D)	.2	8.5
Illinois	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	7	4	1.7	51.6	1.5	2.3	43.9	99.8	33.4	142.2	(D)	G	(D)
New Hampshire	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	10	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
Vermont	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.														
United States	–	**72**	**33**	**22.0**	**937.7**	**9.0**	**17.0**	**329.3**	**1 145.5**	**224.4**	**1 386.1**	**19.4**	**23.9**	**1 425.4**
California	–	8	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Colorado	–	4	1	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(D)
Connecticut	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	E1	5	2	.2	4.5	.1	.1	2.2	8.0	2.6	11.4	(D)	(NA)	(NA)
Minnesota	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(D)
Ohio	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	5	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Small arms ammunition (SIC 3482)	Ammunition, except for small arms, n.e.c. (SIC 3483)	Small arms (SIC 3484)	Ordnance and accessories, n.e.c. (SIC 3489)
Companies ---- number	101	56	177	71
All establishments ---- number	103	70	184	72
With 1 to 19 employees ---- number	84	17	124	39
With 20 to 99 employees ---- number	9	12	37	19
With 100 employees or more ---- number	10	41	23	14
Employment and labor costs:				
Employees ---- 1,000	8.1	23.4	11.8	22.0
Compensation, total ---- mil dol	339.4	954.1	431.9	1 180.8
Annual payroll ---- mil dol	258.6	719.5	334.9	937.7
Fringe benefits ---- mil dol	80.8	234.6	97.0	243.2
Social Security and other legally required payments ---- mil dol	28.0	90.5	36.5	77.9
Employer voluntary payments ---- mil dol	52.8	144.1	60.6	165.3
Production workers:				
Average for year ---- 1,000	6.1	13.5	9.2	9.0
March ---- 1,000	6.2	13.9	9.2	9.1
May ---- 1,000	6.2	13.4	9.3	9.1
August ---- 1,000	6.1	13.3	9.3	8.9
November ---- 1,000	5.9	13.2	9.2	8.8
Hours ---- millions	12.6	24.0	18.1	17.0
Wages ---- mil dol	176.9	292.5	231.4	329.3
Cost of materials[1] ---- mil dol	397.6	1 224.4	401.1	224.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	374.7	1 126.7	333.8	164.2
Resales ---- mil dol	3.2	.4	39.1	5.6
Fuels ---- mil dol	5.5	16.7	4.3	7.8
Purchased electricity ---- mil dol	10.4	34.5	16.5	26.4
Contract work ---- mil dol	3.8	46.1	7.5	20.4
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	218.6	577.9	240.2	544.0
Generated less sold ---- mil kWh	–	(S)	–	(Z)
Total value of shipments ---- mil dol	1 088.6	3 136.5	1 384.0	1 386.1
Value added ---- mil dol	694.5	1 889.8	939.8	1 145.5
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	221.7	448.3	406.0	131.0
Finished goods ---- mil dol	93.8	11.4	138.2	2.1
Work in process ---- mil dol	65.6	355.0	178.5	120.4
Materials and supplies ---- mil dol	62.3	81.9	89.3	8.5
End of 1992 ---- mil dol	222.8	420.1	373.3	118.8
Finished goods ---- mil dol	94.6	8.2	122.9	6.4
Work in process ---- mil dol	68.4	335.8	150.6	99.9
Materials and supplies ---- mil dol	59.8	76.1	99.7	12.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Small arms ammunition (SIC 3482)	Ammunition, except for small arms, n.e.c. (SIC 3483)	Small arms (SIC 3484)	Ordnance and accessories, n.e.c. (SIC 3489)
Gross book value of depreciable assets:				
Total:				
Beginning of year	341.4	754.5	543.9	208.9
New capital expenditures[1]	31.4	35.2	32.0	19.4
Used capital expenditures	.9	(D)	4.3	(D)
Retirements	13.5	(D)	19.4	(D)
End of year	360.2	704.9	560.8	222.6
Buildings and other structures:				
Beginning of year	78.1	151.3	108.1	48.9
New capital expenditures	6.4	3.9	3.1	5.8
Used capital expenditures	.1	(D)	.1	(D)
Retirements	3.1	(D)	2.6	(D)
End of year	81.5	155.1	108.7	54.8
Machinery and equipment:				
Beginning of year	263.2	603.2	435.7	160.0
New capital expenditures[1]	25.0	31.4	28.9	13.5
Used capital expenditures	.8	(D)	4.2	(D)
Retirements	10.4	(D)	16.8	(D)
End of year	278.6	549.8	452.1	167.8
Depreciation charges during 1992:				
Total	29.4	59.6	39.5	15.4
Buildings and other structures	6.3	6.5	4.7	2.6
Machinery and equipment	23.1	53.1	34.9	12.9
Rental payments:				
Total	3.0	29.2	8.2	11.4
Buildings and other structures	1.9	22.7	5.6	7.8
Machinery and equipment	1.1	6.5	2.6	3.6

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Small arms ammunition (SIC 3482)		Ammunition, except for small arms, n.e.c. (SIC 3483)		Small arms (SIC 3484)		Ordnance and accessories, n.e.c. (SIC 3489)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	2.4	(X)	4.3	(X)	4.7	(X)	11.9	(X)
Response coverage ratio (percent)[2]	89.2	(X)	75.8	(X)	86.8	(X)	70.2	(X)
Machinery	14.1	(X)	6.4	(X)	7.2	(X)	1.4	(X)
Response coverage ratio (percent)[2]	91.8	(X)	71.9	(X)	86.8	(X)	70.2	(X)
Other purchased services:								
Communications	1.7	(X)	6.5	(X)	3.5	(X)	4.1	(X)
Response coverage ratio (percent)[2]	91.0	(X)	83.8	(X)	85.5	(X)	70.2	(X)
Legal	2.3	(X)	4.4	(X)	2.4	(X)	2.1	(X)
Response coverage ratio (percent)[2]	91.8	(X)	82.1	(X)	86.8	(X)	70.2	(X)
Accounting and bookkeeping	.1	(X)	.6	(X)	2.2	(X)	1.6	(X)
Response coverage ratio (percent)[2]	57.8	(X)	75.0	(X)	86.7	(X)	70.2	(X)
Advertising	16.3	(X)	.8	(X)	14.8	(X)	.6	(X)
Response coverage ratio (percent)[2]	91.8	(X)	74.3	(X)	86.8	(X)	70.2	(X)
Software and other data processing	.5	(X)	1.5	(X)	.9	(X)	(S)	(X)
Response coverage ratio (percent)[2]	91.0	(X)	83.9	(X)	86.8	(X)	(S)	(X)
Refuse removal, including hazardous waste	5.6	(X)	9.6	(X)	3.3	(X)	1.3	(X)
Response coverage ratio (percent)[2]	91.8	(X)	78.3	(X)	86.8	(X)	70.2	(X)
New machinery and equipment expenditures	25.0	(X)	31.4	(X)	28.9	(X)	13.5	(X)
Automobiles, trucks, etc., for highway use	.2	1	.2	1	1.6	65	.2	43
Computers and peripheral data processing equipment	1.6	1	7.2	1	2.1	3	9.1	3
All other	23.2	1	23.9	1	25.2	5	4.2	4
Adjustment ratio[3]	1.2	(X)	1.3	(X)	.9	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	374.7	(X)	1 126.7	(X)	333.8	(X)	164.2	(X)
Materials purchased or transferred from foreign sources[4]	1.5	12	18.5	1	4.2	15	.2	24
Materials purchased or transferred from domestic sources	373.2	1	1 108.2	1	329.6	1	164.0	1
Adjustment ratio[3]	1.2	(X)	1.7	(X)	1.4	(X)	.9	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3482, SMALL ARMS AMMUNITION												
Total	**–**	**103**	**8.1**	**258.6**	**6.1**	**12.6**	**176.9**	**694.5**	**397.6**	**1 088.6**	**31.4**	**222.8**
Establishments with an average of—												
1 to 4 employees	E9	60	.1	2.0	.1	.1	1.3	4.5	2.6	7.1	1.5	1.8
5 to 9 employees	E9	17	.1	2.3	.1	.1	1.4	5.0	2.9	7.8	1.6	1.9
10 to 19 employees	E6	7	.1	2.1	.1	.1	1.2	2.9	4.8	7.8	.8	2.1
20 to 49 employees	E2	4	.1	2.0	.1	.1	1.3	5.0	3.3	8.1	4.4	2.0
50 to 99 employees	–	5	.3	7.2	.2	.4	4.0	15.5	9.0	23.0	(D)	10.6
100 to 249 employees	–	4	1.1	34.6	.8	1.6	19.2	88.8	125.9	207.5	3.9	54.7
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	3	6.3	208.4	4.8	10.1	148.6	572.9	249.2	827.3	19.2	149.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	76	.2	4.9	.1	.3	3.0	10.4	6.0	16.4	3.4	4.0
INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.												
Total	**–**	**70**	**23.4**	**719.5**	**13.5**	**24.0**	**292.5**	**1 889.8**	**1 224.4**	**3 136.5**	**35.2**	**420.1**
Establishments with an average of—												
1 to 4 employees	E7	13	(Z)	.4	(Z)	(Z)	.2	1.1	.6	1.7	7.4	.5
5 to 9 employees	–	2	(Z)	1.1	(Z)	(Z)	.4	2.1	1.1	3.1	(D)	.4
10 to 19 employees	E4	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	6	.2	3.6	.1	.2	2.0	6.0	4.6	10.9	(D)	1.1
50 to 99 employees	–	6	.4	10.7	.3	.7	6.7	25.3	20.1	43.1	(D)	10.5
100 to 249 employees	–	13	2.2	57.7	1.5	3.0	32.6	126.9	138.8	265.7	(D)	35.6
250 to 499 employees	–	15	5.5	167.6	3.7	7.5	89.1	345.8	270.2	619.5	11.4	133.2
500 to 999 employees	–	7	5.3	141.2	3.2	5.4	61.2	409.6	360.5	763.1	16.5	122.2
1,000 to 2,499 employees	–	5	9.7	337.1	4.5	7.1	100.4	973.1	428.5	1 429.3	(D)	116.7
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	9	(Z)	.3	(Z)	(Z)	.1	.8	.5	1.3	(Z)	.1
INDUSTRY 3484, SMALL ARMS												
Total	**–**	**184**	**11.8**	**334.9**	**9.2**	**18.1**	**231.4**	**939.8**	**401.1**	**1 384.0**	**32.0**	**373.3**
Establishments with an average of—												
1 to 4 employees	E8	67	.1	2.5	.1	.2	1.9	6.8	2.8	9.5	.2	2.8
5 to 9 employees	E9	26	.2	3.5	.1	.3	2.6	7.6	3.1	10.3	.3	4.3
10 to 19 employees	E4	31	.4	9.6	.3	.7	6.8	23.3	10.4	34.0	.8	8.8
20 to 49 employees	–	27	.8	19.4	.6	1.2	11.8	40.8	22.3	63.6	2.0	13.9
50 to 99 employees	–	10	.7	12.4	.6	1.2	9.6	41.3	19.5	61.2	1.4	13.8
100 to 249 employees	–	9	1.3	29.3	1.0	1.9	20.3	86.1	55.2	147.7	4.3	23.4
250 to 499 employees	–	7	2.6	72.3	2.0	4.2	47.3	218.8	126.3	356.8	8.8	96.9
500 to 999 employees	–	5	5.6	185.8	4.4	8.5	131.1	515.1	161.4	700.8	14.1	209.3
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	93	.4	7.9	.3	.6	5.9	17.6	7.9	25.5	.7	7.7
INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.												
Total	**–**	**72**	**22.0**	**937.7**	**9.0**	**17.0**	**329.3**	**1 145.5**	**224.4**	**1 386.1**	**19.4**	**118.8**
Establishments with an average of—												
1 to 4 employees	E9	24	(Z)	.7	(Z)	(Z)	.3	1.2	.6	1.7	.1	.4
5 to 9 employees	E9	7	(Z)	1.2	(Z)	.1	.6	1.8	.8	2.6	.1	.6
10 to 19 employees	E2	8	.1	3.1	.1	.1	1.5	5.8	3.0	8.5	.2	1.8
20 to 49 employees	E1	13	.4	9.0	.3	.5	5.2	15.6	8.7	25.6	.3	5.2
50 to 99 employees	–	6	.4	15.0	.3	.4	6.9	33.1	14.5	45.1	.7	8.1
100 to 249 employees	–	5	.8	30.8	.3	.5	8.2	41.8	35.8	78.2	1.9	13.5
250 to 499 employees	–	4	1.2	33.4	.8	1.7	16.5	53.8	36.8	93.5	16.1	30.3
1,000 to 2,499 employees	–	2	19.0	844.5	7.2	13.6	290.3	992.4	124.3	1 130.9	(D)	59.0
2,500 employees or more	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(D)
Covered by administrative records[2]	E9	35	.1	3.3	.1	.2	1.6	5.0	2.4	7.4	.3	1.6

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3482	**Small arms ammunition:**										
	All establishments in industry	103	8.1	258.6	6.1	12.6	176.9	694.5	397.6	1 088.6	31.4
3483	**Ammunition, except for small arms, n.e.c.:**										
	All establishments in industry	70	23.4	719.5	13.5	24.0	292.5	1 889.8	1 224.4	3 136.5	35.2
	Establishments with this product class primary:										
34831	Artillery ammunition, more than 30 mm (or more than 1.18 inches)	29	10.7	367.1	5.9	11.1	138.4	932.1	716.2	1 666.7	27.5
34833	Ammunition, except for small arms, n.e.c.	17	4.7	146.0	2.6	4.9	55.4	385.9	486.6	876.2	7.6
3484	**Small arms:**										
	All establishments in industry	184	11.8	334.9	9.2	18.1	231.4	939.8	401.1	1 384.0	32.0
	Establishments with this product class primary:										
34841	Machine guns, 30 mm or less (or 1.18 inches or less)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
34842	Small arms, 30 mm or less (or 1.18 inches or less)	59	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3489	**Ordnance and accessories, n.e.c.:**										
	All establishments in industry	72	22.0	937.7	9.0	17.0	329.3	1 145.5	224.4	1 386.1	19.4
	Establishments with this product class primary:										
34891	Guns, howitzers, mortars, and related equipment, more than 30 mm (or more than 1.18 inches)	9	.7	22.9	.5	1.0	12.1	35.4	23.2	59.0	(D)
34892	Ordnance and accessories, n.e.c.	19	4.3	169.2	2.3	3.5	71.7	322.1	162.2	500.0	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3482, SMALL ARMS AMMUNITION			
Total value of shipments	1 088.6	889.2	799.8
Primary products value of shipments	823.6	(D)	592.8
Secondary products value of shipments	(D)	(D)	25.9
Total miscellaneous receipts	(D)	(D)	181.1
Value of resales	3.8	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	6.8	2.5	(D)
Primary products specialization ratio	(D)	96	96
Value of primary products shipments made in all industries	962.4	699.9	698.5
Value of primary products shipments made in this industry	823.6	(D)	592.8
Value of primary products shipments made in other industries	138.8	(D)	105.7
Coverage ratio	86	(D)	85
INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.			
Total value of shipments	3 136.5	3 983.2	1 757.1
Primary products value of shipments	2 030.1	2 554.3	1 038.7
Secondary products value of shipments	474.9	568.8	226.1
Total miscellaneous receipts	631.5	860.0	492.2
Value of resales	(D)	6.5	(D)
Contract receipts	561.2	832.3	453.2
Other miscellaneous receipts	(D)	21.3	(D)
Primary products specialization ratio	81	82	82
Value of primary products shipments made in all industries	2 361.5	2 901.9	1 359.0
Value of primary products shipments made in this industry	2 030.1	2 554.3	1 038.7
Value of primary products shipments made in other industries	331.4	347.6	320.3
Coverage ratio	86	88	76

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3484, SMALL ARMS			
Total value of shipments	1 384.0	1 093.1	1 032.1
Primary products value of shipments	1 229.4	1 030.6	893.9
Secondary products value of shipments	79.9	15.3	99.6
Total miscellaneous receipts	74.7	47.2	38.6
Value of resales	60.4	(D)	18.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	94	99	90
Value of primary products shipments made in all industries	1 273.3	1 099.6	896.1
Value of primary products shipments made in this industry	1 229.4	1 030.6	893.9
Value of primary products shipments made in other industries	44.0	69.0	2.2
Coverage ratio	97	94	99
INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.			
Total value of shipments	1 386.1	1 678.1	1 403.8
Primary products value of shipments	535.8	515.1	650.6
Secondary products value of shipments	24.2	49.7	108.5
Total miscellaneous receipts	826.0	1 113.4	644.7
Value of resales	(D)	(D)	29.1
Contract receipts	809.2	1 094.0	601.6
Other miscellaneous receipts	(D)	(D)	14.0
Primary products specialization ratio	96	91	86
Value of primary products shipments made in all industries	811.9	771.0	1 016.0
Value of primary products shipments made in this industry	535.8	515.1	650.6
Value of primary products shipments made in other industries	276.1	255.9	365.3
Coverage ratio	66	67	64

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3482– —	**SMALL ARMS AMMUNITION**						
	Total	**(NA)**	**(X)**	**962.4**	**(NA)**	**(X)**	**699.9**
34820	Small arms ammunition, 30 mm or less (or 1.18 inches or less) for small firearms (rifles, shotguns, and sidearms)	(NA)	(X)	962.4	(NA)	(X)	699.9
	Cartridges:						
34820 25	Rimfire rifle/ pistol millions	4	3 000.9	60.5	5	2 693.0	52.8
34820 35	Centerfire rifle millions	7	554.0	188.5	6	284.3	83.5
34820 45	Centerfire pistols, including cartridges interchangeable between rifles and pistols millions	8	875.0	132.4	9	725.4	93.5
34820 55	Shotgun shells millions	5	981.5	176.9	3	884.8	150.7
	Ammunition components:						
34820 61	Primers millions	4	2 027.8	25.8	4	1 988.1	21.8
34820 69	All other, including wads, shot cases (primed or unprimed), bullets, bullet jackets, and cases	16	(X)	134.2	13	(X)	75.2
34820 98	Other ammunition products, including industrial shells and cartridges, air gun ammunition, and percussion caps	9	(X)	216.0	15	(X)	209.8
34820 00	Small arms ammunition, n.s.k.[3]	(NA)	(X)	11.7	(NA)	(X)	.2
34820 02	Small arms ammunition, n.s.k.[4]	(NA)	(X)	16.4	(NA)	(X)	12.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3483– —	**AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.**				
	Total	**(NA)**	**2 361.5**	**(NA)**	**2 901.9**
34831	Artillery ammunition, more than 30 mm (or more than 1.18 inches)	(NA)	1 028.4	(NA)	1 181.9
34831 11	Complete rounds, loaded	5	(D)	7	(D)
34831 35	Steel cases only	4	71.0	10	242.7
34831 51	Projectile metal parts	12	178.9	10	247.3
34831 71	Other components, including primers, fuses, boosters, and nonsteel cases	14	261.3	16	248.3
34831 81	Receipts for ammunition loading and assembly, more than 30 mm (or more than 1.18 inches)	4	66.6	2	(D)
34831 00	Artillery ammunition, more than 30 mm (or more than 1.18 inches), n.s.k.	(NA)	(D)	(NA)	–
34833	Ammunition, except for small arms, n.e.c.	(NA)	1 328.4	(NA)	1 716.2
34833 11	Bombs, depth charges, mines, torpedoes, etc., and parts	28	1 315.6	27	1 318.0
34833 31	Rockets (other than guided missiles) and parts	7		18	398.2
34833 00	Ammunition, except for small arms, n.e.c., n.s.k.	(NA)	12.8	(NA)	–
34830	Ammunition, except for small arms, n.e.c., n.s.k.	(NA)	4.7	(NA)	3.8
34830 00	Ammunition, except for small arms, n.e.c., n.s.k.[5]	(NA)	3.5	(NA)	1.1
34830 02	Ammunition, except for small arms, n.e.c., n.s.k.[6]	(NA)	1.3	(NA)	2.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3484– —	**SMALL ARMS**						
	Total	**(NA)**	**(X)**	**1 273.3**	**(NA)**	**(X)**	**1 099.6**
34841	Machine guns, 30 mm or less (or 1.18 inches or less)	(NA)	(X)	256.2	(NA)	(X)	(7)
34841 00	Machine guns, 30 mm or less (or 1.18 inches or less) millions	6	1.4	256.2	5	(S)	(7)
34842	Small arms, 30 mm or less (or 1.18 inches or less)	(NA)	(X)	949.6	(NA)	(X)	71 056.1
	Pistols and revolvers:						
	Centerfire:						
34842 11	Overall length 6 inches or less millions	13	10.8	115.6	7	93.3	168.0
34842 13	All other, including units with interchangeable barrels millions	7	(S)	164.7	8	23.7	47.7
34842 16	Rimfire[8] millions	5	*2.8	53.6	(NA)	15.2	15.5
	Rifles:						
	Centerfire:						
34842 21	Semiautomatic millions	10	(S)	53.8	8	14.9	44.9
34842 23	Bolt repeater millions	3	(D)	(D)	4	34.2	76.1
34842 26	All other types[8] millions	10	**1.3	142.7	(NA)	(NA)	39.2
34842 54	Rimfire[8] millions	4	(D)	(D)	(NA)	39.7	31.2
34842 65	Single barrel shotguns[8] millions	5	1.9	170.7	(NA)	(NA)	(NA)
34842 74	Other small firearms (30 mm or less), including double barrel shotguns and combination rifle-shotguns[8] millions	6	(S)	31.9	(NA)	(NA)	(7)
34842 81	Parts and attachments for small firearms	39	(X)	97.2	28	(X)	265.3
34842 00	Small arms, 30 mm or less (or 1.18 inches or less), n.s.k.	(NA)	(X)	–	(NA)	(X)	1.1
34840	Small arms, n.s.k.	(NA)	(X)	67.5	(NA)	(X)	43.5
34840 00	Small arms, n.s.k.[9]	(NA)	(X)	42.0	(NA)	(X)	1.9
34840 02	Small arms, n.s.k.[10]	(NA)	(X)	25.5	(NA)	(X)	41.7

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3489– —	**ORDNANCE AND ACCESSORIES, N.E.C.**				
	Total	**(NA)**	**811.9**	**(NA)**	**771.0**
34891	Guns, howitzers, mortars, and related equipment, more than 30 mm (or more than 1.18 inches)	(NA)	354.3	(NA)	157.3
34891 21	Guns, howitzers, and mortars, assembled and recoilless rifles	8	197.3		
34891 51	Turrets (except aircraft turrets and aircraft turret drives), mounts and carriages (except self-propelled)	5	(D)	(NA)	155.2
34891 71	Parts and other related equipment for heavy weapons	8	(D)		
34891 00	Guns, howitzers, mortars, and related equipment, more than 30 mm (or more than 1.18 inches), n.s.k.	(NA)	.1	(NA)	2.2
34892	Ordnance and accessories, n.e.c.	(NA)	446.6	(NA)	602.2
34892 00	Ordnance and accessories, n.e.c. (rocket projectors, line throwing guns, flame throwers, torpedo tubes, etc., and parts)	38	446.6	60	602.2

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3489– —	**ORDNANCE AND ACCESSORIES, N.E.C.**—Con.				
34890	Ordnance and accessories, n.e.c., n.s.k.	(NA)	11.0	(NA)	11.4
34890 00	Ordnance and accessories, n.e.c., n.s.k.[9]	(NA)	3.6	(NA)	.8
34890 02	Ordnance and accessories, n.e.c., n.s.k.[10]	(NA)	7.4	(NA)	10.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]For 1987, product code 34841 00 was included in product class 34842.
[8]For 1992, product code is revised. See appendix B, parts 1 and 2 for comparability.
[9]Typically for establishments with 15 employees or more.
[10]Typically for establishments with less than 15 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34831, ARTILLERY AMMUNITION, MORE THAN 30 MM (OR MORE THAN 1.18 INCHES)		
United States	**1 028.4**	**1 181.9**
California	109.9	(NA)
Florida	75.2	(NA)
Pennsylvania	110.3	(NA)
34833, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.		
United States	**1 328.4**	**1 716.2**
34841, MACHINE GUNS, 30 MM OR LESS (OR 1.18 INCHES OR LESS)		
United States	**256.2**	**(NA)**
34842, SMALL ARMS, 30 MM OR LESS (OR 1.18 INCHES OR LESS)		
United States	**949.6**	**(NA)**
California	53.5	(NA)
Connecticut	207.6	(NA)
Florida	15.0	(NA)
Maine	15.7	(NA)
Massachusetts	129.6	(NA)
Texas	18.4	(NA)
Wisconsin	19.4	(NA)
34891, GUNS, HOWITZERS, MORTARS, AND RELATED EQUIPMENT, MORE THAN 30 MM (OR MORE THAN 1.18 INCHES)		
United States	**354.3**	**157.3**
34892, ORDNANCE AND ACCESSORIES, N.E.C.		
United States	**446.6**	**602.2**

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3482-	**Small arms ammunition**	**962.4**	**894.6**	**842.8**	**825.7**	**793.5**	**699.9**	**698.5**	**403.9**
34820	Small arms ammunition, 30 mm or less (or 1.18 inches or less) for small firearms (rifles, shotguns, and sidearms)	962.4	894.6	842.8	825.7	793.5	699.9	698.5	403.9
3483-	**Ammunition, except for small arms, n.e.c.**	**2 361.5**	**2 328.8**	**2 337.5**	**2 599.5**	**2 977.3**	**2 901.9**	**1 359.0**	**629.3**
34831	Artillery ammunition, more than 30 mm (or more than 1.18 inches)	1 028.4	882.3	882.4	922.5	1 086.7	1 181.9	678.8	338.3
34833	Ammunition, except for small arms, n.e.c.	1 328.4	1 440.8	1 446.1	1 674.3	1 887.0	1 716.2	674.2	282.9
34830	Ammunition, except for small arms, n.e.c., n.s.k.	4.7	5.8	9.0	2.8	3.6	3.8	6.0	8.1
3484-	**Small arms**	**1 273.3**	**1 073.1**	**1 142.1**	**1 191.6**	**1 164.4**	**1 099.6**	**896.1**	**662.6**
34841	Machine guns, 30 mm or less (or 1.18 inches or less)	256.2	988.7	1 067.6	1 131.2	1 120.9	1 056.1	879.4	647.5
34842	Small arms, 30 mm or less (or 1.18 inches or less)	949.6							
34840	Small arms, n.s.k.	67.5	84.4	74.5	60.4	43.5	43.5	16.7	15.1
3489-	**Ordnance and accessories, n.e.c.**	**811.9**	**837.2**	**702.2**	**699.9**	**775.9**	**771.0**	**1 016.0**	**483.3**
34891	Guns, howitzers, mortars, and related equipment, more than 30 mm (or more than 1.18 inches)	354.3	250.8	161.7	123.4	149.7	157.3	138.9	57.0
34892	Ordnance and accessories, n.e.c.	446.6	571.0	523.1	565.1	613.3	602.2	870.8	414.0
34890	Ordnance and accessories, n.e.c., n.s.k.	11.0	15.4	17.3	11.4	12.9	11.4	6.2	12.3

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3482, SMALL ARMS AMMUNITION		
	Materials, ingredients, containers, and supplies	**374.7**	**214.7**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	.1	(NA)
340098	Other fabricated metal products	65.9	(D)
	Castings (rough and semifinished):		
332001	Iron and steel	(D)	–
336005	Aluminum and aluminum-base alloy	(D)	(NA)
336003	Other nonferrous	2.8	(NA)
	Forgings:		
346200	Iron and steel	(D)	(NA)
346310	Aluminum and aluminum-base alloy	(D)	(NA)
346399	Other nonferrous	–	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	11.6	16.6
335105	Copper and copper-base alloy	81.2	23.0
335001	Aluminum and aluminum-base alloy	(D)	5.6
335099	Other nonferrous shapes and forms	(D)	(NA)
	Chemicals and allied products:		
289217	Smokeless powder	57.1	33.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	5.7	4.4
280096	Other chemicals and allied products	(D)	(NA)
242101	Rough and dressed lumber	(D)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	22.4	13.4
308006	Fabricated plastics products, except gaskets	10.7	(D)
354500	Machine tool accessories, including cutting tools	(D)	(NA)
190055	Electronic, hydraulic, and mechanical subassemblies	(D)	(NA)
190085	Radio and electronic communication, navigation, search, detection and tracking systems, instruments, and equipment	–	(NA)
970099	All other materials and components, parts, containers, and supplies	47.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	14.5	3.4
	INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 126.7**	**1 501.6**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	29.6	55.3
340098	Other fabricated metal products	69.5	271.1
	Castings (rough and semifinished):		
332001	Iron and steel	40.6	34.3
336005	Aluminum and aluminum-base alloy	18.9	26.3
336003	Other nonferrous	4.3	(NA)
	Forgings:		
346200	Iron and steel	7.7	15.2
346310	Aluminum and aluminum-base alloy	6.8	22.3
346399	Other nonferrous	2.2	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	81.8	115.4
335105	Copper and copper-base alloy	13.0	53.2
335001	Aluminum and aluminum-base alloy	38.2	–
335099	Other nonferrous shapes and forms	6.6	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3483, AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C.—Con.		
	Chemicals and allied products:		
289217	Smokeless powder	(D)	81.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	2.4	4.2
280096	Other chemicals and allied products	32.0	(NA)
242101	Rough and dressed lumber	2.4	(D)
265001	Paperboard containers, boxes, and corrugated paperboard	7.4	5.3
308006	Fabricated plastics products, except gaskets	17.6	16.1
354500	Machine tool accessories, including cutting tools	7.1	(NA)
190055	Electronic, hydraulic, and mechanical subassemblies	19.9	(NA)
190085	Radio and electronic communication, navigation, search, detection and tracking systems, instruments, and equipment	(D)	(NA)
970099	All other materials and components, parts, containers, and supplies	466.3	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	9.2	14.1
	INDUSTRY 3484, SMALL ARMS		
	Materials, ingredients, containers, and supplies	**333.8**	**286.5**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	18.8	15.5
340098	Other fabricated metal products	93.6	80.2
	Castings (rough and semifinished):		
332001	Iron and steel	15.5	15.1
336005	Aluminum and aluminum-base alloy	14.9	(NA)
336003	Other nonferrous	(D)	(NA)
	Forgings:		
346200	Iron and steel	9.9	5.1
346310	Aluminum and aluminum-base alloy	(D)	(NA)
346399	Other nonferrous	–	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	17.2	54.2
335105	Copper and copper-base alloy	.4	–
335001	Aluminum and aluminum-base alloy	2.1	(NA)
335099	Other nonferrous shapes and forms	5.7	(NA)
	Chemicals and allied products:		
289217	Smokeless powder	(D)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(D)	.4
280096	Other chemicals and allied products	.9	(NA)
242101	Rough and dressed lumber	5.6	15.4
265001	Paperboard containers, boxes, and corrugated paperboard	7.3	2.9
308006	Fabricated plastics products, except gaskets	5.5	(NA)
354500	Machine tool accessories, including cutting tools	10.5	(NA)
190055	Electronic, hydraulic, and mechanical subassemblies	(D)	(NA)
190085	Radio and electronic communication, navigation, search, detection and tracking systems, instruments, and equipment	–	(NA)
970099	All other materials and components, parts, containers, and supplies	101.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	20.1	11.8
	INDUSTRY 3489, ORDNANCE AND ACCESSORIES, N.E.C.		
	Materials, ingredients, containers, and supplies	**164.2**	**144.4**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	6.7	2.8
340098	Other fabricated metal products	13.5	6.8
	Castings (rough and semifinished):		
332001	Iron and steel	1.1	.9
336005	Aluminum and aluminum-base alloy	2.0	2.3
336003	Other nonferrous	(D)	(NA)
	Forgings:		
346200	Iron and steel	(D)	(NA)
346310	Aluminum and aluminum-base alloy	(D)	2.6
346399	Other nonferrous	(D)	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	22.8	16.4
335105	Copper and copper-base alloy	(D)	4.1
335001	Aluminum and aluminum-base alloy	.9	–
335099	Other nonferrous shapes and forms	(D)	(NA)
	Chemicals and allied products:		
289217	Smokeless powder	(D)	–
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(D)	(NA)
280096	Other chemicals and allied products	.7	(NA)
242101	Rough and dressed lumber	(D)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	.5	1.0
308006	Fabricated plastics products, except gaskets	1.2	1.7
354500	Machine tool accessories, including cutting tools	1.3	(NA)
190055	Electronic, hydraulic, and mechanical subassemblies	(D)	(NA)
190085	Radio and electronic communication, navigation, search, detection and tracking systems, instruments, and equipment	(D)	(NA)
970099	All other materials and components, parts, containers, and supplies	13.7	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	7.3	8.5

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
34293 00	34293 15
34293 00	34293 17
34298 98	34298 32
34298 98	34298 99
34321	34320
34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
34339 06	34339 10
34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
34433 26	34433 22
34433 28	34433 22
34433 28	34433 49
34433 30	34433 32
34433 34	34433 32
34433 34	34433 49
34433 35	34433 50
34433 37	34433 36
34433 40	34433 36
34433 41	34433 38
34433 44	34433 38
34433 46	34433 42
34433 46	34433 43
34433 47	34433 42
34433 47	34433 43
34433 48	34433 39
34433 48	34433 50
34433 51	34433 50
34434 14	34434 13
34434 14	34434 15
34434 16	34434 17
34434 16	34434 19
34435 20	34435 21
34435 20	34435 23
34435 35	34435 31
34435 35	34435 33
34435 42	34435 37
34435 42	34435 39
34438 08	34438 07
34438 13	34438 14
34438 13	34438 16
34438 20	34438 17
34438 22	34438 19
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34443 24	34443 23
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34482 18	34482 23
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34626 16	34626 17
34627 12	34627 11
34627 12	34627 13
34627 16	34627 15
34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
34661 22	34661 00
34662 30	34662 00
34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
34842 26	34842 25
34842 26	34842 27
34842 54	34842 51
34842 54	34842 53
34842 54	34842 56
34842 65	34842 63
34842 65	34842 67
34842 74	34842 64
34842 74	34842 73
34916 78	34916 77
34916 78	34916 79
3492A	34923
3492A 00	34923 00
3492B	34923
3492B 00	34923 00
3492C	34921
3492C 00	34921 00
3492D	34921
3492D 00	34921 00
3492E	34922
3492E 00	34922 00
3492F	34922
3492F 00	34922 00
3492G	34927
3492G 00	34927 00
3492H	34926
3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
34961 52	34961 51
34964 00	34964 41
34964 00	34964 43
34964 00	34964 45
34964 00	34964 51
34964 00	34964 53
34964 00	34964 55
34965 00	34965 17
34965 00	34965 57
34965 00	34965 65
34966 13	34966 23
34966 13	34966 25
34966 21	34966 27
34966 21	34966 29
34968 42	34968 41
34968 42	34968 45
34968 42	34968 46
34968 42	34968 47
34968 63	34968 61
34968 63	34968 65
34968 98	34968 77
34968 98	34968 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
34211 98	34211 25
34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
34231 32	34231 33
34231 34	34231 33
34231 61	34231 97
34231 98	34231 97
34234 11	34234 14
34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
34293 15	34293 00
34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
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34320 31	34321 32
34320 35	34321 34
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34320 49	34322 18
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34320 54	34322 24
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34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
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34320 87	34323 27
34320 89	34323 32
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34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
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34333 60	34333 65
34333 81	34333 65
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34334 00	34334 40
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34334 00	34334 74
34335 31	34335 20
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34335 44	34335 20
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34413 55	34413 26
34413 57	34413 29
34413 58	34413 59
34413 61	34413 16
34413 71	34413 20
34413 82	34413 29
34413 83	34413 23
34413 83	34413 26
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34627 15	34627 16
34627 17	34627 16
34628 11	34628 12
34628 13	34628 12
34628 15	34628 16
34628 17	34628 16
34661 00	34661 05
34661 00	34661 20
34661 00	34661 22
34662 00	34662 30
34662 00	34662 32
34699 98	34699 51
34699 98	34699 97
34790 00	34790 77
34842 15	34842 16
34842 17	34842 16
34842 25	34842 26
34842 27	34842 26
34842 51	34842 54
34842 53	34842 54
34842 56	34842 54
34842 63	34842 65
34842 64	34842 74
34842 67	34842 65
34842 73	34842 74
34916 77	34916 78
34916 79	34916 78
34921	3492C
34921	3492D
34921 00	3492C 00
34921 00	3492D 00
34922	3492E
34922	3492F
34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
34924	3492J
34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
34961 22	34961 52
34961 31	34961 34
34961 33	34961 34
34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
34964 43	34964 00
34964 45	34964 00
34964 51	34964 00
34964 53	34964 00
34964 55	34964 00
34965 17	34965 00
34965 57	34965 00
34965 65	34965 00
34966 23	34966 13
34966 25	34966 13
34966 27	34966 21
34966 29	34966 21
34968 41	34968 42
34968 45	34968 42
34968 46	34968 42
34968 47	34968 42
34968 61	34968 63
34968 65	34968 63
34968 77	34968 98
34968 99	34968 98

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:44 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08421818.DAT;1 1/ 6/ 95 08:42:30 UTF:TIPS93-08421818.DAT;1 1/ 6/ 95 08:42:30 META:TIPS96-08421818.DAT;1 1/ 6/ 95 08:43:45

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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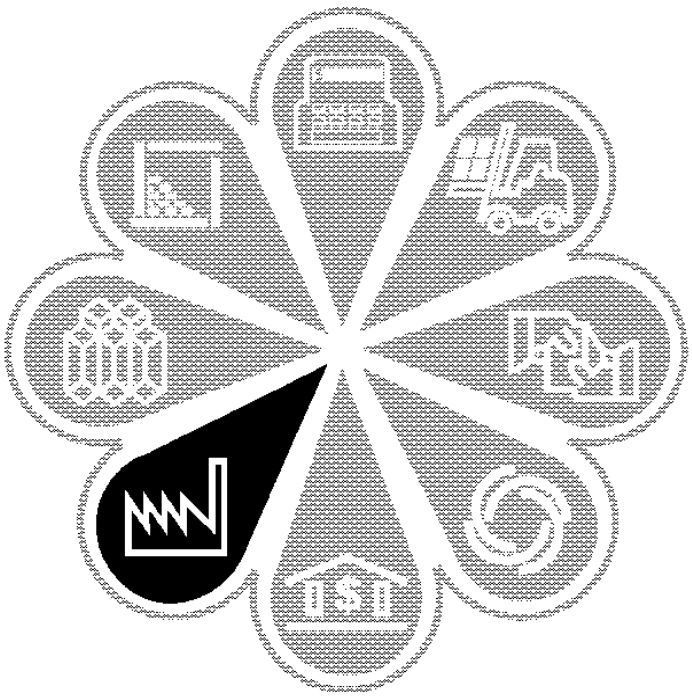
1992 Census of Manufactures

MC92-I-34F

INDUSTRY SERIES

Miscellaneous Fabricated Metal Products

Industries 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, and 3499



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Tue Mar 7 08:39:51 1995 / pssw02/ disk2/ economic/ mc92i/ 34f/ 01cvr

1992 Census of Manufactures

MC92-I-34F

INDUSTRY SERIES

Miscellaneous Fabricated Metal Products

Industries 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, and 3499

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3491	Industrial Valves
3492	Fluid Power Valves and Hose Fittings
3493	Steel Springs, Except Wire
3494	Valves and Pipe Fittings, N.E.C.
3495	Wire Springs
3496	Miscellaneous Fabricated Wire Products
3497	Metal Foil and Leaf
3498	Fabricated Pipe and Fittings
3499	Fabricated Metal Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3491, INDUSTRIAL VALVES

This industry is made up of establishments primarily engaged in manufacturing industrial valves. Establishments primarily engaged in manufacturing fluid power valves are classified in industry 3492; those manufacturing plumbing fixture fittings and trim are classified in industry 3432; and those manufacturing plumbing and heating valves are classified in industry 3499.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3491, Industrial Valves, had employment of 51.4 thousand. The employment figure was 12 percent above the 45.9 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, California, Pennsylvania, and Iowa, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Texas, California, Pennsylvania, and Illinois accounted for approximately 32 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3491 shipped $5.5 billion of industrial valves products considered primary to the industry, $831.3 million of secondary products, and had $424.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3491, no matter in what industry they were produced, appear in table 6a and aggregate to $6.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial valves industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS

This industry is made up of establishments primarily engaged in manufacturing hydraulic and pneumatic valves, hose and fittings, and hose assemblies for fluid power systems. Establishments primarily engaged in manufacturing fluid power cylinders are classified in industry 3593; those manufacturing fluid power pumps are classified in industry 3594; and those manufacturing hydraulic intake and exhaust motor vehicle valves are classified in industry 3592.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3492, Fluid Power Valves and Hose Fittings, had employment of 28.2 thousand. The employment figure was 1 percent above the 27.9 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, Michigan, and Illinois, accounting for approximately 48 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 51 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3492 shipped $2.7 billion of fluid power valves and hose fittings products considered primary to the industry, $386.7 million of secondary products, and had $175.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 75 percent.

The products primary to industry 3492, no matter in what industry they were produced, appear in table 6a and aggregate to $3.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fluid power valves and hose fittings industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE

This industry is made up of establishments primarily engaged in manufacturing leaf springs, hot wound springs, and coiled flat springs. Establishments primarily engaged in manufacturing wire springs are classified in industry 3495.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3493, Steel Springs, Except Wire, had employment of 4.4 thousand. The employment figure was 11 percent below the 5.0 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Connecticut, Ohio, and Indiana, accounting for approximately 60 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Indiana, Illinois, and Connecticut accounted for approximately 60 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $495.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3493 shipped $380.5 million of steel springs, except wire, products considered primary to the industry, $52.5 million

of secondary products, and had $62.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 49 percent.

The products primary to industry 3493, no matter in what industry they were produced, appear in table 6a and aggregate to $466.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the steel springs, except wire industry amounted to $244.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing metal valves and pipe fittings not elsewhere classified, such as plumbing and heating valves and pipe fittings, flanges, and unions, except from purchased pipes. Establishments primarily engaged in manufacturing plastics pipe fittings are classified in industry 3089; those manufacturing plumbing fixture fittings and trim are classified in industry 3432; and those manufacturing fittings and couplings for garden hose are classified in industry 3429. Establishments primarily engaged in manufacturing fluid power valves are classified in industry 3492, and those manufacturing other industrial valves are classified in industry 3491. Establishments primarily engaged in fabricated pipe fittings from purchased metal pipe by processes such as cutting, threading, and bending are classified in industry 3498.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3494, Valves and Pipe Fittings, N.E.C., had employment of 16.6 thousand. The employment figure was 34 percent below the 25.1 thousand reported in 1987. Compared with 1991, employment decreased 34 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, Ohio, Texas, and Illinois, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Ohio, California, and Indiana accounted for approximately 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3494 shipped $1.6 billion of valves and pipe fittings, not elsewhere classified, products considered primary to the industry, $265.3 million of secondary products, and had $104.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3494, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the valves and pipe fittings, not elsewhere classified, industry amounted to $924.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3495, WIRE SPRINGS

This industry is made up of establishments primarily engaged in manufacturing wire springs from purchased wire. Establishments primarily engaged in assembling wire bedsprings or seats are classified in industry major group 25.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3495, Wire Springs, had employment of 18.0 thousand. The employment figure was 9 percent below the 19.7 thousand reported in 1987. Compared with 1991, employment decreased

10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Ohio, and Michigan, accounting for approximately 29 percent of the industry's employment. This represents a shift from 1987 when Illinois, Michigan, Indiana, and Ohio accounted for approximately 36 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3495 shipped $1.4 billion of wire products considered primary to the industry, $157.0 million of secondary products, and had $149.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3495, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wire springs industry amounted to $792.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing miscellaneous fabricated wire products from purchased wire, such as noninsulated wire rope and cable; fencing; screening, netting, paper machine wire cloth; hangers, paperclips, kitchenware, and wire carts. Rolling mills engaged in manufacturing wire products are classified in major group 33. Establishments primarily engaged in manufacturing steel nails and spikes from purchased wire or rod are classified in industry 3315; those manufacturing nonferrous wire nails and spikes from purchased wire rod are classified in industry 3399; those drawing and insulating nonferrous wire are classified in industry 3357; and those manufacturing wire springs are classified in industry 3495.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3496, Miscellaneous Fabricated Wire Products, had employment of 38.8 thousand. The employment figure was 11 percent above the 35.1 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Missouri, Pennsylvania, and California, accounting for approximately 30 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Illinois, and Ohio accounted for approximately 30 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3496 shipped $3.2 billion of miscellaneous fabricated wire products considered primary to the industry, $178.7 million of secondary products, and had $160.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3496, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the miscellaneous wire products industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3497, METAL FOIL AND LEAF

This industry is made up of establishments primarily engaged in manufacturing gold, silver, tin, and other metal foil (including converted metal foil) and leaf. Also included in this industry are establishments primarily engaged in converting metal foil (including aluminum) into wrappers, cookware, dinnerware, and containers, except bags and liners. Establishments primarily engaged in manufacturing plain aluminum foil are classified in industry 3353.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3497, Metal Foil and Leaf, had employment of 12.0 thousand. The employment figure was 15 percent above the 10.4 thousand reported in 1987. Compared with 1991, employment increased 16 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, New Jersey, Illinois, and Ohio. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3497 shipped $2.5 billion of metal foil and leaf products considered primary to the industry, $512.5 million of secondary products, and had $116.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 81 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3497, no matter in what industry they were produced, appear in table 6a and aggregate to $2.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metal foil and leaf industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3498, FABRICATED PIPE AND FITTINGS

This industry is made up of establishments primarily engaged in fabricating pipe and pipe fittings from purchased pipe, by processes such as cutting, threading, and bending. Establishments primarily engaged in manufacturing cast iron pipe and pipe fittings, including cast and forged pipe fittings which have been machined and threaded are classified in industry 3321; those manufacturing welded and heavy riveted pipe and seamless steel pipe are classified in industry 3317; and those manufacturing products such as banisters, railings, and guards from pipe are classified in industry 3446.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3498, Fabricated Pipe and Fittings, had employment of 24.8 thousand. The employment figure was 24 percent above the 20.0 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, Michigan, California, and Louisiana, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when Michigan, Texas, California, and Pennsylvania accounted for approximately 46 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3498 shipped $2.5 billion of fabricated pipe and fittings products considered primary to the industry, $108.8 million of secondary products, and had $156.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3498, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated pipe and fittings industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing fabricated metal products, not elsewhere classified, such as fire or burglary resistive steel safes and vaults and similar fir or burglary resistive products; and collapsible tubes of thin flexible metal. Also included in this industry are establishments primarily engaged in manufacturing metal boxes, metal ladders, and metal household articles, such as ice cream freezers and ironing boards. Establishments primarily engaged in manufacturing concrete burial vaults are classified in industry 3272, and metal burial vaults are classified in industry 3995. Establishments primarily engaged in manufacturing advertising novelties are classified in industry 3993.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3499, Fabricated Metal Products, N.E.C., had employment of 69.8 thousand. The employment figure was 4 percent below the 72.5 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, California, Illinois, and Michigan, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Illinois, Ohio, and California accounted for approximately 34 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3499 shipped $6.0 billion of fabricated metal products considered primary to the industry, $481.0 million of secondary products, and had $459.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3499, no matter in what industry they were produced, appear in table 6a and aggregate to $6.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fabricated metal products, not elsewhere classified industry amounted to $3.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 22 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3491, INDUSTRIAL VALVES															
1992 Census	389	493	328	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7	1 637.9	87	90
1991 ASM	(NA)	(NA)	(NA)	45.9	1 430.3	29.6	58.8	748.8	3 591.8	2 392.1	5 972.6	191.0	1 409.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	46.4	1 368.8	30.3	60.5	734.8	3 385.5	2 381.4	5 745.4	211.8	1 437.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	48.7	1 364.0	31.7	63.7	729.6	3 246.9	2 343.2	5 501.2	162.6	1 508.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	47.5	1 279.0	31.0	63.4	692.8	2 953.1	2 137.7	5 010.9	138.5	1 349.3	(NA)	(NA)
1987 Census	310	384	272	45.9	1 193.7	29.7	59.0	644.3	2 792.8	1 798.9	4 590.6	150.0	1 264.6	84	88
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS															
1992 Census	305	369	202	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0	861.5	88	83
1991 ASM	(NA)	(NA)	(NA)	29.0	856.0	19.1	38.6	499.9	1 825.7	1 405.6	3 214.3	90.5	853.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.9	879.7	20.7	41.9	522.0	1 913.6	1 384.1	3 322.8	134.2	831.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	29.6	781.4	20.0	40.6	471.6	1 851.4	1 229.9	3 063.7	94.0	805.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	29.7	775.0	19.8	41.9	453.4	1 748.5	1 230.1	2 908.2	90.7	767.4	(NA)	(NA)
1987 Census	332	386	203	27.9	686.1	18.4	37.0	403.1	1 445.4	1 001.8	2 451.5	77.9	711.1	89	75
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE															
1992 Census	107	114	46	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5	81.1	88	82
1991 ASM	(NA)	(NA)	(NA)	5.6	154.9	3.9	8.5	86.0	281.4	228.6	523.4	12.7	72.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.1	148.4	4.1	9.0	89.1	286.4	229.6	524.7	7.3	83.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.4	153.6	4.4	9.1	86.8	276.0	233.3	502.9	7.7	100.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.0	127.5	3.7	7.5	83.0	256.1	213.5	468.3	11.2	85.9	(NA)	(NA)
1987 Census	144	151	61	5.0	122.1	3.6	7.3	78.1	248.7	210.4	458.5	18.0	81.0	87	49
1986 ASM	(NA)	(NA)	(NA)	4.7	109.5	3.5	6.6	71.5	221.6	191.6	419.3	15.4	75.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.2	112.4	3.8	7.1	75.1	231.7	205.8	434.2	9.5	81.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	5.3	118.4	4.0	7.6	80.1	219.7	223.9	432.7	9.4	82.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.9	102.5	3.7	6.9	67.9	208.3	205.0	414.5	5.9	86.3	(NA)	(NA)
1982 Census	123	137	55	5.2	103.5	3.8	6.8	67.3	204.5	204.8	413.5	7.3	86.0	81	59
1981 ASM	(NA)	(NA)	(NA)	5.7	109.7	4.3	8.0	74.3	239.2	226.4	462.7	13.2	74.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.3	110.3	4.7	8.9	74.3	220.7	235.4	458.6	22.0	72.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.2	135.7	6.5	12.9	98.9	300.2	300.2	593.7	10.7	88.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.7	130.1	6.9	13.7	93.9	278.5	289.2	568.5	17.6	91.1	(NA)	(NA)
1977 Census	116	131	59	8.2	119.8	6.6	13.3	88.0	249.9	259.3	500.5	14.1	81.6	84	72
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.															
1992 Census	228	251	150	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3	415.7	86	83
1991 ASM	(NA)	(NA)	(NA)	25.0	640.5	18.1	36.7	404.4	1 519.3	1 292.6	2 803.0	55.5	657.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.0	666.3	18.7	38.6	420.8	1 535.8	1 390.1	2 924.0	81.4	628.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.6	611.4	17.5	35.2	370.7	1 392.9	1 163.3	2 571.4	63.7	594.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.9	633.6	19.7	39.6	408.4	1 506.6	1 179.8	2 649.5	45.3	622.5	(NA)	(NA)
1987 Census	372	416	231	25.1	570.4	17.6	34.9	352.7	1 366.5	1 002.0	2 377.3	62.4	557.3	88	85
INDUSTRY 3495, WIRE SPRINGS															
1992 Census	313	399	208	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5	151.6	90	94
1991 ASM	(NA)	(NA)	(NA)	20.0	429.2	16.3	30.8	322.6	1 006.9	835.3	1 827.0	53.7	171.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.1	437.2	16.4	32.9	331.4	974.7	885.8	1 843.9	54.9	172.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.4	419.5	16.6	34.1	318.5	926.9	820.6	1 739.0	48.4	164.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.1	425.2	16.3	31.8	312.0	908.7	797.7	1 702.6	49.8	169.3	(NA)	(NA)
1987 Census	304	407	214	19.7	406.5	16.0	32.2	289.9	880.0	697.5	1 580.4	49.2	156.4	91	93
1986 ASM	(NA)	(NA)	(NA)	21.0	438.5	17.6	35.4	322.0	882.3	696.9	1 574.0	60.7	162.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.9	438.1	18.5	36.9	316.6	869.1	708.3	1 575.7	62.2	159.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.2	388.6	16.6	32.4	263.4	804.1	649.2	1 441.2	71.2	154.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.7	339.8	16.3	31.0	245.5	690.8	585.2	1 270.2	42.9	138.0	(NA)	(NA)
1982 Census	322	432	236	17.9	294.1	14.5	27.5	208.8	596.8	498.7	1 104.3	31.9	116.4	92	93
1981 ASM	(NA)	(NA)	(NA)	16.3	269.3	13.4	26.9	197.8	527.9	458.4	983.2	29.1	110.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.6	261.3	15.3	30.5	191.8	513.2	462.7	981.8	29.4	109.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	21.4	274.8	17.8	36.4	201.9	536.0	531.8	1 063.1	36.2	113.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	22.7	283.0	18.8	36.9	206.6	570.3	487.6	1 051.4	34.3	114.7	(NA)	(NA)
1977 Census	254	332	226	21.7	253.5	18.0	35.4	187.8	497.7	458.6	957.7	27.6	104.5	92	92
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS															
1992 Census	1 091	1 165	448	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9	545.7	95	93
1991 ASM	(NA)	(NA)	(NA)	32.0	675.5	24.1	48.9	426.1	1 653.8	1 442.5	3 089.2	71.5	471.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	33.2	681.0	24.9	50.0	422.0	1 552.1	1 447.3	2 999.7	89.7	459.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	34.3	673.4	26.1	51.0	419.0	1 458.4	1 384.6	2 828.6	69.4	439.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	36.9	723.2	28.0	55.2	449.2	1 555.1	1 422.4	2 962.9	56.5	442.7	(NA)	(NA)
1987 Census	1 066	1 157	447	35.1	674.2	26.2	52.5	418.2	1 463.8	1 251.9	2 720.8	64.9	404.0	95	[9]90
1986 ASM	(NA)	(NA)	(NA)	37.2	678.6	28.3	55.7	429.3	1 447.1	1 337.1	2 775.5	68.7	449.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	37.4	671.2	28.3	54.7	429.7	1 406.4	1 338.8	2 744.4	106.1	453.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	39.7	682.9	30.4	60.0	437.0	1 503.5	1 364.6	2 837.5	72.3	476.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	37.9	630.3	28.6	56.1	406.4	1 344.6	1 247.4	2 597.0	58.4	466.3	(NA)	(NA)
1982 Census	1 109	1 182	445	36.8	580.3	27.8	53.2	375.1	1 167.3	1 172.0	2 358.4	67.0	443.0	93	(NA)
1981 ASM	(NA)	(NA)	(NA)	27.4	461.8	21.1	41.7	302.2	927.2	1 023.9	1 938.6	67.4	324.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.3	420.2	21.4	41.7	270.4	840.4	953.9	1 800.0	50.7	289.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.9	413.9	23.9	47.1	271.7	918.8	967.1	1 860.8	50.6	302.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.8	376.6	25.8	51.1	251.1	753.4	793.5	1 539.2	61.9	265.7	(NA)	(NA)
1977 Census	1 048	1 114	387	32.4	354.5	25.5	49.4	232.2	721.7	728.3	1 435.0	47.3	252.8	91	(NA)
INDUSTRY 3497, METAL FOIL AND LEAF															
1992 Census	104	121	73	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6	435.2	83	86
1991 ASM	(NA)	(NA)	(NA)	10.3	353.9	7.7	17.5	241.4	962.6	1 780.6	2 741.5	99.6	406.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.6	354.0	7.9	18.3	244.3	938.4	1 916.6	2 845.8	95.5	424.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.7	339.8	8.0	17.9	232.8	954.2	1 875.0	2 844.5	81.9	422.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.1	332.5	8.2	17.4	227.1	971.9	1 828.4	2 739.0	95.2	479.7	(NA)	(NA)
1987 Census	97	117	66	10.4	304.3	7.4	15.9	201.9	854.8	1 444.1	2 286.6	87.8	360.2	81	87

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3497, METAL FOIL AND LEAF—Con.															
1986 ASM	(NA)	(NA)	(NA)	10.1	270.8	7.4	15.5	180.3	764.8	1 279.4	2 046.9	50.9	318.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.3	286.5	8.3	17.0	190.4	819.3	1 381.0	2 198.5	65.4	344.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.4	287.3	8.5	17.4	194.2	762.8	1 445.2	2 191.1	58.4	367.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.5	249.7	7.7	15.5	173.8	702.3	1 228.8	1 907.5	41.9	313.4	(NA)	(NA)
1982 Census	80	97	68	10.8	243.1	8.0	16.0	172.4	662.8	1 169.7	1 846.3	40.1	287.2	81	82
1981 ASM	(NA)	(NA)	(NA)	8.4	171.6	6.1	12.5	118.1	425.7	837.7	1 263.6	37.5	172.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.0	172.8	6.6	13.0	117.0	400.7	754.3	1 146.4	35.2	175.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.9	154.3	6.6	13.2	106.8	362.4	690.3	1 037.2	24.0	159.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.5	148.0	7.0	13.9	103.2	342.1	710.8	1 047.8	38.9	159.4	(NA)	(NA)
1977 Census	63	77	52	9.4	125.8	6.6	13.0	87.1	298.0	607.2	895.1	16.1	141.1	80	63
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS															
1992 Census	810	856	315	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3	463.7	96	92
1991 ASM	(NA)	(NA)	(NA)	20.5	487.6	15.0	30.4	306.1	980.0	1 298.2	2 270.5	34.0	425.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.9	529.5	16.1	33.3	345.0	1 027.0	1 291.5	2 333.8	35.2	434.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.1	482.5	15.6	31.8	310.1	1 012.8	1 167.9	2 151.7	41.1	437.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.4	471.6	16.2	34.3	309.0	1 111.8	1 058.2	2 142.0	33.9	382.2	(NA)	(NA)
1987 Census	679	728	283	20.0	422.9	15.0	30.1	278.9	824.8	906.6	1 725.5	36.4	349.0	97	91
1986 ASM	(NA)	(NA)	(NA)	20.9	473.8	15.1	28.8	303.9	926.4	1 122.1	2 071.1	47.0	375.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	25.1	547.3	18.5	34.6	360.6	1 038.8	1 375.2	2 476.5	78.9	466.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.2	563.9	18.9	36.7	380.1	1 079.8	1 552.9	2 679.8	52.7	624.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	29.3	596.1	21.7	42.2	399.1	1 207.2	1 460.2	2 776.1	47.8	751.0	(NA)	(NA)
1982 Census	704	779	348	32.7	650.7	23.8	46.3	423.5	1 437.5	1 666.7	3 105.8	137.2	897.0	97	94
1981 ASM	(NA)	(NA)	(NA)	32.0	589.7	24.5	47.0	405.8	1 442.1	1 567.8	2 934.0	135.3	677.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.0	531.9	24.4	46.6	364.2	1 164.4	1 330.4	2 487.0	80.6	520.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	32.9	488.9	25.9	50.2	345.6	1 145.3	1 256.7	2 408.3	67.0	471.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.2	433.8	23.2	44.0	295.9	1 006.0	1 217.3	2 183.4	58.1	480.0	(NA)	(NA)
1977 Census	513	579	278	28.2	390.0	21.4	40.6	265.4	887.2	1 015.4	1 872.7	51.0	418.4	94	93
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.															
1992 Census	3 369	3 444	775	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0	984.4	93	92
1991 ASM	(NA)	(NA)	(NA)	75.6	1 785.6	53.7	111.0	1 081.1	3 540.0	2 976.3	6 517.7	148.3	909.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	80.0	1 792.4	57.7	118.4	1 099.7	3 762.3	3 119.6	6 904.6	206.9	948.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	77.7	1 718.9	56.2	115.2	1 071.3	3 768.9	3 173.8	6 947.0	148.3	981.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	75.6	1 631.8	55.0	110.7	1 006.5	3 572.4	3 125.5	6 678.3	115.1	947.4	(NA)	(NA)
1987 Census	3 720	3 782	849	72.5	1 525.9	52.7	105.6	942.3	3 380.9	2 778.0	6 148.6	152.5	873.1	93	90
1986 ASM	(NA)	(NA)	(NA)	71.4	1 374.9	53.6	99.0	899.9	3 063.4	2 589.4	5 627.8	138.7	816.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	70.0	1 277.8	53.5	107.0	835.6	2 809.1	2 395.4	5 216.2	172.4	762.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	72.5	1 213.4	55.8	112.2	790.6	2 718.3	2 441.8	5 117.5	167.3	779.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	61.1	1 061.5	46.5	89.5	700.9	2 382.9	2 025.5	4 399.8	97.3	714.4	(NA)	(NA)
1982 Census	2 910	2 982	810	65.0	1 105.8	48.8	94.2	715.2	2 304.5	2 039.8	4 406.0	114.1	709.1	92	87
1981 ASM	(NA)	(NA)	(NA)	75.2	1 223.8	56.9	114.7	803.8	2 674.1	2 569.9	5 249.4	145.1	776.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	77.0	1 139.7	58.2	116.3	749.5	2 578.8	2 454.3	5 043.3	174.4	768.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	80.5	1 095.0	61.8	121.1	713.8	2 415.8	2 380.1	4 724.7	156.9	778.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	71.8	932.7	54.1	107.4	594.5	2 084.5	1 953.0	3 974.5	107.7	660.8	(NA)	(NA)
1977 Census	3 142	3 238	794	70.8	844.7	54.1	104.8	547.8	1 814.5	1 643.5	3 429.2	94.8	574.3	89	83

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]The 1987 coverage ratio for an industry with products primary to more than one industry was recalculated and confined exclusively to that industry.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3491, INDUSTRIAL VALVES									
1992 Census	31 043	65	2 048	12.51	40	64	78 716	39	59.15
1991 ASM	31 161	64	1 986	12.73	40	64	78 253	40	61.09
1990 ASM	29 500	65	1 997	12.15	41	65	72 963	40	55.96
1989 ASM	28 008	65	2 009	11.45	43	67	66 671	42	50.97
1988 ASM	26 926	65	2 045	10.93	43	68	62 171	43	46.58
1987 Census	26 007	65	1 987	10.92	39	65	60 845	43	47.34

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS									
1992 Census	30 255	65	2 082	12.40	46	72	61 809	49	45.75
1991 ASM	29 517	66	2 021	12.95	44	70	62 955	47	47.30
1990 ASM	28 469	67	2 024	12.46	42	68	61 929	46	45.67
1989 ASM	26 399	68	2 030	11.62	40	66	62 547	42	45.60
1988 ASM	26 094	67	2 116	10.82	42	69	58 872	44	41.73
1987 Census	24 591	66	2 011	10.89	41	69	51 806	47	39.06
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE									
1992 Census	27 023	70	1 903	12.41	49	73	56 205	48	41.92
1991 ASM	27 661	70	2 179	10.12	44	73	50 250	55	33.11
1990 ASM	24 328	67	2 195	9.90	44	72	46 951	52	31.82
1989 ASM	24 000	69	2 068	9.54	46	77	43 125	56	30.33
1988 ASM	25 500	74	2 027	11.07	46	73	51 220	50	34.15
1987 Census	24 420	72	2 028	10.70	46	73	49 740	49	34.07
1986 ASM	23 298	74	1 886	10.83	46	72	47 149	49	33.58
1985 ASM	21 615	73	1 868	10.58	47	73	44 558	49	32.63
1984 ASM	22 340	75	1 900	10.54	52	79	41 453	54	28.91
1983 ASM	20 918	76	1 865	9.84	49	74	42 510	49	30.19
1982 Census	19 904	73	1 789	9.90	50	75	39 327	51	30.07
1981 ASM	19 246	75	1 860	9.29	49	73	41 965	46	29.90
1980 ASM	17 508	75	1 894	8.35	51	75	35 032	50	24.80
1979 ASM	16 549	79	1 985	7.67	51	73	36 610	45	23.27
1978 ASM	14 954	79	1 986	6.85	51	74	32 011	47	20.33
1977 Census	14 610	80	2 015	6.62	52	76	30 476	48	18.79
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.									
1992 Census	28 283	73	2 090	11.99	46	70	63 506	45	41.34
1991 ASM	25 620	72	2 028	11.02	46	69	60 772	42	41.40
1990 ASM	25 627	72	2 064	10.90	48	70	59 069	43	39.79
1989 ASM	24 854	71	2 011	10.53	45	69	56 622	44	39.57
1988 ASM	23 554	73	2 010	10.31	45	68	56 007	42	38.05
1987 Census	22 725	70	1 983	10.11	42	66	54 442	42	39.15
INDUSTRY 3495, WIRE SPRINGS									
1992 Census	24 633	77	1 986	11.20	45	71	52 950	47	34.53
1991 ASM	21 460	81	1 890	10.47	46	69	50 345	43	32.69
1990 ASM	21 751	82	2 006	10.07	48	72	48 493	45	29.63
1989 ASM	20 564	81	2 054	9.34	47	71	45 436	45	27.18
1988 ASM	21 154	81	1 951	9.81	47	72	45 209	47	28.58
1987 Census	20 635	81	2 013	9.00	44	70	44 670	46	27.33
1986 ASM	20 881	84	2 011	9.10	44	72	42 014	50	24.92
1985 ASM	20 005	84	1 995	8.58	45	73	39 685	50	23.55
1984 ASM	19 238	82	1 952	8.13	45	72	39 807	48	24.82
1983 ASM	17 249	83	1 902	7.92	46	73	35 066	49	22.28
1982 Census	16 430	81	1 897	7.59	45	72	33 341	49	21.70
1981 ASM	16 521	82	2 007	7.35	47	74	32 387	51	19.62
1980 ASM	14 048	82	1 993	6.29	47	74	27 591	51	16.83
1979 ASM	12 841	83	2 045	5.55	50	76	25 047	51	14.73
1978 ASM	12 467	83	1 963	5.60	46	73	25 123	50	15.46
1977 Census	11 682	83	1 967	5.31	48	74	22 935	51	14.06
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS									
1992 Census	22 649	75	2 055	9.04	48	73	47 874	47	31.17
1991 ASM	21 109	75	2 029	8.71	47	69	51 681	41	33.82
1990 ASM	20 512	75	2 008	8.44	48	71	46 750	44	31.04
1989 ASM	19 633	76	1 954	8.22	49	73	42 519	46	28.60
1988 ASM	19 599	76	1 971	8.14	48	72	42 144	47	28.17
1987 Census	19 208	75	2 004	7.97	46	71	41 704	46	27.88
1986 ASM	18 242	76	1 968	7.71	48	73	38 901	47	25.98
1985 ASM	17 947	76	1 933	7.86	49	73	37 604	48	25.71
1984 ASM	17 202	77	1 974	7.28	48	72	37 872	45	25.06
1983 ASM	16 631	75	1 962	7.24	48	72	35 478	47	23.97
1982 Census	15 769	76	1 914	7.05	50	74	31 720	50	21.94
1981 ASM	16 854	77	1 976	7.25	53	77	33 839	50	22.24
1980 ASM	15 392	78	1 949	6.48	53	76	30 784	50	20.15
1979 ASM	13 843	80	1 971	5.77	52	74	30 729	45	19.51
1978 ASM	11 482	79	1 981	4.91	52	76	22 970	50	14.74
1977 Census	10 941	79	1 937	4.70	51	75	22 275	49	14.61
INDUSTRY 3497, METAL FOIL AND LEAF									
1992 Census	33 825	73	2 126	14.25	59	72	106 233	32	68.91
1991 ASM	34 359	75	2 273	13.79	65	78	93 456	37	55.01
1990 ASM	33 396	75	2 316	13.35	67	80	88 528	38	51.28
1989 ASM	31 757	75	2 238	13.01	66	78	89 178	36	53.31
1988 ASM	29 955	74	2 122	13.05	67	79	87 559	34	55.86
1987 Census	29 260	71	2 149	12.70	63	76	82 192	36	53.76
1986 ASM	26 812	73	2 095	11.63	63	76	75 723	35	49.34
1985 ASM	25 354	73	2 048	11.20	63	76	72 504	35	48.19
1984 ASM	25 202	75	2 047	11.16	66	79	66 912	38	43.84
1983 ASM	23 781	73	2 013	11.21	64	78	66 886	36	45.31
1982 Census	22 509	74	2 000	10.78	63	77	61 370	37	41.43
1981 ASM	20 429	73	2 049	9.45	66	80	50 679	40	34.06
1980 ASM	19 200	73	1 970	9.00	66	81	44 522	43	30.82
1979 ASM	17 337	74	2 000	8.09	67	81	40 719	43	27.45
1978 ASM	15 579	74	1 986	7.42	68	82	36 011	43	24.61
1977 Census	13 383	70	1 970	6.70	68	82	31 702	42	22.92

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3498, FABRICATED PIPE AND FITTINGS								
1992 Census	26 117	72	2 129	10.68	53	76	52 565	50	34.40
1991 ASM	23 785	73	2 027	10.07	57	79	47 805	50	32.24
1990 ASM	24 178	74	2 068	10.36	55	78	46 895	52	30.84
1989 ASM	22 867	74	2 038	9.75	54	77	48 000	48	31.85
1988 ASM	22 037	76	2 117	9.01	49	71	51 953	42	32.41
1987 Census	21 145	75	2 007	9.27	53	77	41 240	51	27.40
1986 ASM	22 670	72	1 907	10.55	54	77	44 325	51	32.17
1985 ASM	21 805	74	1 870	10.42	56	78	41 386	53	30.02
1984 ASM	22 377	75	1 942	10.36	58	79	42 849	52	29.42
1983 ASM	20 345	74	1 945	9.46	53	74	41 201	49	28.61
1982 Census	19 899	73	1 945	9.15	54	75	43 960	45	31.05
1981 ASM	18 428	77	1 918	8.63	53	74	45 066	41	30.68
1980 ASM	16 622	76	1 910	7.82	53	75	36 388	46	24.99
1979 ASM	14 860	79	1 938	6.88	52	72	34 812	43	22.81
1978 ASM	14 364	77	1 897	6.73	56	76	33 311	43	22.86
1977 Census	13 830	76	1 897	6.54	54	75	31 461	44	21.85
	INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.								
1992 Census	25 516	71	2 020	10.55	47	72	53 222	48	36.85
1991 ASM	23 619	71	2 067	9.74	46	73	46 825	50	31.89
1990 ASM	22 405	72	2 052	9.29	45	71	47 029	48	31.78
1989 ASM	22 122	72	2 050	9.30	46	70	48 506	46	32.72
1988 ASM	21 585	73	2 013	9.09	47	71	47 254	46	32.27
1987 Census	21 047	73	2 004	8.92	45	70	46 633	45	32.02
1986 ASM	19 256	75	1 847	9.09	46	70	42 905	45	30.94
1985 ASM	18 254	76	2 000	7.81	46	70	40 130	45	26.25
1984 ASM	16 737	77	2 011	7.05	48	71	37 494	45	24.23
1983 ASM	17 373	76	1 925	7.83	46	70	39 000	45	26.62
1982 Census	17 012	75	1 930	7.59	46	71	35 454	48	24.46
1981 ASM	16 274	76	2 016	7.01	49	72	35 560	46	23.31
1980 ASM	14 801	76	1 998	6.44	49	71	33 491	44	22.17
1979 ASM	13 602	77	1 960	5.89	50	74	30 010	45	19.95
1978 ASM	12 990	75	1 985	5.54	49	73	29 032	45	19.41
1977 Census	11 931	76	1 937	5.23	48	73	25 629	47	17.31

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3491, INDUSTRIAL VALVES														
United States	–	**493**	**328**	**51.4**	**1 595.6**	**33.4**	**68.4**	**855.4**	**4 046.0**	**2 707.1**	**6 762.5**	**212.7**	**45.9**	**2 792.8**
Alabama	–	7	5	2.2	53.6	1.7	3.1	35.7	126.1	78.1	204.9	9.4	G	(D)
Arizona	–	5	4	.2	5.3	.2	.3	3.0	11.5	5.9	17.6	(D)	(NA)	(NA)
Arkansas	–	6	6	2.2	48.1	1.9	3.7	35.4	133.0	100.0	230.2	6.1	2.1	93.9
California	–	54	36	4.0	142.4	2.4	4.8	61.3	346.6	239.6	579.7	11.0	3.8	254.9
Connecticut	E1	8	7	.8	26.5	.5	1.0	11.8	55.5	41.9	102.5	4.2	1.1	55.9
Florida	–	10	6	.7	19.6	.4	.9	9.4	44.8	26.5	72.5	2.2	F	(D)
Georgia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	25	18	2.2	73.4	1.6	3.4	46.0	174.8	139.7	314.6	10.9	3.0	195.3
Indiana	–	9	7	1.2	35.9	.8	1.7	20.2	84.7	48.9	133.8	3.0	1.4	68.8
Iowa	–	10	7	3.1	105.8	1.8	3.4	53.8	268.7	101.4	370.8	(D)	2.9	138.7
Kansas	–	5	2	.2	5.8	.1	.2	1.9	6.1	10.2	16.6	(D)	.2	8.6
Kentucky	–	3	3	.3	7.0	.2	.4	4.3	16.0	11.9	28.5	(D)	E	(D)
Louisiana	–	10	7	1.0	39.3	.6	1.7	20.3	68.0	57.9	128.1	(D)	F	(D)
Massachusetts	–	18	15	2.7	94.9	1.6	3.1	44.7	211.6	129.2	336.8	11.1	2.1	116.9
Michigan	–	13	7	.8	24.1	.6	1.0	14.8	57.1	26.9	86.0	2.6	.5	25.0
Minnesota	–	6	4	1.2	39.1	.7	1.2	19.3	81.1	57.2	136.3	5.7	1.1	70.4
Mississippi	–	4	3	.4	9.4	.2	.5	5.1	17.3	20.9	39.1	(D)	(NA)	(NA)
Missouri	–	12	8	1.5	44.1	1.1	2.1	24.7	131.7	82.1	210.8	6.1	1.6	112.3
Nevada	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	8	6	.8	24.0	.7	1.3	16.3	84.9	58.1	142.7	(D)	F	(D)
New Jersey	–	22	15	2.4	89.0	1.1	2.3	33.8	216.6	117.2	335.3	8.8	1.8	139.4
New York	–	17	9	1.3	41.8	.8	1.7	21.7	125.0	51.8	172.4	5.1	1.8	113.7
North Carolina	–	14	13	1.4	33.6	.9	1.8	17.3	154.7	104.2	255.4	5.4	1.6	159.4
Ohio	–	31	22	3.0	90.0	2.0	4.1	52.2	223.2	253.3	492.9	11.9	1.9	127.9
Oklahoma	–	25	13	1.4	44.7	.9	1.7	20.9	100.9	86.0	197.1	8.0	1.0	53.1

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3491, INDUSTRIAL VALVES—Con.														
Pennsylvania	–	45	27	3.1	109.5	1.6	3.2	46.0	258.5	123.0	365.0	10.2	3.1	180.0
South Carolina	E2	7	7	1.5	33.0	1.2	2.7	24.3	141.6	36.9	177.5	(D)	1.4	87.8
Tennessee	–	7	4	1.4	41.3	1.0	2.0	26.7	114.4	90.5	203.1	6.6	1.3	103.2
Texas	–	73	46	6.3	196.2	4.2	8.7	110.2	512.3	378.3	898.7	35.7	4.8	295.3
Utah	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	–	5	1	.2	5.6	.1	.2	3.2	13.0	6.7	20.2	.2	(NA)	(NA)
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E2	9	7	1.9	56.1	1.4	3.1	35.9	124.8	96.1	224.5	7.3	1.0	67.9
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS														
United States	**–**	**369**	**202**	**28.2**	**853.2**	**18.3**	**38.1**	**472.4**	**1 743.0**	**1 505.3**	**3 273.9**	**114.0**	**27.9**	**1 445.4**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	8	5	.7	18.9	.4	.8	9.8	28.7	25.2	55.5	1.7	.2	6.9
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	65	28	3.7	126.1	1.9	3.7	54.5	237.7	139.2	380.0	11.8	2.2	115.4
Colorado	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	51.0
Connecticut	–	9	4	.6	25.5	.4	.8	12.0	46.8	29.3	77.4	3.8	.6	39.0
Florida	–	6	5	1.0	28.2	.6	1.3	14.6	69.2	26.5	100.2	1.1	1.0	55.8
Georgia	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	19	13	1.5	44.3	.9	2.0	23.5	79.1	79.3	158.7	3.3	1.7	83.7
Indiana	–	14	8	.8	23.6	.5	1.0	13.1	47.1	73.1	124.1	.9	.6	37.4
Iowa	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	6	3	.2	2.8	.1	.2	1.8	8.9	8.4	17.3	(D)	(NA)	(NA)
Kentucky	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	47	33	3.7	113.7	2.7	5.3	68.3	205.3	207.2	415.5	12.3	4.3	201.2
Minnesota	–	14	7	.8	23.6	.4	.9	10.6	35.5	35.1	72.4	3.1	.7	13.9
Missouri	–	6	3	.4	7.4	.3	.6	5.2	20.2	37.4	57.5	(D)	.4	25.5
Nebraska	–	4	3	.3	7.8	.2	.4	4.6	16.7	10.3	25.2	(D)	(NA)	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	9	4	.6	22.5	.3	.6	8.3	56.3	22.3	78.1	(D)	1.0	53.4
New York	–	12	5	.8	29.5	.4	.9	14.2	41.3	27.5	78.6	2.5	1.1	59.4
North Carolina	–	12	5	.6	16.7	.5	.9	10.7	46.7	38.3	85.3	2.0	.5	29.0
Ohio	–	42	25	4.6	143.0	3.2	6.6	89.2	300.6	404.8	704.3	36.8	6.1	336.8
Oklahoma	–	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	10.6
Pennsylvania	–	14	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	23	7	.6	17.7	.4	1.0	9.8	25.0	31.4	56.5	(D)	1.1	34.5
Wisconsin	–	12	7	1.3	38.3	1.0	1.9	25.7	97.8	59.7	155.8	7.2	1.0	33.0
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE														
United States	**–**	**114**	**46**	**4.4**	**118.9**	**3.1**	**5.9**	**73.2**	**247.3**	**244.8**	**495.8**	**17.5**	**5.0**	**248.7**
California	–	15	5	.4	11.6	.2	.4	5.5	24.1	15.0	40.1	.4	E	(D)
Connecticut	–	8	5	.5	15.5	.3	.7	9.9	32.4	15.3	48.9	.5	.6	32.7
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	10	4	.4	9.2	.3	.5	5.9	20.6	18.7	39.1	(D)	.6	24.3
Indiana	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	.8	34.0
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	6	2	.1	3.3	.1	.1	1.7	6.0	4.9	10.9	.6	.3	11.4
Ohio	E1	9	5	.4	9.7	.3	.6	5.9	20.6	21.6	42.6	(D)	.5	24.1
Pennsylvania	–	13	10	.9	27.1	.6	1.1	14.7	56.1	82.2	138.3	4.5	1.0	66.7
Texas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:34F_92.DAT;6 4/20/95 17:31:11 UTF:34F_93.DAT;7 4/25/95 14:57:16 META:TIPS96-15015186.DAT;1 4/25/95 15:02:57

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.														
United States	**E1**	**251**	**150**	**16.6**	**469.5**	**12.2**	**25.5**	**305.7**	**1 054.2**	**924.5**	**1 991.7**	**45.3**	**25.1**	**1 366.5**
Alabama	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	17.2
California	E2	26	11	.6	21.7	.4	.9	11.3	44.9	32.2	77.7	1.6	2.3	142.2
Colorado	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	E2	5	4	.2	8.7	.2	.4	5.4	20.0	16.5	36.6	.7	.5	26.8
Florida	E4	7	5	.2	4.8	.1	.3	2.7	11.0	10.7	21.7	1.2	.3	14.3
Illinois	E1	18	11	1.3	38.3	.9	2.0	23.1	85.8	84.8	170.2	2.2	1.3	77.4
Indiana	–	8	6	1.1	34.6	.8	1.7	23.7	67.4	64.5	136.3	3.1	1.7	84.2
Iowa	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	19.5
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E2	13	7	.5	15.8	.3	.7	9.1	51.7	29.0	82.7	3.2	.9	59.1
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E2	9	5	.4	10.4	.2	.6	5.4	16.6	18.0	34.5	.5	.4	17.3
New York	–	8	4	.4	11.0	.3	.6	8.8	19.2	21.4	40.8	.9	E	(D)
North Carolina	E3	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E1	29	19	1.6	43.3	1.2	2.4	30.9	111.3	101.7	214.0	4.4	2.7	146.6
Pennsylvania	–	21	17	3.7	98.6	2.8	5.8	68.2	205.5	145.1	346.5	9.8	4.3	227.3
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E2	47	25	1.6	43.2	1.2	2.6	27.6	98.6	90.6	191.8	4.0	1.4	64.0
Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	72.7
INDUSTRY 3495, WIRE SPRINGS														
United States	**–**	**399**	**208**	**18.0**	**443.4**	**13.9**	**27.6**	**309.0**	**953.1**	**792.2**	**1 743.5**	**61.5**	**19.7**	**880.0**
California	–	43	18	1.1	29.0	.8	1.6	17.9	46.0	45.4	91.1	3.6	1.3	58.4
Colorado	–	6	2	.2	4.0	.1	.3	3.0	12.6	12.0	24.6	(D)	.2	7.9
Connecticut	–	30	14	1.2	33.0	.8	1.7	21.0	50.4	24.6	75.1	2.5	1.0	38.4
Florida	–	10	5	.2	4.7	.2	.3	3.1	12.2	10.1	22.3	(D)	.2	12.4
Georgia	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	51	33	2.2	59.6	1.8	3.7	41.8	113.9	88.9	201.1	8.1	2.6	108.0
Indiana	–	17	12	1.2	31.3	.9	1.7	20.7	65.2	49.7	116.2	3.7	1.4	64.1
Kentucky	–	7	4	.7	15.3	.6	1.2	11.4	48.4	48.9	96.9	3.6	.8	38.8
Massachusetts	–	11	5	.4	9.7	.3	.6	7.2	24.2	23.6	47.5	(D)	.5	28.5
Michigan	E1	34	19	1.4	38.7	1.1	2.1	25.7	75.0	66.9	142.2	3.9	1.7	82.6
Minnesota	–	7	2	.1	3.6	.1	.2	2.5	8.8	7.4	16.0	(D)	(NA)	(NA)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	11	5	1.0	17.7	.9	1.7	14.5	46.3	39.3	86.8	(D)	.7	23.1
New Jersey	E2	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(D)
New York	E1	14	5	.3	6.5	.2	.5	4.5	18.4	11.3	29.9	1.5	E	(D)
North Carolina	–	14	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	41.6
Ohio	E1	36	17	1.7	38.2	1.3	2.6	27.0	78.8	54.9	133.1	10.5	1.4	57.9
Oregon	–	3	3	.1	3.1	.1	.2	2.3	6.7	2.1	8.8	.5	(NA)	(NA)
Pennsylvania	–	21	11	1.2	36.2	.9	1.7	25.9	89.6	61.0	150.0	4.4	1.1	55.0
Tennessee	–	15	5	.8	20.7	.6	1.5	15.9	53.8	55.9	109.5	(D)	.6	33.0
Texas	–	21	14	.9	19.5	.7	1.4	14.1	50.4	50.5	100.9	4.1	.6	28.7
Wisconsin	–	7	6	.6	14.2	.3	.6	7.6	25.6	11.5	37.0	.5	(NA)	(D)
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS														
United States	**E1**	**1 165**	**448**	**38.8**	**878.8**	**29.0**	**59.6**	**538.8**	**1 857.5**	**1 701.1**	**3 553.0**	**102.9**	**35.1**	**1 463.8**
Alabama	–	18	9	.6	14.3	.4	.9	9.7	30.4	47.9	79.0	1.0	.5	24.3
Arizona	E2	11	2	.1	2.7	.1	.2	2.0	3.5	5.4	8.9	.1	(NA)	(NA)
Arkansas	–	12	6	1.0	17.6	.8	1.8	13.3	32.7	33.7	65.6	3.2	.6	18.6
California	E1	125	36	2.5	57.4	1.8	3.7	33.6	125.5	118.6	242.2	4.3	2.9	111.3
Colorado	E2	12	2	.1	2.8	.1	.1	1.6	6.0	6.6	13.3	.3	.2	11.0
Connecticut	–	34	16	.6	16.2	.4	.9	9.7	35.2	27.9	62.9	.8	.8	29.5
Florida	E1	35	9	1.3	29.5	.9	1.9	16.2	78.7	94.8	174.4	3.7	.8	41.0
Georgia	–	21	7	.5	11.4	.4	.6	6.5	26.8	28.1	55.0	1.5	E	(D)
Illinois	–	108	49	3.5	83.6	2.7	5.6	51.6	180.5	141.3	321.0	7.6	2.7	113.4
Indiana	–	37	22	2.0	40.3	1.6	2.9	27.5	72.9	68.6	141.4	12.0	1.2	49.1
Iowa	–	13	4	.4	9.6	.3	.7	7.4	20.5	14.5	35.2	(D)	.6	22.8
Kansas	–	13	3	.3	5.2	.2	.4	3.6	11.2	13.8	24.9	.3	(NA)	(NA)
Kentucky	–	14	9	.7	14.9	.6	1.1	11.0	33.1	24.1	57.5	1.3	.5	24.1
Maine	E1	13	1	.1	2.2	.1	.2	1.5	6.1	12.4	18.5	.1	(NA)	(NA)
Maryland	–	14	9	.8	22.1	.5	1.1	12.3	36.4	38.6	74.9	2.0	1.2	49.0
Massachusetts	–	27	7	.7	16.8	.5	1.1	9.1	36.6	38.4	73.5	1.7	F	(D)
Michigan	E1	50	16	1.4	31.9	1.0	2.1	19.0	67.6	59.5	126.8	1.8	1.6	64.8
Minnesota	–	25	10	.8	24.4	.5	1.1	13.6	54.6	41.2	95.0	1.3	1.0	52.7
Mississippi	E2	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Missouri	–	25	14	3.1	58.0	2.2	4.6	34.1	133.9	96.7	229.9	11.1	1.8	76.4

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 6
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS—Con.														
New Hampshire	E8	8	3	.2	3.4	.1	.2	2.1	9.4	5.2	14.7	.2	(NA)	(D)
New Jersey	E3	56	25	1.6	43.1	1.2	2.3	23.9	84.2	80.1	164.1	2.9	1.7	78.1
New York	E3	69	15	1.7	35.8	1.2	2.4	22.2	61.8	52.5	114.8	3.0	1.7	64.3
North Carolina	–	26	15	1.2	23.7	.9	2.0	16.8	48.8	49.2	97.6	2.5	F	(D)
Ohio	–	68	31	2.2	49.5	1.5	3.4	30.0	92.6	81.5	172.5	5.5	2.1	79.3
Oklahoma	–	12	3	.8	14.5	.7	1.4	9.9	32.9	31.0	63.1	(D)	G	(D)
Oregon	–	23	10	.5	13.3	.4	.7	9.0	28.7	21.3	49.6	.7	.6	21.8
Pennsylvania	E2	71	29	2.7	76.8	2.0	4.1	43.5	170.5	158.5	331.2	9.6	2.8	127.6
Rhode Island	–	13	4	.3	5.1	.2	.4	3.2	12.3	7.4	20.6	.2	E	(D)
South Carolina	–	16	6	.5	11.7	.4	.8	6.9	36.5	35.8	72.2	3.0	.6	33.2
Tennessee	–	28	18	1.7	34.1	1.2	2.8	21.8	84.6	78.1	163.6	3.3	1.3	61.3
Texas	E1	70	28	2.5	51.4	1.9	4.1	34.8	92.1	107.9	198.0	11.0	1.4	52.8
Utah	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E1	9	4	.4	6.5	.3	.8	4.1	21.5	9.8	31.3	(D)	E	(D)
Washington	–	15	2	.2	5.7	.1	.2	3.2	10.3	7.7	17.7	(D)	.4	12.2
West Virginia	–	4	4	.3	6.3	.2	.5	4.1	8.9	14.6	24.1	.7	(NA)	(D)
Wisconsin	–	30	13	1.0	22.3	.7	1.5	11.9	38.0	26.0	63.7	1.3	1.1	40.0
INDUSTRY 3497, METAL FOIL AND LEAF														
United States	**–**	**121**	**73**	**12.0**	**405.9**	**8.7**	**18.5**	**263.6**	**1 274.8**	**1 839.9**	**3 118.5**	**90.6**	**10.4**	**854.8**
Alabama	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	13	4	.4	10.5	.2	.5	6.1	27.2	31.3	58.9	1.0	F	(D)
Connecticut	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Illinois	–	9	6	1.3	41.3	.9	1.9	22.6	123.8	110.8	234.2	4.0	1.3	96.9
Kentucky	–	7	5	1.0	35.9	.8	1.6	24.6	158.4	308.3	465.2	(D)	F	(D)
Massachusetts	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	16	12	1.4	53.9	.8	2.0	27.6	114.6	149.5	262.7	15.9	1.4	75.9
New York	–	6	3	.4	12.3	.3	.6	9.4	41.3	46.6	85.3	(D)	(NA)	(D)
North Carolina	–	8	7	1.6	57.0	1.3	2.2	42.9	178.3	269.3	441.8	10.3	G	(D)
Ohio	–	9	7	1.3	45.2	1.0	2.3	30.7	105.6	160.6	270.2	(D)	1.5	126.9
Pennsylvania	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS														
United States	**E1**	**856**	**315**	**24.8**	**647.7**	**17.8**	**37.9**	**404.7**	**1 303.6**	**1 487.7**	**2 794.3**	**59.3**	**20.0**	**824.8**
Alabama	–	16	6	.4	8.6	.3	.7	5.0	16.1	22.8	39.0	.9	(NA)	(NA)
Arkansas	–	11	8	1.1	26.7	.8	1.5	15.9	93.4	111.5	203.6	4.0	.3	8.0
California	E3	90	24	1.7	46.1	1.1	2.4	28.6	92.3	92.7	184.0	2.6	1.9	74.5
Delaware	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(D)
Florida	E1	17	2	.2	4.4	.1	.3	2.7	8.3	5.9	14.6	.2	(NA)	(NA)
Georgia	–	11	3	.4	9.3	.4	.7	7.6	21.6	39.1	59.9	(D)	E	(D)
Illinois	E1	35	13	.8	20.5	.6	1.2	11.7	36.7	37.8	74.4	(D)	.9	38.6
Indiana	E1	32	18	.9	22.8	.6	1.4	12.5	38.0	49.5	88.1	(D)	F	(D)
Kansas	–	11	3	.2	3.6	.1	.2	1.7	10.5	7.9	18.4	.1	(NA)	(NA)
Kentucky	E1	11	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	.6	28.2
Louisiana	–	23	14	1.7	45.7	1.3	2.9	34.9	73.1	120.9	189.4	2.5	.5	18.4
Maryland	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.2	5.8
Massachusetts	E2	16	–	.1	2.6	.1	.2	1.9	5.0	7.4	12.4	.2	(NA)	(NA)
Michigan	E1	69	33	2.6	61.6	2.0	4.1	39.6	123.2	117.0	239.2	7.1	3.1	109.1
Minnesota	–	14	4	.3	8.7	.2	.5	5.8	17.4	13.4	31.2	.8	(NA)	(D)
Mississippi	–	6	2	.1	2.9	.1	.1	2.0	6.5	5.4	13.1	(D)	(NA)	(NA)
Missouri	E1	17	4	.3	5.6	.2	.4	3.4	10.9	12.6	23.9	.6	.4	15.5
New Jersey	–	30	11	.7	17.6	.5	1.0	10.2	36.7	29.4	65.8	.9	.7	28.4
New York	E1	36	7	.5	14.2	.3	.7	7.7	27.9	23.5	51.3	1.5	E	(D)
North Carolina	–	21	9	.7	18.6	.5	.9	11.2	44.6	38.0	80.2	1.7	F	(D)
Ohio	E1	54	28	1.7	41.8	1.2	2.6	26.8	78.8	119.7	199.6	6.1	1.3	47.8
Oklahoma	E2	37	14	1.6	47.5	1.1	2.2	28.4	89.6	67.9	159.4	3.2	.7	38.6
Oregon	–	17	7	.5	14.3	.4	.8	9.6	30.6	21.5	52.6	.8	.3	8.0
Pennsylvania	E1	47	20	1.5	42.9	1.0	2.0	24.7	92.3	57.6	149.5	3.1	1.8	79.1
South Carolina	E5	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.0
Tennessee	–	16	6	.7	15.1	.5	1.3	9.8	30.8	51.8	81.5	3.5	.5	21.8
Texas	E1	96	42	3.5	89.8	2.4	5.5	53.9	144.9	265.8	421.8	10.0	2.3	97.0
Utah	E6	8	3	.2	6.8	.2	.4	5.0	18.7	18.3	34.8	(D)	.3	12.2
Washington	E3	14	6	.3	7.8	.2	.4	4.7	16.2	25.3	41.7	.9	(NA)	(NA)
Wisconsin	–	22	9	.6	17.9	.5	1.0	10.6	28.3	27.4	54.8	1.3	.3	14.0

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 7
TSF:34F_92.DAT;6 4/20/95 17:31:11 UTF:34F_93.DAT;7 4/25/95 14:57:16 META:TIPS96-15015186.DAT;1 4/25/95 15:02:57

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.														
United States	**E2**	**3 444**	**775**	**69.8**	**1 781.0**	**49.9**	**100.8**	**1 063.9**	**3 714.9**	**3 240.1**	**6 944.6**	**208.0**	**72.5**	**3 380.9**
Alabama	E1	39	7	.5	11.4	.4	.7	7.4	27.0	37.4	64.0	1.2	1.2	44.6
Arizona	E2	31	1	.2	5.3	.1	.3	2.6	11.0	10.2	21.5	.3	.3	12.3
Arkansas	E1	39	9	1.0	19.0	.7	1.4	12.3	35.2	31.8	67.0	2.7	1.0	17.5
California	E2	380	79	5.9	148.3	4.4	8.7	88.9	301.3	257.3	559.0	15.4	5.5	257.6
Colorado	–	53	9	.7	17.6	.4	.8	6.3	36.1	30.6	66.6	2.7	.7	27.7
Connecticut	E3	72	25	2.4	65.1	1.5	3.2	36.1	170.0	121.6	290.8	6.5	2.2	96.6
Florida	E2	130	19	1.9	43.8	1.4	2.9	27.8	83.6	73.9	159.8	3.5	2.2	83.7
Georgia	–	50	9	.9	15.5	.7	1.3	11.1	41.2	40.2	80.4	2.0	1.0	42.4
Illinois	E1	220	64	5.6	153.8	4.0	8.3	98.5	363.0	362.0	725.0	14.1	5.8	304.2
Indiana	E1	137	37	3.9	96.3	3.0	5.9	60.4	199.0	142.8	344.1	15.4	3.4	145.1
Iowa	–	36	8	1.0	20.8	.8	1.5	14.2	38.2	62.4	100.7	3.4	1.3	60.7
Kansas	E1	14	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Kentucky	E2	57	11	1.6	43.9	1.2	2.6	29.9	77.4	76.2	154.2	3.2	1.5	57.2
Louisiana	E4	48	9	.6	13.0	.4	.8	7.1	27.3	23.4	50.0	.9	.3	12.0
Maine	E1	8	3	.5	14.1	.4	.8	12.1	40.2	18.4	58.5	(D)	.5	26.0
Maryland	E7	30	9	.6	13.2	.4	.8	8.1	33.2	44.2	76.3	1.8	.6	36.4
Massachusetts	E2	93	25	1.9	56.2	1.4	2.9	33.5	114.7	80.4	194.1	4.4	2.7	112.5
Michigan	E2	257	63	4.8	124.9	3.4	7.3	76.3	273.9	199.5	474.7	11.4	4.6	204.2
Minnesota	E1	110	13	1.2	32.2	.7	1.4	13.7	48.0	88.6	134.5	2.5	G	(D)
Mississippi	E7	17	1	.1	2.4	.1	.2	1.3	4.4	3.9	8.3	.4	(NA)	(NA)
Missouri	E3	65	9	.8	18.1	.6	1.2	11.6	33.5	32.8	65.7	1.8	.8	36.8
Montana	E4	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Nebraska	–	14	6	1.0	23.3	.8	1.7	16.6	53.9	63.9	118.7	1.5	(NA)	(D)
New Hampshire	E1	19	3	.4	14.6	.2	.6	6.6	15.4	24.1	39.6	(D)	(NA)	(NA)
New Jersey	E2	96	23	1.7	44.8	1.2	2.2	23.3	101.4	71.5	171.6	6.2	3.1	144.6
New Mexico	E3	22	2	.1	2.3	.1	.2	1.5	4.9	3.5	8.5	.2	(NA)	(NA)
New York	E2	199	38	3.3	86.1	2.4	4.9	51.7	156.3	134.8	292.4	6.4	4.3	189.5
North Carolina	–	64	13	1.3	30.0	1.0	1.9	19.4	58.9	35.1	93.6	4.4	G	(D)
Ohio	E1	205	52	4.7	120.0	3.0	6.0	61.7	233.2	210.9	443.6	25.2	5.8	465.3
Oklahoma	E3	53	12	.9	21.9	.6	1.3	11.9	53.3	44.3	98.5	1.8	.5	22.9
Oregon	E3	53	6	.4	9.5	.3	.5	5.2	16.1	17.2	33.6	.5	.3	13.7
Pennsylvania	E1	211	70	7.9	214.3	5.4	10.9	126.8	402.0	369.4	766.2	25.5	7.2	341.7
Rhode Island	E8	22	7	1.2	23.0	.8	2.1	14.2	43.1	43.3	86.5	1.4	G	(D)
South Carolina	E2	34	8	.8	16.0	.6	1.0	9.7	17.6	29.9	46.7	3.8	.5	16.5
South Dakota	E9	7	1	.1	2.5	.1	.2	1.6	5.3	4.7	10.0	(D)	(NA)	(NA)
Tennessee	E2	63	15	1.7	36.7	1.3	2.7	24.9	72.2	74.7	146.0	2.4	2.1	62.6
Texas	E2	190	40	2.9	79.3	1.9	3.8	43.4	175.2	126.4	297.8	11.3	3.3	135.5
Utah	E1	34	11	1.1	27.7	.8	1.6	15.4	68.0	35.4	103.0	2.3	.5	20.8
Virginia	E7	40	7	.7	19.2	.5	.9	11.1	76.9	33.4	110.6	2.4	1.0	53.0
Washington	E1	73	8	.8	20.7	.6	1.1	14.0	42.6	29.8	71.9	1.5	.6	25.8
West Virginia	–	10	3	.1	3.4	.1	.2	2.5	6.5	20.5	26.8	.3	E	(D)
Wisconsin	E1	95	33	2.3	58.9	1.7	3.4	35.8	129.2	111.6	240.7	9.7	2.1	93.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Companies ---- number	389	305	107	228	313	1 091	104	810	3 369
All establishments ---- number	493	369	114	251	399	1 165	121	856	3 444
With 1 to 19 employees ---- number	165	167	68	101	191	717	48	541	2 669
With 20 to 99 employees ---- number	187	113	36	105	163	343	36	260	645
With 100 employees or more ---- number	141	89	10	45	45	105	37	55	130
Employment and labor costs:									
Employees ---- 1,000	51.4	28.2	4.4	16.6	18.0	38.8	12.0	24.8	69.8
Compensation, total ---- mil dol	2 027.1	1 104.3	152.9	595.7	550.1	1 099.3	524.7	802.2	2 217.8
Annual payroll ---- mil dol	1 595.6	853.2	118.9	469.5	443.4	878.8	405.9	647.7	1 781.0
Fringe benefits ---- mil dol	431.5	251.1	34.0	126.2	106.7	220.5	118.8	154.5	436.8
Social Security and other legally required payments ---- mil dol	164.0	95.0	13.4	52.2	53.2	105.2	44.7	69.7	183.6
Employer voluntary payments ---- mil dol	267.5	156.2	20.5	74.0	53.5	115.2	74.1	84.8	253.3

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 8
TSF:34F_92.DAT;6 4/20/95 17:31:11 UTF:34F_93.DAT;7 4/25/95 14:57:16 META:TIPS96-15015186.DAT;1 4/25/95 15:02:57

Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Production workers:									
Average for year ---1,000--	33.4	18.3	3.1	12.2	13.9	29.0	8.7	17.8	49.9
March ---1,000--	33.7	18.4	3.1	12.6	14.0	28.8	8.6	17.9	49.9
May ---1,000--	33.7	18.3	3.1	12.2	13.9	29.0	9.1	17.8	50.3
August ---1,000--	33.6	18.5	3.2	12.2	14.0	29.5	8.6	17.9	50.3
November ---1,000--	32.8	18.1	2.9	11.7	13.8	28.9	8.5	17.7	49.5
Hours ---millions--	68.4	38.1	5.9	25.5	27.6	59.6	18.5	37.9	100.8
Wages ---mil dol--	855.4	472.4	73.2	305.7	309.0	538.8	263.6	404.7	1 063.9
Cost of materials[1] ---mil dol--	2 707.1	1 505.3	244.8	924.5	792.2	1 701.1	1 839.9	1 487.7	3 240.1
Materials, parts, containers, etc., consumed[2] ---mil dol--	2 281.2	1 251.4	169.8	793.9	613.4	1 475.3	1 672.9	1 289.4	2 685.7
Resales ---mil dol--	229.0	133.5	50.7	65.4	114.2	99.2	93.5	83.1	226.8
Fuels ---mil dol--	13.1	4.9	7.0	9.9	7.2	20.2	16.7	13.5	40.4
Purchased electricity ---mil dol--	70.7	30.1	8.2	32.6	17.8	39.3	45.1	28.7	92.4
Contract work ---mil dol--	113.1	85.3	9.1	22.7	39.5	67.0	11.5	73.0	194.8
Quantity of electric energy used for heat and power:									
Purchased ---mil kWh--	1 188.5	445.9	123.9	550.1	275.1	615.0	884.3	445.3	1 449.1
Generated less sold ---mil kWh--	(D)	(D)	–	–	–	–	–	–	(S)
Total value of shipments ---mil dol--	6 762.5	3 273.9	495.8	1 991.7	1 743.5	3 553.0	3 118.5	2 794.3	6 944.6
Value added ---mil dol--	4 046.0	1 743.0	247.3	1 054.2	953.1	1 857.5	1 274.8	1 303.6	3 714.9
Inventories by stage of fabrication:									
Beginning of 1992 ---mil dol--	1 656.6	887.4	86.4	433.0	150.4	539.6	434.2	473.7	960.6
Finished goods ---mil dol--	673.1	368.1	43.9	232.1	71.2	236.4	187.6	164.1	287.5
Work in process ---mil dol--	480.3	270.3	13.5	89.3	24.5	104.8	87.8	119.9	286.1
Materials and supplies ---mil dol--	503.1	249.0	29.0	111.6	54.7	198.4	158.8	189.7	387.0
End of 1992 ---mil dol--	1 637.9	861.5	81.1	415.7	151.6	545.7	435.2	463.7	984.4
Finished goods ---mil dol--	660.4	365.9	42.0	224.7	72.9	245.7	187.6	164.3	299.7
Work in process ---mil dol--	483.6	246.9	11.6	83.6	24.6	101.2	83.9	116.7	284.4
Materials and supplies ---mil dol--	493.9	248.7	27.4	107.3	54.2	198.8	163.7	182.7	400.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Gross book value of depreciable assets:									
Total:									
Beginning of year	2 497.1	1 218.6	222.7	688.0	584.7	1 055.4	1 083.6	760.8	2 205.0
New capital expenditures[1]	212.7	114.0	17.5	45.3	61.5	102.9	90.6	59.3	208.0
Used capital expenditures	24.0	13.8	1.6	6.2	7.0	16.4	5.1	16.8	36.0
Retirements	63.7	38.5	12.8	19.4	11.1	67.3	17.7	24.9	45.3
End of year	2 670.0	1 307.9	228.9	720.0	642.1	1 107.3	1 161.6	812.0	2 403.7
Buildings and other structures:									
Beginning of year	557.1	251.3	50.8	143.0	126.2	253.7	198.9	162.5	491.1
New capital expenditures	30.7	18.2	2.1	7.9	7.7	22.0	7.4	11.7	35.1
Used capital expenditures	2.4	.5	.3	.3	.7	2.6	.6	4.3	6.3
Retirements	7.1	3.7	3.8	2.9	.5	17.8	1.2	3.8	8.1
End of year	583.2	266.3	49.3	148.3	134.1	260.4	205.8	174.7	524.4
Machinery and equipment:									
Beginning of year	1 940.0	967.3	171.9	544.9	458.5	801.7	884.7	598.3	1 714.0
New capital expenditures[1]	182.0	95.9	15.4	37.4	53.8	80.9	83.2	47.5	172.9
Used capital expenditures	21.5	13.3	1.3	5.9	6.4	13.8	4.5	12.5	29.6
Retirements	56.7	34.8	9.0	16.5	10.6	49.5	16.5	21.1	37.2
End of year	2 086.8	1 041.6	179.6	571.8	508.0	846.9	955.9	637.2	1 879.3
Depreciation charges during 1992:									
Total	192.5	92.7	13.5	56.7	44.0	76.7	104.4	60.4	165.3
Buildings and other structures	22.5	11.1	1.8	8.4	6.1	14.3	10.8	9.2	21.8
Machinery and equipment	170.0	81.5	11.7	48.3	37.9	62.4	93.6	51.2	143.5
Rental payments:									
Total	50.5	27.2	8.0	23.3	19.6	52.4	15.7	37.8	105.8
Buildings and other structures	28.9	15.3	4.2	14.7	10.1	31.6	8.8	23.4	67.0
Machinery and equipment	21.6	12.0	3.8	8.6	9.5	20.9	6.9	14.4	38.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Industrial valves (SIC 3491)		Fluid power valves and hose fittings (SIC 3492)		Steel springs, except wire (SIC 3493)		Valves and pipe fittings, n.e.c. (SIC 3494)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	10.9	(X)	5.4	(X)	1.0	(X)	1.7	(X)
Response coverage ratio (percent)[2]	83.9	(X)	71.6	(X)	58.2	(X)	72.0	(X)
Machinery	35.1	(X)	18.9	(X)	7.6	(X)	12.2	(X)
Response coverage ratio (percent)[2]	82.4	(X)	76.6	(X)	58.2	(X)	72.7	(X)
Other purchased services:								
Communications	20.2	(X)	8.0	(X)	1.1	(X)	4.1	(X)
Response coverage ratio (percent)[2]	84.2	(X)	73.8	(X)	58.2	(X)	74.7	(X)
Legal	10.8	(X)	6.5	(X)	.5	(X)	3.9	(X)
Response coverage ratio (percent)[2]	83.5	(X)	75.6	(X)	58.2	(X)	72.8	(X)
Accounting and bookkeeping	6.4	(X)	2.2	(X)	.6	(X)	1.9	(X)
Response coverage ratio (percent)[2]	80.6	(X)	73.1	(X)	52.1	(X)	72.7	(X)
Advertising	22.7	(X)	8.3	(X)	1.5	(X)	6.4	(X)
Response coverage ratio (percent)[2]	83.3	(X)	76.5	(X)	58.2	(X)	69.6	(X)
Software and other data processing	23.7	(X)	5.1	(X)	1.3	(X)	2.4	(X)
Response coverage ratio (percent)[2]	79.9	(X)	76.5	(X)	58.2	(X)	71.1	(X)
Refuse removal, including hazardous waste	7.1	(X)	2.6	(X)	(S)	(X)	3.8	(X)
Response coverage ratio (percent)[2]	83.0	(X)	74.5	(X)	(S)	(X)	72.7	(X)
New machinery and equipment expenditures	182.0	(X)	95.9	(X)	15.4	(X)	37.4	(X)
Automobiles, trucks, etc., for highway use	2.3	17	1.9	20	(S)	(X)	.5	17
Computers and peripheral data processing equipment	17.4	12	8.5	7	(S)	(X)	2.8	6
All other	162.2	2	85.5	1	(S)	(X)	34.1	1
Adjustment ratio[3]	1.1	(X)	1.2	(X)	(S)	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	2 281.2	(X)	1 251.4	(X)	169.8	(X)	793.9	(X)
Materials purchased or transferred from foreign sources[4]	207.4	12	33.1	11	(S)	(X)	63.9	28
Materials purchased or transferred from domestic sources	2 073.8	2	1 218.3	1	(S)	(X)	730.0	3
Adjustment ratio[3]	1.7	(X)	1.7	(X)	(S)	(X)	1.5	(X)

Item	Wire springs (SIC 3495)		Miscellaneous fabricated wire products (SIC 3496)		Metal foil and leaf (SIC 3497)		Fabricated pipe and fittings (SIC 3498)		Fabricated metal products, n.e.c. (SIC 3499)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	(S)	(X)	4.7	(X)	5.0	(X)	3.5	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	78.9	(X)	98.9	(X)	63.2	(X)	(S)	(X)
Machinery	(S)	(X)	23.6	(X)	(S)	(X)	16.7	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	77.4	(X)	(S)	(X)	65.1	(X)	(S)	(X)
Other purchased services:										
Communications	(S)	(X)	9.9	(X)	3.9	(X)	7.0	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	80.4	(X)	86.5	(X)	59.8	(X)	(S)	(X)
Legal	(S)	(X)	6.2	(X)	5.2	(X)	3.6	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	80.0	(X)	98.9	(X)	63.5	(X)	(S)	(X)
Accounting and bookkeeping	(S)	(X)	3.9	(X)	(S)	(X)	3.9	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	76.8	(X)	(S)	(X)	65.9	(X)	(S)	(X)
Advertising	(S)	(X)	14.4	(X)	1.8	(X)	5.1	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	78.7	(X)	98.9	(X)	64.1	(X)	(S)	(X)
Software and other data processing	(S)	(X)	3.1	(X)	(S)	(X)	1.4	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	76.0	(X)	(S)	(X)	62.2	(X)	(S)	(X)
Refuse removal, including hazardous waste	(S)	(X)	3.9	(X)	8.1	(X)	1.9	(X)	(S)	(X)
Response coverage ratio (percent)[2]	(S)	(X)	78.7	(X)	98.9	(X)	64.1	(X)	(S)	(X)
New machinery and equipment expenditures	53.8	(X)	80.9	(X)	83.2	(X)	47.5	(X)	172.9	(X)
Automobiles, trucks, etc., for highway use	.4	21	2.1	25	.4	29	2.1	24	(S)	(X)
Computers and peripheral data processing equipment	2.6	43	6.6	16	2.0	32	7.0	15	(S)	(X)
All other	50.8	3	72.2	3	80.7	1	38.4	4	(S)	(X)
Adjustment ratio[3]	.9	(X)	1.4	(X)	1.1	(X)	1.6	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	613.4	(X)	1 475.3	(X)	1 672.9	(X)	1 289.4	(X)	2 685.7	(X)
Materials purchased or transferred from foreign sources[4]	25.0	50	128.0	22	50.9	11	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	588.4	3	1 347.3	3	1 622.1	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.1	(X)	1.9	(X)	1.4	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3491, INDUSTRIAL VALVES												
Total	**–**	**493**	**51.4**	**1 595.6**	**33.4**	**68.4**	**855.4**	**4 046.0**	**2 707.1**	**6 762.5**	**212.7**	**1 637.9**
Establishments with an average of—												
1 to 4 employees	E4	57	.1	2.5	.1	.1	1.4	10.5	7.5	18.2	.4	4.6
5 to 9 employees	E5	47	.3	9.1	.2	.4	4.7	20.1	14.4	34.7	.9	8.4
10 to 19 employees	E2	61	.9	24.8	.5	1.1	12.3	61.2	42.3	103.3	2.5	20.4
20 to 49 employees	–	107	3.5	104.4	2.2	4.6	53.7	247.9	154.4	403.0	8.2	85.5
50 to 99 employees	–	80	5.7	176.9	3.6	7.5	92.9	443.1	357.0	803.7	27.1	196.2
100 to 249 employees	–	80	13.2	424.5	8.1	16.5	204.2	1 025.6	833.4	1 879.3	53.6	509.8
250 to 499 employees	–	48	16.4	487.8	11.4	23.6	287.9	1 357.7	807.4	2 148.5	74.4	526.7
500 to 999 employees	–	9	5.8	175.3	4.2	8.7	111.2	405.5	286.1	691.1	22.2	132.3
1,000 to 2,499 employees	–	4	5.5	190.3	3.1	5.9	87.1	474.4	204.6	680.7	23.3	154.0
Covered by administrative records[2]	E9	90	.5	10.3	.3	.6	5.5	21.0	14.1	35.1	1.2	8.7
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS												
Total	**–**	**369**	**28.2**	**853.2**	**18.3**	**38.1**	**472.4**	**1 743.0**	**1 505.3**	**3 273.9**	**114.0**	**861.5**
Establishments with an average of—												
1 to 4 employees	E9	66	.1	3.5	.1	.2	2.1	7.2	5.9	13.1	.3	3.4
5 to 9 employees	E6	49	.3	8.2	.2	.4	4.5	18.6	11.1	30.5	.6	8.2
10 to 19 employees	E2	52	.7	20.1	.5	1.0	11.1	41.4	27.7	69.6	1.8	15.1
20 to 49 employees	–	60	2.0	56.7	1.3	2.9	31.1	116.3	106.1	225.0	5.6	55.5
50 to 99 employees	–	53	3.9	112.4	2.6	5.3	63.4	266.4	200.9	468.9	14.7	108.8
100 to 249 employees	–	54	8.3	243.9	5.3	11.0	133.0	457.8	393.4	864.9	34.9	205.1
250 to 499 employees	–	33	12.8	408.3	8.3	17.4	227.1	835.3	760.1	1 602.0	56.2	465.3
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	114	.6	13.3	.4	.8	7.7	24.8	19.1	43.9	1.2	11.1
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE												
Total	**–**	**114**	**4.4**	**118.9**	**3.1**	**5.9**	**73.2**	**247.3**	**244.8**	**495.8**	**17.5**	**81.1**
Establishments with an average of—												
1 to 4 employees	E9	31	.1	1.8	.1	.1	1.1	2.8	3.1	6.0	.2	1.1
5 to 9 employees	–	11	.1	1.8	(Z)	.1	.9	3.8	2.6	6.3	.1	.8
10 to 19 employees	E1	26	.4	9.9	.2	.5	5.5	20.5	17.2	37.5	.4	7.8
20 to 49 employees	–	18	.5	15.8	.3	.7	7.7	32.7	24.7	57.8	5.7	7.3
50 to 99 employees	E1	18	1.4	38.0	1.0	2.0	23.3	81.9	74.4	156.6	7.2	26.0
100 to 249 employees	–	7	2.0	51.7	1.5	2.5	34.7	105.6	122.8	231.6	3.1	38.0
250 to 499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(D)
Covered by administrative records[2]	E9	28	.1	1.5	(Z)	.1	.9	2.3	2.6	4.9	.1	.9
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.												
Total	**E1**	**251**	**16.6**	**469.5**	**12.2**	**25.5**	**305.7**	**1 054.2**	**924.5**	**1 991.7**	**45.3**	**415.7**
Establishments with an average of—												
1 to 4 employees	E8	29	(Z)	1.3	(Z)	.1	1.0	3.1	2.5	5.6	.1	1.1
5 to 9 employees	E5	27	.2	5.0	.1	.3	3.5	12.0	9.7	22.0	.6	4.5
10 to 19 employees	E3	45	.6	16.8	.4	.9	9.7	33.3	27.6	60.9	1.3	12.8
20 to 49 employees	E2	59	1.9	54.4	1.2	2.6	29.9	123.7	102.4	227.1	5.1	48.7
50 to 99 employees	E2	46	3.2	89.6	2.3	4.9	56.8	190.2	173.1	364.0	7.8	70.6
100 to 249 employees	–	31	4.6	132.9	3.4	7.0	83.4	359.7	283.1	649.3	15.5	132.1
250 to 499 employees	–	10	3.3	92.9	2.4	5.1	62.0	179.3	226.6	413.6	8.8	79.7
500 to 999 employees	–	4	2.8	76.4	2.3	4.7	59.3	153.0	99.5	249.2	6.1	66.2
Covered by administrative records[2]	E9	46	.3	6.0	.2	.4	4.0	10.6	9.7	20.3	.5	4.3
INDUSTRY 3495, WIRE SPRINGS												
Total	**–**	**399**	**18.0**	**443.4**	**13.9**	**27.6**	**309.0**	**953.1**	**792.2**	**1 743.5**	**61.5**	**151.6**
Establishments with an average of—												
1 to 4 employees	E7	62	.1	3.1	.1	.3	2.4	8.2	6.1	14.3	.3	1.4
5 to 9 employees	E4	57	.4	9.9	.3	.6	6.9	17.5	16.5	34.0	.7	2.8
10 to 19 employees	E1	72	1.0	22.7	.7	1.4	14.9	47.7	48.6	95.8	2.3	7.8
20 to 49 employees	–	108	3.5	88.0	2.6	5.1	55.6	188.4	156.8	345.7	11.0	29.7
50 to 99 employees	–	55	3.7	96.6	2.9	5.9	65.1	201.7	158.0	359.3	11.0	35.8
100 to 249 employees	–	36	5.8	141.5	4.6	8.8	100.8	308.8	243.1	549.8	26.0	47.6
250 to 499 employees	–	8	3.4	81.5	2.7	5.6	63.3	180.9	163.1	344.7	10.2	26.5
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	102	.5	10.4	.4	.8	8.1	17.3	17.1	34.4	1.0	3.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS												
Total	**E1**	**1 165**	**38.8**	**878.8**	**29.0**	**59.6**	**538.8**	**1 857.5**	**1 701.1**	**3 553.0**	**102.9**	**545.7**
Establishments with an average of—												
1 to 4 employees	E7	344	.7	14.0	.5	1.0	9.2	33.1	33.0	66.1	1.0	10.3
5 to 9 employees	E3	175	1.2	25.1	.8	1.8	15.9	54.1	61.0	115.4	1.6	19.3
10 to 19 employees	E1	198	2.8	63.8	2.0	4.1	36.1	154.7	132.9	285.8	3.8	37.3
20 to 49 employees	E1	229	6.7	154.7	4.9	10.2	90.5	325.3	369.1	698.2	11.8	92.7
50 to 99 employees	E1	114	7.8	183.4	5.9	12.4	110.2	363.3	376.9	736.7	35.4	110.7
100 to 249 employees	–	89	12.5	298.6	9.4	19.0	190.3	642.8	504.2	1 147.1	26.4	204.6
250 to 499 employees	–	11	3.9	90.1	3.0	6.4	52.1	172.6	154.0	324.1	12.9	35.9
500 to 999 employees	–	5	3.2	49.2	2.4	4.9	34.4	111.7	69.9	179.5	9.9	34.8
Covered by administrative records[2]	E9	363	1.0	17.7	.8	1.5	11.6	37.7	38.4	76.1	1.4	12.5
INDUSTRY 3497, METAL FOIL AND LEAF												
Total	**–**	**121**	**12.0**	**405.9**	**8.7**	**18.5**	**263.6**	**1 274.8**	**1 839.9**	**3 118.5**	**90.6**	**435.2**
Establishments with an average of—												
1 to 4 employees	E6	22	(Z)	1.2	(Z)	.1	.8	3.9	6.6	10.5	.2	2.0
5 to 9 employees	E5	14	.1	2.6	.1	.1	1.7	6.9	13.2	20.1	.4	3.3
10 to 19 employees	–	12	.2	5.8	.1	.3	3.2	12.7	24.2	37.6	1.0	3.4
20 to 49 employees	–	18	.6	21.8	.4	.9	12.5	61.8	100.4	163.5	2.8	27.1
50 to 99 employees	–	18	1.4	44.4	1.0	2.4	28.7	140.9	259.0	398.4	6.0	62.9
100 to 249 employees	–	26	4.4	147.7	2.8	6.0	82.7	416.1	541.0	954.0	58.6	130.9
250 to 499 employees	–	7	2.3	81.1	1.8	4.3	59.1	273.1	391.1	668.8	12.7	96.3
500 to 999 employees	–	4	2.9	101.4	2.4	4.5	74.7	359.3	504.3	865.6	9.1	109.2
Covered by administrative records[2]	E9	20	(Z)	1.2	(Z)	.1	.8	3.1	6.1	9.2	.2	1.4
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS												
Total	**E1**	**856**	**24.8**	**647.7**	**17.8**	**37.9**	**404.7**	**1 303.6**	**1 487.7**	**2 794.3**	**59.3**	**463.7**
Establishments with an average of—												
1 to 4 employees	E8	214	.4	9.5	.3	.6	6.3	18.7	20.8	39.7	1.0	6.7
5 to 9 employees	E4	161	1.0	25.5	.8	1.6	16.7	49.9	48.9	96.8	2.1	27.0
10 to 19 employees	E1	166	2.3	61.1	1.6	3.3	37.1	129.2	121.4	250.7	4.2	40.8
20 to 49 employees	E1	176	5.7	148.5	4.0	8.3	88.5	284.8	318.8	604.8	13.6	97.2
50 to 99 employees	E1	84	5.8	154.2	4.2	8.9	98.7	347.8	346.1	695.3	13.0	105.5
100 to 249 employees	E1	44	6.3	164.3	4.6	10.0	99.4	337.5	383.6	714.6	18.6	112.5
250 to 499 employees	–	11	3.2	84.6	2.3	5.2	58.0	135.7	248.2	392.2	6.7	73.9
Covered by administrative records[2]	E9	258	.8	16.2	.6	1.1	10.5	29.2	34.4	63.6	1.5	11.8
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.												
Total	**E2**	**3 444**	**69.8**	**1 781.0**	**49.9**	**100.8**	**1 063.9**	**3 714.9**	**3 240.1**	**6 944.6**	**208.0**	**984.4**
Establishments with an average of—												
1 to 4 employees	E8	1 364	2.2	49.9	1.6	3.0	30.6	117.1	95.7	212.2	6.2	31.8
5 to 9 employees	E4	722	4.9	106.7	3.5	7.0	66.7	220.3	183.2	402.2	9.1	61.0
10 to 19 employees	E2	583	8.0	189.3	5.7	11.3	114.5	380.7	305.5	686.7	17.2	92.8
20 to 49 employees	E1	474	14.4	362.0	10.3	21.0	210.3	782.7	660.2	1 443.7	41.4	197.5
50 to 99 employees	E2	171	11.7	297.2	8.7	17.6	181.3	638.3	564.8	1 198.0	29.0	185.9
100 to 249 employees	E2	100	15.2	406.7	10.9	22.1	241.0	857.6	746.5	1 600.8	50.3	257.9
250 to 499 employees	–	21	7.0	191.6	5.1	9.8	121.8	451.2	357.3	804.5	30.6	82.7
500 to 999 employees	E1	8	6.4	177.5	4.1	8.9	97.6	267.1	326.9	596.5	24.1	74.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 520	4.3	76.5	3.2	5.8	46.7	160.2	141.5	301.7	9.5	45.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3491	**Industrial valves:**										
	All establishments in industry	493	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7
	Establishments with this product class primary:										
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc.	83	10.8	326.6	7.2	14.5	184.1	814.9	588.8	1 401.3	45.1
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL)	26	5.2	159.0	4.0	8.1	102.3	391.6	302.0	685.4	17.9
34913	Ball valves (all metals, pressures, and types), including manual and power-operated, on/off valves	36	4.5	145.6	3.0	6.2	75.5	449.5	317.1	768.2	28.4
34914	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves	26	2.6	80.6	1.8	3.6	47.2	207.8	172.1	396.5	15.9
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined	16	2.6	76.2	1.6	3.4	40.1	197.9	155.5	353.3	15.2
34916	Industrial valves, n.e.c.	53	5.9	204.1	3.7	8.0	104.0	461.7	268.3	728.4	19.6
34917	Nuclear valves (N-stamp only)	6	.6	24.3	.2	.5	8.9	60.5	21.2	81.6	2.8
34918	Automatic valves (regulating and control type) and parts (except nuclear)	81	11.8	385.6	7.0	14.1	191.3	978.5	588.3	1 568.5	45.3
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer	23	5.6	149.5	3.9	7.8	78.0	390.0	224.1	615.3	17.3
3492	**Fluid power valves and hose fittings:**										
	All establishments in industry	369	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0
	Establishments with this product class primary:										
3492A	Aerospace-type hydraulic fluid power valves	23	2.8	103.7	1.4	3.1	45.1	169.1	112.5	296.2	11.7
3492B	Aerospace-type pneumatic fluid power valves	10	.7	28.2	.3	.7	10.5	53.0	37.2	89.9	(D)
3492C	Nonaerospace-type hydraulic directional control valves	26	3.1	93.8	2.0	4.2	54.0	197.3	154.7	353.9	15.8
3492D	Nonaerospace-type hydraulic valves, except directional control	16	1.8	59.3	1.2	2.3	30.4	107.4	59.9	166.3	4.8
3492E	Nonaerospace-type pneumatic directional control valves	21	2.7	81.4	1.7	3.3	40.6	194.2	131.1	330.1	6.9
3492F	Nonaerospace-type pneumatic valves, except directional control	9	1.5	41.7	1.0	2.2	24.5	97.4	41.7	139.6	5.1
3492G	Parts for fluid power valves	7	.6	10.8	.2	.3	4.8	20.1	10.4	32.5	(D)
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies	29	3.9	124.6	2.5	5.2	69.8	224.4	163.9	401.8	13.9
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems	15	1.5	35.8	1.1	2.2	24.8	87.0	76.1	161.8	9.5
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems	16	2.6	79.3	1.8	3.6	44.8	213.6	194.9	396.4	12.4
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose	37	4.4	124.8	3.3	6.9	83.8	226.5	391.5	622.9	25.1
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose	13	1.2	32.9	.8	1.9	17.8	80.9	82.1	163.0	3.2
3493	**Steel springs, except wire:**										
	All establishments in industry	114	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5
	Establishments with this product class primary:										
34931	Hot formed springs	40	2.6	66.1	1.8	3.3	41.1	131.3	170.1	303.3	6.5
34932	Cold formed springs	28	1.5	45.2	1.1	2.2	27.6	105.1	62.8	169.8	6.3
3494	**Valves and pipe fittings, n.e.c.:**										
	All establishments in industry	251	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3
	Establishments with this product class primary:										
34944	Plumbing and heating valves and specialties, except plumbers' brass goods	21	2.1	67.9	1.3	2.9	34.5	157.6	113.7	270.7	8.8
34945	Metal fittings, flanges, and unions for piping systems	112	12.0	332.9	9.2	19.1	229.1	756.9	690.8	1 462.0	29.6
3495	**Wire springs:**										
	All establishments in industry	399	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5
	Establishments with this product class primary:										
34952	Precision mechanical springs	173	9.5	252.8	7.0	14.3	163.8	469.1	287.2	755.9	32.4
34953	Other wire springs	91	6.9	154.6	5.6	10.7	118.2	415.9	443.5	857.8	25.7
3496	**Miscellaneous fabricated wire products:**										
	All establishments in industry	1 165	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9
	Establishments with this product class primary:										
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants)	135	5.2	123.3	3.6	7.4	72.5	235.5	244.3	480.9	13.8
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants)	47	1.7	43.4	1.2	2.3	26.5	87.7	86.8	173.1	5.2
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants)	17	.9	25.7	.7	1.4	14.9	71.1	56.1	129.1	1.9
34966	Fencing and fence gates (not made in wiredrawing plants)	57	1.4	30.9	1.0	2.1	18.2	59.9	94.1	154.6	3.0
34968	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants)	439	26.8	599.0	20.3	42.1	370.7	1 278.3	1 111.2	2 381.5	74.6
3497	**Metal foil and leaf:**										
	All establishments in industry	121	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6
	Establishments with this product class primary:										
34971	Converted unmounted aluminum foil packaging products	19	3.0	97.8	2.1	4.5	65.0	433.9	618.7	1 056.7	8.9
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses	40	5.8	194.1	4.4	9.1	134.0	552.8	824.0	1 375.7	49.4
34973	Converted foil for nonpackaging applications and foil and leaf	39	3.1	112.1	2.1	4.8	63.3	283.8	388.6	673.2	32.0
3498	**Fabricated pipe and fittings:**										
	All establishments in industry	856	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3499	**Fabricated metal products, n.e.c.:**										
	All establishments in industry	3 444	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0
	Establishments with this product class primary:										
34991	Safes and vaults	38	1.8	40.9	1.3	2.6	25.0	73.4	76.5	151.1	4.0
34992	Collapsible tubes	10	.7	18.6	.6	1.2	12.7	28.1	24.2	52.4	1.3
34993	Flat metal strapping	15	1.0	32.2	.7	1.5	23.4	106.0	210.9	317.9	3.9
34995	Metal ladders	35	2.9	69.5	2.0	3.9	39.8	159.8	162.9	319.5	9.3
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts	108	9.1	260.0	6.4	13.6	158.9	570.3	409.1	976.8	35.6
34998	All other fabricated metal products, n.e.c.	884	33.8	891.6	23.9	48.4	518.8	1 791.0	1 587.8	3 374.3	102.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3491, INDUSTRIAL VALVES			
Total value of shipments	6 762.5	4 590.6	(NA)
Primary products value of shipments	5 507.0	3 717.6	(NA)
Secondary products value of shipments	831.3	689.8	(NA)
Total miscellaneous receipts	424.2	183.2	(NA)
Value of resales	332.6	129.2	(NA)
Contract receipts	26.4	15.1	(NA)
Other miscellaneous receipts	65.2	39.0	(NA)
Primary products specialization ratio	87	84	(NA)
Value of primary products shipments made in all industries	6 127.2	4 224.1	(NA)
Value of primary products shipments made in this industry	5 507.0	3 717.6	(NA)
Value of primary products shipments made in other industries	620.2	506.5	(NA)
Coverage ratio	90	88	(NA)
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS			
Total value of shipments	3 273.9	2 451.5	(NA)
Primary products value of shipments	2 712.0	2 038.5	(NA)
Secondary products value of shipments	386.7	264.8	(NA)
Total miscellaneous receipts	175.2	148.3	(NA)
Value of resales	145.7	129.4	(NA)
Contract receipts	(D)	5.1	(NA)
Other miscellaneous receipts	(D)	13.8	(NA)
Primary products specialization ratio	88	89	(NA)
Value of primary products shipments made in all industries	3 283.4	2 730.4	(NA)
Value of primary products shipments made in this industry	2 712.0	2 038.5	(NA)
Value of primary products shipments made in other industries	571.4	691.9	(NA)
Coverage ratio	83	75	(NA)
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE			
Total value of shipments	495.8	458.5	413.5
Primary products value of shipments	380.5	349.8	300.1
Secondary products value of shipments	52.5	53.4	71.5
Total miscellaneous receipts	62.8	55.3	42.0
Value of resales	59.3	51.3	37.3
Contract receipts	(D)	.3	(D)
Other miscellaneous receipts	(D)	3.7	(D)
Primary products specialization ratio	88	87	81
Value of primary products shipments made in all industries	466.0	706.7	511.3
Value of primary products shipments made in this industry	380.5	349.8	300.1
Value of primary products shipments made in other industries	85.5	356.9	211.2
Coverage ratio	82	49	59

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.			
Total value of shipments	1 991.7	2 377.3	(NA)
Primary products value of shipments	1 622.2	1 952.1	(NA)
Secondary products value of shipments	265.3	278.6	(NA)
Total miscellaneous receipts	104.2	146.6	(NA)
Value of resales	85.1	117.5	(NA)
Contract receipts	3.7	8.3	(NA)
Other miscellaneous receipts	15.4	20.8	(NA)
Primary products specialization ratio	86	88	(NA)
Value of primary products shipments made in all industries	1 962.6	2 294.5	(NA)
Value of primary products shipments made in this industry	1 622.2	1 952.1	(NA)
Value of primary products shipments made in other industries	340.4	342.4	(NA)
Coverage ratio	83	85	(NA)
INDUSTRY 3495, WIRE SPRINGS			
Total value of shipments	1 743.5	1 580.4	1 104.3
Primary products value of shipments	1 437.0	1 376.9	994.8
Secondary products value of shipments	157.0	141.3	81.4
Total miscellaneous receipts	149.5	62.2	28.0
Value of resales	146.5	54.1	25.6
Contract receipts	1.3	1.4	.3
Other miscellaneous receipts	1.7	6.7	2.1
Primary products specialization ratio	90	91	92
Value of primary products shipments made in all industries	1 534.0	1 474.7	1 064.2
Value of primary products shipments made in this industry	1 437.0	1 376.9	994.8
Value of primary products shipments made in other industries	96.9	97.8	69.4
Coverage ratio	94	93	93
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS			
Total value of shipments	3 553.0	2 720.8	2 358.4
Primary products value of shipments	3 213.7	2 475.6	2 103.1
Secondary products value of shipments	178.7	137.1	152.2
Total miscellaneous receipts	160.6	108.1	103.1
Value of resales	134.6	92.9	83.4
Contract receipts	11.6	9.0	6.8
Other miscellaneous receipts	14.4	6.1	12.9
Primary products specialization ratio	95	95	93
Value of primary products shipments made in all industries	3 466.6	2 744.7	(NA)
Value of primary products shipments made in this industry	3 213.7	2 475.6	(NA)
Value of primary products shipments made in other industries	252.9	268.8	(NA)
Coverage ratio	93	90	(NA)
INDUSTRY 3497, METAL FOIL AND LEAF			
Total value of shipments	3 118.5	2 286.6	1 846.3
Primary products value of shipments	2 489.7	1 820.1	1 433.7
Secondary products value of shipments	512.5	363.0	355.9
Total miscellaneous receipts	116.3	103.6	57.0
Value of resales	91.0	64.7	27.7
Contract receipts	1.3	4.4	(D)
Other miscellaneous receipts	24.0	34.4	(D)
Primary products specialization ratio	83	81	81
Value of primary products shipments made in all industries	2 889.4	2 099.8	1 758.0
Value of primary products shipments made in this industry	2 489.7	1 820.1	1 433.7
Value of primary products shipments made in other industries	399.7	279.7	324.3
Coverage ratio	86	87	82
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS			
Total value of shipments	2 794.3	1 725.5	3 105.8
Primary products value of shipments	2 528.9	1 599.4	2 865.7
Secondary products value of shipments	108.8	50.9	87.1
Total miscellaneous receipts	156.6	75.2	153.0
Value of resales	91.5	41.4	122.2
Contract receipts	40.5	28.7	11.1
Other miscellaneous receipts	24.5	5.1	19.7
Primary products specialization ratio	96	97	97
Value of primary products shipments made in all industries	2 755.3	1 759.5	3 035.3
Value of primary products shipments made in this industry	2 528.9	1 599.4	2 865.7
Value of primary products shipments made in other industries	226.4	160.1	169.7
Coverage ratio	92	91	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.			
Total value of shipments	6 944.6	6 148.6	4 406.0
Primary products value of shipments	6 003.7	5 154.8	3 674.1
Secondary products value of shipments	481.0	413.8	323.2
Total miscellaneous receipts	459.8	580.0	408.6
Value of resales	300.5	241.0	164.3
Contract receipts	117.2	88.4	(D)
Other miscellaneous receipts	42.1	250.6	(D)
Primary products specialization ratio	93	93	92
Value of primary products shipments made in all industries	6 544.3	5 702.9	4 210.9
Value of primary products shipments made in this industry	6 003.7	5 154.8	3 674.1
Value of primary products shipments made in other industries	540.6	548.1	536.8
Coverage ratio	92	90	87

Note: For qualifications of data, see footnotes on table 1a.

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3491– —	**INDUSTRIAL VALVES**				
	Total	**(NA)**	**6 127.2**	**(NA)**	**4 224.1**
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc.	(NA)	1 164.1	(NA)	755.4
34911 11	Iron body, including ductile or modular, all pressures (excluding IBBM, AWWA, and UL)	33	143.1	26	113.7
	Carbon steel:				
34911 21	Cast	45	251.0	36	163.3
34911 23	Forged	23	173.4	16	95.4
34911 34	Alloy steel and other metals	59	241.8	38	140.8
34911 38	Brass and bronze (125 lb, w.s.p. or more)	44	254.4	29	156.9
34911 43	Actuators (power-operated, on/ off mounted)	11	10.7	8	15.5
34911 52	Parts	32	78.9	30	69.7
34911 00	Gates, globes, angles, straightway (y-type) checks, stop and check, cross, 3- and 4-way, etc., n.s.k.	(NA)	10.7	(NA)	–
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL)	(NA)	546.2	(NA)	401.2
34912 01	IBBM gate line and tapping valves	9	163.7	8	142.7
	UL valves (all pressures):				
34912 11	Check valves	9	15.2	3	10.0
34912 21	All others, including pest indicators	12	33.6	10	19.7
34912 23	Tapping sleeves and crosses	7	14.5	5	18.8
34912 31	Fire hydrants	7	121.9	7	75.4
	AWWA valves (all pressures):				
34912 35	Check valves	12	57.7	11	52.5
34912 41	Butterfly valves	9	79.4	11	55.7
34912 43	Parts	11	52.3	10	26.3
34912 00	Valves for water works and municipal equipment (IBBW, AWWA, and UL), n.s.k.	(NA)	8.0	(NA)	–
34913	Ball valves (all metals, pressures, and types), including manual and power-operated, on/ off valves	(NA)	941.5	(NA)	528.9
34913 11	Iron, including ductile	19	54.5	9	18.8
34913 23	Brass and bronze	36	166.1	30	156.6
34913 35	Carbon steel (cast and fabricated)	29	268.6	29	153.9
34913 47	Alloy steel and other metals	31	278.1	25	134.9
34913 59	Actuators (power-operated, on/ off mounted)	14	70.1	15	35.4
34913 61	Parts	25	103.4	13	29.4
34913 00	Ball valves (all metals, pressures, and types), including manual and power-operated, on/ off valves, n.s.k.	(NA)	.6	(NA)	–

See footnotes at end of table.

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Table 6a–1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3491– —	**INDUSTRIAL VALVES**—Con.				
34914	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves	(NA)	368.1	(NA)	195.3
	Industrial types, including elastomer and fluroplastics, lined:				
34914 11	Iron, including ductile	28	89.6	20	44.7
34914 13	Brass and bronze	7	21.2	(NA)	19.7
34914 15	Carbon steel (cast and fabricated)	14	59.8		
34914 17	Alloy steel and other metals	18	18.6	7	41.3
	High-pressure types (shut-off to full ANSI class ratings):				
34914 21	Iron	3	52.7	(NA)	30.1
34914 23	Carbon steel (cast and fabricated)	12			
34914 25	Alloy steel and other metals	15	52.2	5	14.2
34914 31	Actuators (power-operated, on/off mounted)	13	49.9	9	23.6
34914 61	Parts	9	21.6	11	21.7
34914 00	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves, n.s.k.	(NA)	2.4	(NA)	–
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined	(NA)	274.6	(NA)	212.9
34915 11	Iron, including ductile	13	82.3	14	66.0
34915 23	Carbon steel	17	88.4	9	54.3
34915 35	Alloy steel and other metals	19	81.7	17	63.7
34915 47	Actuators (power-operated, on/off mounted)	4	(D)	5	6.7
34915 61	Parts	8	12.5	6	22.2
34915 00	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined, n.s.k.	(NA)	(D)	(NA)	–
34916	Industrial valves, n.e.c.	(NA)	641.9	(NA)	498.6
34916 11	Cocks and stops (all metals, pressures, and types)	11	15.7	4	3.2
34916 23	Diaphragm and pinch valves, including operators (all metals, pressures, and types); excluding automatic valves	11	50.7	11	66.7
	Pop safety valves and relief valves (more than 15 lb, w.s.p.):				
34916 31	Iron and steel	18	145.6	15	104.4
34916 33	Brass and bronze	18	59.9	13	53.5
34916 41	Compressed gas cylinder valves	9	78.3	5	20.9
34916 53	Steam traps (more than 15 lb, w.s.p.)	5	(D)	5	27.1
34916 65	Thru conduit pipeline valves	3	(D)	3	1.7
34916 78	Actuators, sold separately (power-operated, on/off mounted)[3]	8	32.4	(NA)	(NA)
34916 98	Other metal valves, excluding control valves, regulators, and solenoid valves	43	155.7	45	107.7
34916 00	Industrial valves, n.e.c., n.s.k.	(NA)	62.5	(NA)	93.7
34917	Nuclear valves (N-stamp only)	(NA)	100.8	(NA)	86.4
	Gate, globe, and check valves:				
34917 11	Cast-carbon steel and low alloy	11	27.0	6	11.6
34917 13	Forged-carbon steel and low alloy	6	5.5	5	17.6
34917 15	Corrosion-resistant alloy steel	7	19.2	6	13.7
34917 27	Ball valves, butterfly valves, and plug values (on/off only)	5	5.8	4	2.7
34917 31	Actuators (mounted power-operated, on/off)	4	8.6	7	17.4
34917 39	Automated control valves	5	4.6	2	.5
34917 98	Parts	10	27.4	6	21.3
34917 00	Nuclear valves (N-stamp only), n.s.k.	(NA)	2.7	(NA)	1.5
34918	Automatic valves (regulating and control type) and parts (except nuclear)	(NA)	1 530.8	(NA)	1 179.9
34918 00	Automatic regulating and control valves, power-operated; designed for modulating (throttling) service	114	1 530.8	119	1 179.9
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer	(NA)	393.4	(NA)	317.3
34919 00	Solenoid-operated valves and parts, except nuclear and fluid power transfer	33	393.4	34	317.3
34910	Industrial valves, n.s.k.	(NA)	165.8	(NA)	48.0
34910 00	Industrial valves, n.s.k.[4]	(NA)	132.5	(NA)	–
34910 02	Industrial valves, n.s.k.[5]	(NA)	33.3	(NA)	48.0
3492– —	**FLUID POWER VALVES AND HOSE FITTINGS**				
	Total	**(NA)**	**3 283.4**	**(NA)**	**2 730.4**
3492A	Aerospace-type hydraulic fluid power valves	(NA)	357.4	(NA)	(3)
3492A 00	Aerospace-type hydraulic fluid power valves[3]	54	357.4	(NA)	(3)
3492B	Aerospace-type pneumatic fluid power valves	(NA)	108.7	(NA)	3373.3
3492B 00	Aerospace-type pneumatic fluid power valves[3]	35	108.7	(NA)	3373.3
3492C	Nonaerospace-type hydraulic directional control valves	(NA)	319.0	(NA)	(3)
3492C 00	Nonaerospace-type hydraulic directional control valves[3]	65	319.0	(NA)	(3)
3492D	Nonaerospace-type hydraulic valves, except directional control	(NA)	277.7	(NA)	3519.1
3492D 00	Nonaerospace-type hydraulic valves, except directional control[3]	54	277.7	(NA)	3519.1
3492E	Nonaerospace-type pneumatic directional control valves	(NA)	324.9	(NA)	(3)
3492E 00	Nonaerospace-type pneumatic directional control valves[3]	48	324.9	(NA)	(3)
3492F	Nonaerospace-type pneumatic valves, except directional control	(NA)	146.2	(NA)	3364.0
3492F 00	Nonaerospace-type pneumatic valves, except directional control[3]	44	146.2	(NA)	3364.0
3492G	Parts for fluid power valves	(NA)	137.0	(NA)	175.6
3492G 00	Parts for fluid power valves[3]	65	137.0	103	175.6
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies	(NA)	359.2	(NA)	292.1
3492H 00	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies[3]	39	359.2	58	292.1

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3492– —	**FLUID POWER VALVES AND HOSE FITTINGS**—Con.				
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems	(NA)	191.3	(NA)	(3)
3492J 00	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems[3]	20	191.3	(NA)	(3)
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems	(NA)	339.9	(NA)	3433.8
3492K 00	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems[3]	26	339.9	(NA)	3433.8
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose	(NA)	408.7	(NA)	(3)
3492M 00	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose[3]	48	408.7	(NA)	(3)
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose	(NA)	199.1	(NA)	3518.8
3492N 00	Nonaerospace-type hydraulic and pneumatic assemblies of hose[3]	28	199.1	(NA)	3518.8
34920	Fluid power valves and hose fittings, n.s.k.	(NA)	114.4	(NA)	53.8
34920 00	Fluid power valves and hose fittings, n.s.k.[6]	(NA)	72.1	(NA)	–
34920 02	Fluid power valves and hose fittings, n.s.k.[7]	(NA)	42.3	(NA)	53.8

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3493– —	**STEEL SPRINGS, EXCEPT WIRE**						
	Total	**(NA)**	**(X)**	**466.0**	**(NA)**	**(X)**	**706.7**
34931	Hot formed springs	(NA)	(X)	246.3	(NA)	(X)	499.7
	Hot formed, helical springs, hot wound: Automobile coil springs:						
34931 05	Shipments for domestic replacement and shipments for export	9	(X)	60.6	(NA)	(X)	251.7
34931 06	Shipments to U.S. motor vehicle manufacturers or their suppliers for use in original equipment	4	(X)	5.0			
34931 16	Locomotive and railroad car and other helical springs, hot wound (1,000 s tons)	6	(S)	24.1	5	11.0	12.9
	Hot formed leaf springs for automotive (auto, truck, bus, trailer, etc.):						
34931 55	Shipments for domestic replacement and shipments for export (1,000 s tons)	12	**36.6	48.9	15	48.0	53.5
34931 57	Shipments to U.S. motor vehicle manufacturers or their suppliers for use in original equipment	7	(X)	67.3	7	(X)	137.2
34931 99	Other hot formed springs, including torsion bar springs and leaf springs for tractors, farm equipment, locomotive, etc.	12	(X)	17.0	9	(X)	24.0
34931 00	Hot formed springs, n.s.k.	(NA)	(X)	23.4	(NA)	(X)	20.3
34932	Cold formed springs	(NA)	(X)	197.4	(NA)	(X)	151.1
34932 10	Cold formed flat springs made of sheet or strip	62	(X)	160.8	55	(X)	129.2
34932 20	Cold formed helical suspension springs	14	(X)	34.0	17	(X)	18.2
34932 00	Cold formed springs, n.s.k.	(NA)	(X)	2.6	(NA)	(X)	3.7
34930	Steel springs, except wire, n.s.k.	(NA)	(X)	22.3	(NA)	(X)	56.0
34930 00	Steel springs, except wire, n.s.k.[8]	(NA)	(X)	17.4	(NA)	(X)	39.8
34930 02	Steel springs, except wire, n.s.k.[9]	(NA)	(X)	4.9	(NA)	(X)	16.2

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3494– —	**VALVES AND PIPE FITTINGS, N.E.C.**				
	Total	**(NA)**	**1 962.6**	**(NA)**	**2 294.5**
34944	Plumbing and heating valves and specialties, except plumbers' brass goods	(NA)	362.5	(NA)	392.8
34944 21	Safety and relief valves	23	84.2	16	115.6
34944 31	Check valves	12	29.0	9	26.6
34944 41	All other plumbing and heating valves (less than 125 lb w.s.p.)	17	66.6	19	143.9
34944 51	Plumbing and heating valve specialties	18	118.2	10	27.9
34944 99	Parts	13	51.4	17	69.7
34944 00	Plumbing and heating valves and specialties, except plumbers' brass goods, n.s.k.	(NA)	13.1	(NA)	9.2

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3494– —	**VALVES AND PIPE FITTINGS, N.E.C.**—Con.				
34945	Metal fittings, flanges, and unions for piping systems	(NA)	1 356.5	(NA)	1 404.3
	Gray iron:				
34945 11	Fittings, flanges, and unions	11	86.2	10	74.5
34945 12	Grooved fittings and couplings	4	9.9	5	8.9
	Malleable iron:				
34945 13	Fittings and flanges, including reducers, caps, etc.	9	101.3	8	118.2
34945 14	Grooved fittings and couplings	4	(D)	3	(D)
34945 15	Unions and union fittings	9	32.5	9	27.4
	Ductile iron:				
34945 16	Fittings, flanges, and unions	7	26.6	6	7.1
34945 17	Grooved fittings and couplings	5	22.1	1	(D)
	Copper, brass, or bronze, including solder and threaded types:				
34945 18	Cast brass or bronze fittings, flanges, and unions	29	107.6	17	136.6
34945 19	Wrought copper and wrought copper alloy fittings, flanges, and unions	14	215.4	17	286.1
34945 21	Cast carbon and alloy steel fittings, flanges, and unions	15	29.7	10	25.0
	Forged carbon, alloy, and stainless steel:				
34945 23	Fittings, flanges, and unions; socket-weld or threaded-type	23	189.3	26	155.6
	Flanges, butt-welding type:				
34945 32	Carbon steel	15	56.5	16	52.6
34945 34	Alloy steel	9	16.7	7	2.5
34945 37	Stainless steel	13	29.8	11	15.8
	Fittings, butt-welding type:				
34945 42	Carbon steel	9	38.2	14	82.1
34945 44	Alloy steel	2	(D)	5	3.6
34945 47	Stainless steel	16	57.2	11	19.1
34945 71	Pipe hangers and supports (not including metal framing)	14	65.4	13	52.1
34945 85	Pipe couplings	22	98.7	19	94.6
34945 99	Other metal fittings, flanges, and unions, including metal framing and fittings for mechanical and electrical supports	35	107.6	33	107.1
34945 00	Metal fittings, flanges, and unions for piping systems, n.s.k.	(NA)	36.5	(NA)	96.7
34940	Valves and pipe fittings, n.e.c., n.s.k.	(NA)	243.7	(NA)	497.4
34940 00	Valves and pipe fittings, n.e.c., n.s.k.[10]	(NA)	223.4	(NA)	432.2
34940 02	Valves and pipe fittings, n.e.c., n.s.k.[11]	(NA)	20.3	(NA)	65.2
3495– —	**WIRE SPRINGS**				
	Total	**(NA)**	**1 534.0**	**(NA)**	**1 474.7**
34952	Precision mechanical springs	(NA)	653.5	(NA)	517.2
	Compression-type:				
34952 12	Shipped to original equipment manufacturers	123	256.4	100	217.4
34952 14	Other shipments	47	75.4	44	56.2
34952 15	Extension-type	108	158.7	90	149.6
34952 17	Torsion-type	111	140.4	80	88.8
34952 00	Precision mechanical springs, n.s.k.	(NA)	22.6	(NA)	5.3
34953	Other wire springs	(NA)	748.7	(NA)	809.9
	Upholstery and furniture springs (unassembled):				
34953 11	Seat and back springs for motor vehicles	11	161.0	7	(12)
34953 13	Springs for mattresses and bedsprings, excluding complete bedsprings	4		9	37.4
34953 17	Spring units for box springs, innerspring mattresses, and dual-purpose sleep furniture	10	333.2	12	335.6
34953 18	Spring units for upholstered furniture	13	31.5	6	11.7
34953 19	Other upholstery and furniture springs (unassembled)	8	21.9	8	12256.0
34953 21	Valve springs	21	79.6	9	63.0
34953 98	Other wire springs	61	117.8	45	81.5
34953 00	Other wire springs, n.s.k.	(NA)	3.7	(NA)	24.8
34950	Wire springs, n.s.k.	(NA)	131.7	(NA)	147.6
34950 00	Wire springs, n.s.k.[6]	(NA)	97.3	(NA)	101.1
34950 02	Wire springs, n.s.k.[7]	(NA)	34.4	(NA)	46.5
3496– —	**MISCELLANEOUS FABRICATED WIRE PRODUCTS**				
	Total	**(NA)**	**3 466.6**	**(NA)**	**2 744.5**
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants)	(NA)	447.9	(NA)	349.8
34961 13	Rope and cable made from steel wire, excluding fabricated wire rope assemblies	44	95.3	39	99.9
34961 15	Fabricated wire rope assemblies, including lifting slings	56	97.0	42	65.1
34961 34	Steel wire strand, including strand for prestressed concrete, composite wire strand, except ACSR, and guard rail cable[3]	17	72.2	(NA)	(D)
34961 52	Other noninsulated ferrous wire rope, cable, and strand, including composite rope and cable and wire forms[3]	77	183.4	(NA)	(D)
34961 00	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants), n.s.k.	(NA)	–	(NA)	39.6
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants)	(NA)	179.6	(NA)	122.4
34964 00	Ferrous wire cloth and other ferrous woven wire products not made in wiredrawing plants[3]	48	179.6	(NA)	122.4
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants)	(NA)	145.8	(NA)	115.0
34965 00	Nonferrous wire cloth and other woven wire products[3]	29	145.8	(NA)	115.0

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3496– —	**MISCELLANEOUS FABRICATED WIRE PRODUCTS**—Con.				
34966	Fencing and fence gates (not made in wiredrawing plants)	(NA)	140.3	(NA)	130.6
34966 13	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)[3]	25	47.2	(NA)	53.0
34966 21	Woven and welded fencing, including galvanized and plastics coated[3]	12	9.1	(NA)	14.1
34966 35	Fence gates, posts, and fittings	29	69.8	(NA)	56.2
34966 71	Ornamental lawn fence, excluding posts, gates, and fittings	8	11.0		
34966 00	Fencing and fence gates (not made in wiredrawing plants), n.s.k.	(NA)	3.1	(NA)	7.2
34968	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants)	(NA)	2 323.2	(NA)	1 491.5
34968 42	Wire chain, including tire chain, stud-link chain, and welded link[3]	22	106.8	(NA)	(D)
34968 51	Barbed and twisted steel wire	9	18.0	10	31.8
34968 55	Wire bale ties	7	28.3	7	29.5
34968 63	Welded steel wire fabrics, including concrete reinforcing mesh[3]	44	140.8	(NA)	(D)
34968 71	Wire garment hangers	12	92.9	6	54.6
34968 73	Wire carts, including household, grocery, and industrial	27	131.4	20	80.5
34968 75	Steel wire cages	42	107.9	33	58.3
34968 81	Wire baskets	69	126.5	41	65.9
34968 83	Wire shelving, including oven, refrigerator, closet, and barbeque grills	64	396.2	50	245.4
34968 85	Wire racks, including shoe, bottle, display, and point of purchase	117	241.7	93	136.4
34968 98	Other wire products, including guards, florists' designs, and paper clips[3]	274	904.9	(NA)	(D)
34968 00	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants), n.s.k.	(NA)	27.8	(NA)	113.6
34960	Miscellaneous fabricated wire products, n.s.k.	(NA)	229.6	(NA)	535.4
34960 00	Miscellaneous fabricated wire products, n.s.k.[8]	(NA)	153.5	(NA)	439.7
34960 02	Miscellaneous fabricated wire products, n.s.k.[9]	(NA)	76.1	(NA)	95.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3497– —	**METAL FOIL AND LEAF**						
	Total	**(NA)**	**(X)**	**2 889.4**	**(NA)**	**(X)**	**2 099.8**
34971	Converted unmounted aluminum foil packaging products	(NA)	(X)	887.0	(NA)	(X)	707.6
34971 32	Household, institutional, and freezer foil mil lb	7	337.1	581.1	10	307.7	508.4
34971 33	Semirigid containers mil lb	8	*68.9	177.2			
34971 37	Other unmounted foil flexible packaging products, including gift wrap mil lb	12	28.1	128.7	(NA)	96.6	195.5
34971 00	Converted unmounted aluminum foil packaging products, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.7
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses	(NA)	(X)	1 400.1	(NA)	(X)	908.5
34972 10	Film/ foil without paper mil lb	34	*184.1	436.7	22	*74.9	133.3
	Foil/ paper:						
34972 22	Extrusion laminated foil/ paper combinations mil lb	22	(S)	275.4	18	165.5	234.3
34972 25	Adhesive or wax laminated foil/ paper combinations mil lb	25	*212.7	376.1	28	187.7	358.1
34972 28	Foil/ film/ paper combinations mil lb	22	(S)	289.1	15	(S)	84.5
34972 41	Gift wrap (laminated) mil lb	5	(S)	19.2	15	(S)	37.4
34972 00	Laminated aluminum foil rolls and sheets for flexible packaging uses, n.s.k.	(NA)	(X)	3.6	(NA)	(X)	60.9
34973	Converted foil for nonpackaging applications and foil and leaf	(NA)	(X)	588.6	(NA)	(X)	385.3
	Aluminum:						
34973 52	Unmounted or coated, plain or printed mil lb	8	**17.4	38.6	10	**32.1	50.1
34973 54	Laminated to other materials mil lb	20	(S)	211.8	15	119.6	118.4
34973 58	Other foil, including composition (combination of two metals or more) and metal leaf (including aluminum leaf) mil lb	21	*82.2	330.0	17	*54.8	216.8
34973 00	Converted foil for nonpackaging applications and foil and leaf, n.s.k.	(NA)	(X)	8.2	(NA)	(X)	–
34970	Metal foil and leaf, n.s.k.	(NA)	(X)	13.6	(NA)	(X)	98.4
34970 00	Metal foil and leaf, n.s.k.[6]	(NA)	(X)	4.5	(NA)	(X)	r57.0
34970 02	Metal foil and leaf, n.s.k.[7]	(NA)	(X)	9.2	(NA)	(X)	41.4

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3498– —	**FABRICATED PIPE AND FITTINGS**				
	Total	**(NA)**	**2 755.3**	**(NA)**	**1 759.5**
34980	Fabricated pipe and pipe fittings made from purchased pipe	(NA)	2 755.3	(NA)	1 759.5
34980 13	Iron and steel	483	1 952.3	312	1 111.0
34980 15	Aluminum and aluminum-base alloy	83	87.6	50	40.3
34980 17	Copper and copper-base alloy	49	89.1	44	40.3
34980 19	All other nonferrous fabricated pipe and pipe fittings	93	281.8	63	126.2
34980 00	Fabricated pipe and fittings, n.s.k.[8]	(NA)	282.2	(NA)	317.7
34980 02	Fabricated pipe and fittings, n.s.k.[9]	(NA)	62.3	(NA)	124.0

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3499– —	**FABRICATED METAL PRODUCTS, N.E.C.**						
	Total	**(NA)**	**(X)**	**6 544.3**	**(NA)**	**(X)**	**5 702.9**
34991	Safes and vaults	(NA)	(X)	163.2	(NA)	(X)	233.8
34991 17	Safes and vaults (fire-resistive and burglary-resistive)	31	(X)	127.7	18	(X)	133.2
34991 41	Safe deposit boxes — thousands	6	(S)	12.4	7	554.5	18.3
34991 98	All other bank and security vaults and equipment (including bank security lockers, night depositories, etc.)	12	(X)	22.2	17	(X)	72.7
34991 00	Safes and vaults, n.s.k.	(NA)	(X)	.9	(NA)	(X)	9.6
34992	Collapsible tubes	(NA)	(X)	56.0	(NA)	(X)	94.6
34992 11	Aluminum	14	(X)	46.1	8	(X)	51.1
34992 13	Other, including tin, tin-coated, tin-lead alloy, and lead	6	(X)	8.6	9	(X)	30.8
34992 00	Collapsible tubes, n.s.k.	(NA)	(X)	1.3	(NA)	(X)	12.7
34993	Flat metal strapping	(NA)	(X)	298.5	(NA)	(X)	398.3
34993 00	Flat metal strapping — 1,000 s tons	15	(S)	298.5	14	(S)	398.3
34995	Metal ladders	(NA)	(X)	252.2	(NA)	(X)	217.4
34995 11	Step and platform types	39	(X)	122.8	18	(X)	72.9
34995 21	Rung types (single, trestle, extension, sectional, etc.)	22	(X)	118.0	20	(X)	104.5
34995 31	Ladder-type step stools	4	(X)	2.4	13	(X)	6.4
34995 39	Ladder accessories (metal), including levelors, ladder feet, ladder jacks, roof hooks, bucket shelves, etc.	7	(X)	7.2	5	(X)	8.5
34995 00	Metal ladders, n.s.k.	(NA)	(X)	1.8	(NA)	(X)	25.0
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts	(NA)	(X)	883.6	(NA)	(X)	567.3
34996 11	Aluminum and aluminum-base alloy — mil lb	12	(S)	30.1	13	36.4	57.9
34996 33	Copper and copper-base alloy — mil lb	33	(S)	59.8	25	(S)	32.6
34996 55	Iron and steel — mil lb	77	(S)	465.3	65	(S)	235.9
34996 66	Nickel-cobalt-base super alloy materials — mil lb	11	(S)	24.2	9	(S)	21.7
34996 77	Tungsten metal and tungsten-base alloy — mil lb	25	**7.2	184.4	10	2.7	80.2
34996 88	Other materials — mil lb	25	(S)	106.4	15	(S)	105.0
34996 00	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts, n.s.k.	(NA)	(X)	13.3	(NA)	(X)	33.9
34998	All other fabricated metal products, n.e.c.	(NA)	(X)	3 287.4	(NA)	(X)	2 682.7
34998 11	Permanent magnets, except ceramic permanent magnets	26	(X)	234.6	26	(X)	184.1
34998 19	Fabricated assemblies of railroad frogs, switches, and crossings	8	(X)	68.3	15	(X)	112.5
34998 21	Steel boxes for packaging and shipping	19	(X)	26.3	21	(X)	41.4
34998 25	Steel boxes other than for shipping (ammunition boxes, jewelry cases, etc.)	46	(X)	167.6	46	(X)	108.9
34998 29	Stamped metal wheels for golf carts, lawn mowers, etc., (disc type)	5	(X)	64.3	8	(X)	70.2
34998 31	Metal aerosol valves	3			5	(X)	15.1
34998 39	Metal spools and reels	17	(X)	41.7	19	(X)	61.9
34998 99	Other fabricated metal products, n.e.c., including metal ironing boards, and metal memorial tablets and grave markers	908	(X)	2 566.3	801	(X)	1 964.0
34998 00	All other fabricated metal products, n.e.c., n.s.k.	(NA)	(X)	118.2	(NA)	(X)	r124.4
34990	Fabricated metal products, n.e.c., n.s.k.	(NA)	(X)	1 603.5	(NA)	(X)	1 508.6
34990 00	Fabricated metal products, n.e.c., n.s.k.[8]	(NA)	(X)	1 300.6	(NA)	(X)	1 115.7
34990 02	Fabricated metal products, n.e.c., n.s.k.[9]	(NA)	(X)	302.9	(NA)	(X)	392.9

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Typically for establishments with 5 employees or more.
[9]Typically for establishments with less than 5 employees.
[10]Typically for establishments with 20 employees or more.

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Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[11]Typically for establishments with less than 20 employees.
[12]For 1987, product codes are combined to avoid disclosing data for individual companies.

Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Noninsulated ferrous wire rope, cable, and strand	(NA)	1 429.5	(NA)	987.7
33151	Made in wiredrawing plants	(NA)	981.6	(NA)	637.9
34961	Not made in wiredrawing plants	(NA)	447.9	(NA)	349.8
	Rope and cable made from steel wire (excluding fabricated wire rope assemblies)	(NA)	550.8	(NA)	339.1
33151 13	Made in wiredrawing plants	18	455.5	11	239.2
34961 13	Not made in wiredrawing plants	44	95.3	39	99.9
	Fabricated wire rope assemblies (including lifting slings)	(NA)	143.4	(NA)	78.7
33151 15	Made in wiredrawing plants	7	46.4	3	13.6
34961 15	Not made in wiredrawing plants	56	97.0	42	65.1
	Wire forms (excluding rope assemblies) and composite rope and cable	(NA)	236.4	(NA)	(D)
33151 25	Made in wiredrawing plants	4	53.0	(NA)	(D)
34961 52	Not made in wiredrawing plants	77	183.4	(NA)	(D)
	Steel wire strand (including strand for prestressed concrete, composite wire strand except ACSR, and guard rail cable)	(NA)	498.6	(NA)	(D)
33151 34	Made in wiredrawing plants	21	426.4	(NA)	(D)
34961 34	Not made in wiredrawing plants	17	72.2	(NA)	(D)
	Noninsulated ferrous wire rope, cable, and strand, n.s.k.	(NA)	.3	(NA)	71.1
33151 00	Made in wiredrawing plants	(NA)	.3	(NA)	31.5
34961 00	Not made in wiredrawing plants	(NA)	–	(NA)	39.6
	Fencing and fence gates	(NA)	499.4	(NA)	389.3
33156	Made in wiredrawing plants	(NA)	359.0	(NA)	258.7
34966	Not made in wiredrawing plants	(NA)	140.3	(NA)	130.6
	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated)	(NA)	138.5	(NA)	136.4
33156 13	Made in wiredrawing plants	8	91.2	(NA)	83.4
34966 13	Not made in wiredrawing plants	25	47.2	(NA)	53.0
	Woven and welded fencing, excluding posts, gates, and fittings (including galvanized and platics coated)	(NA)	218.4	(NA)	115.6
33156 21	Made in wiredrawing plants	11	209.3	10	101.5
34966 21	Not made in wiredrawing plants	12	9.1	(NA)	14.1
	Fence gates, posts, and fittings	(NA)	123.5	(NA)	86.7
33156 35	Made in wiredrawing plants	9	53.7	10	(D)
34966 35	Not made in wiredrawing plants	29	69.8	(NA)	(D)
	Ornamental lawn fence, excluding posts, gates, and fittings	(NA)	(D)	(NA)	.6
33156 71	Made in wiredrawing plants	2	(D)	(NA)	(D)
34966 71	Not made in wiredrawing plants	8	11.0	(NA)	(D)
	Fencing and fence gates, n.s.k.	(NA)	(D)	(NA)	50.0
33156 00	Made in wiredrawing plants	(NA)	(D)	(NA)	42.8
34966 00	Not made in wiredrawing plants	(NA)	3.1	(NA)	7.2
	Ferrous wire cloth and other ferrous woven wire products	(NA)	285.3	(NA)	182.8
33157 00	Made in wiredrawing plants	12	105.7	(NA)	60.4
34964 00	Not made in wiredrawing plants	48	179.6	(NA)	122.4
	Other fabricated ferrous wire products, except springs	(NA)	2 915.1	(NA)	2 135.6
33159	Made in wiredrawing plants	(NA)	591.9	(NA)	644.1
34968	Not made in wiredrawing plants	(NA)	2 323.2	(NA)	1 491.5
	Wire chain, including tire chain, stud-link, abd welded-link	(NA)	(D)	(NA)	(D)
33159 42	Made in wiredrawing plants	1	(D)	(NA)	(D)
34968 42	Not made in wiredrawing plants	22	106.8	(NA)	(D)
	Barbed and twisted wire	(NA)	164.7	(NA)	78.9
33159 51	Made in wiredrawing plants	9	146.6	6	47.1
34968 51	Not made in wiredrawing plants	9	18.0	10	31.8
	Wire bale ties	(NA)	72.2	(NA)	48.0
33159 55	Made in wiredrawing plants	10	43.9	6	18.5
34968 55	Not made in wiredrawing plants	7	28.3	7	29.5
	Welded steel wire fabrics, including concrete reinforcing mesh	(NA)	253.2	(NA)	405.2
33159 63	Made in wiredrawing plants	10	112.4	(NA)	(D)
34968 63	Not made in wiredrawing plants	44	140.8	(NA)	(D)
	Wire garment hangers	(NA)	214.1	(NA)	140.5
33159 71	Made in wiredrawing plants	4	121.2	5	85.9
34968 71	Not made in wiredrawing plants	12	92.9	6	54.6
	Wire carts, including household, grocery, and industrial	(NA)	(D)	(NA)	80.5
33159 73	Made in wiredrawing plants	2	(D)	(NA)	–
34968 73	Not made in wiredrawing plants	27	131.4	20	80.5
	Steel wire cages	(NA)	107.9	(NA)	58.3
33159 75	Made in wiredrawing plants	–	–	(NA)	–
34968 75	Not made in wiredrawing plants	42	107.9	33	58.3
	Other wire products (guards, baskets, florists' designs, paperclips, kitchenware, wire shelving, wire racks, etc.)	(NA)	1 779.0	(NA)	(D)
33159 99	Made in wiredrawing plants	19	109.7	14	101.6
	Not made in wiredrawing plants	(NA)	1 669.3	167	(D)
34968 81	Wire baskets	69	126.5	41	65.9
34968 83	Wire shelving, including oven, refrigerator, closet, and barbeque grills	64	396.2	50	245.4
34968 85	Wire racks, including shoe, bottle, display, and point of purchase	117	241.7	93	136.4
34968 98	Other wire products, including guards, florists' designs, and paper clips	274	904.9	(NA)	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 22
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Table 6a–2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Other fabricated ferrous wire products, except springs—Con.				
	Other fabricated ferrous wire products, except springs, n.s.k.	(NA)	27.8	(NA)	140.7
33159 00	Made in wiredrawing plants	(NA)	–	(NA)	27.1
34968 00	Not made in wiredrawing plants	(NA)	27.8	(NA)	113.6
	Nonferrous wire cloth and other woven wire products	(NA)	(D)	(NA)	141.5
33575 00	Made in wiredrawing plants	1	(D)	(NA)	26.5
34965 00	Not made in wiredrawing plants	29	145.8	(NA)	115.0

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34911, GATES, GLOBES, ANGLES, STRAIGHTWAY (Y-TYPE) CHECKS, STOP AND CHECK, CROSS, 3- AND 4-WAY, ETC.,		
United States	**1 164.1**	**755.4**
Arizona	9.3	(NA)
California	94.3	57.9
Illinois	31.8	(NA)
Iowa	19.5	(NA)
Louisiana	61.5	20.6
Massachusetts	49.1	56.0
New Jersey	20.7	5.2
North Carolina	66.4	18.1
Oklahoma	41.0	(NA)
Pennsylvania	82.9	89.4
Texas	180.6	90.6
34912, VALVES FOR WATER WORKS AND MUNICIPAL EQUIPMENT (IBBW, AWWA, AND UL)		
United States	**546.2**	**401.2**
California	65.7	25.7
Oklahoma	2.2	(NA)
Pennsylvania	18.8	6.6
34913, BALL VALVES (ALL METALS, PRESSURES, AND TYPES), INCLUDING MANUAL AND POWER-OPERATED, ON/OFF VALVES		
United States	**941.5**	**528.9**
Illinois	38.9	22.5
Ohio	72.6	(NA)
Oklahoma	73.3	29.3
Pennsylvania	24.8	14.4
Texas	119.0	20.7
34914, BUTTERFLY VALVES (ALL METALS, PRESSURES, AND TYPES), INCLUDING MANUAL AND POWER-OPERATED, ON/OFF VALVES		
United States	**368.1**	**195.3**
California	28.0	(NA)
Illinois	11.2	(NA)
New Jersey	10.4	(NA)
Ohio	30.2	(NA)
Oklahoma	22.9	(NA)
Pennsylvania	14.7	3.7
Texas	68.5	(NA)
34915, PLUG VALVES (ALL METALS, PRESSURES, AND TYPES), SUCH AS LUBRICATED, CYLINDRICAL ECCENTRIC, AND SLEEVE-LINED		
United States	**274.6**	**212.9**
Ohio	61.3	(NA)
Texas	79.3	52.6
34916, INDUSTRIAL VALVES, N.E.C.		
United States	**641.9**	**498.6**
California	35.2	29.3
Illinois	48.6	32.3
Michigan	49.5	30.5
Missouri	30.6	24.9
North Carolina	42.9	44.4
Ohio	36.4	61.9
Oklahoma	7.9	5.1
Pennsylvania	72.0	65.9
Texas	29.1	43.6
34917, NUCLEAR VALVES (N-STAMP ONLY)		
United States	**100.8**	**86.4**
Illinois	19.1	(NA)
Massachusetts	25.8	10.6
Pennsylvania	29.6	21.8
34918, AUTOMATIC VALVES (REGULATING AND CONTROL TYPE) AND PARTS (EXCEPT NUCLEAR)		
United States	**1 530.8**	**1 179.9**
California	234.6	242.3
Illinois	68.8	65.5
Indiana	38.2	35.1
Massachusetts	6.9	26.2
New York	26.2	50.6
North Carolina	52.0	24.5
Ohio	35.4	25.9
Oklahoma	22.6	12.7
Pennsylvania	91.4	61.5
Texas	295.6	140.8
Wisconsin	117.6	81.5

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APS-PSB 4/25/95 3:03 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 23
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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34919, SOLENOID-OPERATED VALVES AND PARTS, EXCEPT NUCLEAR AND FLUID POWER TRANSFER		
United States	**393.4**	**317.3**
California	5.1	14.9
New Jersey	136.7	(NA)
3492A, AEROSPACE-TYPE HYDRAULIC FLUID POWER VALVES		
United States	**357.4**	**(NA)**
California	193.5	(NA)
Connecticut	33.8	(NA)
New York	88.1	(NA)
3492B, AEROSPACE-TYPE PNEUMATIC FLUID POWER VALVES		
United States	**108.7**	**(NA)**
California	72.4	(NA)
New York	3.8	(NA)
3492C, NONAEROSPACE-TYPE HYDRAULIC DIRECTIONAL CONTROL VALVES		
United States	**319.0**	**(NA)**
California	10.6	(NA)
Illinois	45.7	(NA)
Michigan	3.7	(NA)
Nebraska	6.5	(NA)
Ohio	46.8	(NA)
Pennsylvania	14.7	(NA)
Wisconsin	39.6	(NA)
3492D, NONAEROSPACE-TYPE HYDRAULIC VALVES, EXCEPT DIRECTIONAL CONTROL		
United States	**277.7**	**(NA)**
California	9.2	(NA)
Illinois	32.6	(NA)
Minnesota	34.7	(NA)
Ohio	37.8	(NA)
Pennsylvania	10.3	(NA)
Wisconsin	13.5	(NA)
3492E, NONAEROSPACE-TYPE PNEUMATIC DIRECTIONAL CONTROL VALVES		
United States	**324.9**	**(NA)**
California	3.3	(NA)
Illinois	4.3	(NA)
Michigan	133.3	(NA)
Ohio	14.6	(NA)
Pennsylvania	19.9	(NA)
3492F, NONAEROSPACE-TYPE PNEUMATIC VALVES, EXCEPT DIRECTIONAL CONTROL		
United States	**146.2**	**(NA)**
Illinois	6.4	(NA)
Michigan	21.9	(NA)
New York	4.8	(NA)
Ohio	23.4	(NA)
3492G, PARTS FOR FLUID POWER VALVES		
United States	**137.0**	**175.6**
California	39.1	54.5
Illinois	4.4	4.3
Kansas	2.5	(NA)
Michigan	29.1	28.4
Minnesota	3.4	7.7
New York	10.0	12.0
Ohio	7.4	14.9
Wisconsin	5.4	3.7
3492H, AEROSPACE-TYPE HYDRAULIC AND PNEUMATIC HOSE OR TUBE END FITTINGS AND ASSEMBLIES		
United States	**359.2**	**292.1**
Arizona	3.3	(NA)
California	76.7	67.6
3492J, NONAEROSPACE-TYPE FLARED (METAL) FITTINGS, COUPLINGS FOR, AND ASSEMBLIES OF TUBING USED IN FLUID POWER TRANSFER SYSTEMS		
United States	**191.3**	**(NA)**
Michigan	44.8	(NA)
Ohio	90.0	(NA)
3492K, NONAEROSPACE-TYPE FLARELESS FITTINGS AND COUPLINGS (INCLUDING NONMETAL FITTINGS) USED IN FLUID POWER TRANSFER SYSTEMS		
United States	**339.9**	**(NA)**
Ohio	180.4	(NA)
Wisconsin	7.5	(NA)
3492M, NONAEROSPACE-TYPE HYDRAULIC AND PNEUMATIC FITTINGS AND COUPLINGS FOR HOSE		
United States	**408.7**	**(NA)**
Illinois	18.3	(NA)
Indiana	7.2	(NA)
Michigan	25.7	(NA)
Minnesota	23.1	(NA)
Ohio	153.1	(NA)
3492N, NONAEROSPACE-TYPE HYDRAULIC AND PNEUMATIC ASSEMBLIES OF HOSE		
United States	**199.1**	**(NA)**
Illinois	14.2	(NA)
New Jersey	8.0	(NA)
34931, HOT FORMED SPRINGS		
United States	**246.3**	**499.7**
California	9.4	7.9
Illinois	35.5	36.4
Indiana	63.2	70.9
Minnesota	3.5	(NA)
Pennsylvania	66.7	68.2
Texas	5.2	(NA)
34932, COLD FORMED SPRINGS		
United States	**197.4**	**151.1**
California	23.1	9.0
Connecticut	47.2	37.1
Illinois	12.9	13.2
Indiana	6.8	(NA)
Michigan	12.6	13.9
Ohio	19.4	25.5
Pennsylvania	33.1	29.8
Texas	10.9	6.5
34944, PLUMBING AND HEATING VALVES AND SPECIALTIES, EXCEPT PLUMBERS' BRASS GOODS		
United States	**362.5**	**392.8**
California	24.9	43.1
Illinois	87.5	53.9
New York	6.3	6.0
Ohio	13.9	13.3
Texas	7.7	(NA)
34945, METAL FITTINGS, FLANGES, AND UNIONS FOR PIPING SYSTEMS		
United States	**1 356.5**	**1 404.3**
Arkansas	48.6	49.4
California	58.2	97.1
Connecticut	23.2	21.4
Illinois	63.4	76.0
Indiana	114.3	99.1
Iowa	6.3	(NA)
Kentucky	13.3	17.5
Louisiana	35.6	34.7
Michigan	38.0	20.4
Missouri	26.8	19.5
New Hampshire	3.1	(NA)
Ohio	146.2	161.7
Oklahoma	16.3	31.7
Pennsylvania	248.7	244.4
Texas	134.8	70.9
Wisconsin	30.6	31.2

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34952, PRECISION MECHANICAL SPRINGS		
United States	**653.5**	**517.2**
Arizona	3.0	(NA)
California	38.2	35.1
Connecticut	54.1	47.8
Georgia	26.7	12.1
Illinois	102.9	100.2
Indiana	47.3	33.8
Massachusetts	9.3	18.2
Michigan	78.8	62.0
Minnesota	7.7	5.0
Missouri	4.1	(NA)
New Jersey	5.8	2.5
New York	22.7	20.1
North Carolina	11.1	9.4
Ohio	52.8	48.2
Oregon	6.6	(NA)
Pennsylvania	41.9	16.8
Texas	34.0	13.1
Wisconsin	20.1	8.2
34953, OTHER WIRE SPRINGS		
United States	**748.7**	**809.9**
California	29.7	37.8
Connecticut	5.9	6.6
Florida	8.3	(NA)
Illinois	38.1	37.3
Indiana	56.5	74.3
Kentucky	78.3	74.2
Michigan	37.8	45.6
Minnesota	2.5	(NA)
New York	2.0	(NA)
North Carolina	42.2	62.0
Ohio	49.6	38.1
Pennsylvania	76.1	57.5
Tennessee	93.5	52.2
34961, NONINSULATED FERROUS WIRE ROPE, CABLE, AND STRAND (NOT MADE IN WIREDRAWING PLANTS)		
United States	**447.9**	**349.8**
California	34.6	17.7
Connecticut	19.2	17.5
Illinois	63.7	9.5
Louisiana	5.2	(NA)
Massachusetts	9.3	(NA)
Minnesota	2.6	(NA)
New Jersey	47.4	37.5
New York	7.6	6.2
North Carolina	13.4	(NA)
Ohio	40.3	27.2
Pennsylvania	49.9	42.5
South Carolina	8.1	(NA)
Texas	23.8	18.0
Wisconsin	19.8	23.9
34964, FERROUS WIRE CLOTH AND OTHER FERROUS WOVEN WIRE PRODUCTS (NOT MADE IN WIREDRAWING PLANTS)		
United States	**179.6**	**122.4**
California	18.4	5.6
Michigan	4.4	3.2
Minnesota	16.3	8.5
Ohio	7.0	12.0
Pennsylvania	14.8	(NA)
Texas	14.6	12.0
Wisconsin	8.4	(NA)
34965, NONFERROUS WIRE CLOTH AND OTHER WOVEN WIRE PRODUCTS (NOT MADE IN WIREDRAWING PLANTS)		
United States	**145.8**	**115.0**
New Jersey	13.1	4.3
34966, FENCING AND FENCE GATES (NOT MADE IN WIREDRAWING PLANTS)		
United States	**140.3**	**130.6**
California	12.1	5.8
Massachusetts	6.6	(NA)
Oklahoma	3.2	(NA)
Texas	22.9	15.3
34968, OTHER FABRICATED FERROUS WIRE PRODUCTS (EXCEPT SPRINGS) NOT MADE IN WIREDRAWING PLANTS)		
United States	**2 323.2**	**1 491.5**
Alabama	36.7	24.6
Arkansas	41.5	(NA)
California	139.7	132.5
Connecticut	30.4	14.0
Florida	131.2	28.2
Georgia	49.2	51.8
Illinois	238.1	139.2
Indiana	105.9	59.0
Iowa	32.3	(NA)
Kansas	3.4	(NA)
Kentucky	38.5	28.6
Maryland	48.8	35.2
Massachusetts	50.3	23.9
Michigan	103.7	70.0
Minnesota	66.5	61.8
Missouri	199.1	108.1
New Jersey	67.9	49.2
New York	101.5	71.4
North Carolina	70.9	49.3
Ohio	107.5	65.4
Oregon	24.5	16.7
Pennsylvania	184.8	120.0
Rhode Island	20.1	(NA)
South Carolina	31.5	6.3
Tennessee	134.8	96.8
Texas	108.0	41.2
Wisconsin	32.9	25.6
34971, CONVERTED UNMOUNTED ALUMINUM FOIL PACKAGING PRODUCTS		
United States	**887.0**	**707.6**
California	14.5	24.2
Illinois	133.3	(NA)
34972, LAMINATED ALUMINUM FOIL ROLLS AND SHEETS FOR FLEXIBLE PACKAGING USES		
United States	**1 400.1**	**908.5**
California	44.8	39.4
Georgia	32.1	(NA)
Illinois	54.7	48.3
New Jersey	63.4	55.5
North Carolina	277.9	(NA)
Ohio	173.0	176.0
Pennsylvania	72.4	(NA)
Texas	105.8	7.1
Wisconsin	124.6	(NA)
34973, CONVERTED FOIL FOR NONPACKAGING APPLICATIONS AND FOIL AND LEAF		
United States	**588.6**	**385.3**
California	7.1	28.3
New Jersey	196.6	135.2
New York	40.7	(NA)
Ohio	77.0	(NA)
34991, SAFES AND VAULTS		
United States	**163.2**	**233.8**
California	30.1	11.7
Florida	10.1	(NA)
Indiana	9.8	(NA)
Ohio	23.0	105.6
Utah	17.7	(NA)
34992, COLLAPSIBLE TUBES		
United States	**56.0**	**94.6**
34993, FLAT METAL STRAPPING		
United States	**298.5**	**398.3**
34995, METAL LADDERS		
United States	**252.2**	**217.4**
California	15.9	(NA)
New York	7.0	10.1
Texas	2.8	(NA)
Wisconsin	9.4	5.7

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34996, POWDER METALLURGY PARTS, EXCLUDING BEARINGS, GEARS, AND MACHINE CUTTING TOOLS AND ALL CEMENTED CARBIDE PARTS		
United States	**883.6**	**567.3**
California	6.8	12.8
Connecticut	93.8	25.4
Illinois	52.0	50.4
Indiana	65.6	40.4
Massachusetts	35.8	27.1
Michigan	42.4	42.5
New Jersey	24.7	37.8
Ohio	67.0	14.4
Pennsylvania	270.9	186.7
Tennessee	26.1	(NA)
Texas	9.7	(NA)
Wisconsin	32.5	(NA)
34998, ALL OTHER FABRICATED METAL PRODUCTS, N.E.C.		
United States	**3 287.4**	**2 682.7**
Alabama	20.2	64.9
Arizona	16.0	7.5
Arkansas	37.5	(NA)
California	200.7	196.6
Colorado	52.0	33.7
Connecticut	114.9	89.1
Florida	53.5	40.3
Georgia	61.9	32.0
34998, ALL OTHER FABRICATED METAL PRODUCTS, N.E.C.—Con.		
Idaho	2.7	(NA)
Illinois	274.1	223.8
Indiana	203.0	144.5
Iowa	77.4	31.0
Kansas	5.8	(NA)
Kentucky	142.7	54.8
Louisiana	7.5	8.3
Maryland	9.4	6.8
Massachusetts	67.5	77.9
Michigan	231.4	180.8
Minnesota	40.1	37.2
Missouri	43.0	37.6
Nevada	3.8	(NA)
New Jersey	88.5	161.0
New Mexico	4.2	(NA)
New York	158.6	192.8
North Carolina	64.1	48.3
Ohio	207.0	237.1
Oklahoma	65.1	13.5
Oregon	22.8	(NA)
Pennsylvania	227.0	235.3
Rhode Island	50.4	56.0
South Carolina	16.1	20.2
Tennessee	103.6	73.8
Texas	146.5	97.5
Utah	39.5	8.0
Virginia	20.2	30.5
Washington	30.7	11.8
Wisconsin	182.5	100.7

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3491-	**Industrial valves**	**6 127.2**	**5 525.1**	**5 338.9**	**5 003.5**	**4 652.5**	**4 224.1**	**(NA)**	**(NA)**
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc.,	1 164.1	988.0	915.0	830.4	824.6	755.4	(NA)	(NA)
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL)	546.2	456.9	553.7	485.7	428.0	401.2	(NA)	(NA)
34913	Ball valves (all metals, pressures, and types), including manual and power-operated, on/ off valves	941.5	804.8	738.5	630.5	594.6	528.9	(NA)	(NA)
34914	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/ off valves	368.1	339.9	296.2	284.5	236.7	195.3	(NA)	(NA)
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined	274.6	259.2	230.7	218.2	240.5	212.9	(NA)	(NA)
34916	Industrial valves, n.e.c.	641.9	611.8	676.2	573.6	587.3	498.6	(NA)	(NA)
34917	Nuclear valves (N-stamp only)	100.8	95.7	62.4	75.5	91.6	86.4	152.0	(NA)
34918	Automatic valves (regulating and control type) and parts (except nuclear)	1 530.8	1 454.4	1 390.2	1 411.0	1 126.0	1 179.9	1 233.0	696.1
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer	393.4	350.8	340.5	338.7	317.6	317.3	206.1	114.8
34910	Industrial valves, n.s.k.	165.8	163.6	135.5	155.3	205.7	48.0	(NA)	(NA)
3492-	**Fluid power valves and hose fittings**	**3 283.4**	**3 476.5**	**3 584.0**	**3 374.8**	**3 095.8**	**2 730.4**	**(NA)**	**(NA)**
3492A	Aerospace-type hydraulic fluid power valves	357.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492B	Aerospace-type pneumatic fluid power valves	108.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492C	Nonaerospace-type hydraulic directional control valves	319.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492D	Nonaerospace-type hydraulic valves, except directional control	277.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492E	Nonaerospace-type pneumatic directional control valves	324.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492F	Nonaerospace-type pneumatic valves, except directional control	146.2	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492G	Parts for fluid power valves	137.0	152.9	238.9	242.5	222.9	175.6	101.0	(NA)
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies	359.2	408.2	398.4	354.0	321.9	292.1	119.0	(NA)
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems	191.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems	339.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose	408.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose	199.1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
34920	Fluid power valves and hose fittings, n.s.k.	114.4	106.7	95.5	81.7	96.2	53.8	(NA)	(NA)
3493-	**Steel springs, except wire**	**466.0**	**683.2**	**718.8**	**762.9**	**725.2**	**706.7**	**511.3**	**571.0**
34931	Hot formed springs	246.3	474.4	502.5	526.9	493.4	499.7	395.8	454.2
34932	Cold formed springs	197.4	143.8	144.8	167.4	166.0	151.1	94.8	94.3
34930	Steel springs, except wire, n.s.k.	22.3	65.0	71.5	68.6	65.8	56.0	20.8	22.5

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3494-	**Valves and pipe fittings, n.e.c.**	**1 962.6**	**2 787.7**	**2 962.1**	**2 640.3**	**2 525.7**	**2 294.5**	**(NA)**	**(NA)**
34944	Plumbing and heating valves and specialties, except plumbers' brass goods	362.5	485.5	506.0	464.4	412.9	392.8	220.2	206.6
34945	Metal fittings, flanges, and unions for piping systems	1 356.5	1 641.5	1 873.9	1 624.2	1 521.0	1 404.3	1 491.2	1 018.8
34940	Valves and pipe fittings, n.e.c., n.s.k.	243.7	660.8	582.3	551.7	591.8	497.4	(NA)	(NA)
3495-	**Wire springs**	**1 534.0**	**1 730.4**	**1 710.7**	**1 588.1**	**1 616.0**	**1 474.7**	**1 064.2**	**933.0**
34952	Precision mechanical springs	653.5	596.8	610.7	589.9	583.2	517.2	480.7	392.0
34953	Other wire springs	748.7	971.4	942.3	846.9	889.9	809.9	534.8	500.1
34950	Wire springs, n.s.k.	131.7	162.1	157.7	151.3	142.9	147.6	48.7	40.9
3496-	**Miscellaneous fabricated wire products**	**3 466.6**	**2 951.9**	**2 933.2**	**2 834.2**	**3 002.0**	**2 744.7**	**2 128.5**	**1 351.9**
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants)	447.9	306.3	327.4	354.3	392.6	349.8	391.4	171.4
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants)	179.6	182.1	212.2	217.1	124.0	122.4	204.4	137.7
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants)	145.8	167.4	151.2	141.3	127.4	115.0	81.6	66.1
34966	Fencing and fence gates (not made in wiredrawing plants)	140.3	168.4	171.4	157.8	131.4	130.6	145.1	131.3
34968	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants)	2 323.2	1 641.2	1 614.5	1 533.1	1 619.2	1 491.5	1 089.6	626.0
34960	Miscellaneous fabricated wire products, n.s.k.	229.6	486.6	456.4	430.7	607.4	535.4	216.5	219.5
3497-	**Metal foil and leaf**	**2 889.4**	**2 615.9**	**2 621.3**	**2 673.1**	**2 562.9**	**2 099.8**	**1 758.0**	**1 070.3**
34971	Converted unmounted aluminum foil packaging products	887.0	791.4	811.5	909.4	849.6	707.6	654.5	386.7
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses	1 400.1	1 187.6	1 196.3	1 193.7	1 165.0	908.5	775.5	496.9
34973	Converted foil for nonpackaging applications and foil and leaf	588.6	523.2	512.8	471.9	427.9	385.3	324.4	165.1
34970	Metal foil and leaf, n.s.k.	13.6	113.6	100.8	98.1	120.3	98.4	3.6	21.6
3498-	**Fabricated pipe and fittings**	**2 755.3**	**2 146.9**	**2 176.7**	**2 046.6**	**1 879.1**	**1 759.5**	**3 035.3**	**1 698.1**
34980	Fabricated pipe and pipe fittings made from purchased pipe	2 755.3	2 146.9	2 176.7	2 046.6	1 879.1	1 759.5	3 035.3	1 698.1
3499-	**Fabricated metal products, n.e.c.**	**6 544.3**	**6 861.8**	**7 074.2**	**6 801.7**	**6 302.6**	**5 702.9**	**4 210.9**	**3 390.3**
34991	Safes and vaults	163.2	185.7	208.7	250.8	225.8	233.8	282.6	181.6
34992	Collapsible tubes	56.0	(D)	78.8	80.5	77.8	94.6	84.7	106.5
34993	Flat metal strapping	298.5	(D)	286.2	302.2	387.1	398.3	271.6	272.6
34995	Metal ladders	252.2	148.3	177.9	216.0	202.8	217.4	152.0	
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts	883.6	707.7	663.8	611.9	613.0	567.3	441.3	2 300.0
34998	All other fabricated metal products, n.e.c.	3 287.4	3 617.0	3 526.4	3 424.8	3 130.0	2 682.7	2 277.1	
34990	Fabricated metal products, n.e.c., n.s.k.	1 603.5	1 870.5	2 132.4	1 915.5	1 666.0	1 508.6	701.5	529.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3491, INDUSTRIAL VALVES		
	Materials, ingredients, containers, and supplies	**2 281.2**	**1 555.8**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	111.8	87.0
346901	Metal stampings	45.1	15.3
349005	Valves, fittings, and couplings purchased for further assembly	178.4	76.4
340061	Other fabricated metal products	114.3	(NA)
	Castings (rough and semifinished):		
332011	Iron	174.6	127.4
332045	Steel	252.9	160.0
336005	Aluminum and aluminum-base alloy	52.3	37.9
336006	Copper and copper-base alloy	79.1	50.8
336008	Other nonferrous	49.1	17.9
	Forgings:		
346200	Iron and steel	84.5	43.8
346300	Nonferrous	50.6	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plate	114.0	(NA)
331022	Sheet and strip	29.4	(NA)
331034	Other steel shapes and forms	51.8	(NA)
	Copper and copper-base alloy:		
333122	Refinery shapes	46.9	37.9
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	87.5	42.3
335152	Pipe and tube	14.6	2.0
335192	All other copper and copper-base alloy shapes and forms	2.4	(NA)
335001	Aluminum and aluminum-base alloy	19.7	(D)
335099	Other nonferrous shapes and forms	8.9	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)	39.0	23.4
362130	Electric motors and generators less than 1 horsepower (less than 746 watts)	9.3	11.2
265001	Paperboard containers, boxes, and corrugated paperboard	24.9	12.3
	Rubber and plastics hose and belting:		
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced	1.1	(NA)
305204	Other rubber and plastics hose and belting	6.2	(NA)
305302	Gaskets (all types), packings, and sealing devices	44.4	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3491, INDUSTRIAL VALVES—Con.		
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	28.7	26.5
308006	Fabricated plastics products, except gaskets	42.1	20.2
970099	All other materials and components, parts, containers, and supplies	406.8	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	110.7	189.4
	INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS		
	Materials, ingredients, containers, and supplies	**1 251.4**	**825.6**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	194.3	94.6
346901	Metal stampings	8.6	6.8
349005	Valves, fittings, and couplings purchased for further assembly	112.8	63.7
340061	Other fabricated metal products	57.7	(NA)
	Castings (rough and semifinished):		
332011	Iron	27.4	12.5
332045	Steel	14.0	8.4
336005	Aluminum and aluminum-base alloy	32.2	15.1
336006	Copper and copper-base alloy	4.6	4.7
336008	Other nonferrous	29.9	3.2
	Forgings:		
346200	Iron and steel	20.3	5.7
346300	Nonferrous	16.5	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plate	100.3	(NA)
331022	Sheet and strip	3.3	(NA)
331034	Other steel shapes and forms	35.4	(NA)
	Copper and copper-base alloy:		
333122	Refinery shapes	(D)	(D)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	65.8	(NA)
335152	Pipe and tube	5.2	(NA)
335192	All other copper and copper-base alloy shapes and forms	(D)	(NA)
335001	Aluminum and aluminum-base alloy	28.6	15.1
335099	Other nonferrous shapes and forms	8.3	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)	2.6	9.7
362130	Electric motors and generators less than 1 horsepower (less than 746 watts)	9.1	2.4
265001	Paperboard containers, boxes, and corrugated paperboard	21.9	6.9
	Rubber and plastics hose and belting:		
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced	104.8	(NA)
305204	Other rubber and plastics hose and belting	.6	(NA)
305302	Gaskets (all types), packings, and sealing devices	10.7	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	5.5	8.5
308006	Fabricated plastics products, except gaskets	8.8	3.7
970099	All other materials and components, parts, containers, and supplies	196.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	107.8	241.3
	INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE		
	Materials, ingredients, containers, and supplies	**169.8**	**159.9**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	7.3	5.5
340098	Other fabricated metal products	1.4	(NA)
330091	Castings (rough and semifinished)	(D)	(NA)
346000	Forgings	(D)	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes	69.7	58.2
331022	Sheet and strip	13.7	21.9
331027	Wire and wire products	30.9	15.7
331035	All other steel shapes and forms	(D)	9.2
336002	Nonferrous shapes and forms	.6	(NA)
970099	All other materials and components, parts, containers, and supplies	14.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	16.6	28.1
	INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.		
	Materials, ingredients, containers, and supplies	**793.9**	**821.3**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	37.7	19.1
346901	Metal stampings	4.6	2.7
349005	Valves, fittings, and couplings purchased for further assembly	24.7	22.0
340061	Other fabricated metal products	10.9	(NA)
	Castings (rough and semifinished):		
332011	Iron	38.7	53.6
332045	Steel	14.3	15.8
336005	Aluminum and aluminum-base alloy	3.8	2.7
336006	Copper and copper-base alloy	18.9	32.4
336008	Other nonferrous	4.7	14.3
	Forgings:		
346200	Iron and steel	47.6	23.1
346300	Nonferrous	4.6	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.—Con.		
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plate	50.7	(NA)
331022	Sheet and strip	18.4	(NA)
331034	Other steel shapes and forms	54.3	(NA)
	Copper and copper-base alloy:		
333122	Refinery shapes	(D)	24.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	43.5	45.4
335152	Pipe and tube	21.7	39.8
335192	All other copper and copper-base alloy shapes and forms	33.5	(NA)
335001	Aluminum and aluminum-base alloy	2.3	(D)
335099	Other nonferrous shapes and forms	6.3	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)	(D)	(D)
362130	Electric motors and generators less than 1 horsepower (less than 746 watts)	3.2	2.5
265001	Paperboard containers, boxes, and corrugated paperboard	10.7	8.9
	Rubber and plastics hose and belting:		
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced	(D)	(NA)
305204	Other rubber and plastics hose and belting	(D)	(NA)
305302	Gaskets (all types), packings, and sealing devices	12.3	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	3.9	5.0
308006	Fabricated plastics products, except gaskets	9.7	5.4
970099	All other materials and components, parts, containers, and supplies	134.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	122.2	162.3
	INDUSTRY 3495, WIRE SPRINGS		
	Materials, ingredients, containers, and supplies	**613.4**	**604.5**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.5	8.1
340098	Other fabricated metal products	8.9	(NA)
330091	Castings (rough and semifinished)	(D)	(NA)
346000	Forgings	(D)	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes	(D)	4.3
331022	Sheet and strip	52.1	107.8
331027	Wire and wire products	350.0	178.9
331035	All other steel shapes and forms	42.7	43.0
336002	Nonferrous shapes and forms	5.9	(NA)
970099	All other materials and components, parts, containers, and supplies	69.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	66.2	73.2
	INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS		
	Materials, ingredients, containers, and supplies	**1 475.3**	**1 100.4**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	13.8	9.5
340098	Other fabricated metal products	44.6	(NA)
346000	Forgings	5.9	(NA)
330091	Castings (rough and semifinished)	5.9	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes	39.3	(NA)
331022	Sheet and strip	61.8	(NA)
331027	Wire and wire products	689.1	(NA)
331035	All other steel shapes and forms	116.1	(NA)
335001	Aluminum and aluminum-base alloy	20.8	16.6
335091	Other nonferrous	19.9	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	24.2	11.3
970099	All other materials and components, parts, containers, and supplies	251.7	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	182.3	415.9

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3497, METAL FOIL AND LEAF				
	Materials, ingredients, containers, and supplies	**(X)**	**1 672.9**	**(X)**	**1 337.3**
	Fabricated metal products, except forgings:				
349703	Aluminum foil, converted (quantity represents metal content) mil lb	**386.8	396.9	58.1	76.8
340095	Other fabricated metal products mil lb	(D)	(D)	(NA)	(NA)
330091	Castings (rough and semifinished)	(X)	(D)	(X)	(NA)
346000	Forgings	(X)	–	(X)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 Quantity[1]	1992 Delivered cost (million dollars)	1987 Quantity[1]	1987 Delivered cost (million dollars)
	INDUSTRY 3497, METAL FOIL AND LEAF—Con.				
	Shapes and forms, except castings, forgings, and fabricated metal products:				
	Aluminum and aluminum-base alloy:				
335303	Sheet and plate ---- mil lb	132.2	106.4	99.0	73.4
335304	Plain foil ---- mil lb	122.9	216.8	509.7	461.9
335008	Other aluminum and aluminum-base alloy shapes and forms ---- mil lb	6.2	19.8		
335101	Copper and copper-base alloy ---- mil lb	(D)	(D)	38.4	39.2
331002	Steel ---- mil lb	–	–	(NA)	(NA)
335099	Other nonferrous shapes and forms ---- mil lb	(D)	(D)	(NA)	(NA)
	Chemicals and allied products:				
289102	Glues and adhesives, including synthetic resin adhesives ---- mil lb	(S)	38.2	52.7	28.5
289300	Printing ink ---- mil lb	**28.5	51.6	*23.1	34.3
280098	Other chemicals and allied products ---- mil lb	(S)	112.7	(X)	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----	(X)	217.6	(X)	93.1
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies ----	(X)	230.3	(X)	97.1
970099	All other materials and components, parts, containers, and supplies ----	(X)	206.7	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2] ----	(X)	11.8	(X)	79.2

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3498, FABRICATED PIPE AND FITTINGS		
	Materials, ingredients, containers, and supplies ----	**1 289.4**	**814.6**
	Fabricated metal products, except forgings:		
349450	Metal fittings, flanges, and unions for piping systems ----	93.7	22.9
346901	Metal stampings ----	5.3	11.8
340099	Other fabricated metal products ----	39.0	(NA)
346000	Forgings ----	3.7	(D)
	Castings (rough and semifinished):		
332001	Iron and steel ----	39.9	7.4
336005	Aluminum and aluminum-base alloy ----	1.1	(NA)
336003	Other nonferrous ----	3.6	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes ----	25.1	(NA)
331022	Sheet and strip ----	18.2	(NA)
331082	Plate ----	15.9	(NA)
331071	Structural shapes ----	25.5	(NA)
331024	Pipes ----	441.1	236.1
331030	All other steel shapes and forms ----	74.4	(NA)
	Copper and copper-base alloy:		
335152	Pipe and tube ----	39.2	21.1
335190	All other shapes and forms ----	6.2	(D)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing ----	1.9	.3
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.----	12.9	13.6
335008	Other aluminum and aluminum-base alloy shapes and forms ----	6.6	6.9
335099	Other nonferrous shapes and forms ----	11.1	(NA)
339915	Metal powders----	.9	(D)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.----	12.0	5.2
970099	All other materials and components, parts, containers, and supplies----	194.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2] ----	217.7	245.1
	INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.		
	Materials, ingredients, containers, and supplies ----	**2 685.7**	**2 359.8**
	Fabricated metal products, except forgings:		
349450	Metal fittings, flanges, and unions for piping systems ----	5.4	3.5
346901	Metal stampings ----	42.5	16.3
340099	Other fabricated metal products ----	84.7	(NA)
346000	Forgings ----	11.7	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel ----	190.8	22.5
336005	Aluminum and aluminum-base alloy ----		17.2
336003	Other nonferrous ----	10.5	4.2
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331072	Bars and bar shapes ----	57.1	(NA)
331022	Sheet and strip ----	435.8	(NA)
331082	Plate ----	54.9	(NA)
331071	Structural shapes ----	24.9	(NA)
331024	Pipes ----	24.9	19.3
331030	All other steel shapes and forms ----	111.9	(NA)
	Copper and copper-base alloy:		
335152	Pipe and tube ----	1.4	1.5
335190	All other shapes and forms ----	14.4	(NA)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing ----	33.5	30.8
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.----	45.1	62.1
335008	Other aluminum and aluminum-base alloy shapes and forms ----	14.1	13.3
335099	Other nonferrous shapes and forms ----	8.9	(NA)
339915	Metal powders----	144.7	64.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.—Con.		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	31.8	24.0
970099	All other materials and components, parts, containers, and supplies	836.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	500.7	921.3

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
34211 25	34211 21
34211 25	34211 98
34211 30	34211 98
34211 55	34211 61
34211 80	34211 42
34212 05	34212 00
34212 10	34212 00
34212 16	34212 00
34231 33	34231 32
34231 33	34231 34
34231 97	34231 61
34231 97	34231 98
34234 14	34234 11
34234 14	34234 22
34235 41	34235 33
34235 41	34235 39
34236 85	34236 99
34236 98	34236 99
34250 41	34250 00
34293 00	34293 15
34293 00	34293 17
34298 98	34298 32
34298 98	34298 99
34321	34320
34321 02	34320 01
34321 02	34320 03
34321 05	34320 05
34321 05	34320 07
34321 08	34320 09
34321 08	34320 11
34321 10	34320 10
34321 12	34320 12
34321 13	34320 13
34321 14	34320 14
34321 15	34320 15
34321 17	34320 17
34321 18	34320 18
34321 20	34320 22
34321 22	34320 26
34321 25	34320 27
34321 28	34320 25
34321 30	34320 29
34321 32	34320 31
34321 34	34320 35
34321 36	34320 39
34322	34320
34322 01	34320 90
34322 03	34320 91
34322 05	34320 92
34322 07	34320 93
34322 12	34320 94
34322 12	34320 95
34322 15	34320 96
34322 15	34320 97
34322 18	34320 49
34322 21	34320 52
34322 24	34320 54
34322 27	34320 80
34322 27	34320 82
34322 30	34320 84
34322 30	34320 86
34322 33	34320 57
34322 36	34320 58
34322 39	34320 59
34322 45	34320 63
34322 50	34320 67
34322 50	34320 69
34323	34320
34323 02	34320 71
34323 05	34320 72
34323 08	34320 74
34323 11	34320 75
34323 14	34320 76
34323 17	34320 78
34323 20	34320 47
34323 23	34320 48
34323 25	34320 81
34323 27	34320 85
34323 27	34320 87
34323 32	34320 83
34323 32	34320 89
34323 32	34320 99
34333 21	34333 17
34333 35	34333 17
34333 65	34333 60
34333 65	34333 81
34334 10	34334 00
34334 22	34334 00
34334 30	34334 00
34334 40	34334 00
34334 62	34334 00
34334 74	34334 00
34335 20	34335 31
34335 20	34335 44
34335 25	34335 35
34335 25	34335 46
34339 06	34339 10
34339 08	34339 10
34339 11	34339 10
34339 13	34339 10
34411 41	34411 21
34411 41	34411 61
34411 42	34411 22
34411 42	34411 62
34411 43	34411 23
34411 43	34411 63
34411 44	34411 24
34411 44	34411 64
34411 46	34411 26
34411 46	34411 66
34411 47	34411 27
34411 47	34411 67
34412 00	34412 12
34412 00	34412 16
34412 00	34412 17
34412 00	34412 61
34413 16	34413 11
34413 16	34413 61
34413 20	34413 41
34413 20	34413 71
34413 23	34413 53
34413 23	34413 83
34413 26	34413 55
34413 26	34413 83
34413 29	34413 57
34413 29	34413 82
34413 59	34413 58
34413 59	34413 83
34422 30	34422 23
34422 30	34422 29
34433 08	34433 50
34433 10	34433 13
34433 15	34433 13
34433 15	34433 49
34433 19	34433 17
34433 24	34433 17
34433 24	34433 49
34433 26	34433 22
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34433 46	34433 43
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34433 48	34433 50
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34434 14	34434 13
34434 14	34434 15
34434 16	34434 17
34434 16	34434 19
34435 20	34435 21
34435 20	34435 23
34435 35	34435 31
34435 35	34435 33
34435 42	34435 37
34435 42	34435 39
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34438 13	34438 14
34438 13	34438 16
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34627 16	34627 17
34628 12	34628 11
34628 12	34628 13
34628 16	34628 15
34628 16	34628 17
34661 05	34661 00
34661 20	34661 00
34661 22	34661 00
34662 30	34662 00
34662 32	34662 00
34699 51	34699 98
34699 97	34699 98
34790 77	34790 00
34842 16	34842 15
34842 16	34842 17
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34842 54	34842 56
34842 65	34842 63
34842 65	34842 67
34842 74	34842 64
34842 74	34842 73
34916 78	34916 77
34916 78	34916 79
3492A	34923
3492A 00	34923 00
3492B	34923
3492B 00	34923 00
3492C	34921
3492C 00	34921 00
3492D	34921
3492D 00	34921 00
3492E	34922
3492E 00	34922 00
3492F	34922
3492F 00	34922 00
3492G	34927
3492G 00	34927 00
3492H	34926
3492H 00	34926 00
3492J	34924
3492J 00	34924 00
3492K	34924
3492K 00	34924 00
3492M	34925
3492M 00	34925 00
3492N	34925
3492N 00	34925 00
34961 34	34961 31
34961 34	34961 33
34961 34	34961 35
34961 52	34961 22
34961 52	34961 51
34964 00	34964 41
34964 00	34964 43
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34964 00	34964 51
34964 00	34964 53
34964 00	34964 55
34965 00	34965 17
34965 00	34965 57
34965 00	34965 65
34966 13	34966 23
34966 13	34966 25
34966 21	34966 27
34966 21	34966 29
34968 42	34968 41
34968 42	34968 45
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34968 42	34968 47
34968 63	34968 61
34968 63	34968 65
34968 98	34968 77
34968 98	34968 99

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
34211 21	34211 25
34211 42	34211 80
34211 61	34211 55
34211 98	34211 25
34211 98	34211 30
34212 00	34212 05
34212 00	34212 10
34212 00	34212 16
34231 32	34231 33
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34231 61	34231 97
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34234 22	34234 14
34235 33	34235 41
34235 39	34235 41
34236 99	34236 85
34236 99	34236 98
34250 00	34250 41
34293 15	34293 00
34293 17	34293 00
34298 32	34298 98
34298 99	34298 98
34320	34321
34320	34322
34320	34323
34320 01	34321 02
34320 03	34321 02
34320 05	34321 05
34320 07	34321 05
34320 09	34321 08
34320 10	34321 10
34320 11	34321 08
34320 12	34321 12
34320 13	34321 13
34320 14	34321 14
34320 15	34321 15
34320 17	34321 17
34320 18	34321 18
34320 22	34321 20
34320 25	34321 28
34320 26	34321 22
34320 27	34321 25
34320 29	34321 30
34320 31	34321 32
34320 35	34321 34
34320 39	34321 36
34320 47	34323 20
34320 48	34323 23
34320 49	34322 18
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34320 54	34322 24
34320 57	34322 33
34320 58	34322 36
34320 59	34322 39
34320 63	34322 45
34320 67	34322 50
34320 69	34322 50
34320 71	34323 02
34320 72	34323 05
34320 74	34323 08
34320 75	34323 11
34320 76	34323 14
34320 78	34323 17
34320 80	34322 27
34320 81	34323 25
34320 82	34322 27
34320 83	34323 32
34320 84	34322 30
34320 85	34323 27
34320 86	34322 30
34320 87	34323 27
34320 89	34323 32
34320 90	34322 01
34320 91	34322 03
34320 92	34322 05
34320 93	34322 07
34320 94	34322 12
34320 95	34322 12
34320 96	34322 15
34320 97	34322 15
34320 99	34323 32
34333 17	34333 21
34333 17	34333 35
34333 60	34333 65
34333 81	34333 65
34334 00	34334 10
34334 00	34334 22
34334 00	34334 30
34334 00	34334 40
34334 00	34334 62
34334 00	34334 74
34335 31	34335 20
34335 35	34335 25
34335 44	34335 20
34335 46	34335 25
34339 10	34339 06
34339 10	34339 08
34339 10	34339 11
34339 10	34339 13
34411 21	34411 41
34411 22	34411 42
34411 23	34411 43
34411 24	34411 44
34411 26	34411 46
34411 27	34411 47
34411 61	34411 41
34411 62	34411 42
34411 63	34411 43
34411 64	34411 44
34411 66	34411 46
34411 67	34411 47
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34413 55	34413 26
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34413 58	34413 59
34413 61	34413 16
34413 71	34413 20
34413 82	34413 29
34413 83	34413 23
34413 83	34413 26
34413 83	34413 59
34422 23	34422 30
34422 29	34422 30
34433 13	34433 10
34433 13	34433 15
34433 17	34433 19
34433 17	34433 24
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34627 13	34627 12
34627 15	34627 16
34627 17	34627 16
34628 11	34628 12
34628 13	34628 12
34628 15	34628 16
34628 17	34628 16
34661 00	34661 05
34661 00	34661 20
34661 00	34661 22
34662 00	34662 30
34662 00	34662 32
34699 98	34699 51
34699 98	34699 97
34790 00	34790 77
34842 15	34842 16
34842 17	34842 16
34842 25	34842 26
34842 27	34842 26
34842 51	34842 54
34842 53	34842 54
34842 56	34842 54
34842 63	34842 65
34842 64	34842 74
34842 67	34842 65
34842 73	34842 74
34916 77	34916 78
34916 79	34916 78
34921	3492C
34921	3492D
34921 00	3492C 00
34921 00	3492D 00
34922	3492E
34922	3492F
34922 00	3492E 00
34922 00	3492F 00
34923	3492A
34923	3492B
34923 00	3492A 00
34923 00	3492B 00
34924	3492J
34924	3492K
34924 00	3492J 00
34924 00	3492K 00
34925	3492M
34925	3492N
34925 00	3492M 00
34925 00	3492N 00
34926	3492H
34926 00	3492H 00
34927	3492G
34927 00	3492G 00
34961 22	34961 52
34961 31	34961 34
34961 33	34961 34
34961 35	34961 34
34961 51	34961 52
34964 41	34964 00
34964 43	34964 00
34964 45	34964 00
34964 51	34964 00
34964 53	34964 00
34964 55	34964 00
34965 17	34965 00
34965 57	34965 00
34965 65	34965 00
34966 23	34966 13
34966 25	34966 13
34966 27	34966 21
34966 29	34966 21
34968 41	34968 42
34968 45	34968 42
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34968 47	34968 42
34968 61	34968 63
34968 65	34968 63
34968 77	34968 98
34968 99	34968 98

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3412100	MQ34K, Steel Shipping Drums and Palls	3492E00	MA35N, Fluid Power Products, Including Aerospace
34122	MQ34K, Steel Shipping Drums and Palls	3492F00	MA35N, Fluid Power Products, Including Aerospace
3431010	MQ34E, Plumbing Fixtures	3492G00	MA35N, Fluid Power Products, Including Aerospace
3491800	MA38B, Selected Instruments and Related Products	3492H00	MA35N, Fluid Power Products, Including Aerospace
3491900	MA38B, Selected Instruments and Related Products	3492J00	MA35N, Fluid Power Products, Including Aerospace
3492A00	MA35N, Fluid Power Products, Including Aerospace		
3492B00	MA35N, Fluid Power Products, Including Aerospace	3492K00	MA35N, Fluid Power Products, Including Aerospace
3492C00	MA35N, Fluid Power Products, Including Aerospace	3492M00	MA35N, Fluid Power Products, Including Aerospace
3492D00	MA35N, Fluid Power Products, Including Aerospace	3492N00	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-35A

INDUSTRY SERIES

Engines and Turbines and Farm Machinery and Equipment

Industries 3511, 3519, 3523, and 3524

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Tue Mar 28 13:42:02 1995 / pssw02/ disk2/ economic/ mc92i/ 35a/ 01cvr

1992 Census of Manufactures

MC92-I-35A

INDUSTRY SERIES

Engines and Turbines and Farm Machinery and Equipment

Industries 3511, 3519, 3523, and 3524

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

JOBNAME: No Job Name PAGE: 1 SESS: 65 OUTPUT: Wed Jan 11 07:03:43 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ ackgwy

Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Mary Jane Gwynn.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
3511	Turbines and Turbine Generator Sets
3519	Internal Combustion Engines, N.E.C.
3523	Farm Machinery and Equipment
3524	Lawn and Garden Equipment

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS

This industry is made up of establishments primarily engaged in manufacturing steam turbines; hydraulic turbines; gas turbines, except aircraft; and complete steam, gas, and hydraulic turbine generator set units. Also included in this industry are the manufacture of wind and solar powered turbine generators and windmills for generating electric power. Establishments primarily engaged in manufacturing nonautomotive type generators are classified in industry 3621; those manufacturing aircraft turbines are classified in industry 3724; and those manufacturing windmill heads and towers for pumping water for agricultural use are classified in industry 3523.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3511, Turbines and Turbine Generator Sets, had employment of 27.1 thousand. The employment figure was 18 percent above the 22.9 thousand reported in 1987. Compared with 1991, employment increased 24 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Connecticut, New York, and South Carolina. This represents a shift from 1987 when Connecticut, New York, California, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $5.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3511 shipped $4.8 billion of turbines and turbine generator sets considered primary to the industry, $641.1 million of secondary products, and had $401.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 80 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3511, no matter in what industry they were produced, appear in table 6a and aggregate to $6.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the turbines and turbine generator sets industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing diesel, semidiesel, or other internal combustion engines, not elsewhere classified, for stationary, marine, traction, and other uses. Establishments primarily engaged in manufacturing aircraft engines are classified in industry 3724. Establishments primarily engaged in manufacturing automotive engines, except diesel are classified in industry 3714.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3519, Internal Combustion Engines, N.E.C., had employment of 56.6 thousand. The employment figure was 12 percent below the 64.0 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Illinois, Indiana, and Michigan. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $11.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3519 shipped $10.5 billion of internal combustion engines, not elsewhere classified, considered primary to the industry, $811.8 million of secondary products, and had $499.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3519, no matter in what industry they were produced, appear in table 6a and aggregate to $11.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the internal combustion engines, not elsewhere classified, industry amounted to $7.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing farm machinery and equipment, including wheel tractors, for use in the preparation and maintenance of soil; planting and harvesting of the crop; preparing crops for market on the farm; or for use in performing other farm operations and processes. Included in this industry are establishments primarily engaged in manufacturing commercial mowing and other turf and grounds care equipment. Establishments primarily engaged in manufacturing farm handtools are classified in industry group 342, and those manufacturing garden tractors, lawnmowers and other lawn and garden equipment are classified in industry 3524.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3523, Farm Machinery and Equipment, had employment of 61.4 thousand. The employment figure was 8 percent above the 57.0 thousand reported in 1987. Compared with 1991, employment decreased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Iowa, Nebraska, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $9.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3523 shipped $8.5 billion of farm machinery and equipment considered primary to the industry, $548.0 million of

secondary products, and had $581.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3523, no matter in what industry they were produced, appear in table 6a and aggregate to $8.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the farm machinery and equipment industry amounted to $4.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing lawnmowers, lawn and garden tractors, and other lawn and garden equipment used for home lawn and garden care. Also included are establishments primarily engaged in manufacturing snowblowers and throwers for residential use. Establishments primarily engaged in manufacturing farm machinery and equipment (including commercial mowing and other turf and grounds care equipment) are classified in industry 3523; those manufacturing hand lawn and garden shears and pruners are classified in industry 3421; and those manufacturing other garden handtools are classified in industry 3423.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3524, Lawn and Garden Equipment, had employment of 24.8 thousand. The employment figure was 1 percent below the 24.9 thousand reported in 1987.

The leading States in employment in 1992 were Georgia, South Carolina, Tennessee, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3524 shipped $4.0 billion of lawn and garden equipment considered primary to the industry, $838.4 million of secondary products, and had $292.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3524, no matter in what industry they were produced, appear in table 6a and aggregate to $4.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lawn and garden equipment industry amounted to $3.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS															
1992 Census	64	79	48	27.1	1 106.5	15.0	30.1	553.2	2 952.8	2 690.9	5 842.6	312.0	1 699.4	88	80
1991 ASM	(NA)	(NA)	(NA)	21.8	962.8	13.0	27.4	508.1	2 882.9	2 674.4	5 093.0	182.5	1 866.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	21.9	858.8	12.5	25.3	429.3	2 259.2	2 328.7	4 356.7	150.9	1 668.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.4	802.2	11.6	21.6	386.0	2 147.3	1 927.5	4 127.7	125.5	1 310.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.0	826.6	11.9	23.3	387.5	2 204.2	1 676.2	3 790.6	137.3	1 442.6	(NA)	(NA)
1987 Census	68	81	42	22.9	862.7	11.8	26.7	366.0	1 973.7	1 579.9	3 447.8	91.6	1 272.0	83	83
1986 ASM	(NA)	(NA)	(NA)	24.7	870.2	13.3	27.6	410.4	1 814.9	1 416.8	3 219.9	82.1	1 113.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.6	921.3	14.0	29.1	433.2	2 052.1	1 536.9	3 654.5	95.2	1 099.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.5	868.8	14.6	29.0	400.9	2 149.0	1 346.1	3 624.0	116.3	1 214.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.0	743.0	14.9	29.0	363.7	1 699.8	1 267.4	3 197.8	114.0	1 254.5	(NA)	(NA)
1982 Census	71	88	49	32.4	870.8	18.9	37.4	431.6	2 152.9	1 515.0	3 676.3	127.9	1 501.3	94	80
1981 ASM	(NA)	(NA)	(NA)	36.5	894.8	21.6	44.2	429.4	2 123.3	1 625.3	3 735.2	78.5	1 007.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	36.1	820.1	21.8	44.2	409.8	2 002.5	1 497.6	3 483.6	121.8	841.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	37.2	762.3	22.1	44.8	379.7	1 771.6	1 288.3	3 087.9	91.6	821.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	39.5	730.7	24.0	48.4	378.3	1 478.8	1 216.0	2 733.0	59.9	886.6	(NA)	(NA)
1977 Census	69	84	38	40.9	710.1	24.8	51.2	369.0	1 556.4	1 245.0	2 733.7	45.8	828.7	92	82
INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.															
1992 Census	250	294	135	56.6	2 071.6	37.9	77.0	1 298.0	4 794.2	6 996.1	11 826.9	461.1	1 365.5	93	90
1991 ASM	(NA)	(NA)	(NA)	56.3	1 908.5	38.9	74.2	1 184.2	4 677.1	6 697.8	11 515.5	367.5	1 326.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	61.3	2 117.6	42.9	85.7	1 371.8	4 899.8	7 250.4	12 224.2	524.6	1 576.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	63.7	2 194.5	44.9	91.6	1 450.8	5 489.7	7 340.8	12 803.2	439.0	1 654.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	66.8	2 294.0	47.6	99.4	1 532.6	5 506.5	7 121.5	12 432.4	467.3	1 655.5	(NA)	(NA)
1987 Census	224	278	150	64.0	2 043.1	45.0	89.8	1 351.5	5 065.8	6 058.9	11 122.6	529.1	1 383.6	94	91
1986 ASM	(NA)	(NA)	(NA)	65.5	2 054.6	44.9	86.9	1 309.3	5 142.8	5 719.8	10 896.2	338.0	1 383.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	72.3	2 201.7	50.2	96.3	1 426.7	5 206.1	5 882.9	11 286.5	404.9	1 512.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	78.2	2 369.0	55.2	108.9	1 575.4	5 692.6	6 298.9	11 869.7	417.3	1 778.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	70.6	1 898.8	45.8	84.7	1 164.4	4 092.9	4 727.9	8 985.7	375.6	1 606.3	(NA)	(NA)
1982 Census	202	253	159	79.6	1 979.0	52.4	95.4	1 222.6	3 916.4	5 131.7	9 363.4	599.9	1 776.2	89	87
1981 ASM	(NA)	(NA)	(NA)	89.1	2 191.8	63.2	126.0	1 471.2	5 247.4	6 322.4	11 545.6	637.1	1 728.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	89.4	1 964.8	63.4	125.1	1 321.2	4 564.7	5 550.8	10 194.2	323.1	1 715.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	101.1	2 010.8	74.2	143.8	1 372.7	4 521.9	5 790.2	10 096.5	401.2	1 736.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	95.9	1 778.3	70.0	140.2	1 218.6	4 010.6	5 764.3	9 618.0	317.0	1 558.6	(NA)	(NA)
1977 Census	186	232	131	88.8	1 528.6	65.3	130.1	1 036.2	3 406.5	4 459.7	7 696.5	285.8	1 342.0	91	88
INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT															
1992 Census	1 578	1 631	465	61.4	1 784.4	42.5	83.2	1 096.3	5 165.0	4 435.8	9 617.0	196.2	1 546.0	94	95
1991 ASM	(NA)	(NA)	(NA)	65.1	1 786.9	45.4	88.1	1 114.7	5 268.0	4 969.1	10 346.6	204.5	1 620.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	69.6	1 882.6	49.9	97.6	1 201.5	5 978.5	5 517.4	11 546.2	210.1	1 739.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	67.8	1 778.7	48.9	96.7	1 151.2	5 246.6	5 123.1	10 418.9	183.0	1 766.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	62.4	1 604.4	43.6	88.0	1 001.8	4 691.5	4 218.2	8 731.7	179.7	1 786.2	(NA)	(NA)
1987 Census	1 576	1 634	464	57.0	1 416.3	39.1	75.2	842.2	3 709.5	3 218.5	6 879.9	200.2	1 546.8	90	91
1986 ASM	(NA)	(NA)	(NA)	57.1	1 384.2	38.2	74.3	777.4	3 414.2	3 217.7	6 745.4	138.9	1 574.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	67.1	1 631.4	44.9	84.6	959.7	4 201.6	3 818.7	8 211.6	163.5	1 809.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	75.4	1 794.6	51.5	97.1	1 074.4	5 115.5	4 741.9	9 858.1	158.7	2 084.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	82.0	1 827.9	53.4	98.1	1 048.4	4 526.2	4 417.5	8 982.7	143.7	2 090.4	(NA)	(NA)
1982 Census	1 787	1 903	620	96.1	2 067.4	62.9	113.6	1 205.8	5 200.8	5 217.8	10 743.0	341.2	2 232.2	94	95
1981 ASM	(NA)	(NA)	(NA)	125.0	2 631.3	87.8	161.3	1 669.9	6 268.1	7 512.9	13 948.9	522.5	2 159.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	133.4	2 576.9	95.6	178.8	1 674.1	6 057.0	6 721.1	12 845.2	458.9	2 333.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	140.3	2 461.6	104.1	201.9	1 662.8	6 023.3	7 244.4	12 998.2	360.6	2 395.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	121.0	1 982.1	89.2	170.5	1 325.8	4 796.3	5 333.5	10 053.6	317.9	2 109.3	(NA)	(NA)
1977 Census	1 864	2 004	664	131.3	1 971.9	96.2	182.7	1 313.3	4 854.4	5 469.7	10 281.7	341.8	2 083.4	92	95
INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT															
1992 Census	127	144	73	24.8	568.9	19.8	36.3	388.9	2 153.4	3 080.1	5 168.7	125.1	853.7	83	93
1991 ASM	(NA)	(NA)	(NA)	24.4	517.8	18.9	35.2	347.7	1 864.9	2 821.6	4 819.5	91.3	766.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.5	526.6	18.3	36.0	353.4	2 006.5	3 006.1	4 910.0	82.2	901.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.7	527.6	19.4	37.2	329.7	1 694.6	2 792.5	4 577.5	127.1	817.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	26.1	537.0	19.9	38.1	363.7	1 916.1	2 995.9	4 828.4	97.4	829.9	(NA)	(NA)
1987 Census	149	165	81	24.9	500.6	19.1	35.4	342.9	1 915.9	2 714.8	4 594.4	111.2	731.4	89	94
1986 ASM	(NA)	(NA)	(NA)	21.5	429.9	16.5	30.6	288.3	1 438.3	2 220.0	3 647.0	54.0	687.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.3	417.4	17.2	33.3	283.1	1 322.0	2 075.9	3 439.6	70.7	701.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.2	443.0	17.9	34.1	308.4	1 246.3	2 049.3	3 239.8	65.9	783.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	18.8	337.6	13.9	26.6	219.6	1 066.9	1 555.5	2 579.8	43.2	574.3	(NA)	(NA)
1982 Census	151	175	84	17.8	318.1	12.4	24.6	198.7	945.5	1 375.7	2 365.2	51.1	539.6	91	88
1981 ASM	(NA)	(NA)	(NA)	18.1	300.2	12.9	24.4	183.4	780.6	1 219.9	2 005.4	35.7	509.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.3	313.4	14.3	27.0	191.5	930.8	1 310.6	2 247.4	56.8	538.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.8	346.7	18.8	35.4	231.2	1 072.7	1 518.4	2 536.9	55.0	546.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.9	274.6	16.6	30.4	179.6	808.4	1 119.3	1 882.9	39.8	431.8	(NA)	(NA)
1977 Census	136	154	91	19.5	222.4	14.6	27.5	141.3	631.7	939.1	1 569.5	28.5	379.3	92	82

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS								
1992 Census	40 830	55	2 007	18.38	46	65	108 959	37	98.10
1991 ASM	44 165	60	2 108	18.54	53	71	132 243	33	105.22
1990 ASM	39 215	57	2 024	16.97	53	73	103 160	38	89.30
1989 ASM	37 486	54	1 862	17.87	47	66	100 341	37	99.41
1988 ASM	35 939	52	1 958	16.63	44	66	95 835	38	94.60
1987 Census	37 672	52	2 263	13.71	46	71	86 188	44	73.92
1986 ASM	35 231	54	2 075	14.87	44	71	73 478	48	65.76
1985 ASM	34 635	53	2 079	14.89	42	67	77 147	45	70.52
1984 ASM	31 593	53	1 986	13.82	37	61	78 145	40	74.10
1983 ASM	29 720	60	1 946	12.54	40	63	67 992	44	58.61
1982 Census	26 877	58	1 979	11.54	41	65	66 448	40	57.56
1981 ASM	24 515	59	2 046	9.71	44	67	58 173	42	48.04
1980 ASM	22 717	60	2 028	9.27	43	67	55 471	41	45.31
1979 ASM	20 492	59	2 027	8.48	42	66	47 624	43	39.54
1978 ASM	18 499	61	2 017	7.82	44	71	37 438	49	30.55
1977 Census	17 362	61	2 065	7.21	46	72	38 054	46	30.40
	INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.								
1992 Census	36 601	67	2 032	16.86	59	77	84 703	43	62.26
1991 ASM	33 899	69	1 907	15.96	58	75	83 075	41	63.03
1990 ASM	34 545	70	1 998	16.01	59	77	79 931	43	57.17
1989 ASM	34 451	70	2 040	15.84	57	74	86 181	40	59.93
1988 ASM	34 341	71	2 088	15.42	57	76	82 433	42	55.40
1987 Census	31 923	70	1 996	15.05	54	73	79 153	40	56.41
1986 ASM	31 368	69	1 935	15.07	52	71	78 516	40	59.18
1985 ASM	30 452	69	1 918	14.82	52	72	72 007	42	54.06
1984 ASM	30 294	71	1 973	14.47	53	73	72 795	42	52.27
1983 ASM	26 895	65	1 849	13.75	53	74	57 973	46	48.32
1982 Census	24 862	66	1 821	12.82	55	76	49 201	51	41.05
1981 ASM	24 599	71	1 994	11.68	55	74	58 893	42	41.65
1980 ASM	21 978	71	1 973	10.56	54	74	51 059	43	36.49
1979 ASM	19 889	73	1 938	9.55	57	77	44 727	44	31.45
1978 ASM	18 543	73	2 003	8.69	60	78	41 821	44	28.61
1977 Census	17 214	74	1 992	7.96	58	78	38 361	45	26.18
	INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT								
1992 Census	29 062	69	1 958	13.18	46	65	84 121	35	62.08
1991 ASM	27 449	70	1 941	12.65	48	65	80 922	34	59.80
1990 ASM	27 049	72	1 956	12.31	48	64	85 898	31	61.26
1989 ASM	26 235	72	1 978	11.90	49	66	77 383	34	54.26
1988 ASM	25 712	70	2 018	11.38	48	67	75 184	34	53.31
1987 Census	24 847	69	1 923	11.20	47	67	65 079	38	49.33
1986 ASM	24 242	67	1 945	10.46	48	68	59 793	41	45.95
1985 ASM	24 313	67	1 884	11.34	47	66	62 617	39	49.66
1984 ASM	23 801	68	1 885	11.06	48	66	67 845	35	52.68
1983 ASM	22 291	65	1 837	10.69	49	70	55 198	40	46.14
1982 Census	21 513	65	1 806	10.61	49	68	54 119	40	45.78
1981 ASM	21 050	70	1 837	10.35	54	73	50 145	42	38.86
1980 ASM	19 317	72	1 870	9.36	52	72	45 405	43	33.88
1979 ASM	17 545	74	1 939	8.24	56	75	42 932	41	29.83
1978 ASM	16 381	74	1 911	7.78	53	73	39 639	41	28.13
1977 Census	15 018	73	1 899	7.19	53	72	36 972	41	26.57
	INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT								
1992 Census	22 940	80	1 833	10.71	60	71	86 831	26	59.32
1991 ASM	21 221	77	1 862	9.88	59	69	76 430	28	52.98
1990 ASM	21 494	75	1 967	9.82	61	72	81 898	26	55.74
1989 ASM	20 529	75	1 918	8.86	61	73	65 938	31	45.55
1988 ASM	20 575	76	1 915	9.55	62	73	73 414	28	50.29
1987 Census	20 104	77	1 853	9.69	59	70	76 944	26	54.12
1986 ASM	19 995	77	1 855	9.42	61	73	66 898	30	47.00
1985 ASM	18 717	77	1 936	8.50	60	72	59 283	32	39.70
1984 ASM	19 095	77	1 905	9.04	63	77	53 720	36	36.55
1983 ASM	17 957	74	1 914	8.26	60	73	56 750	32	40.11
1982 Census	17 871	70	1 984	8.08	58	72	53 118	34	38.43
1981 ASM	16 586	71	1 891	7.52	61	76	43 127	38	31.99
1980 ASM	15 438	70	1 888	7.09	58	72	45 852	34	34.47
1979 ASM	13 980	76	1 883	6.53	60	74	43 254	32	30.30
1978 ASM	12 539	76	1 831	5.91	59	74	36 913	34	26.59
1977 Census	11 405	75	1 884	5.14	60	74	32 395	35	22.97

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS														
United States	–	**79**	**48**	**27.1**	**1 106.5**	**15.0**	**30.1**	**553.2**	**2 952.8**	**2 690.9**	**5 842.6**	**312.0**	**22.9**	**1 973.7**
Alabama	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	8	6	3.3	136.9	1.5	3.6	47.7	386.2	208.7	651.0	(D)	(NA)	(D)
Connecticut	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	10	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	8	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
North Carolina	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	9	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.														
United States	–	**294**	**135**	**56.6**	**2 071.6**	**37.9**	**77.0**	**1 298.0**	**4 794.2**	**6 996.1**	**11 826.9**	**461.1**	**64.0**	**5 065.8**
Alabama	–	5	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	31	9	3.3	122.8	1.1	2.7	94.1	152.6	115.4	267.7	(D)	(NA)	(D)
Colorado	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	E4	24	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	23	15	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.8	983.5
Indiana	–	9	8	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	19	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	11	5	1.3	28.1	1.1	2.2	20.3	113.2	125.9	240.3	3.7	E	(D)
New York	–	12	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	10	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	19	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E1	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	9	6	1.5	32.4	1.3	2.8	25.5	114.9	210.4	320.0	(D)	G	(D)
Texas	E2	17	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Utah	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	23	18	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT														
United States	–	**1 631**	**465**	**61.4**	**1 784.4**	**42.5**	**83.2**	**1 096.3**	**5 165.0**	**4 435.8**	**9 617.0**	**196.2**	**57.0**	**3 709.5**
Alabama	–	26	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	E1	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	E1	38	11	.6	13.0	.4	.7	6.8	29.6	32.8	61.9	(D)	F	(D)
California	E2	139	26	1.9	45.2	1.3	2.6	25.3	92.3	90.4	183.8	(D)	G	(D)
Colorado	–	21	7	.7	16.1	.5	1.1	11.3	34.5	40.6	79.4	(D)	E	(D)
Florida	E1	41	7	.8	17.4	.6	1.2	10.6	40.0	46.2	90.2	3.6	.7	33.8
Georgia	E1	59	21	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Idaho	–	37	11	.8	16.3	.5	1.1	8.9	32.8	31.4	64.0	(D)	F	(D)
Illinois	–	97	32	8.6	322.4	6.2	11.9	219.5	1 092.9	766.1	1 867.6	43.5	9.1	852.2
Indiana	E1	54	23	1.9	49.2	1.4	2.6	28.7	120.2	122.2	245.6	(D)	G	(D)
Iowa	–	140	58	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	E1	79	28	4.0	90.5	3.0	5.5	56.7	173.4	206.9	384.3	(D)	3.9	146.3
Kentucky	E2	16	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Louisiana	E4	16	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	34	7	.5	16.7	.3	.7	8.3	43.4	38.9	80.1	(D)	F	(D)
Minnesota	E1	91	30	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	20	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	24.6
Missouri	–	39	10	1.2	31.8	.8	1.5	17.2	132.3	88.7	200.5	(D)	G	(D)
Nebraska	–	90	29	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.1	243.0
New York	E1	31	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT—Con.														
North Carolina	–	24	6	1.2	25.6	.9	1.8	14.7	48.6	58.6	106.4	1.5	F	(D)
North Dakota	–	45	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	48	14	1.6	39.3	1.0	1.9	21.2	96.0	81.0	188.0	2.2	1.7	74.9
Oklahoma	E2	36	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	E4	28	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	41	7	1.6	46.4	1.2	2.5	33.8	144.7	127.9	269.9	2.0	G	(D)
South Carolina	E1	5	2	.2	4.4	.2	.3	2.1	10.7	7.0	17.5	.1	(NA)	(D)
South Dakota	–	25	7	.5	11.0	.4	.8	7.2	27.6	22.7	51.6	.8	.4	17.9
Tennessee	E2	18	7	.4	7.6	.2	.4	3.6	19.2	18.9	37.7	.4	E	(D)
Texas	E1	91	14	1.2	27.0	.8	1.7	14.7	55.5	57.3	116.2	(D)	G	(D)
Virginia	E4	17	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E1	33	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	93	36	6.0	165.3	4.1	8.1	98.7	619.9	571.2	1 204.0	17.2	5.2	393.1
INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT														
United States	**–**	**144**	**73**	**24.8**	**568.9**	**19.8**	**36.3**	**388.9**	**2 153.4**	**3 080.1**	**5 168.7**	**125.1**	**24.9**	**1 915.9**
Arizona	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	7	2	.2	6.6	.2	.3	3.0	24.2	26.8	50.4	(D)	G	(D)
Georgia	–	9	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	E3	9	3	.7	14.9	.5	.8	7.6	45.8	63.9	110.5	.9	.8	37.2
Indiana	–	9	4	.6	12.3	.5	.9	8.9	50.7	49.1	101.9	(D)	F	(D)
Iowa	E3	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	4	2	.3	6.5	.2	.4	3.6	17.7	14.2	31.5	(D)	.3	16.5
Kentucky	E2	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	10	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	103.3
Missouri	–	7	2	.1	2.4	.1	.2	1.4	7.1	8.3	15.0	(D)	.2	7.5
New York	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	6	4	1.4	32.4	.9	1.5	15.9	175.3	119.7	292.1	(D)	E	(D)
Ohio	–	12	8	1.5	33.6	1.3	2.6	28.3	163.4	242.4	399.9	1.4	1.7	105.1
Pennsylvania	–	7	3	.4	9.1	.3	.6	6.5	19.4	45.4	65.0	1.8	E	(D)
South Carolina	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	8	7	5.4	120.8	4.8	9.4	101.2	384.8	765.7	1 121.2	(D)	(NA)	(D)
Wisconsin	–	10	8	3.0	104.4	1.9	3.4	57.7	462.8	454.2	916.6	20.7	4.2	608.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Turbines and turbine generator sets (SIC 3511)	Internal combustion engines, n.e.c. (SIC 3519)	Farm machinery and equipment (SIC 3523)	Lawn and garden equipment (SIC 3524)
Companies	number	64	250	1 578	127
All establishments	number	79	294	1 631	144
With 1 to 19 employees	number	31	159	1 166	71
With 20 to 99 employees	number	18	57	347	34
With 100 employees or more	number	30	78	118	39
Employment and labor costs:					
Employees	1,000	27.1	56.6	61.4	24.8
Compensation, total	mil dol	1 410.1	2 712.2	2 413.2	727.1
Annual payroll	mil dol	1 106.5	2 071.6	1 784.4	568.9
Fringe benefits	mil dol	303.6	640.6	628.8	158.3
Social Security and other legally required payments	mil dol	101.1	211.2	204.8	70.1
Employer voluntary payments	mil dol	202.5	429.4	423.9	88.2
Production workers:					
Average for year	1,000	15.0	37.9	42.5	19.8
March	1,000	15.2	38.0	43.7	22.4
May	1,000	15.0	37.6	43.4	21.1
August	1,000	14.9	37.8	41.8	16.1
November	1,000	14.9	38.4	41.3	19.7
Hours	millions	30.1	77.0	83.2	36.3
Wages	mil dol	553.2	1 298.0	1 096.3	388.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Turbines and turbine generator sets (SIC 3511)	Internal combustion engines, n.e.c. (SIC 3519)	Farm machinery and equipment (SIC 3523)	Lawn and garden equipment (SIC 3524)
Cost of materials[1] ---- mil dol	2 690.9	6 996.1	4 435.8	3 080.1
Materials, parts, containers, etc., consumed[2] ---- mil dol	2 464.3	6 478.4	3 975.4	2 889.8
Resales ---- mil dol	85.3	317.7	317.9	150.4
Fuels ---- mil dol	10.5	28.8	30.6	9.9
Purchased electricity ---- mil dol	37.6	93.4	73.0	22.1
Contract work ---- mil dol	93.2	77.8	38.9	7.9
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	597.5	1 980.3	1 596.9	414.7
Generated less sold ---- mil kWh	(D)	(D)	(D)	(D)
Total value of shipments ---- mil dol	5 842.6	11 826.9	9 617.0	5 168.7
Value added ---- mil dol	2 952.8	4 794.2	5 165.0	2 153.4
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	1 949.0	1 395.6	1 563.2	758.4
Finished goods ---- mil dol	182.7	501.5	656.8	424.0
Work in process ---- mil dol	1 501.8	608.8	448.2	128.1
Materials and supplies ---- mil dol	264.5	285.2	458.2	206.3
End of 1992 ---- mil dol	1 699.4	1 365.5	1 546.0	853.7
Finished goods ---- mil dol	188.4	480.1	660.0	512.2
Work in process ---- mil dol	1 297.2	593.7	428.8	104.6
Materials and supplies ---- mil dol	213.8	291.7	457.3	236.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Turbines and turbine generator sets (SIC 3511)	Internal combustion engines, n.e.c. (SIC 3519)	Farm machinery and equipment (SIC 3523)	Lawn and garden equipment (SIC 3524)
Gross book value of depreciable assets:				
Total:				
Beginning of year	2 135.1	5 566.1	3 152.5	1 049.6
New capital expenditures[1]	312.0	461.1	196.2	125.1
Used capital expenditures	17.9	13.3	16.7	14.7
Retirements	49.9	293.3	83.4	65.9
End of year	2 415.1	5 747.2	3 282.0	1 123.4
Buildings and other structures:				
Beginning of year	475.0	1 257.7	681.4	263.4
New capital expenditures	50.0	58.0	28.6	13.3
Used capital expenditures	(D)	1.7	5.0	.1
Retirements	(D)	10.7	5.7	4.9
End of year	534.0	1 306.7	709.3	271.8
Machinery and equipment:				
Beginning of year	1 660.1	4 308.4	2 471.1	786.2
New capital expenditures[1]	262.0	403.1	167.6	111.8
Used capital expenditures	(D)	11.6	11.7	14.7
Retirements	(D)	282.6	77.7	61.0
End of year	1 881.1	4 440.5	2 572.7	851.6
Depreciation charges during 1992:				
Total	169.5	432.5	198.0	88.1
Buildings and other structures	33.3	53.0	30.1	9.7
Machinery and equipment	136.2	379.5	167.9	78.4
Rental payments:				
Total	26.2	90.5	54.8	19.8
Buildings and other structures	19.1	56.2	30.3	10.0
Machinery and equipment	7.1	34.2	24.5	9.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Turbines and turbine generator sets (SIC 3511)		Internal combustion engines, n.e.c. (SIC 3519)		Farm machinery and equipment (SIC 3523)		Lawn and garden equipment (SIC 3524)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	12.6	(X)	21.9	(X)	16.1	(X)	7.8	(X)
Response coverage ratio (percent)[2]	95.3	(X)	89.9	(X)	83.5	(X)	88.2	(X)
Machinery	26.8	(X)	80.7	(X)	41.8	(X)	28.5	(X)
Response coverage ratio (percent)[2]	91.9	(X)	88.3	(X)	83.2	(X)	88.2	(X)
Other purchased services:								
Communications	10.0	(X)	12.7	(X)	15.8	(X)	6.3	(X)
Response coverage ratio (percent)[2]	95.3	(X)	89.5	(X)	84.2	(X)	91.7	(X)
Legal	7.3	(X)	7.6	(X)	19.9	(X)	4.1	(X)
Response coverage ratio (percent)[2]	93.1	(X)	72.1	(X)	85.0	(X)	81.8	(X)
Accounting and bookkeeping	.7	(X)	1.9	(X)	6.5	(X)	.7	(X)
Response coverage ratio (percent)[2]	86.1	(X)	69.7	(X)	84.6	(X)	81.8	(X)
Advertising	4.9	(X)	12.2	(X)	26.3	(X)	48.8	(X)
Response coverage ratio (percent)[2]	89.7	(X)	69.2	(X)	83.3	(X)	91.7	(X)
Software and other data processing	19.8	(X)	30.4	(X)	17.9	(X)	2.2	(X)
Response coverage ratio (percent)[2]	91.9	(X)	87.4	(X)	82.3	(X)	90.9	(X)
Refuse removal, including hazardous waste	6.3	(X)	12.2	(X)	6.2	(X)	4.2	(X)
Response coverage ratio (percent)[2]	94.6	(X)	89.3	(X)	83.5	(X)	91.7	(X)
New machinery and equipment expenditures	262.0	(X)	403.1	(X)	167.6	(X)	111.8	(X)
Automobiles, trucks, etc., for highway use	17.1	1	3.4	2	6.4	15	.9	2
Computers and peripheral data processing equipment	14.4	1	29.5	3	13.5	4	5.6	1
All other	230.4	1	370.2	1	147.7	1	105.3	1
Adjustment ratio[3]	1.1	(X)	1.0	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	2 464.3	(X)	6 478.4	(X)	3 975.4	(X)	2 889.8	(X)
Materials purchased or transferred from foreign sources[4]	47.8	1	1 044.8	2	221.9	6	189.4	1
Materials purchased or transferred from domestic sources	2 416.5	1	5 433.7	1	3 753.5	1	2 700.4	1
Adjustment ratio[3]	1.7	(X)	1.4	(X)	1.4	(X)	1.3	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS												
Total	**–**	**79**	**27.1**	**1 106.5**	**15.0**	**30.1**	**553.2**	**2 952.8**	**2 690.9**	**5 842.6**	**312.0**	**1 699.4**
Establishments with an average of–												
1 to 4 employees	E7	13	(Z)	.8	(Z)	(Z)	.3	1.8	1.3	2.9	.1	1.1
5 to 9 employees	E6	12	.1	3.1	.1	.1	1.6	6.6	5.0	11.2	.4	3.2
10 to 19 employees	–	6	.1	1.9	.1	.1	1.3	3.5	2.0	5.4	.2	1.5
20 to 49 employees	E1	8	.2	7.7	.2	.3	4.8	13.0	9.8	23.4	.4	4.5
50 to 99 employees	–	10	.7	24.4	.5	1.0	13.5	49.9	33.1	86.3	2.4	15.7
100 to 249 employees	–	11	1.7	61.9	.9	1.8	27.6	134.0	90.3	231.6	6.8	38.3
250 to 499 employees	–	7	2.6	105.3	1.9	4.1	67.4	292.2	154.3	455.8	69.0	90.5
500 to 999 employees	–	6	4.8	203.8	2.8	5.8	104.8	626.2	346.0	1 021.0	(D)	193.6
1,000 to 2,499 employees	–	4	16.9	697.6	8.6	16.8	331.9	1 825.5	2 049.0	4 005.0	232.6	1 351.0
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.												
Total	**–**	**294**	**56.6**	**2 071.6**	**37.9**	**77.0**	**1 298.0**	**4 794.2**	**6 996.1**	**11 826.9**	**461.1**	**1 365.5**
Establishments with an average of–												
1 to 4 employees	E8	82	.1	3.6	.1	.2	2.4	8.7	10.8	19.3	.8	2.3
5 to 9 employees	E6	42	.3	6.3	.2	.4	4.0	13.7	16.5	30.1	1.1	4.0
10 to 19 employees	E2	35	.5	12.2	.3	.7	6.9	29.4	34.1	63.4	2.0	11.6
20 to 49 employees	–	33	1.0	23.8	.7	1.4	14.0	43.6	62.5	107.1	2.9	20.2
50 to 99 employees	–	24	1.7	49.8	1.0	2.2	24.2	123.0	126.3	244.3	7.4	62.5
100 to 249 employees	–	29	4.5	119.5	3.3	7.0	76.7	301.5	354.2	658.9	26.1	78.2
250 to 499 employees	–	18	6.5	208.2	4.7	10.0	137.2	541.7	937.6	1 482.8	17.7	204.8
500 to 999 employees	–	19	14.0	530.5	10.0	19.8	328.1	1 379.8	1 735.8	3 139.3	115.6	465.0
1,000 to 2,499 employees	–	8	10.2	371.8	6.2	13.5	272.6	621.9	1 127.5	1 744.9	99.0	193.2
2,500 employees or more	–	4	17.8	745.9	11.4	21.9	431.9	1 731.0	2 590.9	4 336.7	188.5	323.7
Covered by administrative records[2]	E9	100	.3	7.6	.2	.5	4.9	14.1	19.4	33.5	1.5	4.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT												
Total	**–**	**1 631**	**61.4**	**1 784.4**	**42.5**	**83.2**	**1 096.3**	**5 165.0**	**4 435.8**	**9 617.0**	**196.2**	**1 546.0**
Establishments with an average of—												
1 to 4 employees	E9	597	.9	20.9	.7	1.3	13.6	60.8	56.2	117.1	2.2	17.9
5 to 9 employees	E6	296	1.9	37.4	1.4	2.8	24.0	97.2	91.5	188.4	3.3	29.6
10 to 19 employees	E2	273	3.7	75.5	2.6	5.0	44.3	177.5	161.2	337.8	6.0	68.4
20 to 49 employees	–	228	7.0	151.9	4.9	9.9	87.9	335.9	330.0	666.3	11.4	140.3
50 to 99 employees	–	119	8.3	199.1	5.6	11.1	108.4	422.6	460.8	886.9	15.9	202.4
100 to 249 employees	E1	82	12.1	301.9	8.2	17.0	171.2	645.9	683.4	1 346.0	25.1	351.8
250 to 499 employees	–	17	5.8	147.6	3.9	7.8	85.2	490.0	459.2	956.4	12.4	128.3
500 to 999 employees	–	13	9.3	282.6	6.5	12.2	174.6	912.3	725.4	1 627.9	120.0	294.7
1,000 to 2,499 employees	–	4	12.3	567.7	8.7	16.0	387.0	2 022.8	1 468.0	3 490.3	(D)	312.7
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	779	2.4	42.6	1.8	3.5	27.9	116.9	107.9	224.9	4.3	34.0
INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT												
Total	**–**	**144**	**24.8**	**568.9**	**19.8**	**36.3**	**388.9**	**2 153.4**	**3 080.1**	**5 168.7**	**125.1**	**853.7**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	1.2	(Z)	.1	.8	3.9	5.9	9.8	.2	1.8
5 to 9 employees	E9	15	.1	2.3	.1	.2	1.5	8.9	13.7	22.6	.4	3.8
10 to 19 employees	E5	18	.2	4.5	.2	.3	2.8	14.7	20.8	35.7	.5	6.8
20 to 49 employees	E1	21	.7	17.8	.5	1.0	10.0	48.6	87.7	136.3	3.5	24.3
50 to 99 employees	–	13	1.0	22.4	.7	1.4	12.7	72.2	92.4	163.5	3.6	36.2
100 to 249 employees	–	15	2.6	59.1	2.1	3.9	37.8	192.7	291.7	472.7	9.3	90.0
250 to 499 employees	–	11	4.0	95.7	2.9	5.2	58.5	293.3	430.8	726.3	16.8	133.4
500 to 999 employees	–	8	6.0	124.7	4.9	8.6	88.9	535.9	799.8	1 325.1	17.0	196.3
1,000 to 2,499 employees	–	4	10.2	241.3	8.5	15.7	175.9	983.2	1 337.2	2 276.7	73.8	361.1
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	41	.1	1.5	.1	.1	1.0	4.8	7.2	11.9	.2	2.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3511	**Turbines and turbine generator sets:**										
	All establishments in industry	79	27.1	1 106.5	15.0	30.1	553.2	2 952.8	2 690.9	5 842.6	312.0
3519	**Internal combustion engines, n.e.c.:**										
	All establishments in industry	294	56.6	2 071.6	37.9	77.0	1 298.0	4 794.2	6 996.1	11 826.9	461.1
	Establishments with this product class primary:										
35191	Gasoline and gas-gasoline engines (except aircraft, automobile, highway truck, bus, tank, and outboard marine)	13	10.1	314.0	8.6	15.0	245.6	694.4	888.1	1 564.9	68.0
35193	Diesel, semidiesel, and dual-fuel engines (except automobile, highway truck, bus, and tank)	6	2.4	101.6	1.3	2.6	48.9	306.7	465.0	793.2	(D)
35194	Diesel, semidiesel, and dual-fuel engines for automobiles, highway trucks, and buses	12	13.3	589.6	9.3	21.0	392.3	1 583.5	2 588.0	4 200.9	154.6
35195	Outboard motors (internal combustion)	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35196	Piston-type natural gas engines, including LPG engines (excluding gas turbines)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35197	Tank (except gas turbine) and converted internal combustion engines	8	1.6	55.4	1.0	2.1	24.6	113.0	349.2	452.3	10.8
35199	Parts and accessories for internal combustion engines, except aircraft and gasoline automotive engines and gas turbines	102	23.5	826.2	15.1	31.1	448.5	1 849.3	2 069.7	3 928.3	188.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3523	**Farm machinery and equipment:**										
	All establishments in industry	1 631	61.4	1 784.4	42.5	83.2	1 096.3	5 165.0	4 435.8	9 617.0	196.2
	Establishments with this product class primary:										
35231	Farm-type (power take off hp) wheel tractors (2- and 4-wheel drive) (sold with or without attachments)	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35232	Farm dairy equipment, sprayers and dusters (except aerial types), farm elevators, and farm blowers	58	3.3	80.6	2.0	4.1	38.2	171.5	192.9	362.3	5.4
35233	Planting, seeding, and fertilizing machinery, excluding turf machinery	50	3.2	77.7	2.3	4.3	43.2	148.4	144.3	296.6	7.0
35235	Harvesting machinery, except hay and straw	59	9.5	379.2	6.9	12.6	260.9	1 420.3	888.5	2 299.2	48.4
35236	Haying machinery	11	3.6	126.7	2.6	4.9	84.5	308.5	288.7	594.4	10.9
35239	Parts for farm machinery, for sale separately	104	7.9	207.1	5.3	11.4	123.7	476.4	424.0	914.6	25.2
3523C	Plows, including plowshares (primary tillage), harrows, rollers, pulverizers, and cultivators and weeders	46	2.6	60.9	1.7	3.4	32.3	99.6	121.8	229.8	3.2
3523E	All other farm machinery and equipment (excluding parts)	215	13.9	338.0	9.6	18.9	183.1	720.3	861.3	1 587.2	23.0
3523F	Commercial turf and grounds care equipment	49	4.7	128.1	3.0	6.2	75.2	406.9	357.1	769.3	9.1
3524	**Lawn and garden equipment:**										
	All establishments in industry	144	24.8	568.9	19.8	36.3	388.9	2 153.4	3 080.1	5 168.7	125.1
	Establishments with this product class primary:										
35241	Consumer nonriding lawn, garden, and snow equipment	30	9.5	205.4	7.4	13.2	128.8	860.1	1 177.7	2 010.7	48.8
35244	Consumer riding lawn, garden, and snow equipment	16	12.3	299.6	10.2	18.5	219.2	1 122.0	1 676.1	2 763.9	63.9
35246	Parts and attachments for consumer lawn, garden, and snow equipment	21	2.3	51.5	1.8	3.6	32.7	131.4	166.6	294.6	10.7

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS			
Total value of shipments	5 842.6	3 447.8	3 676.3
Primary products value of shipments	4 799.7	2 645.3	2 948.1
Secondary products value of shipments	641.1	549.5	186.1
Total miscellaneous receipts	401.8	253.1	542.1
Value of resales	124.8	27.0	27.4
Contract receipts	1.9	3.5	(D)
Other miscellaneous receipts	275.1	222.6	(D)
Sales of scrap and refuse	1.5	(D)	(D)
Receipts for installation (or construction) of products of this establishment	(D)	(D)	(D)
Receipts for maintenance contracts	(D)	(D)	(NA)
Receipts for research and development	(D)	(D)	36.3
Receipts for repair work	129.4	(D)	195.8
Other miscellaneous receipts	(D)	(D)	207.2
Other miscellaneous receipts, n.s.k.	(Z)	.2	(D)
Primary products specialization ratio	88	83	94
Value of primary products shipments made in all industries	5 998.5	3 196.0	3 662.3
Value of primary products shipments made in this industry	4 799.7	2 645.3	2 948.1
Value of primary products shipments made in other industries	1 198.8	550.8	714.3
Coverage ratio	80	83	80
INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.			
Total value of shipments	11 826.9	11 122.6	9 363.4
Primary products value of shipments	10 516.0	9 924.0	7 818.0
Secondary products value of shipments	811.8	635.8	973.1
Total miscellaneous receipts	499.1	562.9	572.3
Value of resales	397.1	500.0	460.3
Contract receipts	21.4	11.3	(D)
Other miscellaneous receipts	80.5	51.6	(D)
Sales of scrap and refuse	15.2	(D)	8.7
Receipts for installation (or construction) of products of this establishment	(D)	(D)	(D)
Receipts for maintenance contracts	–	–	(NA)
Receipts for research and development	2.3	.2	(D)
Receipts for repair work	14.5	7.6	12.0
Other miscellaneous receipts	(D)	(D)	3.6
Other miscellaneous receipts, n.s.k.	.2	.3	2.1
Primary products specialization ratio	93	94	89

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.—Con.			
Value of primary products shipments made in all industries	11 633.8	10 908.7	8 972.4
Value of primary products shipments made in this industry	10 516.0	9 924.0	7 818.0
Value of primary products shipments made in other industries	1 117.8	984.7	1 154.4
Coverage ratio	90	91	87
INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT			
Total value of shipments	9 617.0	6 879.9	10 743.0
Primary products value of shipments	8 488.1	5 840.4	9 835.3
Secondary products value of shipments	548.0	682.2	598.2
Total miscellaneous receipts	581.0	357.3	309.5
Value of resales	509.7	322.9	245.2
Contract receipts	23.6	11.3	29.2
Other miscellaneous receipts	47.7	23.1	35.1
Sales of scrap and refuse	6.1	(D)	7.1
Receipts for research and development	1.9	(D)	(D)
Other miscellaneous receipts	36.9	17.1	23.6
Other miscellaneous receipts, n.s.k.	2.8	1.1	(D)
Primary products specialization ratio	94	90	94
Value of primary products shipments made in all industries	8 924.6	6 384.7	10 370.0
Value of primary products shipments made in this industry	8 488.1	5 840.4	9 835.3
Value of primary products shipments made in other industries	436.5	544.3	534.7
Coverage ratio	95	91	95
INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT			
Total value of shipments	5 168.7	4 594.4	2 365.2
Primary products value of shipments	4 037.5	3 820.5	2 096.9
Secondary products value of shipments	838.4	491.9	197.0
Total miscellaneous receipts	292.8	282.0	71.2
Value of resales	272.4	272.2	63.0
Contract receipts	(D)	3.5	4.9
Other miscellaneous receipts	(D)	6.3	3.3
Sales of scrap and refuse	5.6	(D)	(D)
Receipts for research and development	(D)	(Z)	(D)
Other miscellaneous receipts	(D)	(D)	2.3
Other miscellaneous receipts, n.s.k.	–	.1	–
Primary products specialization ratio	83	89	91
Value of primary products shipments made in all industries	4 348.6	4 061.0	2 385.2
Value of primary products shipments made in this industry	4 037.5	3 820.5	2 096.9
Value of primary products shipments made in other industries	311.1	240.5	288.3
Coverage ratio	93	94	88

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3511– —	**TURBINES, TURBINE GENERATORS, AND TURBINE GENERATOR SETS**						
	Total	**(NA)**	**(X)**	**5 998.5**	**(NA)**	**(X)**	**3 196.0**
35110	Turbine generator sets, turbines, turbine generators, and parts	(NA)	(X)	5 998.5	(NA)	(X)	3 196.0
	Turbine generator sets and parts:						
35110 05	Turbine generator sets number	10	(S)	1 838.8	(NA)	(NA)	(3)
35110 09	Parts and accessories (sold separately)	15	(X)	(D)	(NA)	(X)	(3)
	Steam, gas, hydraulic, and wind turbines and parts:						
35110 11	Steam turbines and other vapor turbines number	8	868	242.7	(NA)	1 145	215.5
	Kilowatt or horsepower capacity (rated or normal) for all vapor turbines:						
35110 21	Less than 373 kW (500 hp) number	(NA)	(D)	(X)			
35110 22	373 kW (500 hp) to 745 kW (999 hp) number	(NA)	(D)	(X)	(NA)	1 109	(X)
35110 23	746 kW (1,000 hp) to 7,459 kW (9,999 hp) number	(NA)	(D)	(X)			
35110 24	7,460 kW (10,000 hp) or more number	(NA)	(D)	(X)	(NA)	36	(X)
35110 61	Hydraulic turbines (all sizes) number	1	(D)	(D)	1	(D)	(4)
35110 75	Gas turbines, except aircraft (all sizes) number	18	(S)	1 965.1	(NA)	(S)	905.9
35110 79	Wind turbines number	4	(D)	(D)	1	(D)	(4)
	Parts and accessories (sold separately):						
35110 72	For steam and other vapor turbines	16	(X)	423.4	12	(X)	(4)
35110 71	For hydraulic turbines	(NA)	(X)	–	2	(X)	(4)
35110 81	For gas turbines, except aircraft	34	(X)	426.4	13	(X)	134.8
35110 83	For wind turbines	1	(X)	(D)	3	(X)	4390.7
	Turbine generators and parts:						
35110 91	Turbine generators number	6	(S)	162.7	(NA)	(NA)	(3)
35110 95	Parts and accessories (sold separately)	13	(X)	(D)	(NA)	(X)	31 502.1
35110 00	Turbines, turbine generators, and turbine generator sets, n.s.k.	(NA)	(X)	38.4	(NA)	(X)	46.9
35110 02	Turbines, turbine generators, and turbine generator sets, n.s.k.[5]	(NA)	(X)	–	(NA)	(X)	–
3519– —	**INTERNAL COMBUSTION ENGINES, N.E.C.**						
	Total	**(NA)**	**(X)**	**11 633.8**	**(NA)**	**(X)**	**10 908.7**
35191	Gasoline and gas-gasoline engines (except aircraft, automobile, highway truck, bus, tank, and outboard marine)	(NA)	(X)	1 550.4	(NA)	(X)	1 474.3
35191 00	Gasoline and gas-gasoline engines (except aircraft, automobile, highway truck, bus, tank, and outboard marine)[6]	17	(X)	1 550.4	15	(X)	1 474.3
35193	Diesel, semidiesel, and dual-fuel engines (except automobile, highway truck, bus, and tank)	(NA)	(X)	1 487.4	(NA)	(X)	1 198.3
35193 00	Diesel, semidiesel, and dual-fuel engines (except automobile, highway truck, bus, and tank)[6]	18	(X)	1 487.4	18	(X)	1 198.3
35194	Diesel, semidiesel, and dual-fuel engines for automobiles, highway trucks, and buses	(NA)	(X)	3 165.7	(NA)	(X)	2 744.3
35194 00	Diesel, semidiesel, and dual-fuel engines for automobiles, highway trucks, and buses[6]	12	(X)	3 165.7	12	(X)	2 744.3
35195	Outboard motors (internal combustion)	(NA)	(X)	(D)	(NA)	(X)	(7)
35195 00	Outboard motors (internal combustion) thousands	5	(D)	(D)	4	(D)	(7)
35196	Piston-type natural gas engines, including LPG engines (excluding gas turbines)	(NA)	(X)	175.5	(NA)	(X)	66.0
35196 00	Piston-type natural gas engines, including LPG engines (excluding gas turbines)[6]	6	(X)	175.5	9	(X)	66.0
35197	Tank (except gas turbine) and converted internal combustion engines	(NA)	(X)	(D)	(NA)	(X)	71 545.6
35197 21	Tank engines, except gas turbines thousands	1	(D)	(D)			
35197 51	Converted engines (basic engines, short blocks purchased or intracompany transfer and converted to marine or other uses) thousands	8	**88.9	612.4	(NA)	(S)	71 545.6
35197 00	Tank (except gas turbine) and converted internal combustion engines, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
35199	Parts and accessories for internal combustion engines, except aircraft and gasoline automotive engines and gas turbines	(NA)	(X)	3 852.3	(NA)	(X)	3 789.9
35199 01	Connecting rods	18	(X)	47.2	11	(X)	42.3
35199 08	Crankshafts, engine	25	(X)	165.0	17	(X)	153.9
35199 09	Camshafts, engine	18	(X)	93.4	11	(X)	65.7
35199 21	Flywheels	15	(X)	29.6	12	(X)	23.3
	Engine bearings (halves):						
35199 24	Main (crankshaft)	4	(X)	(D)	6	(X)	14.7
35199 25	Connecting rod	6	(X)	22.5	4	(X)	2.3
35199 33	Other (camshaft, balance shaft, etc.)	6	(X)	36.7	4	(X)	7.1
	Engine pumps, new:						
35199 27	Oil	12	(X)	19.1			
35199 31	Fuel	7	(X)	(D)	(NA)	(X)	84.0
35199 32	Water	9	(X)	30.5	9	(X)	14.8
35199 35	Engine blocks	17	(X)	118.2	(NA)	(X)	99.1
35199 39	Cylinder liners (sleeves)	20	(X)	158.6	(NA)	(X)	79.9
35199 49	Cylinder heads	21	(X)	127.7	(NA)	(X)	134.7
35199 63	Intake manifolds and exhaust manifolds	16	(X)	50.9	(NA)	(X)	50.9
35199 67	Valve guides, seats, and tappets	12	(X)	15.4	(NA)	(X)	4.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3519– —	**INTERNAL COMBUSTION ENGINES, N.E.C.—Con.**						
35199	Parts and accessories for internal combustion engines, except aircraft and gasoline automotive engines and gas turbines—Con.						
35199 71	Rocker arms and parts	13	(X)	25.0	(NA)	(X)	20.4
35199 75	Fuel injection systems (multipoint)	18	(X)	458.0	(NA)	(X)	376.8
35199 83	Governors, engine speed	12	(X)	65.0	(NA)	(X)	82.2
35199 87	Radiators, stationary engine	7	(X)	30.5	(NA)	(X)	13.6
35199 91	Superchargers, including turbochargers	17	(X)	153.5	(NA)	(X)	352.4
35199 99	Other parts and accessories	81	(X)	1 004.9	(NA)	(X)	870.2
35199 00	Parts and accessories for internal combustion engines, except aircraft and gas automotive engines and turbines, n.s.k.	(NA)	(X)	1 038.5	(NA)	(X)	1 297.2
35190	Internal combustion engines, n.e.c., n.s.k.	(NA)	(X)	182.3	(NA)	(X)	90.3
35190 00	Internal combustion engines, n.e.c., n.s.k.[8]	(NA)	(X)	147.8	(NA)	(X)	24.7
35190 02	Internal combustion engines, n.e.c., n.s.k.[9]	(NA)	(X)	34.5	(NA)	(X)	65.6

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3523– —	**FARM MACHINERY AND EQUIPMENT**				
	Total	**(NA)**	**8 924.6**	**(NA)**	**6 384.7**
35231	Farm-type (power take off hp) wheel tractors (2- and 4-wheel drive) (sold with or without attachments)	(NA)	([10])	(NA)	751.2
35231 00	Farm-type (power take off hp) wheel tractors (2- and 4-wheel drive) (sold with or without attachments)[6]	11	([11])	12	751.2
35232	Farm dairy equipment, sprayers and dusters (except aerial types), farm elevators, and farm blowers	(NA)	382.1	(NA)	263.8
35232 00	Farm dairy equipment, sprayers and dusters (except aerial types), farm elevators, farm blowers, and attachments[6]	99	382.1	78	263.8
35233	Planting, seeding, and fertilizing machinery, excluding turf machinery	(NA)	520.8	(NA)	313.2
35233 00	Planting, seeding, and fertilizing machinery, and attachments[6]	103	520.8	87	313.2
35235	Harvesting machinery, except hay and straw	(NA)	1 564.5	(NA)	1 014.8
35235 00	Harvesting machinery (except hay and straw) and attachments[6]	87	1 564.5	58	1 014.8
35236	Haying machinery	(NA)	434.8	(NA)	326.6
35236 00	Haying machinery and attachments[6]	33	434.8	28	326.6
3523C	Plows, including plowshares (primary tillage), harrows, rollers, pulverizers, and cultivators and weeders	(NA)	267.7	(NA)	189.6
3523C 00	Plows (including plowshares), harrows, rollers, pulverizers, and cultivators and weeders, and attachments[6]	100	267.7	62	189.6
3523E	All other farm machinery and equipment (excluding parts)	(NA)	[10]2 821.1	(NA)	909.9
3523E 00	All other farm machinery and equipment (excluding parts), but including attachments[6]	307	[11]2 821.1	217	909.9
35239	Parts for farm machinery, for sale separately	(NA)	1 473.9	(NA)	1 282.5
	Parts for farm machinery (except operator cabs):				
35239 26	Parts for wheel tractors (farm-type)[6]	38	372.5	24	218.3
35239 31	Parts (except for wheel tractors)[6]	269	991.5	220	1 019.3
35239 53	Operator cabs for farm equipment[6]	9	42.0	6	4.5
35239 00	Parts for farm machinery, for sale separately, n.s.k.	(NA)	67.9	(NA)	40.5
3523F	Commercial turf and grounds care equipment	(NA)	834.0	(NA)	516.9
3523F 00	Commercial turf and grounds care equipment, including parts and attachments[6]	88	834.0	60	516.9
35230	Farm machinery and equipment, n.s.k.	(NA)	625.7	(NA)	816.2
35230 00	Farm machinery and equipment, n.s.k.[12]	(NA)	396.9	(NA)	340.1
35230 02	Farm machinery and equipment, n.s.k.[13]	(NA)	228.8	(NA)	476.1
3524– —	**LAWN AND GARDEN EQUIPMENT**				
	Total	**(NA)**	**4 348.6**	**(NA)**	**4 061.0**
35241	Consumer nonriding lawn, garden, and snow equipment	(NA)	1 946.0	(NA)	1 697.0
35241 00	Consumer nonriding lawn, garden, and snow equipment[6]	45	1 946.0	49	1 697.0
35244	Consumer riding lawn, garden, and snow equipment	(NA)	1 645.0	(NA)	1 567.4
35244 00	Consumer riding lawn, garden, and snow equipment[6]	24	1 645.0	23	1 567.4
35246	Parts and attachments for consumer lawn, garden, and snow equipment	(NA)	637.2	(NA)	699.5
35246 00	Parts and attachments for consumer lawn, garden, and snow equipment[6]	63	637.2	64	699.5
35240	Lawn and garden equipment, n.s.k.	(NA)	120.5	(NA)	97.2
35240 00	Lawn and garden equipment, n.s.k.[14]	(NA)	108.5	(NA)	26.7
35240 02	Lawn and garden equipment, n.s.k.[15]	(NA)	11.9	(NA)	70.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, product codes 35110 05, 35110 09, 35110 91, and 35110 95 were combined to avoid disclosing data for individual companies.
[4]For 1987, product codes 35110 61, 35110 79, 35110 72, 35110 71, and 35110 83 were combined to avoid disclosing data for individual companies.
[5]There were no administrative-record cases for this industry.
[6]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[7]For 1987, product codes 35195 00, 35197 21, and 35197 51 were combined to avoid disclosing data for individual companies.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.
[10]For 1992, product classes 35231 and 3523E are combined to avoid disclosing data for individual companies.
[11]For 1992, product codes 35231 00 and 3523E 00 are combined to avoid disclosing data for individual companies.
[12]Typically for establishments with 5 employees or more.
[13]Typically for establishments with less than 5 employees.
[14]Typically for establishments with 20 employees or more.
[15]Typically for establishments with less than 20 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35191, GASOLINE AND GAS-GASOLINE ENGINES (EXCEPT AIRCRAFT, AUTOMOBILE, HIGHWAY TRUCK, BUS, TANK, AND OUTBOARD MARINE)		
United States	**1 550.4**	**1 474.3**
Wisconsin	996.9	1 076.4
35193, DIESEL, SEMIDIESEL, AND DUAL-FUEL ENGINES (EXCEPT AUTOMOBILE, HIGHWAY TRUCK, BUS, AND TANK)		
United States	**1 487.4**	**1 198.3**
35194, DIESEL, SEMIDIESEL, AND DUAL-FUEL ENGINES FOR AUTOMOBILES, HIGHWAY TRUCKS, AND BUSES		
United States	**3 165.7**	**2 744.3**
35195, OUTBOARD MOTORS (INTERNAL COMBUSTION)		
United States	**(D)**	**(D)**
35196, PISTON-TYPE NATURAL GAS ENGINES, INCLUDING LPG ENGINES (EXCLUDING GAS TURBINES)		
United States	**175.5**	**66.0**
35197, TANK (EXCEPT GAS TURBINE) AND CONVERTED INTERNAL COMBUSTION ENGINES		
United States	**(D)**	**(D)**
35199, PARTS AND ACCESSORIES FOR INTERNAL COMBUSTION ENGINES, EXCEPT AIRCRAFT AND GASOLINE AUTOMOTIVE ENGINES AND GAS TURBINES		
United States	**3 852.3**	**3 789.9**
California	143.4	(NA)
Georgia	13.5	(NA)
Illinois	306.4	543.8
Iowa	34.0	111.5
Michigan	457.4	372.4
Minnesota	20.1	(NA)
Missouri	33.9	(NA)
North Carolina	298.4	233.6
Ohio	227.6	201.0
Oklahoma	38.0	(NA)
Pennsylvania	81.6	121.3
Texas	18.5	31.4
Wisconsin	350.7	482.6
35231, FARM-TYPE (POWER TAKE OFF HP) WHEEL TRACTORS (2- AND 4-WHEEL DRIVE) (SOLD WITH OR WITHOUT ATTACHMENTS)		
United States	**(D)**	**751.2**
35232, FARM DAIRY EQUIPMENT, SPRAYERS AND DUSTERS (EXCEPT AERIAL TYPES), FARM ELEVATORS, AND FARM BLOWERS		
United States	**382.1**	**263.8**
California	10.0	3.5
Georgia	4.3	(NA)
Illinois	39.0	21.0
Indiana	4.1	10.8
Iowa	40.1	15.4
Nebraska	8.7	14.8
North Dakota	27.8	18.8
Ohio	2.4	2.9
Texas	4.1	(NA)
Wisconsin	71.2	34.9
35233, PLANTING, SEEDING, AND FERTILIZING MACHINERY, EXCLUDING TURF MACHINERY		
United States	**520.8**	**313.2**
California	2.3	(NA)
Georgia	12.7	(NA)
Illinois	142.6	104.2
Indiana	2.4	11.9
Iowa	140.3	50.8
Minnesota	33.4	20.9
Nebraska	12.9	5.7
North Dakota	14.7	6.6
Wisconsin	22.5	11.6
35235, HARVESTING MACHINERY, EXCEPT HAY AND STRAW		
United States	**1 564.5**	**1 014.8**
California	27.1	17.6
Georgia	19.1	(NA)
Idaho	12.3	(NA)
Louisiana	16.8	(NA)
Michigan	5.0	(NA)
North Dakota	8.6	6.4
Washington	4.0	(NA)
Wisconsin	21.4	17.3
35236, HAYING MACHINERY		
United States	**434.8**	**326.6**
California	3.2	(NA)
Wisconsin	32.9	2.2

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35239, PARTS FOR FARM MACHINERY, FOR SALE SEPARATELY		
United States	**1 473.9**	**1 282.5**
Arkansas	9.2	10.2
California	20.8	15.9
Colorado	18.2	13.1
Florida	4.7	(NA)
Georgia	24.1	7.7
Idaho	10.4	10.2
Illinois	323.1	284.2
Indiana	33.9	53.4
Iowa	478.1	399.0
Kansas	22.5	49.7
Michigan	17.0	22.5
Minnesota	30.6	13.4
Mississippi	8.6	(NA)
Missouri	54.9	63.7
Nebraska	96.9	62.1
New York	3.1	(NA)
North Dakota	17.0	22.6
Ohio	51.4	32.8
Oklahoma	7.7	(NA)
Oregon	18.7	5.3
South Dakota	4.4	(NA)
Tennessee	14.2	14.3
Texas	15.8	17.7
Wisconsin	75.2	72.3
3523C, PLOWS, INCLUDING PLOWSHARES (PRIMARY TILLAGE), HARROWS, ROLLERS, PULVERIZERS, AND CULTIVATORS AND WEEDERS		
United States	**267.7**	**189.6**
Arkansas	3.8	(NA)
California	6.8	(NA)
Georgia	6.6	(NA)
Illinois	33.7	36.8
Iowa	91.7	41.9
Kansas	34.4	33.1
Mississippi	6.9	(NA)
Nebraska	8.8	(NA)
North Dakota	10.4	12.8
Texas	6.6	7.0
Wisconsin	11.1	(NA)
3523E, ALL OTHER FARM MACHINERY AND EQUIPMENT (EXCLUDING PARTS)		
United States	**(D)**	**909.9**
Arkansas	6.2	(NA)
California	28.2	85.7
Colorado	13.9	6.7
Florida	8.2	(NA)
Georgia	23.6	8.1
Idaho	18.6	17.3
Illinois	31.3	68.1
Indiana	152.9	84.2
Iowa	116.5	90.3
Kansas	64.8	42.5
3523E, ALL OTHER FARM MACHINERY AND EQUIPMENT (EXCLUDING PARTS)—Con.		
Michigan	11.3	(NA)
Minnesota	34.3	20.3
Mississippi	22.8	(NA)
Missouri	7.9	8.3
Nebraska	246.4	140.9
North Carolina	49.0	(NA)
North Dakota	28.0	3.3
Ohio	46.8	42.5
Oregon	7.8	4.5
Pennsylvania	20.4	12.4
South Dakota	9.8	(NA)
Tennessee	32.2	(NA)
Texas	30.6	24.8
Washington	9.0	(NA)
Wisconsin	124.4	87.9
3523F, COMMERCIAL TURF AND GROUNDS CARE EQUIPMENT		
United States	**834.0**	**516.9**
California	27.8	8.9
Georgia	20.3	(NA)
Illinois	10.4	11.9
Kansas	53.5	52.3
Minnesota	27.2	36.1
Nebraska	84.1	47.6
Wisconsin	413.6	256.4
35241, CONSUMER NONRIDING LAWN, GARDEN, AND SNOW EQUIPMENT		
United States	**1 946.0**	**1 697.0**
California	32.7	(NA)
Illinois	64.3	94.6
Indiana	15.7	15.7
North Carolina	156.0	(NA)
Pennsylvania	46.3	(NA)
Tennessee	279.5	(NA)
Wisconsin	54.9	82.4
35244, CONSUMER RIDING LAWN, GARDEN, AND SNOW EQUIPMENT		
United States	**1 645.0**	**1 567.4**
North Carolina	11.6	(NA)
Tennessee	463.6	(NA)
35246, PARTS AND ATTACHMENTS FOR CONSUMER LAWN, GARDEN, AND SNOW EQUIPMENT		
United States	**637.2**	**699.5**
Illinois	35.3	38.6
Indiana	29.1	(NA)
Kansas	29.1	12.5
Minnesota	16.7	23.2
North Carolina	23.5	(NA)
Ohio	53.4	81.8
Pennsylvania	3.9	(NA)
Tennessee	80.8	(NA)
Wisconsin	129.2	182.1

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3511-	**Turbines, turbine generators, and turbine generator sets**	**5 998.5**	**5 568.4**	**4 412.1**	**4 053.0**	**3 690.8**	**3 196.0**	**3 662.3**	**2 813.1**
35110	Turbine generator sets, turbines, turbine generators, and parts	5 998.5	5 568.4	4 412.1	4 053.0	3 690.8	3 196.0	3 662.3	2 813.1
3519-	**Internal combustion engines, n.e.c.**	**11 633.8**	**11 182.6**	**11 717.6**	**12 428.0**	**12 444.0**	**10 908.7**	**8 972.4**	**7 548.0**
35191	Gasoline and gas-gasoline engines (except aircraft, automobile, highway truck, bus, tank, and outboard marine)	1 550.4	1 396.5	1 579.8	1 517.3	1 599.4	1 474.3	1 001.8	892.9
35193	Diesel, semidiesel, and dual-fuel engines (except automobile, highway truck, bus, and tank)	1 487.4	1 487.4	1 548.0	1 557.3	1 552.6	1 198.3	1 548.2	1 587.4
35194	Diesel, semidiesel, and dual-fuel engines for automobiles, highway trucks, and buses	3 165.7	2 453.3	2 757.9	3 173.1	2 987.8	2 744.3	1 715.6	1 322.2
35195	Outboard motors (internal combustion)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35196	Piston-type natural gas engines, including LPG engines (excluding gas turbines)	175.5	152.7	114.7	112.9	103.4	66.0	99.6	31.9
35197	Tank (except gas turbine) and converted internal combustion engines	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35199	Parts and accessories for internal combustion engines, except aircraft and gasoline automotive engines and gas turbines	3 852.3	(D)	4 678.5	4 645.4	4 640.7	3 789.9	3 405.7	2 846.9
35190	Internal combustion engines, n.e.c., n.s.k.	182.3	87.0	96.2	91.8	86.5	90.3	58.2	52.9
3523-	**Farm machinery and equipment**	**8 924.6**	**9 723.7**	**10 871.4**	**9 577.6**	**7 902.0**	**6 384.7**	**10 370.0**	**9 548.9**
35231	Farm-type (power take off hp) wheel tractors (2- and 4-wheel drive) (sold with or without attachments)	(D)	(D)	(D)	(D)	(D)	751.2	2 321.9	2 637.0
35232	Farm dairy equipment, sprayers and dusters (except aerial types), farm elevators, and farm blowers	382.1	334.0	352.8	350.9	261.1	263.8	382.2	306.4
35233	Planting, seeding, and fertilizing machinery, excluding turf machinery	520.8	485.9	585.0	549.6	387.1	313.2	566.5	466.5
35235	Harvesting machinery, except hay and straw	1 564.5	1 844.3	1 969.5	1 563.7	1 175.4	1 014.8	1 854.1	1 463.3
35236	Haying machinery	434.8	532.8	730.7	628.3	457.3	326.6	444.8	414.9
3523C	Plows, including plowshares (primary tillage), harrows, rollers, pulverizers, and cultivators and weeders	267.7	344.9	462.8	419.2	331.0	189.6	424.6	591.2
3523E	All other farm machinery and equipment (excluding parts)	(D)	1 237.5	(D)	(D)	(D)	909.9	1 156.3	1 228.0
35239	Parts for farm machinery, for sale separately	1 473.9	(D)	1 652.8	1 488.0	1 557.1	1 282.5	2 327.6	1 609.5
3523F	Commercial turf and grounds care equipment	834.0	723.0	726.0	653.4	553.7	516.9	238.2	280.3
35230	Farm machinery and equipment, n.s.k.	625.7	882.0	917.3	825.3	819.1	816.2	653.7	551.8
3524-	**Lawn and garden equipment**	**4 348.6**	**4 267.3**	**4 342.9**	**4 043.5**	**4 174.6**	**4 061.0**	**2 385.2**	**1 747.2**
35241	Consumer nonriding lawn, garden, and snow equipment	1 946.0	1 848.6	1 864.0	1 831.6	1 795.1	1 697.0	1 167.5	841.2
35244	Consumer riding lawn, garden, and snow equipment	1 645.0	1 675.4	1 746.5	1 514.5	1 552.9	1 567.4	765.2	577.4
35246	Parts and attachments for consumer lawn, garden, and snow equipment	637.2	609.3	599.8	571.5	715.1	699.5	399.3	302.5
35240	Lawn and garden equipment, n.s.k.	120.5	134.0	132.6	125.9	111.5	97.2	53.3	26.1

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS		
	Materials, ingredients, containers, and supplies	**2 464.3**	**1 495.0**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	(D)	(D)
359301	Cylinders and rotary actuators	2.3	(1)
356921	Filters	(D)	(1)
349261	Hose or tube fittings and assemblies	(D)	(1)
349271	Valves	30.7	(1)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	41.9	6.7
346901	Metal stampings	(D)	(D)
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	(D)	(D)
344001	Fabricated structural metal products	(D)	79.6
340089	All other fabricated metal products	161.2	(1)
	Forgings:		
346200	Iron and steel	(D)	(D)
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	330.6	(D)
336005	Aluminum and aluminum-base alloy	1.7	(D)
336003	Other nonferrous	(D)	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	70.9	164.9
331022	Sheet and strip	24.7	
331034	All other steel shapes and forms	19.4	
336002	Nonferrous	34.0	(D)
359225	Pistons, piston rings, carburetors, valves (intake and exhaust only)	(D)	(D)
369401	Engine electrical equipment (spark plugs, magnetos, generators, starters, etc.)	(D)	(D)
362120	Integral horsepower motors and generators (1 hp or more)	(D)	130.2
	Bearings (mounted or unmounted):		
356218	Ball	4.5	(D)
356201	Roller	(D)	(D)
356810	Plain bearings and bushings	12.6	11.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3511, TURBINES AND TURBINE GENERATOR SETS—Con.		
356601	Speed changers, gears, and industrial high-speed drives	30.1	7.9
351101	Turbines purchased for incorporation into turbine generator sets	(D)	(1)
351102	Generators purchased for incorporation into turbine generator sets	10.4	(1)
305300	Gaskets (all types) and asbestos packing	3.3	1.6
308006	Fabricated plastics products, except gaskets	1.7	(D)
305201	Rubber and plastics hose and belting	.6	.4
354501	Cutting tools for machine tools	8.6	24.8
970099	All other materials and components, parts, containers, and supplies	449.6	1164.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	184.9	481.2
	INDUSTRY 3519, INTERNAL COMBUSTION ENGINES, N.E.C.		
	Materials, ingredients, containers, and supplies	**6 478.4**	**5 547.1**
	Fluid power products (hydraulic and pneumatic):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	164.1	78.4
359301	Cylinders and rotary actuators	26.7	(1)
356921	Filters	32.2	(1)
349261	Hose or tube fittings and assemblies	25.5	(1)
349271	Valves	(D)	(1)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	183.7	122.9
346901	Metal stampings	111.7	110.1
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	49.7	38.0
344001	Fabricated structural metal products	(D)	6.9
340089	Other fabricated metal products	307.0	(1)
	Forgings:		
346200	Iron and steel	494.9	303.6
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	987.5	903.7
336005	Aluminum and aluminum-base alloy	572.8	531.2
336003	Other nonferrous	21.3	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	70.6	
331022	Sheet and strip	39.5	110.1
331034	Other steel shapes and forms	23.4	
336002	Nonferrous shapes and forms	18.7	14.1
359225	Pistons, piston rings, carburetors, valves (intake and exhaust only)	570.1	313.5
369401	Engine electrical equipment including spark plugs, magnetos, generators, starters, etc.	236.4	175.7
362120	Integral horsepower motors and generators (1 hp or more)	(D)	(D)
	Bearings, including both mounted and unmounted:		
356218	Ball bearings	16.9	19.6
356201	Roller bearings	15.2	29.5
356810	Plain bearings and bushings	45.1	44.3
356601	Speed changers, gears, and industrial high-speed drives	70.8	59.0
351101	Turbines purchased for incorporation into turbine generator sets	–	(1)
351102	Generators purchased for incorporation into turbine generator sets	(D)	(1)
305300	Gaskets (all types) and asbestos packing	86.7	62.8
308006	Fabricated plastics products, except gaskets	47.7	44.0
305201	Rubber and plastics hose and belting	43.3	35.0
354501	Cutting tools for machine tools	38.1	32.3
970099	All other materials and components, parts, containers, and supplies	1 802.4	12 072.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	70.8	372.5
	INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT		
	Materials, ingredients, containers, and supplies	**3 975.4**	**2 872.5**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	132.9	42.6
359301	Cylinders and rotary actuators	46.4	18.2
356921	Filters	5.3	(1)
349261	Hose or tube fittings and assemblies	40.4	15.4
349271	Valves	36.3	17.8
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	89.5	52.5
346901	Metal stampings	79.9	31.9
340067	All other fabricated metal products	174.8	6.2
	Forgings:		
346200	Iron and steel	69.2	49.2
346300	Nonferrous	1.5	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	177.1	113.9
336005	Aluminum and aluminum-base alloy	22.8	11.5
336003	Other nonferrous	6.8	9.2
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	210.1	
331022	Sheet and strip	360.3	
331023	Structural shapes and sheet piling	53.2	520.0
331091	All other	71.9	
336002	Nonferrous	3.3	16.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3523, FARM MACHINERY AND EQUIPMENT—Con.		
339915	Metal powders	8.5	1.9
	Engines:		
351920	Diesel and semidiesel engines	202.9	86.2
351905	Gasoline and other carburetor	47.9	69.5
369401	Engine electrical equipment (spark plugs, magnetos, generators, starters, etc.)	63.2	32.5
362100	Electric motors and generators	30.9	18.6
	Bearings (mounted or unmounted):		
356218	Ball	53.9	33.8
356201	Roller	36.3	17.8
356601	Speed changers, gears, and industrial high-speed drives	116.4	66.4
301100	Tires and inner tubes	135.0	70.5
305201	Rubber and plastics hose and belting	61.5	29.4
308006	Fabricated plastics products, except gaskets	95.2	43.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	45.1	23.1
352390	Cabs purchased for installation on farm machinery	[3]	[1]
970099	All other materials and components, parts, containers, and supplies	[3]853.9	[1]744.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	643.0	730.1
	INDUSTRY 3524, LAWN AND GARDEN EQUIPMENT		
	Materials, ingredients, containers, and supplies	**2 889.8**	**2 493.4**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	44.3	22.9
359301	Cylinders and rotary actuators	2.4	2.9
356921	Filters	(D)	[1]
349261	Hose or tube fittings and assemblies	2.6	2.4
349271	Valves	(D)	(D)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	76.9	64.9
346901	Metal stampings	137.3	134.5
340067	All other fabricated metal products	116.9	(D)
	Forgings:		
346200	Iron and steel	(D)	4.8
346300	Nonferrous	(D)	[1]
	Castings (rough and semifinished):		
332001	Iron and steel	11.9	32.3
336005	Aluminum and aluminum-base alloy	86.6	45.5
336003	Other nonferrous	(D)	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	42.0	
331022	Sheet and strip	150.4	
331023	Structural shapes and sheet piling	3.7	(D)
331091	All other	19.1	
336002	Nonferrous	(D)	(D)
339915	Metal powders	16.3	17.5
	Engines:		
351920	Diesel and semidiesel engines	(D)	(D)
351905	Gasoline and other carburetor	914.7	721.8
369401	Engine electrical equipment (spark plugs, magnetos, generators, starters, etc.)	59.6	43.7
362100	Electric motors and generators	17.5	(D)
	Bearings (mounted or unmounted):		
356218	Ball	28.0	13.4
356201	Roller	4.2	10.3
356601	Speed changers, gears, and industrial high-speed drives	106.1	78.8
301100	Tires and inner tubes	136.0	86.7
305201	Rubber and plastics hose and belting	37.6	18.1
308006	Fabricated plastics products, except gaskets	132.1	113.2
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	40.5	13.6
352390	Cabs purchased for installation on farm machinery	(D)	[1]
970099	All other materials and components, parts, containers, and supplies	426.8	[1]427.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	241.8	355.6

[1]For 1987, data for these material codes were not collected separately, but included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1992, material code 352390 is included with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
35451 15	35451 16
35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
35464 15	35461 05
35464 15	35461 07
35464 15	35461 09
35464 19	35461 12
35464 19	35461 15
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35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
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35465 27	35461 26
35465 28	35461 28
35465 29	35461 29
35465 31	35461 31
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35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
35563 19	35563 09
35563 19	35563 14
35563 19	35563 15
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35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
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35594 16	35594 13
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35594 25	35594 17
35594 25	35594 19
35594 25	35594 21

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Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
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35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
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35598 51	35599 51
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35598 58	35599 57
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35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
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35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
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35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
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35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
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35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
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35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-35B

INDUSTRY SERIES

Construction, Mining, and Materials Handling Machinery and Equipment

Industries 3531, 3532, 3533, 3534, 3535, 3536, and 3537

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35B

INDUSTRY SERIES

Construction, Mining, and Materials Handling Machinery and Equipment

Industries 3531, 3532, 3533, 3534, 3535, 3536, and 3537

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

JOBNAME: No Job Name PAGE: 1 SESS: 66 OUTPUT: Mon Jun 5 13:02:19 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ ackgwy

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Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Mary Jane Gwynn.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3531	Construction Machinery
3532	Mining Machinery
3533	Oil and Gas Field Machinery
3534	Elevators and Moving Stairways
3535	Conveyors and Conveying Equipment
3536	Hoists, Cranes, and Monorails
3537	Industrial Trucks and Tractors

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3531, CONSTRUCTION MACHINERY

This industry is made up of establishments primarily engaged in manufacturing heavy machinery and equipment of a type used primarily by the construction industries, such as bulldozers, concrete mixers, cranes (except industrial plant overhead- and truck-type cranes), dredging machinery, pavers, and power shovels. Also included in this industry are establishments primarily engaged in manufacturing forestry equipment and certain specialized equipment, not elsewhere classified, similar to that used by the construction industries, such as elevating platforms, ship cranes and capstans, aerial work platforms, and automobile wrecker hoists. Establishments primarily engaged in manufacturing mining equipment are classified in industry 3532; those manufacturing well-drilling machinery are classified in industry 3533; those manufacturing industrial plant overhead traveling cranes are classified in industry 3536; and those manufacturing industrial truck-type cranes are classified in industry 3537.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3531, Construction Machinery, had employment of 77.1 thousand. The employment figure was 5 percent below the 81.1 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Iowa, Pennsylvania, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $13.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3531 shipped $11.9 billion of construction machinery and

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

equipment considered primary to the industry, $673.8 million of secondary products, and had $896.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 3531, no matter in what industry they were produced, appear in table 6a and aggregate to $12.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the construction machinery industry amounted to $7.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3532, MINING MACHINERY

This industry is made up of establishments primarily engaged in manufacturing heavy machinery and equipment used by the mining industries, such as coal breakers, mine cars, mineral cleaning machinery, concentration machinery, core drills, coal cutters, portable rock drills, and rock crushing machinery. Establishments primarily engaged in manufacturing construction machinery are classified in industry 3531; those manufacturing well-drilling machinery are classified in industry 3533; and those manufacturing coal and ore conveyors are classified in industry 3535.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3532, Mining Machinery, had employment of 12.6 thousand. The employment figure was 7 percent below the 13.6 thousand reported in 1987.

The leading States in employment in 1992 were Virginia, Pennsylvania, West Virginia, and Wisconsin, accounting for approximately 48 percent of the industry's employment. This represents a shift from 1987 when Ohio, Pennsylvania, Virginia, and West Virginia were the leading States.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3532 shipped $1.2 billion of mining machinery considered primary to the industry, $155.7 million of secondary products, and had $179.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 86 percent.

The products primary to industry 3532, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the mining machinery industry amounted to $811.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3533, OIL AND GAS FIELD MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery and equipment for use in oil and gas fields or for drilling water wells, including portable drilling rigs. Establishments primarily engaged in manufacturing offshore oil and gas well drilling and production platforms are classified in industry 3731.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3533, Oil and Gas Field Machinery, had employment of 27.0 thousand. The employment figure was 8 percent above the 24.8 thousand reported in 1987.

The leading States in employment in 1992 were Texas, Oklahoma, Louisiana, and California, accounting for approximately 92 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 90 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3533 shipped $2.9 billion of oil and gas field machinery considered primary to the industry, $326.9 million of secondary products, and had $712.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3533, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the oil and gas field machinery industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS

This industry is made up of establishments primarily engaged in manufacturing passenger or freight elevators, automobile lifts, dumbwaiters, and moving stairways. Establishments primarily engaged in manufacturing commercial conveyor systems and equipment are classified in industry 3535; and those manufacturing farm elevators are classified in industry 3523.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3534, Elevators and Moving Stairways, had employment of 7.7 thousand. The employment figure was 25 percent below the 10.2 thousand reported in 1987.

The leading States in employment in 1992 were Indiana, Mississippi, New York, and Pennsylvania. This represents a shift from 1987 when Indiana, Mississippi, Ohio, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $975.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3534 shipped $892.4 million of elevators and moving stairways considered primary to the industry, $31.5 million of secondary products, and had $51.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3534, no matter in what industry they were produced, appear in table 6a and aggregate to $919.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the elevators and moving stairways industry amounted to $591.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing conveyors and conveying equipment for installation in factories, warehouses, mines and other industrial and commercial establishments. Establishments primarily engaged in manufacturing farm elevators and conveyors are classified in industry 3523; those manufacturing passenger or freight elevators, dumbwaiters, and moving stairways are classified in industry 3534; and those manufacturing overhead traveling cranes and monorail systems are classified in industry 3536.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3535, Conveyors and Conveying Equipment, had employment of 30.3 thousand. The employment figure was 4 percent below the 31.5 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, Texas, and Kentucky, accounting for approximately 35 percent of the industry's employment. This

represents a shift from 1987 when Michigan, Ohio, Kentucky, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $3.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3535 shipped $3.3 billion of conveyors and conveying equipment considered primary to the industry, $269.7 million of secondary products, and had $349.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio also was 92 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3535, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the conveyors and conveying equipment industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS

This industry is made up of establishments primarily engaged in manufacturing overhead traveling cranes, hoists, and monorail systems for installation in factories, warehouses, marinas, and other industrial and commercial establishments. Establishments primarily engaged in manufacturing cranes, except industrial types, automobile wrecker hoists, and aerial work platforms are classified in industry 3531, and those manufacturing aircraft loading hoists are classified in industry 3537.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3536, Hoists, Cranes, and Monorails, had employment of 7.0 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were Ohio, Wisconsin, Michigan, and Texas, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when Ohio, Michigan, Pennsylvania, and Wisconsin accounted for approximately 43 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $911.5 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3536 shipped $738.5 million of hoists, cranes, and monorails considered primary to the industry, $76.0 million of secondary products, and had $96.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 3536, no matter in what industry they were produced, appear in table 6a and aggregate to $810.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hoists, cranes, and monorails industry amounted to $410.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 20 percent of the total value of shipments.

INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS

This industry is made up of establishments primarily engaged in manufacturing industrial trucks, tractors, trailers, stackers (truck-type), and related equipment, used for handling materials on floors and paved surfaces in and around industrial and commercial plants, depots, docks, airports, and terminals. Establishments primarily engaged in manufacturing motor vehicles and motor vehicle type trailers are classified in industry group 371; those manufacturing farm-type wheel tractors are classified in industry 3523; those manufacturing tractor shovel loaders and tracklaying tractors are classified in industry 3531; and those manufacturing wood pallets and skids are classified in industry 2448.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3537, Industrial Trucks and Tractors, had employment of 17.5 thousand. The employment figure was 13 percent below the 20.1 thousand reported in 1987.

The leading States in employment in 1992 were Kentucky, New York, North Carolina, and Ohio. This represents a shift from 1987 when Ohio, New York, California, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3537 shipped $2.4 billion of industrial trucks and tractors considered primary to the industry, $112.9 million of secondary products, and had $199.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3537, no matter in what industry they were produced, appear in table 6a and aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial trucks and tractors industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3531, CONSTRUCTION MACHINERY															
1992 Census	864	944	399	77.1	2 571.4	49.6	93.8	1 445.7	5 828.9	7 581.2	13 451.8	424.5	2 977.8	95	96
1991 ASM	(NA)	(NA)	(NA)	r82.6	r2 632.3	r53.8	r101.3	r1 554.2	r5 675.5	r7 799.1	r13 610.9	r473.5	r3 048.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	89.9	2 878.1	60.7	118.9	1 779.2	6 797.3	9 178.0	16 069.6	638.1	3 188.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	87.7	2 772.9	60.6	121.6	1 758.5	6 752.9	8 720.9	15 349.4	633.3	3 133.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	85.2	2 634.9	57.7	115.3	1 634.6	6 980.3	7 677.2	14 476.8	462.8	2 996.4	(NA)	(NA)
1987 Census	872	954	422	81.1	2 427.7	54.2	107.5	1 496.2	5 772.0	6 890.9	12 767.7	335.8	2 687.1	94	96
1986 ASM	(NA)	(NA)	(NA)	87.9	2 503.5	57.7	109.4	1 482.7	5 902.9	6 978.7	12 987.1	296.0	2 838.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	91.4	2 539.9	59.7	113.3	1 541.0	5 694.2	6 625.9	12 798.8	301.8	2 994.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	95.8	2 618.7	63.7	121.1	1 613.9	5 801.3	6 775.1	12 692.7	248.1	3 672.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	91.9	2 262.6	57.9	99.7	1 265.4	4 574.0	4 907.2	10 311.8	323.4	3 819.3	(NA)	(NA)
1982 Census	817	939	444	115.5	2 653.1	72.8	122.6	1 522.5	5 477.8	6 151.6	11 657.9	419.4	4 764.7	91	94
1981 ASM	(NA)	(NA)	(NA)	145.9	3 490.3	101.1	190.6	2 246.7	8 256.1	8 798.9	16 929.7	577.6	3 850.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	157.9	3 350.1	108.6	203.5	2 156.8	7 448.6	8 498.5	15 994.0	664.2	4 404.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	175.2	3 282.1	125.7	231.7	2 161.2	7 898.3	8 606.4	16 190.1	628.5	3 922.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	169.0	3 075.2	121.8	239.6	2 076.3	7 554.4	8 427.9	15 700.4	550.7	3 598.6	(NA)	(NA)
1977 Census	807	922	446	155.3	2 547.1	111.2	212.7	1 708.1	5 744.3	6 822.6	12 628.7	498.3	3 142.3	91	95
INDUSTRY 3532, MINING MACHINERY															
1992 Census	268	295	116	12.6	393.7	7.4	15.9	189.1	729.6	811.8	1 557.5	33.0	446.6	89	86
1991 ASM	(NA)	(NA)	(NA)	14.5	397.2	8.5	17.7	193.0	727.7	884.7	1 643.3	32.5	472.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	15.5	415.6	9.7	19.4	211.9	912.8	940.4	1 865.5	38.2	515.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.7	413.9	9.8	19.2	212.2	871.5	919.2	1 805.8	31.9	552.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.6	359.8	8.5	16.7	187.8	787.1	801.0	1 568.9	29.7	523.9	(NA)	(NA)
1987 Census	293	321	122	13.6	354.6	8.2	16.3	180.7	772.5	748.5	1 518.1	36.6	527.2	86	86
1986 ASM	(NA)	(NA)	(NA)	14.7	374.8	8.5	16.0	181.3	783.2	725.9	1 532.5	32.8	568.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.1	394.2	9.3	17.2	189.5	784.0	822.6	1 663.9	26.7	612.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.9	391.5	9.9	18.6	198.0	816.0	808.4	1 628.4	30.7	689.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.9	373.2	9.3	17.0	179.3	736.5	696.8	1 514.4	37.9	649.4	(NA)	(NA)
1982 Census	316	369	175	24.6	522.1	14.3	25.9	275.4	1 113.0	991.7	2 109.3	66.0	756.1	90	89
1981 ASM	(NA)	(NA)	(NA)	28.2	585.4	17.4	33.9	329.7	1 296.3	1 280.1	2 571.3	80.1	827.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.8	550.4	18.7	35.7	311.3	1 269.6	1 220.0	2 452.7	97.0	811.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.9	491.2	19.0	36.7	281.9	1 080.9	1 092.2	2 129.6	58.3	745.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.0	464.6	19.8	37.6	278.1	1 032.5	995.3	1 991.9	74.8	683.4	(NA)	(NA)
1977 Census	293	344	168	31.4	425.9	20.3	39.7	262.9	1 018.8	1 021.9	1 996.7	67.0	646.1	88	86
INDUSTRY 3533, OIL AND GAS FIELD MACHINERY															
1992 Census	473	537	203	27.0	876.5	15.4	31.2	424.9	2 104.2	1 707.7	3 917.9	104.6	1 339.9	90	97
1991 ASM	(NA)	(NA)	(NA)	28.7	892.2	16.0	32.7	441.9	2 192.5	1 795.7	4 072.8	99.7	1 433.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.2	841.8	15.3	32.1	420.7	2 040.9	1 593.3	3 634.7	72.2	1 493.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	26.1	769.1	14.7	29.3	380.7	1 759.4	1 452.5	3 313.7	77.1	1 423.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.0	807.4	15.5	31.1	407.7	1 963.3	1 545.2	3 400.6	46.9	1 621.5	(NA)	(NA)
1987 Census	563	633	190	24.8	719.2	13.3	26.5	345.9	1 210.2	1 225.8	2 728.3	31.7	1 584.2	93	96
1986 ASM	(NA)	(NA)	(NA)	32.6	877.9	15.7	29.9	404.5	1 701.3	1 524.9	3 577.0	72.7	2 060.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	46.8	1 295.1	27.6	54.7	672.7	3 048.9	2 340.4	5 714.0	132.5	2 677.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	49.2	1 308.5	28.7	57.7	698.1	3 484.0	2 273.1	5 803.5	243.6	3 261.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	62.9	1 492.7	35.1	67.6	763.6	3 330.1	2 605.2	6 586.4	310.9	3 945.6	(NA)	(NA)
1982 Census	848	1 015	498	98.5	2 341.9	60.0	120.1	1 292.4	6 545.8	4 786.0	11 195.1	903.2	4 748.6	92	96
1981 ASM	(NA)	(NA)	(NA)	95.0	2 189.2	64.3	133.9	1 333.3	7 537.8	5 086.3	11 872.8	701.0	3 565.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	79.1	1 616.5	52.9	109.8	995.1	4 918.0	3 261.9	7 789.8	462.1	2 408.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	71.8	1 293.7	48.1	97.2	790.1	3 726.8	2 476.0	5 955.1	375.0	1 887.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	68.9	1 145.3	46.5	97.9	696.4	3 147.0	2 192.9	5 030.5	284.3	1 622.5	(NA)	(NA)
1977 Census	386	478	247	58.6	867.5	39.8	83.4	543.3	2 437.6	1 493.4	3 912.4	257.5	1 212.5	88	95
INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS															
1992 Census	162	179	62	7.7	233.7	4.8	10.4	126.8	386.8	591.1	975.6	20.2	136.9	97	97
1991 ASM	(NA)	(NA)	(NA)	8.9	272.6	5.8	12.4	158.0	454.9	712.6	1 181.3	16.3	157.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.2	269.1	6.2	13.5	159.7	556.5	772.4	1 343.1	14.5	165.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.0	288.1	6.5	13.8	161.9	526.1	697.6	1 260.2	15.6	175.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.5	273.1	6.7	13.3	152.9	544.7	679.2	1 197.0	28.9	210.2	(NA)	(NA)
1987 Census	158	176	81	10.2	262.4	6.3	12.8	143.5	524.7	565.3	1 084.4	21.8	177.6	98	94
1986 ASM	(NA)	(NA)	(NA)	11.7	286.4	6.7	13.4	146.9	597.3	620.7	1 224.3	16.4	176.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.0	286.0	7.6	15.2	163.1	590.2	636.5	1 214.3	21.8	222.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.2	284.3	7.5	15.2	157.0	566.0	604.3	1 171.6	20.4	215.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.6	270.1	7.2	14.5	141.7	545.7	569.5	1 128.4	22.1	214.3	(NA)	(NA)
1982 Census	148	165	83	13.0	270.7	7.7	15.1	137.0	589.4	557.6	1 120.7	31.2	238.2	96	95
1981 ASM	(NA)	(NA)	(NA)	11.4	206.1	6.6	13.5	97.8	406.9	448.1	845.4	32.4	168.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.7	209.2	6.6	13.6	99.2	340.1	364.5	707.1	29.2	159.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.2	195.0	7.2	14.5	94.0	331.9	378.9	704.8	14.7	156.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.5	158.0	6.4	12.4	79.0	293.0	265.1	538.5	6.1	159.3	(NA)	(NA)
1977 Census	134	152	72	10.2	141.9	5.9	11.5	69.4	284.5	205.9	489.7	8.8	119.1	96	93
INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT															
1992 Census	707	747	346	30.3	990.5	17.0	36.2	429.9	2 033.2	1 888.3	3 914.0	55.3	561.5	92	91
1991 ASM	(NA)	(NA)	(NA)	31.6	960.5	17.9	37.4	439.7	1 959.7	1 931.7	3 862.5	82.7	539.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.9	957.2	19.3	39.8	444.8	2 066.3	2 046.9	4 089.9	97.8	619.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	33.9	957.0	19.9	41.2	444.4	2 075.0	1 998.1	4 065.9	122.4	578.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.7	871.8	18.0	37.6	386.5	1 784.0	1 753.8	3 490.1	59.1	575.0	(NA)	(NA)
1987 Census	703	747	347	31.5	856.5	17.9	37.7	379.8	1 752.9	1 639.5	3 408.2	118.5	526.7	92	92
1986 ASM	(NA)	(NA)	(NA)	32.7	836.0	18.3	38.2	370.9	1 650.5	1 668.8	3 343.6	49.3	508.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	32.4	786.0	18.6	38.1	357.2	1 538.7	1 534.4	3 035.4	67.7	530.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	31.8	735.0	18.3	37.3	343.9	1 395.6	1 367.8	2 742.5	45.1	480.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	31.5	701.4	17.5	34.1	312.0	1 197.6	1 288.0	2 572.9	42.3	476.8	(NA)	(NA)
1982 Census	646	699	363	36.6	759.1	20.4	39.8	346.7	1 472.7	1 455.7	2 946.7	58.0	551.4	89	91
1981 ASM	(NA)	(NA)	(NA)	36.6	742.1	21.1	41.6	344.8	1 458.4	1 511.4	2 976.6	48.3	524.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	39.1	698.4	23.2	45.9	341.8	1 505.2	1 368.8	2 841.7	55.0	524.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.5	643.8	23.1	46.5	317.7	1 378.9	1 280.3	2 633.0	63.1	484.1	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT—Con.														
1978 ASM	(NA)	(NA)	(NA)	36.9	566.8	21.1	42.1	276.5	1 212.0	1 055.7	2 223.2	57.6	405.5	(NA)	(NA)
1977 Census	572	617	295	33.0	477.8	19.2	38.6	227.3	1 021.7	901.5	1 902.9	34.8	364.9	90	87
	INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS														
1992 Census	170	180	81	7.0	205.7	4.2	8.7	109.5	490.1	410.0	911.5	11.6	233.4	91	91
1991 ASM	(NA)	(NA)	(NA)	r6.8	r193.1	r4.0	r8.5	r97.8	r572.5	r420.1	r950.7	r17.0	r266.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.9	214.8	4.4	9.1	103.9	517.5	478.8	966.4	21.4	253.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.6	201.3	4.2	8.6	99.1	483.5	432.9	912.4	11.7	199.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.5	187.0	4.6	8.7	96.9	417.1	355.2	789.4	6.8	154.5	(NA)	(NA)
1987 Census	165	175	81	7.0	175.3	4.2	8.1	90.0	358.1	318.7	675.4	7.0	162.9	93	78
	INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS														
1992 Census	426	450	159	17.5	498.5	11.5	23.5	275.7	1 046.9	1 700.5	2 753.7	57.6	483.4	96	92
1991 ASM	(NA)	(NA)	(NA)	17.3	471.5	11.4	22.5	264.0	947.9	1 458.0	2 405.6	46.6	471.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.1	521.4	13.2	26.4	290.4	1 036.7	1 660.0	2 727.5	49.0	513.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.5	528.1	13.6	27.1	296.4	1 194.3	1 645.9	2 841.3	53.0	505.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.5	515.0	14.3	27.5	285.6	1 037.6	1 819.6	2 826.6	55.2	519.1	(NA)	(NA)
1987 Census	448	467	173	20.1	476.1	13.0	25.0	250.3	953.7	1 479.5	2 440.2	37.5	456.1	95	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3531, CONSTRUCTION MACHINERY								
1992 Census	33 351	64	1 891	15.41	56	75	75 602	44	62.14
1991 ASM	31 868	65	1 883	15.34	57	77	68 711	46	56.03
1990 ASM	32 014	68	1 959	14.96	57	75	75 610	42	57.17
1989 ASM	31 618	69	2 007	14.46	57	75	77 000	41	55.53
1988 ASM	30 926	68	1 998	14.18	53	71	81 928	38	60.54
1987 Census	29 935	67	1 983	13.92	54	73	71 171	42	53.69
1986 ASM	28 481	66	1 896	13.55	54	73	67 155	42	53.96
1985 ASM	27 789	65	1 898	13.60	52	72	62 300	45	50.26
1984 ASM	27 335	66	1 901	13.33	53	74	60 556	45	47.91
1983 ASM	24 620	63	1 722	12.69	48	70	49 771	49	45.88
1982 Census	22 971	63	1 684	12.42	53	76	47 427	48	44.68
1981 ASM	23 923	69	1 885	11.79	52	73	56 587	42	43.32
1980 ASM	21 217	69	1 874	10.60	53	74	47 173	45	36.60
1979 ASM	18 733	72	1 843	9.33	53	73	45 082	42	34.09
1978 ASM	18 196	72	1 967	8.67	54	73	44 701	41	31.53
1977 Census	16 401	72	1 913	8.03	54	74	36 988	44	27.01
	INDUSTRY 3532, MINING MACHINERY								
1992 Census	31 246	59	2 149	11.89	52	77	57 905	54	45.89
1991 ASM	27 393	59	2 082	10.90	54	78	50 186	55	41.11
1990 ASM	26 813	63	2 000	10.92	50	73	58 890	46	47.05
1989 ASM	26 363	62	1 959	11.05	51	74	55 510	47	45.39
1988 ASM	26 456	63	1 965	11.25	51	74	57 875	46	47.13
1987 Census	26 074	60	1 988	11.09	49	73	56 801	46	47.39
1986 ASM	25 497	58	1 882	11.33	47	72	53 279	48	48.95
1985 ASM	24 484	58	1 849	11.02	49	73	48 696	50	45.58
1984 ASM	23 166	59	1 879	10.65	50	74	48 284	48	43.87
1983 ASM	22 083	55	1 828	10.55	46	71	43 580	51	43.32
1982 Census	21 224	58	1 811	10.63	47	72	45 244	47	42.97
1981 ASM	20 759	62	1 948	9.73	50	73	45 968	45	38.24
1980 ASM	18 470	63	1 909	8.72	50	72	42 604	43	35.56
1979 ASM	16 428	64	1 932	7.68	51	74	36 151	45	29.45
1978 ASM	14 987	64	1 899	7.40	50	73	33 306	45	27.46
1977 Census	13 564	65	1 956	6.62	51	73	32 446	42	25.66

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3533, OIL AND GAS FIELD MACHINERY								
1992 Census	32 463	57	2 039	13.62	44	66	77 933	42	67.44
1991 ASM	31 087	56	2 044	13.51	44	66	76 394	41	67.05
1990 ASM	30 949	56	2 098	13.11	44	67	75 033	41	63.58
1989 ASM	29 467	56	1 993	12.99	44	67	67 410	44	60.05
1988 ASM	29 904	57	2 006	13.11	45	69	72 715	41	63.13
1987 Census	29 000	54	1 992	13.05	45	71	48 798	59	45.67
1986 ASM	26 929	48	1 904	13.53	43	67	52 187	52	56.90
1985 ASM	27 673	59	1 982	12.30	41	64	65 147	42	55.74
1984 ASM	26 596	58	2 010	12.10	39	62	70 813	38	60.38
1983 ASM	23 731	56	1 926	11.30	40	62	52 943	45	49.26
1982 Census	23 776	61	2 002	10.76	43	64	66 455	36	54.50
1981 ASM	23 044	68	2 082	9.96	43	61	79 345	29	56.29
1980 ASM	20 436	67	2 076	9.06	42	63	62 174	33	44.79
1979 ASM	18 018	67	2 021	8.13	42	63	51 905	35	38.34
1978 ASM	16 623	67	2 105	7.11	44	66	45 675	36	32.15
1977 Census	14 804	68	2 095	6.51	38	60	41 597	36	29.23
	INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS								
1992 Census	30 351	62	2 167	12.19	61	85	50 234	60	37.19
1991 ASM	30 629	65	2 138	12.74	60	83	51 112	60	36.69
1990 ASM	29 250	67	2 177	11.83	58	78	60 489	48	41.22
1989 ASM	28 810	65	2 123	11.73	55	78	52 610	55	38.12
1988 ASM	26 010	64	1 985	11.50	57	80	51 876	50	40.95
1987 Census	25 725	62	2 032	11.21	52	76	51 441	50	40.99
1986 ASM	24 479	57	2 000	10.96	51	74	51 051	48	44.57
1985 ASM	23 833	63	2 000	10.73	52	76	49 183	48	38.83
1984 ASM	23 303	61	2 027	10.33	52	76	46 393	50	37.24
1983 ASM	23 284	62	2 014	9.77	50	74	47 043	49	37.63
1982 Census	20 823	59	1 961	9.07	50	74	45 338	46	39.03
1981 ASM	18 079	58	2 045	7.24	53	77	35 693	51	30.14
1980 ASM	17 880	56	2 061	7.29	52	81	29 068	62	25.01
1979 ASM	15 984	59	2 014	6.48	54	81	27 205	59	22.89
1978 ASM	15 048	61	1 937	6.37	49	79	27 905	54	23.63
1977 Census	13 912	58	1 949	6.03	42	71	27 892	50	24.74
	INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT								
1992 Census	32 690	56	2 129	11.88	48	74	67 102	49	56.17
1991 ASM	30 396	57	2 089	11.76	50	75	62 016	49	52.40
1990 ASM	29 094	59	2 062	11.18	50	73	62 805	46	51.92
1989 ASM	28 230	59	2 070	10.79	49	73	61 209	46	50.36
1988 ASM	27 502	57	2 089	10.28	50	75	56 278	49	47.45
1987 Census	27 190	57	2 106	10.07	48	73	55 648	49	46.50
1986 ASM	25 566	56	2 087	9.71	50	75	50 474	51	43.21
1985 ASM	24 259	57	2 048	9.38	51	76	47 491	51	40.39
1984 ASM	23 113	58	2 038	9.22	50	77	43 887	53	37.42
1983 ASM	22 267	56	1 949	9.15	50	77	38 019	59	35.12
1982 Census	20 740	56	1 951	8.71	49	75	40 238	52	37.00
1981 ASM	20 276	58	1 972	8.29	51	76	39 847	51	35.06
1980 ASM	17 862	59	1 978	7.45	48	73	38 496	46	32.79
1979 ASM	16 722	60	2 013	6.83	49	73	35 816	47	29.65
1978 ASM	15 360	57	1 995	6.57	47	73	32 846	47	28.79
1977 Census	14 479	58	2 010	5.89	47	72	30 961	47	26.47
	INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS								
1992 Census	29 386	60	2 071	12.59	45	68	70 014	42	56.33
1991 ASM	28 397	59	2 125	11.51	44	64	84 191	34	67.35
1990 ASM	27 190	56	2 068	11.42	50	72	65 506	42	56.87
1989 ASM	26 487	55	2 048	11.52	47	70	63 618	42	56.22
1988 ASM	24 933	61	1 891	11.14	45	69	55 613	45	47.94
1987 Census	25 043	60	1 929	11.11	47	73	51 157	49	44.21
	INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS								
1992 Census	28 486	66	2 043	11.73	62	80	59 823	48	44.55
1991 ASM	27 254	66	1 974	11.73	61	80	54 792	50	42.13
1990 ASM	25 940	66	2 000	11.00	61	80	51 577	50	39.27
1989 ASM	25 761	66	1 993	10.94	58	77	58 259	44	44.07
1988 ASM	23 953	67	1 923	10.39	64	83	48 260	50	37.73
1987 Census	23 687	65	1 923	10.01	61	80	47 448	50	38.15

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3531, CONSTRUCTION MACHINERY														
United States	–	**944**	**399**	**77.1**	**2 571.4**	**49.6**	**93.8**	**1 445.7**	**5 828.9**	**7 581.2**	**13 451.8**	**424.5**	**81.1**	**5 772.0**
Alabama	E1	16	5	1.0	26.7	.7	1.5	16.7	51.2	88.4	132.9	2.5	1.1	47.8
Arizona	–	8	3	.3	6.2	.2	.3	3.6	14.6	16.7	31.2	.8	(NA)	(NA)
California	E2	75	19	1.5	44.0	.9	1.8	21.4	91.3	99.5	192.4	2.9	2.4	126.9
Colorado	–	15	2	.5	17.0	.3	.6	7.7	31.5	33.4	65.7	1.5	F	(D)
Connecticut	E2	9	5	.3	7.2	.2	.3	4.0	21.9	17.7	42.9	.8	.2	14.5
Florida	E2	27	5	.4	15.1	.3	.5	7.5	8.5	26.0	33.5	.6	.6	21.8
Georgia	E3	16	8	.5	13.3	.3	.7	7.7	73.2	40.9	115.3	3.2	.8	38.9
Idaho	E5	6	2	.1	3.5	.1	.2	2.2	7.8	11.6	18.6	.2	(NA)	(NA)
Illinois	–	68	26	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.7	1 712.4
Indiana	E1	22	10	.8	22.2	.5	1.0	11.5	50.3	56.5	102.8	1.4	1.5	87.8
Iowa	–	28	19	7.9	303.0	5.4	11.1	194.5	795.8	1 121.5	1 948.5	35.5	(NA)	(D)
Kansas	–	24	17	1.8	51.0	1.1	2.2	27.6	140.8	207.5	339.0	11.6	1.5	120.0
Kentucky	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E1	14	4	.3	8.3	.2	.5	4.7	18.5	11.6	29.3	.6	.3	16.4
Maine	E1	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	E5	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E1	16	4	.3	7.5	.2	.3	3.5	18.0	14.6	32.6	.3	E	(D)
Michigan	E1	43	15	1.3	31.3	.9	1.8	19.3	62.5	117.1	182.4	8.9	2.0	125.0
Minnesota	E2	41	19	2.8	87.4	1.8	3.9	44.4	175.7	282.0	455.9	8.0	2.3	124.6
Mississippi	–	8	5	.9	22.6	.5	.8	8.1	42.4	54.7	97.9	.9	F	(D)
Missouri	–	17	6	.9	22.5	.6	1.0	12.6	38.3	112.0	147.5	4.0	.6	42.7
Nebraska	–	10	5	.7	19.3	.4	.8	8.4	36.5	26.0	63.0	1.1	.6	29.8
New Jersey	E1	14	3	.2	4.6	.1	.2	2.4	8.7	11.3	20.0	.3	E	(D)
New Mexico	E1	6	2	.1	3.3	.1	.2	2.2	5.7	6.5	12.1	.3	(NA)	(NA)
New York	E1	33	11	.9	22.8	.5	1.0	10.3	53.4	58.5	109.0	1.0	1.3	63.5
North Carolina	–	17	12	1.8	67.2	.9	1.9	26.5	226.1	317.3	525.7	22.2	1.9	124.3
North Dakota	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E1	46	23	2.7	83.4	1.6	3.4	44.0	217.5	215.9	435.8	5.3	3.8	228.7
Oklahoma	E2	36	19	3.0	83.6	2.0	3.9	43.8	159.8	240.7	402.6	8.4	3.0	133.9
Oregon	E2	26	12	.9	26.5	.6	1.4	17.8	49.2	58.1	107.9	1.0	.7	37.8
Pennsylvania	–	38	17	7.1	230.8	4.9	9.2	151.3	531.1	483.2	1 007.9	35.1	6.5	430.8
South Carolina	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	12	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	16	8	1.1	36.0	.7	1.6	20.4	136.1	144.2	272.8	3.1	.9	31.9
Texas	E4	71	25	3.0	83.0	2.1	4.1	47.3	127.6	245.1	384.3	12.7	3.3	149.8
Virginia	E3	11	4	.8	28.7	.5	1.0	11.8	53.9	65.2	119.6	.9	F	(D)
Washington	–	35	13	1.3	41.2	.8	1.5	20.8	87.7	131.6	218.2	2.9	1.5	70.9
Wisconsin	–	55	38	7.9	281.9	4.9	9.3	159.9	683.7	668.4	1 362.4	39.0	7.0	490.9
Wyoming	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3532, MINING MACHINERY														
United States	**E1**	**295**	**116**	**12.6**	**393.7**	**7.4**	**15.9**	**189.1**	**729.6**	**811.8**	**1 557.5**	**33.0**	**13.6**	**772.5**
California	E1	14	6	.3	9.6	.1	.3	3.2	23.1	20.9	43.6	.8	(NA)	(D)
Colorado	–	11	1	.2	9.2	.1	.2	3.1	17.1	9.6	27.1	(D)	.4	17.8
Florida	–	7	4	.2	6.2	.1	.3	2.6	6.9	8.7	15.8	.2	(NA)	(D)
Georgia	E9	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	12	5	.4	11.2	.3	.6	7.6	34.4	25.0	58.6	(D)	E	(D)
Indiana	–	6	4	.2	6.7	.1	.3	3.3	12.1	11.6	24.0	(D)	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	E1	22	10	.5	13.2	.3	.7	6.3	31.8	31.5	62.5	.5	.6	31.9
Michigan	–	5	2	.2	6.4	.1	.2	3.2	12.7	13.0	26.9	.1	(NA)	(D)
Missouri	E3	6	6	.3	9.3	.2	.3	3.7	18.3	16.5	36.7	.3	.5	30.8
New York	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
North Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	12	6	.6	21.9	.4	.8	10.4	33.9	36.4	75.4	1.3	.9	46.9
Oklahoma	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	E1	27	10	2.0	65.8	1.1	2.3	29.8	98.5	130.8	229.3	4.4	2.4	170.1
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	14	4	.5	15.1	.2	.5	6.6	21.8	20.9	43.2	(D)	(NA)	(D)
Utah	–	9	5	.2	5.3	.1	.3	3.5	11.6	12.1	22.9	.1	.2	10.3
Virginia	E1	26	10	2.2	67.0	1.3	2.7	31.6	105.2	133.4	243.5	4.9	2.2	116.7
Washington	E1	7	2	.1	2.8	.1	.1	1.6	6.5	7.0	13.5	.6	E	(D)
West Virginia	–	41	14	1.0	31.5	.6	1.2	15.4	60.6	60.1	122.1	3.9	G	(D)
Wisconsin	–	5	3	.8	25.1	.4	.8	10.0	33.4	92.5	129.9	(D)	F	(D)

See footnotes at end of table.

TIPS UPF [MCD_SRB,V_HARLEY] 6/ 19/ 95 08:05:00 EPCV23 TLP:35B.BTI;69 6/ 19/ 95 08:02:53 DATA:NONE UPF:DIR:35BDAT.UPF PAGE: 4
TSF:35B_92.DAT;5 6/ 19/ 95 08:03:17 UTF:35B_93.DAT;7 6/ 19/ 95 08:03:17 META:TIPS96-08031315.DAT;1 6/ 19/ 95 08:04:37

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3533, OIL AND GAS FIELD MACHINERY														
United States	**E1**	**537**	**203**	**27.0**	**876.5**	**15.4**	**31.2**	**424.9**	**2 104.2**	**1 707.7**	**3 917.9**	**104.6**	**24.8**	**1 210.2**
California	E2	33	8	.9	29.6	.5	.7	10.9	65.5	40.3	113.6	1.7	1.5	79.3
Florida	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	–	4	2	.2	5.1	.1	.1	1.3	13.1	11.7	24.9	.3	(NA)	(NA)
Kansas	–	10	4	.2	5.8	.2	.3	3.6	11.3	9.1	19.7	(D)	.3	12.8
Louisiana	E1	54	24	1.7	50.7	1.1	2.7	31.0	209.0	143.5	385.8	6.5	1.3	83.7
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Mexico	–	6	3	.3	7.0	.2	.4	5.0	9.2	19.9	28.5	(D)	.2	10.1
Oklahoma	–	69	21	3.3	100.5	2.2	4.2	59.6	269.8	199.0	498.7	6.7	3.3	147.5
Pennsylvania	E1	9	5	.3	8.4	.2	.3	4.3	15.4	21.3	37.4	.5	.5	24.4
Texas	E1	280	122	19.0	633.9	10.1	20.9	292.7	1 418.9	1 184.3	2 642.9	82.3	16.3	770.6
Utah	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS														
United States	**E1**	**179**	**62**	**7.7**	**233.7**	**4.8**	**10.4**	**126.8**	**386.8**	**591.1**	**975.6**	**20.2**	**10.2**	**524.7**
California	E1	22	3	.2	8.1	.2	.4	4.9	10.7	20.3	31.2	.3	F	(D)
Florida	E2	18	4	.3	7.3	.2	.4	4.2	11.1	8.8	19.8	.5	.3	13.2
Illinois	–	14	5	.6	19.4	.4	1.0	12.7	42.3	55.8	97.0	(D)	F	(D)
Indiana	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	E1	5	1	.1	3.6	.1	.1	1.8	5.9	5.8	12.4	.1	E	(D)
Mississippi	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	11	3	.2	6.1	.1	.3	3.5	11.1	10.4	20.8	.4	.6	27.1
New York	E4	22	7	.7	23.5	.5	1.2	13.4	41.8	31.7	74.0	.6	F	(D)
North Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E2	8	4	.4	10.8	.2	.4	4.4	17.8	19.9	38.3	(D)	.9	24.1
Pennsylvania	–	9	4	.6	17.3	.3	.6	8.5	15.2	62.4	78.3	.9	.8	18.5
Rhode Island	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E1	8	5	.5	11.4	.3	.7	6.5	24.9	89.2	114.1	.8	E	(D)
Wisconsin	–	6	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT														
United States	**E1**	**747**	**346**	**30.3**	**990.5**	**17.0**	**36.2**	**429.9**	**2 033.2**	**1 888.3**	**3 914.0**	**55.3**	**31.5**	**1 752.9**
Alabama	E1	11	6	.6	16.0	.4	.8	7.5	23.9	29.1	56.3	.5	.5	22.5
Arkansas	–	8	6	1.2	28.1	.8	1.7	17.1	55.0	53.5	107.9	(D)	.9	40.5
California	E3	67	25	1.3	43.0	.8	1.7	21.1	74.5	67.4	145.2	2.1	1.5	81.4
Colorado	–	20	11	.9	36.4	.5	1.0	10.6	73.4	54.9	129.9	1.2	.8	42.5
Florida	E2	25	7	.6	18.7	.3	.6	6.1	44.5	30.3	74.7	1.8	1.0	59.7
Georgia	–	13	4	.3	9.2	.2	.3	4.4	17.2	15.4	33.1	.2	.5	27.8
Illinois	E2	41	13	1.5	56.6	.8	1.9	25.4	106.3	84.8	190.1	(D)	G	(D)
Indiana	–	26	17	.9	27.2	.5	1.1	12.3	48.6	33.0	81.0	1.1	.6	34.2
Iowa	E1	15	8	.6	16.0	.4	.8	9.5	30.5	22.4	53.1	2.3	F	(D)
Kansas	–	12	7	.8	25.4	.4	.7	7.7	49.1	87.7	137.3	1.9	1.3	61.8
Kentucky	–	19	14	2.1	64.0	1.1	2.1	27.9	140.8	145.8	299.2	3.4	2.1	107.1
Maryland	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.0
Massachusetts	–	11	5	.2	7.6	.1	.2	3.4	12.2	14.3	27.7	(D)	E	(D)
Michigan	E1	68	34	3.7	165.2	1.8	4.0	63.9	346.4	309.9	641.5	7.1	4.3	354.4
Minnesota	E2	26	9	.8	22.4	.5	1.1	11.4	45.9	42.3	88.1	1.6	F	(D)
Mississippi	–	8	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Missouri	E2	23	8	.7	20.5	.5	1.0	9.6	60.0	59.3	117.4	.6	.6	35.6
Nebraska	E5	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
New Hampshire	E9	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	32	13	1.0	32.8	.5	.9	11.6	51.9	54.9	109.5	2.7	1.1	52.2
New York	E1	23	5	.4	13.0	.2	.5	7.7	22.3	19.9	41.8	.3	F	(D)
North Carolina	–	17	11	.7	20.0	.4	.9	8.2	39.6	31.5	71.4	2.1	E	(D)
Ohio	E3	59	33	2.7	87.1	1.5	3.1	35.0	170.8	131.3	299.9	4.6	3.0	160.6
Oregon	E1	15	7	.6	16.3	.4	.7	8.6	28.9	23.4	52.3	.6	.5	29.1
Pennsylvania	–	33	17	1.5	46.5	.8	1.5	19.5	120.1	97.0	216.6	3.0	1.7	112.9
South Carolina	E4	11	5	.4	11.1	.3	.7	7.5	24.7	18.3	40.1	.4	.2	7.4
Tennessee	E1	17	10	.7	29.7	.4	1.0	11.7	41.9	121.2	162.0	2.1	.8	36.8
Texas	–	45	22	2.2	62.9	1.2	2.4	25.2	154.5	118.2	273.2	3.5	1.8	95.1
Virginia	–	16	9	1.0	30.4	.6	1.7	15.3	75.6	69.6	145.3	1.3	.8	48.2
Washington	E2	15	3	.1	4.8	.1	.2	2.8	9.0	9.7	18.6	.3	(NA)	(NA)
Wisconsin	–	33	17	1.3	38.8	.8	1.6	17.4	83.7	61.7	137.8	3.0	1.0	41.1

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS														
United States	**E2**	**180**	**81**	**7.0**	**205.7**	**4.2**	**8.7**	**109.5**	**490.1**	**410.0**	**911.5**	**11.6**	**7.0**	**358.1**
Alabama	–	5	2	.1	3.3	.1	.2	1.8	7.2	8.1	14.9	(D)	(NA)	(NA)
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	19	5	.3	8.6	.2	.3	3.5	18.6	18.3	36.3	.4	(NA)	(D)
Florida	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Georgia	E4	5	2	.1	4.5	.1	.2	2.3	6.1	5.6	12.1	(D)	(NA)	(D)
Illinois	E6	9	6	.5	18.0	.2	.6	6.8	30.5	27.5	59.8	(D)	.5	33.5
Michigan	–	17	6	.6	17.1	.3	.7	8.2	38.5	30.6	69.7	1.0	.8	39.8
Minnesota	–	6	4	.4	8.8	.3	.5	5.4	20.5	24.6	43.6	.4	E	(D)
New Jersey	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	7	4	.4	11.0	.2	.4	4.8	21.4	17.7	42.6	.3	E	(D)
North Carolina	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(D)
Ohio	–	17	12	1.0	27.6	.6	1.1	14.3	48.5	72.6	121.1	2.2	1.0	53.3
Pennsylvania	E2	15	9	.5	16.2	.4	.7	9.2	31.5	26.3	58.0	.9	.6	35.0
Texas	E7	15	7	.6	16.2	.3	.7	9.5	94.0	25.5	122.0	(D)	.5	25.3
Virginia	E1	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	19.2
Wisconsin	–	9	7	.7	23.5	.4	.8	13.8	56.0	36.4	94.9	(D)	.6	22.5
INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS														
United States	**E1**	**450**	**159**	**17.5**	**498.5**	**11.5**	**23.5**	**275.7**	**1 046.9**	**1 700.5**	**2 753.7**	**57.6**	**20.1**	**953.7**
Alabama	–	12	6	.8	20.1	.6	1.3	13.1	44.1	58.1	100.5	2.5	.8	27.7
Arkansas	E4	9	6	.4	7.6	.3	.5	4.5	16.6	20.5	37.4	.4	.2	12.6
California	E2	42	10	.9	25.7	.6	1.2	14.6	31.0	92.9	134.8	1.6	G	(D)
Florida	E1	15	5	.5	13.1	.3	.5	6.2	34.9	35.1	69.6	1.0	.5	26.9
Georgia	–	15	6	.3	8.8	.2	.5	5.1	20.0	32.3	52.8	2.8	.2	14.6
Illinois	–	25	9	1.1	33.6	.8	1.7	21.6	73.8	217.7	293.2	4.6	1.2	50.5
Indiana	–	20	7	.7	17.7	.5	.9	9.5	39.9	86.9	132.9	(D)	F	(D)
Iowa	–	9	4	.5	14.4	.3	.6	9.0	32.6	36.3	69.7	2.1	E	(D)
Kansas	–	7	4	.4	7.0	.3	.5	4.3	11.7	12.4	26.9	(D)	.3	13.6
Kentucky	–	9	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	E3	31	13	1.1	31.9	.6	1.2	13.8	47.1	65.4	112.1	1.3	1.3	38.5
Minnesota	E3	17	5	.4	10.4	.2	.5	5.4	23.0	17.6	38.8	.4	G	(D)
Missouri	–	12	4	.3	6.6	.2	.4	4.4	15.5	15.7	32.4	.2	F	(D)
New Jersey	E2	9	3	.1	4.0	.1	.2	2.2	8.5	7.9	16.4	.4	(NA)	(NA)
New York	E1	24	7	1.1	30.5	.6	1.4	14.2	49.1	53.6	100.9	2.8	G	(D)
North Carolina	–	10	6	1.4	39.6	1.0	2.2	26.4	76.4	183.6	249.8	(D)	1.4	51.9
Ohio	–	29	14	2.7	81.9	2.0	3.9	51.4	190.7	202.3	399.8	(D)	2.9	179.0
Oklahoma	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	16	5	.4	15.9	.2	.4	6.1	33.3	23.7	57.4	(D)	F	(D)
Pennsylvania	E1	23	7	.5	16.2	.3	.7	9.2	25.6	33.4	60.1	1.2	.7	32.1
South Carolina	–	6	3	.2	6.4	.1	.3	2.9	18.0	46.9	65.7	1.2	(NA)	(NA)
Tennessee	E5	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Texas	E6	16	6	.8	23.5	.6	1.3	14.0	48.7	63.2	112.1	1.8	.9	38.1
Utah	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	7	3	.2	6.6	.1	.2	2.6	15.1	18.9	34.0	(D)	(NA)	(NA)
Washington	E2	11	6	.4	10.9	.2	.5	5.4	22.5	17.4	40.2	.8	.4	20.3
Wisconsin	E1	18	6	.4	9.8	.2	.4	4.5	44.2	50.1	93.9	.8	.6	28.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil and gas field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)
Companies ---- number	864	268	473	162	707	170	426
All establishments ---- number	944	295	537	179	747	180	450
With 1 to 19 employees ---- number	545	179	334	117	401	99	291
With 20 to 99 employees ---- number	263	81	136	44	266	66	119
With 100 employees or more ---- number	136	35	67	18	80	15	40
Employment and labor costs:							
Employees ---- 1,000	77.1	12.6	27.0	7.7	30.3	7.0	17.5
Compensation, total ---- mil dol	3 404.4	503.6	1 091.6	299.6	1 236.1	267.1	627.3
Annual payroll ---- mil dol	2 571.4	393.7	876.5	233.7	990.5	205.7	498.5
Fringe benefits ---- mil dol	833.0	109.9	215.1	65.9	245.7	61.4	128.8
Social Security and other legally required payments ---- mil dol	266.2	42.8	98.8	23.5	111.8	23.3	54.0
Employer voluntary payments ---- mil dol	566.8	67.1	116.2	42.5	133.8	38.0	74.8
Production workers:							
Average for year ---- 1,000	49.6	7.4	15.4	4.8	17.0	4.2	11.5
March ---- 1,000	49.7	7.5	16.2	4.9	17.2	4.3	11.3
May ---- 1,000	50.1	7.5	15.6	4.8	17.1	4.2	11.4
August ---- 1,000	49.8	7.4	15.1	4.8	17.1	4.2	11.6
November ---- 1,000	48.8	7.1	14.6	4.9	16.8	4.2	11.6
Hours ---- millions	93.8	15.9	31.2	10.4	36.2	8.7	23.5
Wages ---- mil dol	1 445.7	189.1	424.9	126.8	429.9	109.5	275.7
Cost of materials[1] ---- mil dol	7 581.2	811.8	1 707.7	591.1	1 888.3	410.0	1 700.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	6 792.3	682.1	1 391.4	540.7	1 431.9	352.4	1 524.7
Resales ---- mil dol	543.2	86.5	160.5	34.0	151.3	27.3	129.4
Fuels ---- mil dol	40.8	4.2	9.8	2.6	7.8	2.5	5.2
Purchased electricity ---- mil dol	102.7	13.1	42.1	5.6	19.8	6.3	15.4
Contract work ---- mil dol	102.2	25.9	103.9	8.1	277.5	21.5	25.7
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	2 076.0	235.2	804.8	92.6	311.1	98.6	283.5
Generated less sold ---- mil kWh	(D)	–	–	–	(Z)	–	–
Total value of shipments ---- mil dol	13 451.8	1 557.5	3 917.9	975.6	3 914.0	911.5	2 753.7
Value added ---- mil dol	5 828.9	729.6	2 104.2	386.8	2 033.2	490.1	1 046.9
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	3 061.8	469.1	1 497.8	134.9	571.9	245.9	468.5
Finished goods ---- mil dol	1 058.2	247.2	871.0	18.5	112.4	46.6	114.6
Work in process ---- mil dol	963.6	101.1	284.8	68.9	231.8	114.0	121.1
Materials and supplies ---- mil dol	1 040.1	120.8	342.0	47.4	227.6	85.3	232.8
End of 1992 ---- mil dol	2 977.8	446.6	1 339.9	136.9	561.5	233.4	483.4
Finished goods ---- mil dol	965.7	236.2	790.3	20.1	109.7	45.9	122.6
Work in process ---- mil dol	1 014.3	96.0	259.5	69.7	242.1	103.2	106.8
Materials and supplies ---- mil dol	997.8	114.5	290.0	47.2	209.6	84.2	254.0

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil and gas field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)
Gross book value of depreciable assets:							
Total:							
Beginning of year	5 753.1	604.4	1 807.6	330.9	897.3	182.3	616.8
New capital expenditures[1]	424.5	33.0	104.6	20.2	55.3	11.6	57.6
Used capital expenditures	27.0	2.9	19.7	1.7	6.3	1.3	1.5
Retirements	307.1	16.6	94.0	15.0	27.0	3.8	17.9
End of year	5 897.5	623.7	1 837.9	337.8	931.9	191.5	658.0
Buildings and other structures:							
Beginning of year	1 512.3	155.4	487.3	114.5	314.1	55.5	184.7
New capital expenditures	53.4	4.5	18.8	3.9	10.6	1.6	13.2
Used capital expenditures	3.9	.7	.8	.5	.8	.4	.4
Retirements	29.5	2.0	8.8	2.5	1.6	.2	.7
End of year	1 540.1	158.5	498.2	116.4	323.9	57.3	197.5
Machinery and equipment:							
Beginning of year	4 240.8	449.0	1 320.3	216.4	583.1	126.9	432.1
New capital expenditures[1]	371.1	28.5	85.8	16.3	44.7	10.0	44.4
Used capital expenditures	23.1	2.2	18.8	1.2	5.6	.9	1.1
Retirements	277.6	14.6	85.2	12.4	25.4	3.6	17.2
End of year	4 357.4	465.2	1 339.7	221.4	608.0	134.2	460.5
Depreciation charges during 1992:							
Total	493.7	39.6	98.7	24.3	79.5	15.8	53.5
Buildings and other structures	62.6	7.2	17.9	5.4	15.5	3.2	9.3
Machinery and equipment	431.0	32.4	80.9	18.9	63.9	12.6	44.2
Rental payments:							
Total	85.9	13.7	43.0	8.2	38.2	13.6	24.4
Buildings and other structures	39.4	7.2	29.4	4.9	21.2	7.7	14.2
Machinery and equipment	46.5	6.5	13.7	3.3	17.0	5.9	10.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)		Mining machinery (SIC 3532)		Oil and gas field machinery (SIC 3533)		Elevators and moving stairways (SIC 3534)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	25.8	(X)	2.3	(X)	7.5	(X)	1.5	(X)
Response coverage ratio (percent)[2]	87.8	(X)	78.5	(X)	79.1	(X)	88.3	(X)
Machinery	105.5	(X)	6.9	(X)	14.8	(X)	4.9	(X)
Response coverage ratio (percent)[2]	87.9	(X)	81.7	(X)	79.1	(X)	88.3	(X)
Other purchased services:								
Communications	26.6	(X)	4.3	(X)	9.2	(X)	2.3	(X)
Response coverage ratio (percent)[2]	87.2	(X)	81.3	(X)	78.1	(X)	85.2	(X)
Legal	26.7	(X)	4.7	(X)	6.3	(X)	1.0	(X)
Response coverage ratio (percent)[2]	88.0	(X)	86.1	(X)	76.3	(X)	88.3	(X)
Accounting and bookkeeping	5.7	(X)	3.2	(X)	2.0	(X)	.5	(X)
Response coverage ratio (percent)[2]	87.3	(X)	86.0	(X)	74.2	(X)	78.7	(X)
Advertising	35.1	(X)	6.3	(X)	5.4	(X)	3.0	(X)
Response coverage ratio (percent)[2]	87.4	(X)	81.5	(X)	79.1	(X)	88.3	(X)
Software and other data processing	36.5	(X)	3.9	(X)	7.6	(X)	1.7	(X)
Response coverage ratio (percent)[2]	88.4	(X)	81.5	(X)	77.3	(X)	73.2	(X)
Refuse removal, including hazardous waste	9.5	(X)	1.1	(X)	2.8	(X)	.7	(X)
Response coverage ratio (percent)[2]	88.4	(X)	81.4	(X)	75.2	(X)	82.4	(X)
New machinery and equipment expenditures	371.1	(X)	28.5	(X)	85.8	(X)	16.3	(X)
Automobiles, trucks, etc., for highway use	6.7	14	.3	38	.9	21	.5	37
Computers and peripheral data processing equipment	35.7	3	3.8	4	12.0	5	3.6	7
All other	328.7	1	24.4	1	72.9	1	12.2	3
Adjustment ratio[3]	1.1	(X)	1.0	(X)	1.4	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	6 792.3	(X)	682.1	(X)	1 391.4	(X)	540.7	(X)
Materials purchased or transferred from foreign sources[4]	1 039.3	8	56.7	8	(S)	(X)	17.2	9
Materials purchased or transferred from domestic sources	5 753.0	2	625.4	1	(S)	(X)	523.5	1
Adjustment ratio[3]	1.3	(X)	1.7	(X)	(S)	(X)	1.3	(X)

Item	Conveyors and conveying equipment (SIC 3535)		Hoists, cranes, and monorails (SIC 3536)		Industrial trucks and tractors (SIC 3537)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.6	(X)	1.6	(X)	4.2	(X)
Response coverage ratio (percent)[2]	72.9	(X)	78.7	(X)	86.8	(X)
Machinery	12.0	(X)	4.2	(X)	7.6	(X)
Response coverage ratio (percent)[2]	74.1	(X)	78.9	(X)	86.4	(X)
Other purchased services:						
Communications	11.2	(X)	3.8	(X)	5.7	(X)
Response coverage ratio (percent)[2]	71.8	(X)	78.5	(X)	79.6	(X)
Legal	6.4	(X)	3.8	(X)	10.5	(X)
Response coverage ratio (percent)[2]	71.6	(X)	78.9	(X)	85.9	(X)
Accounting and bookkeeping	5.4	(X)	1.1	(X)	3.0	(X)
Response coverage ratio (percent)[2]	71.5	(X)	78.9	(X)	85.9	(X)
Advertising	13.0	(X)	5.5	(X)	8.2	(X)
Response coverage ratio (percent)[2]	73.2	(X)	78.9	(X)	85.9	(X)
Software and other data processing	4.1	(X)	.9	(X)	3.6	(X)
Response coverage ratio (percent)[2]	70.7	(X)	78.9	(X)	85.9	(X)
Refuse removal, including hazardous waste	2.1	(X)	.6	(X)	1.6	(X)
Response coverage ratio (percent)[2]	72.5	(X)	78.9	(X)	85.9	(X)
New machinery and equipment expenditures	44.7	(X)	10.0	(X)	44.4	(X)
Automobiles, trucks, etc., for highway use	2.1	24	1.1	45	.7	16
Computers and peripheral data processing equipment	13.4	11	1.8	18	6.5	7
All other	29.2	6	7.1	6	37.3	2
Adjustment ratio[3]	1.4	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 431.9	(X)	352.4	(X)	1 524.7	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	60.4	24	180.9	4
Materials purchased or transferred from domestic sources	(S)	(X)	292.0	6	1 343.8	1
Adjustment ratio[3]	(S)	(X)	1.5	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3531, CONSTRUCTION MACHINERY												
Total	**–**	**944**	**77.1**	**2 571.4**	**49.6**	**93.8**	**1 445.7**	**5 828.9**	**7 581.2**	**13 451.8**	**424.5**	**2 977.8**
Establishments with an average of—												
1 to 4 employees	E8	238	.4	10.1	.3	.5	6.1	25.3	31.7	56.4	2.3	11.4
5 to 9 employees	E6	163	1.1	27.4	.7	1.5	16.6	66.5	78.3	143.5	5.1	29.8
10 to 19 employees	E2	144	2.1	53.7	1.3	2.7	30.2	106.4	133.0	247.2	6.8	60.4
20 to 49 employees	E2	172	5.5	158.4	3.6	7.3	84.6	347.6	401.3	752.5	21.0	170.6
50 to 99 employees	E1	91	6.4	174.4	4.1	8.4	92.2	422.3	428.3	849.1	15.8	218.5
100 to 249 employees	–	75	12.0	359.5	7.4	14.7	183.6	780.1	1 126.3	1 920.7	38.6	489.0
250 to 499 employees	E1	34	11.9	381.3	7.5	14.8	206.2	948.2	1 301.0	2 245.9	44.3	546.9
500 to 999 employees	–	17	12.1	409.4	7.9	15.7	235.8	946.2	1 358.4	2 329.7	52.3	472.4
1,000 to 2,499 employees	–	5	25.5	997.2	16.7	28.3	590.4	2 186.3	2 722.9	4 906.9	238.4	978.8
2,500 employees or more	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	314	1.1	22.7	.7	1.5	14.0	49.3	64.5	113.8	4.8	22.9
INDUSTRY 3532, MINING MACHINERY												
Total	**E1**	**295**	**12.6**	**393.7**	**7.4**	**15.9**	**189.1**	**729.6**	**811.8**	**1 557.5**	**33.0**	**446.6**
Establishments with an average of—												
1 to 4 employees	E8	81	.1	3.4	.1	.2	1.7	8.0	7.3	15.3	.3	3.8
5 to 9 employees	E6	57	.4	8.8	.2	.5	4.5	17.8	18.7	36.7	1.0	9.2
10 to 19 employees	E1	41	.6	14.4	.3	.8	7.7	31.1	26.9	58.3	1.1	14.5
20 to 49 employees	E1	62	1.9	53.8	1.2	2.6	27.4	108.6	113.7	223.0	4.7	48.0
50 to 99 employees	–	19	1.3	38.0	.8	1.6	16.2	75.6	73.1	149.5	4.3	41.6
100 to 249 employees	E1	25	3.8	122.6	2.2	4.4	59.0	274.8	252.5	530.5	9.2	137.3
250 to 499 employees	–	7	4.5	152.7	2.6	5.9	72.5	213.7	319.6	544.3	12.4	192.2
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	120	.4	9.4	.3	.6	4.8	21.2	19.7	40.9	.9	11.3
INDUSTRY 3533, OIL AND GAS FIELD MACHINERY												
Total	**E1**	**537**	**27.0**	**876.5**	**15.4**	**31.2**	**424.9**	**2 104.2**	**1 707.7**	**3 917.9**	**104.6**	**1 339.9**
Establishments with an average of—												
1 to 4 employees	E8	135	.2	6.1	.2	.3	3.2	15.3	11.3	24.6	.5	11.1
5 to 9 employees	E6	111	.7	19.4	.4	.9	10.1	39.2	27.0	68.0	1.3	23.1
10 to 19 employees	E1	88	1.2	34.5	.7	1.5	16.4	87.5	63.0	149.3	4.4	45.3
20 to 49 employees	E1	94	3.0	90.6	1.9	4.1	46.2	203.8	162.4	358.3	6.0	124.1
50 to 99 employees	E1	42	2.9	96.8	1.7	3.8	50.0	240.4	202.8	457.2	8.2	129.8
100 to 249 employees	E1	42	6.0	180.2	3.8	7.1	91.9	458.7	383.0	876.1	15.6	279.4
250 to 499 employees	E1	18	6.1	220.2	3.4	7.1	111.6	627.5	541.7	1 214.8	25.1	462.9
500 to 999 employees	–	3	2.0	79.9	.9	2.0	31.5	87.8	156.2	250.7	8.0	96.1
1,000 to 2,499 employees	–	4	4.8	149.0	2.4	4.3	64.0	344.0	160.4	518.9	35.5	168.3
Covered by administrative records[2]	E9	184	.7	13.3	.4	.8	6.8	29.9	22.3	52.3	1.1	20.5
INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS												
Total	**E1**	**179**	**7.7**	**233.7**	**4.8**	**10.4**	**126.8**	**386.8**	**591.1**	**975.6**	**20.2**	**136.9**
Establishments with an average of—												
1 to 4 employees	E9	42	.1	2.3	.1	.1	1.3	4.1	5.1	9.1	.3	1.1
5 to 9 employees	E4	37	.3	6.7	.2	.3	4.0	11.2	13.1	24.7	.6	3.4
10 to 19 employees	E1	38	.5	15.4	.4	.7	9.0	30.9	33.2	63.1	.7	9.8
20 to 49 employees	–	22	.7	19.6	.4	1.0	10.4	30.8	43.2	75.4	.6	9.1
50 to 99 employees	E1	22	1.5	44.7	1.0	2.1	25.9	68.7	98.5	164.1	3.3	31.1
100 to 249 employees	E1	13	2.0	59.0	1.3	3.0	32.1	126.3	187.8	312.4	14.8	52.0
250 to 499 employees	–	3	2.7	86.0	1.5	3.2	44.0	114.8	210.2	326.7	(D)	30.3
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	62	.3	6.0	.2	.3	3.6	9.6	12.0	21.6	.6	2.7
INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT												
Total	**E1**	**747**	**30.3**	**990.5**	**17.0**	**36.2**	**429.9**	**2 033.2**	**1 888.3**	**3 914.0**	**55.3**	**561.5**
Establishments with an average of—												
1 to 4 employees	E7	120	.2	6.5	.1	.3	3.2	15.6	15.5	31.0	.4	4.2
5 to 9 employees	E6	145	1.0	25.5	.6	1.1	11.7	50.0	48.4	98.3	1.3	14.0
10 to 19 employees	E2	136	1.9	55.7	1.2	2.4	26.7	100.4	87.6	188.4	2.5	26.0
20 to 49 employees	–	185	5.8	178.6	3.5	7.6	85.4	340.7	312.9	645.8	9.7	100.2
50 to 99 employees	E1	81	5.7	186.2	3.3	7.3	87.6	383.1	375.9	771.3	12.1	121.5
100 to 249 employees	E1	66	9.9	319.2	5.6	12.1	139.4	653.8	623.1	1 274.4	15.9	179.8
250 to 499 employees	–	12	5.7	218.6	2.7	5.4	75.9	489.6	425.0	904.7	13.4	115.7
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	202	.9	20.7	.6	1.1	9.6	40.8	39.2	79.9	1.1	12.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS												
Total	**E2**	**180**	**7.0**	**205.7**	**4.2**	**8.7**	**109.5**	**490.1**	**410.0**	**911.5**	**11.6**	**233.4**
Establishments with an average of—												
1 to 4 employees	E7	26	(Z)	.9	(Z)	.1	.5	2.2	2.1	4.1	.1	1.1
5 to 9 employees	E3	34	.2	5.9	.1	.3	3.1	15.0	12.6	27.5	.8	4.7
10 to 19 employees	E1	39	.5	14.1	.3	.6	7.4	26.0	27.0	53.4	1.2	13.8
20 to 49 employees	–	46	1.3	35.5	.8	1.6	17.6	72.3	73.8	150.3	2.0	29.2
50 to 99 employees	E1	20	1.4	40.7	.9	1.8	22.5	83.3	73.1	155.2	1.2	31.0
100 to 249 employees	E3	11	2.2	66.6	1.3	2.7	37.0	182.6	148.0	335.4	3.2	102.7
250 to 499 employees	E1	4	1.3	42.0	.7	1.6	21.3	108.7	73.4	185.5	3.1	50.9
Covered by administrative records[2]	E9	37	.1	2.6	.1	.2	1.2	4.9	5.4	10.3	.3	2.6
INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS												
Total	**E1**	**450**	**17.5**	**498.5**	**11.5**	**23.5**	**275.7**	**1 046.9**	**1 700.5**	**2 753.7**	**57.6**	**483.4**
Establishments with an average of—												
1 to 4 employees	E7	124	.2	5.3	.1	.3	3.1	12.4	22.9	35.4	.6	6.3
5 to 9 employees	E7	85	.6	11.7	.4	.7	6.5	22.6	31.8	54.4	1.0	9.2
10 to 19 employees	E2	82	1.1	26.7	.8	1.5	16.2	54.4	63.0	116.5	1.6	18.7
20 to 49 employees	E3	80	2.5	65.2	1.6	3.3	35.8	129.4	172.5	313.4	5.7	49.7
50 to 99 employees	–	39	2.7	75.7	1.7	3.5	38.5	159.6	278.3	452.5	9.3	86.7
100 to 249 employees	–	27	3.7	101.5	2.5	4.8	55.7	217.2	263.1	486.0	9.5	79.2
250 to 499 employees	–	9	2.9	92.0	2.0	4.4	56.7	192.0	453.0	647.9	14.8	82.5
500 to 999 employees	–	3	3.9	120.4	2.4	5.0	63.2	259.4	415.8	647.6	15.0	151.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	176	.6	12.1	.4	.8	6.8	23.6	37.0	60.6	1.2	10.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3531	**Construction machinery:**										
	All establishments in industry	944	77.1	2 571.4	49.6	93.8	1 445.7	5 828.9	7 581.2	13 451.8	424.5
	Establishments with this product class primary:										
3531A	Wheel tractors, contractors' off-highway (2- and 4-wheel), rubber-tired dozers, and self-propelled wheeled log skidders	12	1.0	27.6	.6	1.4	13.3	63.3	128.8	191.2	1.1
3531B	Crawler tractors, 20 net engine horsepower rating or more (sold with or without attachments) (excluding parts)	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3531C	Tractor shovel loaders (sold with or without attachments) (excluding parts)	21	12.6	499.1	8.2	15.5	291.0	1 406.4	1 966.2	3 412.3	108.7
3531E	Power cranes, draglines, and shovels (excavators) (including surface mining equipment and attachments) (excluding parts)	56	12.2	409.4	7.6	14.9	230.9	1 034.6	1 098.7	2 148.4	44.2
3531F	Mixers, pavers, and related equipment (excluding parts)	67	5.7	176.6	3.5	7.3	89.4	375.1	433.5	807.6	18.3
3531G	Scrapers, graders, rollers, off-highway trucks and coal haulers, trailers, wagons, rough terrain forklifts, except parts	30	7.9	275.5	4.6	8.0	135.9	577.4	1 162.6	1 737.5	57.5
3531M	Parts for construction machinery and equipment, sold separately	99	11.3	399.1	7.8	15.3	247.7	717.0	705.7	1 407.4	76.6
3531N	Construction machinery for mounting on tractors and other prime movers (excluding parts and snow clearing attachments)	38	2.0	53.7	1.2	2.4	28.4	102.7	95.6	200.2	4.1
3531P	Other construction machinery and equipment (excluding parts)	165	15.0	431.2	9.6	19.1	234.2	893.0	1 225.0	2 110.6	44.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3532	**Mining machinery:**										
	All establishments in industry	295	12.6	393.7	7.4	15.9	189.1	729.6	811.8	1 557.5	33.0
	Establishments with this product class primary:										
35325	Underground mining machinery (except parts sold separately)	23	3.3	114.5	1.9	4.3	56.1	163.7	207.9	375.2	6.5
35326	Mineral processing and beneficiation machinery (except parts sold separately)	15	.7	22.6	.4	.7	8.3	42.4	30.3	73.2	1.0
35327	Crushing, pulverizing, and screening machinery (excluding portable plants), except parts sold separately	21	1.5	43.8	.8	1.8	21.4	90.7	108.5	199.2	5.4
35328	Drills and other mining machinery, n.e.c. (except parts sold separately)	12	.9	31.2	.6	1.2	15.3	63.3	58.4	125.8	2.3
35329	Parts and attachments for mining machinery and equipment (sold separately)	74	5.3	161.0	3.2	6.7	76.9	325.8	365.5	699.5	16.0
3533	**Oil and gas field machinery:**										
	All establishments in industry	537	27.0	876.5	15.4	31.2	424.9	2 104.2	1 707.7	3 917.9	104.6
	Establishments with this product class primary:										
35337	Rotary oil and gas field drilling machinery and equipment	66	7.0	232.6	3.5	7.5	104.3	606.7	384.3	993.0	40.9
35338	Other oil and gas field drilling machinery and equipment	26	2.5	76.2	1.7	3.1	46.8	199.9	127.2	350.5	4.1
35339	Oil and gas field production machinery and equipment (except pumps)	117	11.5	384.9	6.6	13.2	181.0	876.8	797.9	1 735.4	46.0
3533A	Portable drilling rigs and parts	25	1.8	57.6	1.0	2.1	25.9	127.5	181.1	309.5	4.6
3533B	Oil and gas field derricks and well surveying machinery	16	1.0	31.3	.7	1.3	17.2	97.2	70.3	181.3	1.2
3534	**Elevators and moving stairways:**										
	All establishments in industry	179	7.7	233.7	4.8	10.4	126.8	386.8	591.1	975.6	20.2
	Establishments with this product class primary:										
35341	Elevators and moving stairways	55	5.5	168.2	3.3	7.1	90.1	260.0	492.9	748.5	17.1
35342	Parts and attachments for elevators and moving stairways (sold separately)	41	1.7	52.7	1.2	2.6	29.3	103.4	71.6	177.1	1.9
3535	**Conveyors and conveying equipment:**										
	All establishments in industry	747	30.3	990.5	17.0	36.2	429.9	2 033.2	1 888.3	3 914.0	55.3
	Establishments with this product class primary:										
35353	Unit handling conveyors and conveying systems, except hoists and farm elevators	190	15.0	544.6	7.9	17.0	215.8	1 134.1	1 153.7	2 271.0	26.0
35354	Parts, attachments, and accessories for unit handling conveyors and conveying systems (sold separately)	13	.6	18.6	.3	.6	6.0	30.0	25.2	56.4	2.8
35355	Bulk material handling conveyors and conveying systems, except hoists and farm elevators	192	8.6	256.9	5.1	10.7	120.0	537.3	404.2	945.8	16.8
35356	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems (sold separately)	33	2.7	79.8	1.8	3.8	45.4	155.6	140.6	300.2	5.5
3536	**Hoists, cranes, and monorails:**										
	All establishments in industry	180	7.0	205.7	4.2	8.7	109.5	490.1	410.0	911.5	11.6
	Establishments with this product class primary:										
35363	Hoists	51	2.9	83.7	1.9	4.0	47.2	187.4	170.5	360.4	5.3
35364	Overhead traveling cranes and monorail systems	61	3.6	110.7	2.0	4.1	56.8	276.9	215.9	500.9	4.9
3537	**Industrial trucks and tractors:**										
	All establishments in industry	450	17.5	498.5	11.5	23.5	275.7	1 046.9	1 700.5	2 753.7	57.6
	Establishments with this product class primary:										
35373	Industrial trucks, tractors, mobile straddle carriers and cranes, and automatic stacking machines	149	12.2	356.9	7.8	15.8	194.3	744.8	1 317.6	2 069.3	37.7
35374	Parts and attachments for industrial trucks and tractors (sold separately)	43	2.8	81.2	2.0	4.3	47.2	174.8	197.0	372.7	14.0

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3531, CONSTRUCTION MACHINERY			
Total value of shipments	13 451.8	12 767.7	11 657.9
Primary products value of shipments	11 881.3	11 199.7	10 040.7
Secondary products value of shipments	673.8	684.2	995.0
Total miscellaneous receipts	896.7	883.8	622.2
Value of resales	734.2	784.7	498.2
Contract receipts	54.1	16.1	15.5
Other miscellaneous receipts	108.4	83.0	108.5
Sales of scrap and refuse	7.5	8.8	14.8
Receipts for research and development	3.7	(D)	(D)
Receipts for repair work	33.8	34.1	22.2
Other miscellaneous receipts	48.8	30.7	73.4
Receipts for equipment rental and leasing	10.9	7.8	(NA)
Other miscellaneous receipts, n.s.k.	3.7	(D)	(D)
Primary products specialization ratio	95	94	91
Value of primary products shipments made in all industries	12 391.7	11 704.6	10 648.3
Value of primary products shipments made in this industry	11 881.3	11 199.7	10 040.7
Value of primary products shipments made in other industries	510.4	504.9	607.6
Coverage ratio	96	96	94
INDUSTRY 3532, MINING MACHINERY			
Total value of shipments	1 557.5	1 518.1	2 109.3
Primary products value of shipments	1 221.9	1 175.1	1 729.1
Secondary products value of shipments	155.7	194.3	183.0
Total miscellaneous receipts	179.9	148.7	197.2
Value of resales	133.3	104.6	140.2
Contract receipts	7.2	7.2	15.2
Other miscellaneous receipts	39.3	36.9	41.8
Sales of scrap and refuse	.8	.2	(D)
Receipts for research and development	(D)	(D)	(D)
Receipts for repair work	15.2	29.6	26.1
Other miscellaneous receipts	9.1	3.9	13.0
Receipts for equipment rental and leasing	(D)	(D)	(NA)
Other miscellaneous receipts, n.s.k.	12.1	2.7	(Z)
Primary products specialization ratio	89	86	90
Value of primary products shipments made in all industries	1 426.9	1 362.9	1 936.3
Value of primary products shipments made in this industry	1 221.9	1 175.1	1 729.1
Value of primary products shipments made in other industries	205.0	187.8	207.2
Coverage ratio	86	86	89
INDUSTRY 3533, OIL AND GAS FIELD MACHINERY			
Total value of shipments	3 917.9	2 728.3	11 195.1
Primary products value of shipments	2 878.9	2 192.7	9 131.5
Secondary products value of shipments	326.9	161.7	784.0
Total miscellaneous receipts	712.1	373.9	1 279.6
Value of resales	210.7	130.7	615.3
Contract receipts	272.1	68.2	380.6
Other miscellaneous receipts	229.3	175.0	283.7
Receipts for repair work	29.6	34.7	92.3
Other miscellaneous receipts	115.7	36.4	189.5
Receipts for equipment rental and leasing	67.5	92.9	(NA)
Other miscellaneous receipts, n.s.k.	16.4	11.0	2.1
Primary products specialization ratio	90	93	92
Value of primary products shipments made in all industries	2 978.2	2 291.4	9 514.1
Value of primary products shipments made in this industry	2 878.9	2 192.7	9 131.5
Value of primary products shipments made in other industries	99.3	98.8	382.6
Coverage ratio	97	96	96
INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS			
Total value of shipments	975.6	1 084.4	1 120.7
Primary products value of shipments	892.4	991.2	971.7
Secondary products value of shipments	31.5	15.5	35.9
Total miscellaneous receipts	51.7	77.8	113.1
Value of resales	39.0	47.2	29.9
Contract receipts	(D)	3.1	7.3
Other miscellaneous receipts	(D)	27.5	75.9
Sales of scrap and refuse	(D)	.6	.7
Receipts for installation (or construction) of products of this establishment	.8	17.9	49.8
Receipts for repair work	7.7	7.3	6.6
Other miscellaneous receipts	2.8	(D)	18.8
Other miscellaneous receipts, n.s.k.	.5	(D)	–
Primary products specialization ratio	97	98	96
Value of primary products shipments made in all industries	919.8	1 053.2	1 019.7
Value of primary products shipments made in this industry	892.4	991.2	971.7
Value of primary products shipments made in other industries	27.4	62.0	47.9
Coverage ratio	97	94	95

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT			
Total value of shipments	3 914.0	3 408.2	2 946.7
Primary products value of shipments	3 295.2	2 873.6	2 327.7
Secondary products value of shipments	269.7	237.1	289.9
Total miscellaneous receipts	349.1	297.5	329.1
Value of resales	193.2	158.7	200.9
Contract receipts	10.0	20.9	40.1
Other miscellaneous receipts	145.9	117.9	88.1
Sales of scrap and refuse	2.9	1.6	(D)
Receipts for installation (or construction) of products of this establishment	103.4	93.6	63.1
Receipts for repair work	8.1	4.2	5.1
Other miscellaneous receipts	17.1	6.6	12.7
Other miscellaneous receipts, n.s.k.	14.4	11.9	(D)
Primary products specialization ratio	92	92	89
Value of primary products shipments made in all industries	3 618.4	3 106.6	2 570.7
Value of primary products shipments made in this industry	3 295.2	2 873.6	2 327.7
Value of primary products shipments made in other industries	323.2	233.0	242.9
Coverage ratio	91	92	91
INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS			
Total value of shipments	911.5	675.4	(NA)
Primary products value of shipments	738.5	581.3	(NA)
Secondary products value of shipments	76.0	42.4	(NA)
Total miscellaneous receipts	96.9	51.7	(NA)
Value of resales	41.9	28.4	(NA)
Contract receipts	4.7	3.6	(NA)
Other miscellaneous receipts	50.3	19.7	(NA)
Sales of scrap and refuse	(D)	(D)	(NA)
Receipts for research and development	(D)	(D)	(NA)
Receipts for repair work	11.8	9.9	(NA)
Other miscellaneous receipts	7.0	3.1	(NA)
Other miscellaneous receipts, n.s.k.	31.3	6.2	(NA)
Primary products specialization ratio	91	93	(NA)
Value of primary products shipments made in all industries	810.2	745.6	(NA)
Value of primary products shipments made in this industry	738.5	581.3	(NA)
Value of primary products shipments made in other industries	71.6	164.3	(NA)
Coverage ratio	91	78	(NA)
INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS			
Total value of shipments	2 753.7	2 440.2	(NA)
Primary products value of shipments	2 441.1	2 123.1	(NA)
Secondary products value of shipments	112.9	111.4	(NA)
Total miscellaneous receipts	199.7	205.7	(NA)
Value of resales	164.0	170.6	(NA)
Contract receipts	3.4	6.5	(NA)
Other miscellaneous receipts	32.3	28.6	(NA)
Sales of scrap and refuse	.7	2.6	(NA)
Receipts for installation (or construction) of products of this establishment	10.4	3.6	(NA)
Receipts for repair work	4.2	5.6	(NA)
Other miscellaneous receipts	17.1	16.5	(NA)
Primary products specialization ratio	96	95	(NA)
Value of primary products shipments made in all industries	2 658.5	2 257.3	(NA)
Value of primary products shipments made in this industry	2 441.1	2 123.1	(NA)
Value of primary products shipments made in other industries	217.4	134.2	(NA)
Coverage ratio	92	94	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3531– —	**CONSTRUCTION MACHINERY**						
	Total	**(NA)**	**(X)**	**12 391.7**	**(NA)**	**(X)**	**r11 704.6**
3531A	Wheel tractors, contractors' off-highway (2- and 4-wheel), rubber-tired dozers, and self-propelled wheeled log skidders	(NA)	(X)	412.6	(NA)	(X)	379.7
3531A 00	Wheel tractors, contractors' off-highway (2- and 4-wheel), rubber-tired dozers, and self-propelled wheeled log skidders[3]	23	(X)	412.6	18	(X)	379.7
3531B	Crawler tractors, 20 net engine horsepower rating or more (sold with or without attachments) (excluding parts)	(NA)	(X)	771.3	(NA)	(X)	945.6
3531B 00	Crawler tractors, 20 net engine horsepower rating or more (sold with or without attachments) (excluding parts)[3]	7	(X)	771.3	6	(X)	945.6
3531C	Tractor shovel loaders (sold with or without attachments) (excluding parts)	(NA)	(X)	1 836.7	(NA)	(X)	1 741.8
3531C 00	Tractor shovel loaders (sold with or without attachments) (excluding parts)[3]	18	(X)	1 836.7	21	(X)	1 741.8
3531E	Power cranes, draglines, and shovels (excavators) (including surface mining equipment and attachments) (excluding parts)	(NA)	(X)	1 656.9	(NA)	(X)	957.1
3531E 00	Power cranes, draglines, and shovels (excavators) (including surface mining equipment and attachments) (excluding parts)[3]	71	(X)	1 656.9	50	(X)	957.1
3531F	Mixers, pavers, and related equipment (excluding parts)	(NA)	(X)	642.4	(NA)	(X)	586.1
3531F 00	Mixers, pavers, and related equipment (excluding parts)[3]	87	(X)	642.4	71	(X)	586.1
3531G	Scrapers, graders, rollers, off-highway trucks and coal haulers, trailers, wagons, rough terrain forklifts, except parts	(NA)	(X)	1 602.2	(NA)	(X)	1 221.4
3531G 00	Scrapers, graders, rollers, off-highway trucks and coal haulers, trailers, wagons, rough terrain forklifts, except parts[3]	63	(X)	1 602.2	51	(X)	1 221.4
3531N	Construction machinery for mounting on tractors and other prime movers (excluding parts and snow clearing attachments)[4]	(NA)	(X)	326.0	(NA)	(X)	[4]593.5
3531N 00	Construction machinery for mounting on tractors and other prime movers (excluding parts and snow clearing attachments)[3]	60	(X)	326.0	54	(X)	[4]593.5
3531P	Other construction machinery and equipment (excluding parts)[4]	(NA)	(X)	1 831.5	(NA)	(X)	[4]1 356.9
3531P 06	Commercial brush, limb, and log chippers for waste wood reduction thousands	12	(S)	56.6	6	(S)	23.0
3531P 07	Log splitters thousands	6	(S)	16.9	7	(S)	4.5
3531P 11	Dredging machinery, hydraulic and other types	5	(X)	30.6	6	(X)	28.2
3531P 20	Self-propelled continuous ditchers and trenchers (including ladder and wheel types) (integral units only)[3]	9	(X)	120.7	7	(X)	125.8
3531P 21	Railway maintenance of way equipment (rail layers, ballast spreaders, etc.), except rail cars	17	(X)	88.7	18	(X)	86.2
3531P 22	Vertical earth augers and power posthole diggers, excluding water well and blasthole drills thousands	16	(S)	21.4	20	(S)	16.0
3531P 24	Horizontal earth boring machines and accessories thousands	15	(S)	62.2	4	(S)	15.1
3531P 25	Digger-derricks thousands	6	(S)	64.2	3	(D)	[5]
3531P 27	Pile driving equipment (including air, steam, or diesel pile hammers and impact pile or vibratory driver extractors) thousands	6	(S)	17.3	4	(S)	6.3
	Winches, including for marine use (excluding winches for mounting on tractors):						
3531P 53	Electric	25	(X)	74.1	20	(X)	85.6
3531P 55	Other	22	(X)	80.3	20	(X)	58.2
3531P 61	Automobile hoists (used on tow trucks) thousands	1	(D)	[6]	2	(D)	[5]
3531P 70	Portable crushing plants, screening plants, washing plants, and combination plants[3]	15	(X)	88.8	14	(X)	71.0
3531P 74	Handheld compaction equipment (including tampers, upright, and vibratory compactors) thousands	6	(D)	[6]	7	37.0	23.8
3531P 77	Handheld pavement breakers thousands	–	(NA)	[6]47.9	6	(S)	8.8
3531P 82	Rotary snow blowers, except residential (including integral units and attachments for mounting) thousands	5	(S)	12.0	7	(S)	7.4
3531P 85	Snow clearing attachments for mounting on tractors or trucks (except rotary snow blowers), including snow plows, etc.	24	(X)	93.6	(NA)	(X)	[4]
3531P 90	Personnel aerial work platforms[3]	27	(X)	582.0	34	(X)	501.9
3531P 97	All other construction machinery and equipment, complete units, including well point systems thousands	63	(S)	330.9	59	(S)	[5]281.3
3531P 00	Other construction machinery and equipment (excluding parts), n.s.k.	(NA)	(X)	43.4	(NA)	(X)	13.9
3531M	Parts for construction machinery and equipment, sold separately	(NA)	(X)	2 934.2	(NA)	(X)	r3 269.1
3531M 01	Parts for contractors' off-highway wheel tractors, crawler tractors, and tractor shovel loaders (sold separately)	62	(X)	1 192.8	46	(X)	1 401.2
3531M 03	Parts for power cranes, draglines, and shovels (excavators) (including surface mining equipment)	47	(X)	380.2	33	(X)	270.7
3531M 05	Parts for mixers, pavers, and related equipment (sold separately)	44	(X)	158.7	39	(X)	191.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3531– —	**CONSTRUCTION MACHINERY**—Con.						
3531M	Parts for construction machinery and equipment, sold separately—Con.						
3531M 07	Parts for scrapers, graders, rollers, off-highway trucks and coal haulers, trailers, wagons, rough terrain forklifts	56	(X)	286.8	34	(X)	240.8
3531M 08	Parts for construction machinery for mounting on tractors and other prime movers	38	(X)	200.2	(NA)	(X)	1 088.1
3531M 21	Parts for other construction machinery and equipment listed in product class 3531P	100	(X)	647.1			
3531M 00	Parts for construction machinery and equipment, sold separately, n.s.k.	(NA)	(X)	68.3	(NA)	(X)	ʳ76.7
35310	Construction machinery, n.s.k.	(NA)	(X)	377.9	(NA)	(X)	653.4
35310 00	Construction machinery, n.s.k.[7]	(NA)	(X)	264.1	(NA)	(X)	344.5
35310 02	Construction machinery, n.s.k.[8]	(NA)	(X)	113.8	(NA)	(X)	308.9

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3532– —	**MINING MACHINERY**				
	Total	**(NA)**	**1 426.9**	**(NA)**	**1 362.9**
35325	Underground mining machinery (except parts sold separately)	(NA)	337.5	(NA)	208.4
35325 00	Underground mining machinery (except parts sold separately)[3]	36	337.5	26	208.4
35326	Mineral processing and beneficiation machinery (except parts sold separately)	(NA)	76.6	(NA)	66.3
35326 00	Mineral processing and beneficiation equipment (except parts sold separately)[3]	28	76.6	30	66.3
35327	Crushing, pulverizing, and screening machinery (excluding portable plants), except parts sold separately	(NA)	191.0	(NA)	148.7
35327 00	Crushing, pulverizing, and screening machinery (excluding portable plants), except parts sold separately[3]	42	191.0	33	148.7
35328	Drills and other mining machinery, n.e.c. (except parts sold separately)	(NA)	142.2	(NA)	127.9
35328 00	Drills and other mining machinery, n.e.c. (except parts sold separately)[3]	28	142.2	24	127.9
35329	Parts and attachments for mining machinery and equipment (sold separately)	(NA)	610.5	(NA)	680.0
	Mining drill bits:				
	Rock drill bits:				
35329 31	Percussion	7	23.3	(NA)	31.1
35329 35	Other than percussion	12	94.2	(NA)	80.5
35329 42	All other mining drill bits	15	71.0	(NA)	31.5
35329 72	Parts and attachments for mining machinery and equipment (except drill bits)	84	374.9	(NA)	490.6
35329 00	Parts and attachments for mining machinery and equipment (sold separately), n.s.k.	(NA)	47.1	(NA)	46.2
35320	Mining machinery, n.s.k.	(NA)	69.1	(NA)	131.6
35320 00	Mining machinery, n.s.k.[9]	(NA)	21.9	(NA)	38.9
35320 02	Mining machinery, n.s.k.[10]	(NA)	47.2	(NA)	92.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3533– —	**OIL AND GAS FIELD MACHINERY**						
	Total	**(NA)**	**(X)**	**2 978.2**	**(NA)**	**(X)**	**2 291.4**
35337	Rotary oil and gas field drilling machinery and equipment	(NA)	(X)	897.3	(NA)	(X)	698.4
	Rotary drilling surface equipment:						
35337 11	Blocks, crown and traveling number	2	(D)	(D)	2	(S)	.3
35337 12	Draw works and accessories number	3	–	(D)	(NA)	(S)	1.4
35337 14	Rotary tables number	3	(D)	(D)			
35337 15	Elevators, spiders, slips, hooks, links, and connectors	6	(X)	21.0	6	(X)	8.5
35337 16	Swivels and accessories	6	(X)	28.9	4	(X)	14.0
35337 17	Well control equipment (blow-out preventers, etc.)	12	(X)	95.7	12	(X)	56.4
35337 21	Other rotary drilling surface machinery and equipment, including kelly joints	12	(X)	68.5	10	(X)	51.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3533– —	**OIL AND GAS FIELD MACHINERY**—Con.						
35337	Rotary oil and gas field drilling machinery and equipment—Con.						
	Rotary drilling subsurface equipment:						
	Bits:						
35337 22	With working part of sintered metal carbide or cermets ---- thousands	7	*43.1	165.1	8	(S)	213.0
35337 23	With working part of other material, including diamond ---- thousands	4	15.0	63.7	7	26.6	64.4
35337 28	Reamers and stabilizers	7	(X)	23.3			
35337 32	Coring equipment	2	(X)	(D)	(NA)	(X)	12.5
35337 44	Tool joints, subs, and connectors	17	(X)	71.7	9	(X)	26.8
35337 45	Drill collars ---- thousands	8	(S)	27.2	7	(S)	10.9
35337 47	Fishing and cutting tools	6	(X)	44.3			
35337 48	Subsea drilling risers ---- thousands	3	–	15.2	8	(X)	25.3
35337 59	Other subsurface rotary drilling equipment	18	(X)	139.5	11	(X)	79.8
35337 61	Parts for rotary drilling equipment, sold separately (except for portable drilling rigs)	12	(X)	39.6	18	(X)	85.3
35337 00	Rotary oil and gas field drilling machinery and equipment, n.s.k.	(NA)	(X)	23.9	(NA)	(X)	48.2
35338	Other oil and gas field drilling machinery and equipment	(NA)	(X)	183.6	(NA)	(X)	89.4
35338 31	Cable tool drilling machinery and equipment, including both surface and subsurface equipment	3	(X)	.9	(NA)	(X)	–
	Cementing, floating, guiding, and shoe equipment:						
35338 51	Guide shoes, float collars, and combination guide and float shoes	9	(X)	30.5	9	(X)	23.4
35338 55	Other cementing equipment	8	(X)	38.7	6	(X)	21.3
35338 98	Other oil and gas field drilling equipment, except rotary drilling equipment and portable drilling rigs	16	(X)	75.8			
35338 99	Parts for other oil and gas field drilling equipment, sold separately	13	(X)	37.8	(NA)	(X)	42.1
35338 00	Other oil and gas field drilling machinery and equipment, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	2.6
35339	Oil and gas field production machinery and equipment (except pumps)	(NA)	(X)	1 188.3	(NA)	(X)	869.1
	Production well equipment, surface, subsurface, and subsea:						
35339 12	Christmas tree assemblies, excluding subsea	11	(X)	127.3	9	(X)	46.1
35339 13	Casing and tubing heads and supports	12	(X)	50.3	12	(X)	51.7
35339 14	Chokes, manifolds, and other accessories (excluding subsea manifolds and templates)	12	(X)	75.2	9	(X)	57.8
35339 19	Rodless oil lifting machinery and equipment (except pumps)	9	(X)	34.9	7	(X)	25.6
35339 21	Subsea Christmas tree assemblies, manifolds, and templates	5	(X)	43.0	2	(X)	[11]
	Rod lifting machinery and equipment, surface, including pumps:						
35339 53	Pumping units and accessories, including back crank equipment ---- thousands	6	(S)	72.5	5	(D)	[11]
35339 55	Other surface rod lifting machinery and equipment	5	(X)	5.2	3	(X)	[11]
35339 57	Subsurface rod lifting equipment (sucker rods), except pumps ---- 1,000 sucker rods	6	(S)	43.1	6	1 685.1	52.7
35339 61	Packers	13	(X)	166.0	6	(X)	159.4
35339 65	Screens, tubing, catchers, etc.	4	(X)	47.4	3	(X)	[11]107.5
35339 71	Oil and gas separating, metering, and treating equipment for use at the wellhead ---- 1,000 separators	26	(S)	98.9	12	(S)	58.6
35339 98	Other oil and gas field production machinery and tools	47	(X)	311.9	31	(X)	234.5
35339 82	Parts for oil and gas field production machinery and tools, sold separately	31	(X)	107.4	21	(X)	31.3
35339 00	Oil and gas field production machinery and equipment (except pumps), n.s.k.	(NA)	(X)	5.0	(NA)	(X)	43.8
3533A	Portable drilling rigs and parts	(NA)	(X)	337.9	(NA)	(X)	224.8
3533A 10	Portable drilling rigs (mounted and unmounted) used on the surface (above ground)	25	(X)	227.8	18	(X)	147.8
3533A 78	Parts for portable drilling rigs used on the surface (above ground)	25	(X)	105.0	17	(X)	69.0
3533A 00	Portable drilling rigs and parts, n.s.k.[3]	(NA)	(X)	5.1	(NA)	(X)	8.1
3533B	Oil and gas field derricks and well surveying machinery	(NA)	(X)	65.7	(NA)	(X)	97.7
3533B 21	Derricks, oil and gas field, substructures, and accessories - regular and portable ---- number	2			2	(D)	[12]
3533B 32	Well surveying machinery and equipment, excluding well logging equipment	3	(X)	62.4	5	(X)	17.9
3533B 34	Well logging equipment	7			7	(X)	[12]75.6
3533B 00	Oil and gas field derricks and well surveying machinery, n.s.k.	(NA)	(X)	3.2	(NA)	(X)	4.2
35330	Oil and gas field machinery, n.s.k.	(NA)	(X)	305.3	(NA)	(X)	312.0
35330 00	Oil and gas field machinery, n.s.k.[13]	(NA)	(X)	252.2	(NA)	(X)	127.3
35330 02	Oil and gas field machinery, n.s.k.[14]	(NA)	(X)	53.2	(NA)	(X)	184.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3534– —	**ELEVATORS AND MOVING STAIRWAYS**				
	Total	**(NA)**	**919.8**	**(NA)**	**1 053.2**
35341	Elevators and moving stairways	(NA)	696.4	(NA)	752.8
	Elevators (except farm and portable):				
	Electric passenger (except residence lifts):				
35341 05	Geared	15	118.8	16	165.2
35341 07	Gearless	5	42.3	12	48.6
35341 12	Hydraulic passenger	25	254.3	18	264.9
35341 13	Electric freight	3	16.1	9	11.0
35341 15	Hydraulic freight	16	41.5	14	24.4
35341 31	Automobile lifts (service station and garage type)	9	96.2	7	112.3
35341 51	Moving stairways, escalators, and moving walkways	8	61.1	6	60.5
35341 96	Other nonfarm elevators, including sidewalk elevators, dumb waiters, man lifts, etc. (except portable elevator/stackers)	24	63.8	22	55.2
35341 00	Elevators and moving stairways, n.s.k.	(NA)	2.2	(NA)	10.9
35342	Parts and attachments for elevators and moving stairways (sold separately)	(NA)	178.5	(NA)	198.4
35342 00	Parts and attachments for elevators and moving stairways (sold separately)	59	178.5	42	198.4
35340	Elevators and moving stairways, n.s.k.	(NA)	44.8	(NA)	102.0
35340 00	Elevators and moving stairways, n.s.k.[9]	(NA)	23.2	(NA)	48.9
35340 02	Elevators and moving stairways, n.s.k.[10]	(NA)	21.6	(NA)	53.1
3535– —	**CONVEYORS AND CONVEYING EQUIPMENT**				
	Total	**(NA)**	**3 618.4**	**(NA)**	**3 106.6**
35353	Unit handling conveyors and conveying systems, except hoists and farm elevators	(NA)	1 808.3	(NA)	1 548.3
35353 09	Gravity conveyors (skate wheel and roller)	47	93.0	34	63.4
	Trolley conveyors (overhead systems):				
35353 13	Light- to medium-duty	31	89.6	31	130.6
35353 14	Heavy-duty	30	242.8	23	323.9
35353 17	Tow conveyors (under floor systems)	16	30.7	14	32.4
	Powered conveyors (belt and roller):				
35353 21	Light- to medium-duty	90	498.2	91	378.0
35353 23	Heavy-duty	60	325.8	53	174.1
35353 35	Pneumatic tube conveyors	16	73.3	7	37.4
35353 37	Portable conveyors, except farm	5	3.2		
35353 41	Carrousels	11	19.4	(NA)	155.7
35353 47	All other, such as pallet conveyors, etc.	62	202.2		
35353 00	Unit handling conveyors and conveying systems, except hoists and farm elevators, n.s.k.	(NA)	230.1	(NA)	252.7
35354	Parts, attachments, and accessories for unit handling conveyors and conveying systems (sold separately)	(NA)	142.8	(NA)	118.9
35354 00	Parts, attachments, and accessories for unit handling conveyors and conveying systems (sold separately)	74	142.8	81	118.9
35355	Bulk material handling conveyors and conveying systems, except hoists and farm elevators	(NA)	987.0	(NA)	765.0
	Conveyors and elevators:				
35355 05	Belt conveyors and systems	187	374.4	137	281.5
35355 09	Screw conveyors	55	79.6	54	50.6
35355 11	Bucket elevators	40	49.2	32	26.1
35355 15	Pneumatic conveyors	36	120.7	22	47.7
35355 19	Portable conveyors, except farm	15	22.9	16	14.2
35355 23	En masse conveyors	7	13.8	13	10.8
35355 27	Vibrating conveyors	31	48.8	23	34.8
35355 31	All other, such as apron, flight, and drag conveyors, etc.	69	110.7	38	94.1
	Unloading and reclaiming systems:				
35355 41	Bucket wheel reclaimers	1	(15)	1	(16)
35355 43	Vibrating feeders	24	46.1	18	38.9
35355 45	All other, such as bins, apron feeders, gates, etc.	35	15 60.4	32	16 43.3
	Loading and storing systems:				
35355 51	Traveling stackers	15	18.6	9	9.6
35355 55	Other, such as trippers, centrifugal throwers, etc.	11	6.8	10	7.6
35355 00	Bulk material handling conveyors and conveying systems, except hoists and farm elevators, n.s.k.	(NA)	35.0	(NA)	105.8
35356	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems (sold separately)	(NA)	374.8	(NA)	296.7
35356 11	Belt conveyor idlers	14	59.6	20	69.4
35356 25	Belt conveyor pulleys	6	35.4	9	30.6
35356 37	All other parts, attachments, and accessories, sold separately	105	257.9	85	181.9
35356 00	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems (sold separately), n.s.k.	(NA)	21.9	(NA)	14.7
35350	Conveyors and conveying equipment, n.s.k.	(NA)	305.6	(NA)	377.8
35350 00	Conveyors and conveying equipment, n.s.k.[9]	(NA)	225.3	(NA)	258.4
35350 02	Conveyors and conveying equipment, n.s.k.[10]	(NA)	80.3	(NA)	119.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3536– —	**HOISTS, CRANES, AND MONORAILS**						
	Total	**(NA)**	**(X)**	**810.2**	**(NA)**	**(X)**	**745.6**
35363	Hoists	(NA)	(X)	380.3	(NA)	(X)	348.5
	Hand hoists:						
35363 01	Chain thousands	6	**48.6	15.1	8	(S)	15.7
35363 02	Ratchet lever thousands	10	428.8	19.8	10	359.9	19.0
35363 03	Wire rope pullers thousands	5	(S)	10.2	6	(S)	15.4
	Chain hoists, except hand:						
35363 13	Electric (roller and link) thousands	10	(S)	60.2	10	(S)	39.0
35363 32	Air or other nonelectric thousands	9	(S)	21.1	7	(S)	21.2
	Wire rope hoists, except hand:						
35363 15	Mine shaft and slope wire rope hoists, drum or friction, electric or hydraulic (except tuggers, sheaves, skips, cages)[3]	2	(X)	([17])	1	(X)	([18])
35363 16	Electric (excluding mine shaft and slope wire rope hoists) thousands	29	(S)	68.3	24	(S)	84.3
35363 34	Air or other nonelectric (excluding mine shaft and slope wire rope hoists) thousands	5	(S)	17.0	5	(S)	4.3
35363 39	Other hoists thousands	29	(X)	[17]46.2	(NA)	(S)	[18]27.5
35363 45	Parts and attachments for hoists (sold separately)	37	(X)	80.3	30	(X)	73.8
35363 00	Hoists, n.s.k.	(NA)	(X)	42.0	(NA)	(X)	48.2
35364	Overhead traveling cranes and monorail systems	(NA)	(X)	379.5	(NA)	(X)	297.1
	Overhead traveling cranes (excluding construction power cranes):						
35364 01	Single top running bridge type thousands	28	(S)	24.9	23	(S)	22.4
35364 02	Double top running bridge type thousands	32	(S)	87.6	25	(S)	76.7
35364 03	Under running bridge type thousands	27	(S)	34.2	22	(S)	27.8
35364 04	Gantry type thousands	15	(S)	20.1	16	(S)	19.0
35364 05	Stacker/ storage type thousands	2	(S)	14.5	5	(S)	6.6
35364 06	Other, including jib type thousands	11			10	(S)	13.8
35364 17	Parts and attachments for overhead traveling cranes (sold separately)	36	(X)	60.3	28	(X)	58.6
35364 52	Monorail systems (manual and powered) thousands	17	(S)	35.6	13	(S)	39.2
35364 54	Parts and attachments for monorail systems (sold separately)	8	(X)	6.9	7	(X)	7.5
35364 00	Overhead traveling cranes and monorail systems, n.s.k.	(NA)	(X)	95.4	(NA)	(X)	25.4
35360	Hoists, cranes, and monorails, n.s.k.	(NA)	(X)	50.4	(NA)	(X)	100.1
35360 00	Hoists, cranes, and monorails, n.s.k.[13]	(NA)	(X)	40.1	(NA)	(X)	76.1
35360 02	Hoists, cranes, and monorails, n.s.k.[14]	(NA)	(X)	10.3	(NA)	(X)	24.0
3537– —	**INDUSTRIAL TRUCKS AND TRACTORS**						
	Total	**(NA)**	**(X)**	**2 658.5**	**(NA)**	**(X)**	**2 257.3**
35373	Industrial trucks, tractors, mobile straddle carriers and cranes, and automatic stacking machines	(NA)	(X)	1 784.8	(NA)	(X)	1 486.8
	Fork lift and other work trucks fitted with lifting or handling equipment:						
	Self-propelled:						
	Electric motor powered:						
35373 01	Fork lift (operating riding) thousands	19	(S)	485.7	15	*42.5	492.9
35373 02	Other (operating riding) thousands	6	(S)	5.1	4	(S)	9.1
35373 03	Nonriding thousands	20	(S)	185.9	18	(S)	135.5
	Internal combustion engine or other nonelectric powered:						
35373 04	Gasoline (operating riding fork lift) thousands	9	(S)	89.2	(NA)	([19])	([19])
35373 07	Diesel (operating riding fork lift) thousands	13	(S)	109.5	(NA)	([19])	([19])
35373 09	LPG (liquid petroleum gas) (operating riding fork lift) thousands	6	**22.4	299.6	(NA)	([19])	([19])
35373 11	Other, including CNG (compressed natural gas) (operating riding fork lift) thousands	(NA)	–	–	(NA)	[19]14.4	[19]313.5
35373 06	Other operator riding, except fork lift thousands	6	(S)	48.3	4	([20])	([20])
35373 08	Nonriding thousands	1			1	[20].7	[20]20.8
35373 12	Not self-propelled (hand lift, etc.) thousands	15	(S)	32.7	12	(S)	25.6
	Works trucks and tractors not fitted with lifting or handling equipment:						
	Self-propelled:						
	Electric motor powered:						
35373 15	Operator riding thousands	8	(S)	33.3	4	(S)	([21])
35373 16	Other thousands	5			2	(D)	[21]16.8
	Internal combustion engine or other nonelectric powered:						
35373 17	Operator riding thousands	10	(S)	34.7	9	(S)	34.3
35373 18	Other thousands	3	(D)	([22])	2	(S)	([23])
35373 19	Not self-propelled	24	(X)	56.5	17	(X)	29.9
35373 21	Mobile straddle carriers and cranes thousands	6	(S)	5.0	9	(S)	46.9
35373 25	Portable elevators/ stackers (except farm type) thousands	2	(NA)	[22]10.5	2	(D)	[23]1.8
35373 26	Palletizers and depalletizers (pallet loaders and unloaders)	14	(X)	57.4	10	(X)	24.1
	Hydraulic lift tables (electrohydraulic lift platforms):						
35373 28	Scissors type thousands	17	(S)	78.0	14	(S)	63.4
35373 29	Other types thousands	16	(S)	27.1	11	(S)	22.0
35373 31	Metal pallets and skids (excluding wood and metal combination) thousands	16	(S)	12.6	9	(S)	12.0
35373 32	Dock boards (industrial loading ramps, hinged loading ramps) thousands	16	(S)	36.2	15	(S)	27.1
35373 35	Automatic stacking machines thousands	17	(S)	40.9	23	(S)	81.8
35373 39	All other industrial trucks and tractors thousands	35	(S)	88.8	31	(S)	74.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3537– —	**INDUSTRIAL TRUCKS AND TRACTORS—Con.**						
35373	Industrial trucks, tractors, mobile straddle carriers and cranes, and automatic stacking machines—Con.						
35373 00	Industrial trucks, tractors, mobile straddle carriers and cranes, and automatic stacking machines, n.s.k.	(NA)	(X)	47.7	(NA)	(X)	54.4
35374	Parts and attachments for industrial trucks and tractors (sold separately)	(NA)	(X)	576.9	(NA)	(X)	436.6
35374 11	Cabs for industrial trucks and tractors	8	(X)	9.1	5	(X)	4.4
35374 18	All other parts and attachments	113	(X)	546.9	(NA)	(X)	406.3
35374 00	Parts and attachments for industrial trucks and tractors (sold separately), n.s.k.	(NA)	(X)	20.8	(NA)	(X)	26.0
35370	Industrial trucks and tractors, n.s.k.	(NA)	(X)	296.9	(NA)	(X)	333.8
35370 00	Industrial trucks and tractors, n.s.k.[13]	(NA)	(X)	236.2	(NA)	(X)	228.4
35370 02	Industrial trucks and tractors, n.s.k.[14]	(NA)	(X)	60.6	(NA)	(X)	105.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]For 1987, product code 3531P 85 is included in the total for product class 3531N, not 3531P. Product codes 3531N 00 and 3531P 85 are combined for 1987 because they were not collected separately.
[5]For 1987, product codes are combined to avoid disclosing data for individual companies.
[6]For 1992, product codes are combined to avoid disclosing data for individual companies.
[7]Typically for establishments with 15 employees or more.
[8]Typically for establishments with less than 15 employees.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]For 1987, data for product code 35339 21, 35339 53, 35339 55 are combined with product code 35339 65 to avoid discl osing data for individual companies.
[12]For 1987, data for product code 3533B 21 are combined with product code 3533B 34 to avoid disclosing data for individual companies.
[13]Typically for establishments with 5 employees or more.
[14]Typically for establishments with less than 5 employees.
[15]For 1992, product code 35355 41 is combined with product code 35355 45 to avoid disclosing data for individual companies.
[16]For 1987, product code 35355 41 was combined with product code 35355 45 to avoid disclosing data for individual companies.
[17]For 1992, product code 35363 15 is combined with product code 35363 39 to avoid disclosing data for individual companies.
[18]For 1987, product code 35363 15 was combined with product code 35363 39 to avoid disclosing data for individual companies.
[19]For 1987, data for product codes 35373 04, 35373 07, and 35373 09 were combined with product code 35373 11 to avoid disclosing data for individual companies.
[20]For 1987, product code 35373 06 was combined with product code 35373 08 to avoid disclosing data for individual companies.
[21]For 1987, product code 35373 15 was combined with product code 35373 16 to avoid disclosing data for individual companies.
[22]For 1992, product code 35373 18 is combined with product code 35373 25 to avoid disclosing data for individual companies.
[23]For 1987, product code 35373 18 was combined with product code 35373 25 to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
3531A, WHEEL TRACTORS, CONTRACTORS' OFF-HIGHWAY (2- AND 4-WHEEL), RUBBER-TIRED DOZERS, AND SELF-PROPELLED WHEELED LOG SKIDDERS		
United States	**412.6**	**397.9**
Michigan	31.8	(NA)
3531B, CRAWLER TRACTORS, 20 NET ENGINE HORSEPOWER RATING OR MORE (SOLD WITH OR WITHOUT ATTACHMENTS) (EXCLUDING PARTS)		
United States	**771.3**	**945.6**
3531C, TRACTOR SHOVEL LOADERS (SOLD WITH OR WITHOUT ATTACHMENTS) (EXCLUDING PARTS)		
United States	**1 836.7**	**1 741.8**
3531E, POWER CRANES, DRAGLINES, AND SHOVELS (EXCAVATORS) (INCLUDING SURFACE MINING EQUIPMENT AND ATTACHMENTS) (EXCLUDING PARTS)		
United States	**1 656.9**	**957.1**
Iowa	115.4	138.5
Kansas	26.7	(NA)
Louisiana	10.5	(NA)
Michigan	8.1	(NA)
Ohio	131.1	89.2
Oregon	13.2	(NA)
Texas	31.9	16.2
Washington	15.2	(NA)
Wisconsin	349.8	160.1
3531F, MIXERS, PAVERS, AND RELATED EQUIPMENT (EXCLUDING PARTS)		
United States	**642.4**	**586.1**
California	24.3	25.0
Illinois	94.1	111.7

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
3531F, MIXERS, PAVERS, AND RELATED EQUIPMENT (EXCLUDING PARTS)—Con.		
Indiana	7.2	13.6
New York	28.2	(NA)
Ohio	46.4	27.0
Pennsylvania	22.0	20.6
South Dakota	9.4	11.4
Texas	15.0	28.0
Wisconsin	29.4	36.8
3531G, SCRAPERS, GRADERS, ROLLERS, OFF-HIGHWAY TRUCKS AND COAL HAULERS, TRAILERS, WAGONS, ROUGH TERRAIN FORKLIFTS, EXCEPT PARTS		
United States	**1 602.2**	**1 221.4**
Ohio	70.6	95.2
Texas	63.3	50.5
3531M, PARTS FOR CONSTRUCTION MACHINERY AND EQUIPMENT, SOLD SEPARATELY		
United States	**2 934.2**	**3 269.1**
Alabama	18.2	20.1
Arkansas	6.3	6.8
California	30.7	54.2
Colorado	7.7	(NA)
Georgia	11.4	9.9
Illinois	1 115.3	1 104.6
Indiana	47.6	(NA)
Iowa	286.0	529.4
Kansas	38.6	36.8
Louisiana	8.5	(NA)
Massachusetts	8.9	10.7
Michigan	33.8	38.5
Minnesota	83.8	76.0
Missouri	3.9	(NA)
Nebraska	10.2	7.9
New York	5.2	11.8
Ohio	69.8	126.9
Oklahoma	85.5	89.9
Oregon	23.1	(NA)
Pennsylvania	333.7	302.8
South Dakota	21.0	(NA)
Tennessee	21.6	(NA)
Texas	42.2	47.2
Virginia	37.6	29.9
Washington	15.6	9.4
Wisconsin	281.8	337.0
3531N, CONSTRUCTION MACHINERY FOR MOUNTING ON TRACTORS AND OTHER PRIME MOVERS (EXCLUDING PARTS AND SNOW CLEARING ATTACHMENTS)		
United States	**326.0**	**(NA)**
California	7.7	(NA)
Mississippi	4.0	(NA)
Oklahoma	47.1	(NA)
Oregon	17.8	(NA)
Texas	7.9	(NA)
Wisconsin	39.9	(NA)
3531P, OTHER CONSTRUCTION MACHINERY AND EQUIPMENT (EXCLUDING PARTS)		
United States	**1 831.5**	**(NA)**
Alabama	87.9	(NA)
California	74.0	(NA)
Connecticut	36.3	(NA)
Georgia	22.9	(NA)
Illinois	28.2	(NA)
Indiana	57.3	(NA)
Iowa	95.2	(NA)
Kansas	69.6	(NA)
Massachusetts	13.8	(NA)
Michigan	70.0	(NA)
Minnesota	51.4	(NA)
Nebraska	12.4	(NA)
New Jersey	16.8	(NA)
New York	31.9	(NA)
North Carolina	26.3	(NA)
3531P, OTHER CONSTRUCTION MACHINERY AND EQUIPMENT (EXCLUDING PARTS)—Con.		
Ohio	62.6	(NA)
Oklahoma	105.2	(NA)
Oregon	31.1	(NA)
Pennsylvania	211.8	(NA)
South Dakota	54.6	(NA)
Texas	52.7	(NA)
Virginia	47.6	(NA)
Washington	133.8	(NA)
Wisconsin	190.6	(NA)
35325, UNDERGROUND MINING MACHINERY (EXCEPT PARTS SOLD SEPARATELY)		
United States	**337.5**	**208.4**
Virginia	61.6	40.3
West Virginia	49.2	19.7
35326, MINERAL PROCESSING AND BENEFICIATION MACHINERY (EXCEPT PARTS SOLD SEPARATELY)		
United States	**76.6**	**66.3**
Florida	11.0	(NA)
Pennsylvania	13.4	9.7
35327, CRUSHING, PULVERIZING, AND SCREENING MACHINERY (EXCLUDING PORTABLE PLANTS), EXCEPT PARTS SOLD SEPARATELY		
United States	**191.0**	**148.7**
California	9.9	(NA)
New York	3.8	7.4
Wisconsin	37.5	32.3
35328, DRILLS AND OTHER MINING MACHINERY, N.E.C. (EXCEPT PARTS SOLD SEPARATELY)		
United States	**142.2**	**127.9**
35329, PARTS AND ATTACHMENTS FOR MINING MACHINERY AND EQUIPMENT (SOLD SEPARATELY)		
United States	**610.5**	**680.0**
California	8.4	15.9
Illinois	13.7	27.6
Indiana	12.8	7.7
Kentucky	32.1	43.7
Michigan	10.3	10.6
Missouri	16.4	25.4
Ohio	40.1	60.5
Oregon	12.5	12.3
Pennsylvania	63.3	125.3
Texas	55.0	35.9
Utah	15.0	12.9
Virginia	80.0	69.8
West Virginia	21.3	44.4
Wisconsin	60.9	62.1
35337, ROTARY OIL AND GAS FIELD DRILLING MACHINERY AND EQUIPMENT		
United States	**897.3**	**698.4**
Louisiana	73.9	36.8
Texas	652.8	489.1
35338, OTHER OIL AND GAS FIELD DRILLING MACHINERY AND EQUIPMENT		
United States	**183.6**	**89.4**
Louisiana	19.0	(NA)
Oklahoma	62.6	20.3
Texas	85.9	56.7
35339, OIL AND GAS FIELD PRODUCTION MACHINERY AND EQUIPMENT (EXCEPT PUMPS)		
United States	**1 188.3**	**869.1**
California	6.2	14.1
Louisiana	123.9	40.5
Oklahoma	155.9	166.4
Texas	866.3	603.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
3533A, PORTABLE DRILLING RIGS AND PARTS		
United States	**337.9**	**224.8**
Ohio	4.0	(NA)
Pennsylvania	32.4	(NA)
Texas	168.8	115.5
3533B, OIL AND GAS FIELD DERRICKS AND WELL SURVEYING MACHINERY		
United States	**65.7**	**97.7**
Texas	50.3	86.8
35341, ELEVATORS AND MOVING STAIRWAYS		
United States	**696.4**	**752.8**
Florida	6.9	11.9
New Jersey	4.2	(NA)
Ohio	24.7	35.0
Pennsylvania	61.2	62.1
Texas	108.1	(NA)
Wisconsin	20.8	(NA)
35342, PARTS AND ATTACHMENTS FOR ELEVATORS AND MOVING STAIRWAYS (SOLD SEPARATELY)		
United States	**178.5**	**198.4**
California	5.0	(NA)
Illinois	23.9	(NA)
New Jersey	14.6	16.8
New York	61.2	46.6
Ohio	10.9	(NA)
Wisconsin	2.4	5.9
35353, UNIT HANDLING CONVEYORS AND CONVEYING SYSTEMS, EXCEPT HOISTS AND FARM ELEVATORS		
United States	**1 808.3**	**1 548.3**
Alabama	2.4	4.9
Arkansas	84.0	68.1
California	26.6	46.7
Colorado	73.6	52.1
Florida	44.8	37.0
Georgia	11.6	41.4
Illinois	95.7	48.4
Indiana	25.3	20.7
Kentucky	150.5	149.7
Massachusetts	16.4	(NA)
Michigan	433.0	481.0
Minnesota	24.2	8.9
Missouri	71.0	36.3
New Jersey	31.9	44.6
New York	34.7	30.9
North Carolina	23.8	18.0
Ohio	127.9	81.0
Pennsylvania	65.4	63.7
Tennessee	129.3	53.0
Texas	141.9	61.1
Virginia	44.1	23.5
Washington	2.6	(NA)
Wisconsin	51.0	31.2
35354, PARTS, ATTACHMENTS, AND ACCESSORIES FOR UNIT HANDLING CONVEYORS AND CONVEYING SYSTEMS (SOLD SEPARATELY)		
United States	**142.8**	**118.9**
Michigan	29.5	30.6
New Jersey	8.6	2.5
Ohio	6.2	4.5
Texas	11.6	4.4
Wisconsin	2.0	5.7
35355, BULK MATERIAL HANDLING CONVEYORS AND CONVEYING SYSTEMS, EXCEPT HOISTS AND FARM ELEVATORS		
United States	**987.0**	**765.0**
Alabama	21.9	9.0
California	64.9	44.8
Colorado	26.0	16.0
Florida	11.1	30.9
Georgia	24.6	10.0
Illinois	34.5	56.2
Indiana	37.1	24.7
Iowa	18.6	12.4
Kansas	67.1	29.7
Kentucky	20.4	13.8
Massachusetts	3.1	(NA)
Michigan	44.1	40.8
Minnesota	31.9	39.0
Mississippi	17.4	12.7
Missouri	16.3	21.9
Nebraska	12.1	(NA)
New Jersey	31.4	31.0
New York	3.9	7.0
North Carolina	20.8	10.3
Ohio	86.8	90.1
Oregon	40.5	24.0
Pennsylvania	76.6	54.7
South Carolina	7.9	7.6
Tennessee	6.9	16.7
Texas	83.6	46.0
Virginia	59.6	53.7
Washington	22.3	5.6
Wisconsin	63.0	27.5
35356, PARTS, ATTACHMENTS, AND ACCESSORIES FOR BULK MATERIAL HANDLING CONVEYORS AND CONVEYING SYSTEMS (SOLD SEPARATELY)		
United States	**374.8**	**296.7**
Alabama	9.7	(NA)
California	15.5	8.6
Illinois	59.1	44.1
Indiana	3.2	4.5
Kansas	10.5	(NA)
Kentucky	47.0	27.0
Michigan	6.3	39.5
New Jersey	16.7	13.1
Ohio	33.9	22.3
Oregon	2.0	(NA)
Pennsylvania	24.3	10.6
Texas	5.9	(NA)
Virginia	5.9	8.6
35363, HOISTS		
United States	**380.3**	**348.5**
California	14.8	7.1
Florida	6.7	7.4
Illinois	9.9	10.7
Indiana	6.7	(NA)
Iowa	4.8	5.6
Minnesota	16.4	7.2
New York	10.4	(NA)
Ohio	36.9	49.3
Pennsylvania	16.3	(NA)
Texas	7.8	10.0
Wisconsin	31.2	21.3
35364, OVERHEAD TRAVELING CRANES AND MONORAIL SYSTEMS		
United States	**379.5**	**297.1**
California	14.0	10.9
Illinois	32.9	33.2
Michigan	25.5	38.7
New York	26.6	(NA)
Ohio	51.9	44.8
Pennsylvania	27.2	23.7
Texas	76.2	(NA)
Wisconsin	50.0	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35373, INDUSTRIAL TRUCKS, TRACTORS, MOBILE STRADDLE CARRIERS AND CRANES, AND AUTOMATIC STACKING MACHINES		
United States	**1 784.8**	**1 486.8**
Alabama	13.2	19.4
Arkansas	15.0	11.0
California	100.6	71.5
Georgia	22.5	22.9
Indiana	118.9	30.2
Kansas	19.4	21.0
Michigan	54.7	40.9
Minnesota	24.8	69.6
New Jersey	8.8	5.2
New York	60.3	82.3
North Carolina	184.2	(NA)
Ohio	249.7	251.3
Oregon	9.0	(NA)
Pennsylvania	37.8	43.8
Tennessee	5.5	(NA)
Texas	52.3	42.9
Utah	14.4	(NA)
Virginia	18.2	(NA)
35373, INDUSTRIAL TRUCKS, TRACTORS, MOBILE STRADDLE CARRIERS AND CRANES, AND AUTOMATIC STACKING MACHINES—Con.		
Washington	14.6	7.1
Wisconsin	80.7	43.9
35374, PARTS AND ATTACHMENTS FOR INDUSTRIAL TRUCKS AND TRACTORS (SOLD SEPARATELY)		
United States	**576.9**	**436.6**
Arkansas	4.0	(NA)
California	9.4	7.6
Illinois	37.0	29.6
Indiana	14.4	5.7
Iowa	22.6	6.1
Kansas	6.3	(NA)
Kentucky	21.1	(NA)
Michigan	26.0	71.4
Minnesota	3.1	8.1
Missouri	7.0	(NA)
North Carolina	63.4	(NA)
Ohio	109.1	76.0
Pennsylvania	7.4	7.0
Wisconsin	34.6	16.0

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3531-	**Construction machinery**	**12 391.7**	**12 297.3**	**14 888.0**	**14 205.5**	**13 407.4**	**11 704.6**	**10 648.3**	**(NA)**
3531A	Wheel tractors, contractors' off-highway (2- and 4-wheel), rubber-tired dozers, and self-propelled wheeled log skidders	412.6	226.6	364.6	384.7	409.2	379.7	266.8	453.6
3531B	Crawler tractors, 20 net engine horsepower rating or more (sold with or without attachments) (excluding parts)	771.3	1 016.9	1 106.3	1 184.6	1 156.0	945.6	804.8	1 164.6
3531C	Tractor shovel loaders (sold with or without attachments) (excluding parts)	1 836.7	1 948.6	2 294.9	2 289.1	2 017.6	1 741.8	1 248.4	1 537.2
3531E	Power cranes, draglines, and shovels (excavators) (including surface mining equipment and attachments) (excluding parts)	1 656.9	1 223.6	1 655.6	1 395.8	1 112.2	957.1	1 940.3	2 749.3
3531F	Mixers, pavers, and related equipment (excluding parts)	642.4	551.1	612.3	669.5	596.6	586.1	307.0	304.8
3531G	Scrapers, graders, rollers, off-highway trucks and coal haulers, trailers, wagons, rough terrain forklifts, except parts	1 602.2	1 537.4	2 029.4	1 725.2	1 576.4	1 221.4	(NA)	(NA)
3531M	Parts for construction machinery and equipment, sold separately	2 934.2	3 131.7	3 890.6	3 660.8	3 766.5	3 269.1	[2]3 290.9	[2]2 954.4
3531N	Construction machinery for mounting on tractors and other prime movers (excluding parts and snow clearing attachments)	326.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3531P	Other construction machinery and equipment (excluding parts)	1 831.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35310	Construction machinery, n.s.k.	377.9	725.5	732.7	693.8	574.9	653.4	316.6	305.1
3532-	**Mining machinery**	**1 426.9**	**1 583.8**	**1 754.4**	**1 677.2**	**1 478.4**	**1 362.9**	**1 936.3**	**1 785.6**
35325	Underground mining machinery (except parts sold separately)	337.5	331.5	366.3	329.9	253.9	208.4	448.6	432.1
35326	Mineral processing and beneficiation machinery (except parts sold separately)	76.6	79.5	73.4	83.3	89.6	66.3	91.3	100.9
35327	Crushing, pulverizing, and screening machinery (excluding portable plants), except parts sold separately	191.0	138.7	165.1	171.0	187.7	148.7	182.4	181.9
35328	Drills and other mining machinery, n.e.c. (except parts sold separately)	142.2	145.8	169.6	167.4	143.7	127.9	129.9	120.5
35329	Parts and attachments for mining machinery and equipment (sold separately)	610.5	728.4	813.7	783.1	669.5	680.0	983.8	841.4
35320	Mining machinery, n.s.k.	69.1	159.9	166.3	142.6	133.9	131.6	100.4	108.8
3533-	**Oil and gas field machinery**	**2 978.2**	**3 399.5**	**3 012.5**	**2 829.3**	**2 847.9**	**2 291.4**	**9 514.1**	**3 219.4**
35337	Rotary oil and gas field drilling machinery and equipment	897.3	908.9	785.1	820.4	867.0	698.4	4 636.0	1 429.7
35338	Other oil and gas field drilling machinery and equipment	183.6	(D)	116.0	(D)	97.3	89.4		
35339	Oil and gas field production machinery and equipment (except pumps)	1 188.3	1 576.7	1 347.6	1 200.5	1 181.5	869.1	3 035.2	[3]1 110.5
3533A	Portable drilling rigs and parts	337.9	244.8	241.1	295.1	267.2	224.8	[3]532.3	520.6
3533B	Oil and gas field derricks and well surveying machinery	65.7	(D)	160.5	(D)	143.8	97.7	737.2	
35330	Oil and gas field machinery, n.s.k.	305.3	354.6	362.2	319.1	291.1	312.0	573.4	158.6
3534-	**Elevators and moving stairways**	**919.8**	**1 108.6**	**1 219.6**	**1 189.2**	**1 179.9**	**1 053.2**	**1 019.7**	**435.1**
35341	Elevators and moving stairways	696.4	831.6	884.8	897.4	847.8	752.8	747.3	
35342	Parts and attachments for elevators and moving stairways (sold separately)	178.5	198.2	249.4	210.9	229.4	198.4	187.4	435.1
35340	Elevators and moving stairways, n.s.k.	44.8	78.7	85.4	80.8	102.6	102.0	84.9	

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3535-	**Conveyors and conveying equipment**	**3 618.4**	**3 682.6**	**3 912.3**	**3 814.7**	**3 231.8**	**3 106.6**	**2 570.7**	**1 684.6**
35353	Unit handling conveyors and conveying systems, except hoists and farm elevators	1 808.3	1 898.7	1 967.4	1 950.9	1 527.8	1 548.3	994.2	586.5
35354	Parts, attachments, and accessories for unit handling conveyors and conveying systems (sold separately)	142.8	187.4	219.8	188.4	148.6	118.9	107.4	73.1
35355	Bulk material handling conveyors and conveying systems, except hoists and farm elevators	987.0	820.1	902.3	903.2	833.3	765.0	953.4	640.2
35356	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems (sold separately)	374.8	412.8	445.6	416.6	332.8	296.7	294.7	204.4
35350	Conveyors and conveying equipment, n.s.k.	305.6	363.6	377.1	355.7	389.4	377.8	221.0	180.4
3536-	**Hoists, cranes, and monorails**	**810.2**	**1 054.2**	**989.9**	**967.9**	**789.8**	**745.6**	**1 086.9**	**901.3**
35363	Hoists	380.3	357.8	428.3	450.1	383.0	348.5	422.5	[4]404.1
35364	Overhead traveling cranes and monorail systems	379.5	602.5	462.0	421.8	291.2	297.1	516.4	384.9
35360	Hoists, cranes, and monorails, n.s.k.	50.4	94.0	99.7	96.0	115.6	100.1	89.8	70.4
3537-	**Industrial trucks and tractors**	**2 658.5**	**2 361.3**	**2 675.5**	**2 796.1**	**2 717.5**	**2 257.3**	**1 839.9**	**(NA)**
35373	Industrial trucks, tractors, mobile straddle carriers and cranes, and automatic stacking machines	1 784.8	1 548.1	1 823.4	1 917.3	1 874.7	1 486.8	1 267.0	(NA)
35374	Parts and attachments for industrial trucks and tractors (sold separately)	576.9	587.8	579.3	569.9	511.3	436.6	409.1	(NA)
35370	Industrial trucks and tractors, n.s.k.	296.9	225.4	272.8	308.9	331.5	333.8	163.8	187.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.
[2]Data included construction machinery, n.e.c., n.s.k., and attachments (sold separately) for tractors in product classes 3531M.
[3]Since 1982, parts for portable drilling rigs are included with product class 3533A. For 1981 and prior years, parts for portable drilling rigs were included with product class 35339.
[4]Data included automobile hoists (used on tow trucks).

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3531, CONSTRUCTION MACHINERY		
	Materials, ingredients, containers, and supplies	**6 792.3**	**[r]6 101.1**
	Pumps (complete assemblies):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	266.7	178.7
356102	All other pumps	21.5	26.5
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
359301	Cylinders and rotary actuators	158.6	124.7
356921	Filters	18.2	4.6
349261	Hose or tube fittings and assemblies	79.7	42.9
349271	Valves	100.0	94.1
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	68.2	48.2
344001	Fabricated structural metal products	240.9	145.1
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	29.2	24.8
340079	All other fabricated metal products	97.0	10.5
	Forgings:		
346200	Iron and steel	252.3	225.1
346300	Nonferrous	1.6	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	550.9	436.2
336005	Aluminum and aluminum-base alloy	16.0	24.6
336003	Other nonferrous	18.0	6.6
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	446.9	
331022	Sheet and strip	262.8	
331023	Structural shapes and sheet piling	92.7	804.1
331091	All other	149.9	
335105	Copper and copper-base alloy	8.8	15.2
335090	All other nonferrous	7.8	13.5
	Engines:		
351920	Diesel and semidiesel engines	451.7	322.6
351905	Gasoline and other carburetor	34.8	33.9
362120	Integral horsepower motors and generators (1 hp or more)	35.2	16.7
	Bearings (mounted or unmounted):		
356218	Ball	63.7	52.0
356201	Roller	64.6	49.7
356601	Speed changers, gears, and industrial high-speed drives	154.4	178.9
301102	Pneumatic tires	142.3	127.0
305201	Rubber and plastics hose and belting	46.7	33.1
308006	Fabricated plastics products, except gaskets	36.3	19.3
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	37.8	26.0
353102	Cabs purchased for installation on construction machinery	115.6	(1)
354501	Cutting tools for machine tools	24.5	34.0
970099	All other materials and components, parts, containers, and supplies	2 076.4	[1]1 959.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	620.6	[r]1 022.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3532, MINING MACHINERY		
	Materials, ingredients, containers, and supplies	**682.1**	**636.4**
	Pumps (complete assemblies):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	11.0	4.4
356102	All other pumps	1.8	.6
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
359301	Cylinders and rotary actuators	14.5	6.1
356921	Filters	3.0	.7
349261	Hose or tube fittings and assemblies	6.1	3.2
349271	Valves	9.1	3.8
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	7.1	5.7
344001	Fabricated structural metal products	27.7	28.3
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	8.6	1.0
340079	All other fabricated metal products	19.3	.2
	Forgings:		
346200	Iron and steel	32.5	17.9
346300	Nonferrous	1.2	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	53.8	39.6
336005	Aluminum and aluminum-base alloy	.4	1.1
336003	Other nonferrous	2.3	3.3
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	52.3	
331022	Sheet and strip	7.7	53.6
331023	Structural shapes and sheet piling	4.9	
331091	All other	7.2	
335105	Copper and copper-base alloy	.3	2.2
335090	All other nonferrous	1.7	1.5
	Engines:		
351920	Diesel and semidiesel engines	8.5	4.5
351905	Gasoline and other carburetor	1.4	(3)
362120	Integral horsepower motors and generators (1 hp or more)	25.6	2.7
	Bearings (mounted or unmounted):		
356218	Ball	7.0	4.2
356201	Roller	12.5	10.5
356601	Speed changers, gears, and industrial high-speed drives	28.0	19.8
301102	Pneumatic tires	2.9	.8
305201	Rubber and plastics hose and belting	5.6	2.2
308006	Fabricated plastics products, except gaskets	2.6	.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	2.1	3.4
353102	Cabs purchased for installation on construction machinery	(4)	(1)
354501	Cutting tools for machine tools	3.8	3.9
970099	All other materials and components, parts, containers, and supplies	4189.1	1194.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	120.5	215.8
	INDUSTRY 3533, OIL AND GAS FIELD MACHINERY		
	Materials, ingredients, containers, and supplies	**1 391.4**	**1 046.2**
	Valves:		
349270	Fluid power (hydraulic and pneumatic) valves	15.8	3.9
349404	All other	12.3	6.5
	Pumps (complete assemblies):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	17.8	6.4
356102	All other	10.0	3.6
	Fluid power products (hydraulic and pneumatic), except valves, pumps, and motors:		
359301	Cylinders and rotary actuators	12.9	12.3
356921	Filters	3.2	.9
349261	Hose or tube fittings and assemblies	11.4	4.6
340075	Fabricated metal products, except forgings and fluid power products	99.4	(1)
	Forgings:		
346200	Iron and steel	61.3	26.9
346300	Nonferrous	.2	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	38.4	65.6
336010	Nonferrous	14.4	1.9
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	166.0	
331071	Structural shapes	27.3	160.4
331089	All other	55.3	
336002	Nonferrous	11.5	.8
339915	Metal powders	13.3	14.5
351920	Diesel and semidiesel engines	21.0	7.1
362120	Integral horsepower motors and generators (1 hp or more)	5.2	2.6
356200	Ball and roller bearings (mounted or unmounted)	13.0	6.5
306902	Fabricated rubber products (except tires, tubes, hose, belting, and gaskets)	36.3	11.6
308006	Fabricated plastics products, except gaskets	8.0	3.0
329903	Industrial diamonds	5.6	(1)
354501	Cutting tools for machine tools	19.6	6.7
970099	All other materials and components, parts, containers, and supplies	332.0	1231.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	380.2	469.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS		
	Materials, ingredients, containers, and supplies	**540.7**	**496.7**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	17.8	3.6
359301	Cylinders and rotary actuators	18.6	(3)
356921	Filters	(5)	(Z)
349261	Hose or tube fittings and assemblies	5.0	.4
349271	Valves	8.0	3.0
340075	Fabricated metal products, except forgings	31.2	(1)
	Forgings:		
346200	Iron and steel	1.9	.9
346300	Nonferrous	(5)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	10.4	8.7
336010	Nonferrous	3.7	6.8
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	57.6	
331022	Sheet and strip	71.7	
331023	Structural shapes and sheet piling	22.4	96.0
331091	All other	27.6	
335105	Copper and copper-base alloy	5.4	4.6
335001	Aluminum and aluminum-base alloy	12.2	4.9
335099	Other nonferrous	2.5	(1)
351905	Gasoline and other carburetor engines	(5)	(3)
	Electric motors and generators:		
362102	Fractional horsepower electric motors (less than 1 hp) (excluding timing motors)	5.0	3.0
362120	Integral horsepower motors and generators (1 hp or more)	7.8	7.6
360101	Electrical transmission, distribution, and control equipment	53.9	21.8
369101	Storage batteries	.5	(3)
	Bearings (mounted or unmounted):		
356218	Ball	4.9	1.0
356201	Roller	4.0	1.2
356601	Speed changers, gears, and industrial high-speed drives	4.6	3.7
301101	Pneumatic tires and inner tubes	(5)	(3)
305201	Rubber and plastics hose and belting	4.1	.2
970099	All other materials and components, parts, containers, and supplies	5103.7	3141.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	56.0	193.7
	INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**1 431.9**	**1 241.9**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	16.7	3.5
359301	Cylinders and rotary actuators	10.9	5.1
356921	Filters	2.3	.2
349261	Hose or tube fittings and assemblies	8.3	1.7
349271	Valves	17.2	5.2
340075	Fabricated metal products, except forgings	128.7	(1)
	Forgings:		
346200	Iron and steel	15.6	13.0
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	23.9	20.8
336010	Nonferrous	5.4	2.8
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	71.0	
331022	Sheet and strip	107.4	
331023	Structural shapes and sheet piling	44.7	211.0
331091	All other	45.6	
335105	Copper and copper-base alloy	.4	.7
335001	Aluminum and aluminum-base alloy	12.7	13.6
335099	Other nonferrous	5.4	(1)
351905	Gasoline and other carburetor engines	(D)	.5
	Electric motors and generators:		
362102	Fractional horsepower electric motors (less than 1 hp) (excluding timing motors)	19.7	13.0
362120	Integral horsepower motors and generators (1 hp or more)	32.7	15.3
360101	Electrical transmission, distribution, and control equipment	56.0	25.9
369101	Storage batteries	(Z)	.1
	Bearings (mounted or unmounted):		
356218	Ball	32.1	17.3
356201	Roller	21.0	12.8
356601	Speed changers, gears, and industrial high-speed drives	47.4	19.6
301101	Pneumatic tires and inner tubes	3.1	.2
305201	Rubber and plastics hose and belting	40.5	19.5
970099	All other materials and components, parts, containers, and supplies	251.6	1353.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	407.8	486.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS		
	Materials, ingredients, containers, and supplies	**352.4**	**278.4**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	4.3	1.9
359301	Cylinders and rotary actuators	3.0	(1)
356921	Filters	.1	(1)
349261	Hose or tube fittings and assemblies	1.2	(1)
349271	Valves	.8	(1)
	Fabricated metal products (except forgings):		
344001	Fabricated structural metal products	24.8	5.4
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	4.4	3.5
346901	Metal stampings	2.8	1.5
349012	Fabricated wire products (including wire rope, cable, springs, link chain, etc.)	10.9	5.6
340051	All other fabricated metal products	23.6	(1)
	Forgings:		
346200	Iron and steel	8.4	5.5
346300	Nonferrous	(5)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	14.3	10.3
336010	Nonferrous	2.3	5.2
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	16.9	
331022	Sheet and strip	4.4	
331023	Structural shapes and sheet piling	7.0	28.9
331091	All other	2.3	
335001	Aluminum and aluminum-base alloy	4.0	2.8
335091	Other nonferrous	.3	(1)
362120	Integral horsepower motors and generators (1 hp or more)	21.3	11.4
356200	Ball and roller bearings (mounted or unmounted)	6.1	3.7
356601	Speed changers, gears, and industrial high-speed drives	7.2	3.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	1.3	1.5
970099	All other materials and components, parts, containers, and supplies	[5]59.1	[1]55.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	121.5	132.0
	INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS		
	Materials, ingredients, containers, and supplies	**1 524.7**	**1 335.2**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	47.1	29.9
359301	Cylinders and rotary actuators	25.0	16.4
356921	Filters	1.7	2.8
349261	Hose or tube fittings and assemblies	18.8	14.9
349271	Valves	28.1	24.5
340075	Fabricated metal products, except forgings	92.7	(1)
	Forgings:		
346200	Iron and steel	19.9	6.1
346300	Nonferrous	.2	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	53.8	32.6
336010	Nonferrous	1.4	11.7
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	133.3	
331022	Sheet and strip	31.3	
331023	Structural shapes and sheet piling	24.8	165.7
331091	All other	30.4	
335105	Copper and copper-base alloy	(5)	2.3
335001	Aluminum and aluminum-base alloy	7.5	8.1
335099	Other nonferrous	3.3	(1)
351905	Gasoline and other carburetor engines	56.9	39.2
	Electric motors and generators:		
362102	Fractional horsepower electric motors (less than 1 hp) (excluding timing motors)	10.1	6.9
362120	Integral horsepower motors and generators (1 hp or more)	29.2	24.7
360101	Electrical transmission, distribution, and control equipment	39.0	26.8
369101	Storage batteries	12.5	14.3
	Bearings (mounted or unmounted):		
356218	Ball	21.0	7.1
356201	Roller	9.5	5.4
356601	Speed changers, gears, and industrial high-speed drives	19.6	17.0
301101	Pneumatic tires and inner tubes	19.8	11.2
305201	Rubber and plastics hose and belting	11.2	2.9
970099	All other materials and components, parts, containers, and supplies	[5]521.6	[1]503.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	255.1	361.2

[1]For 1987, material codes are combined because they were not collected separately.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes were combined with material code 970099 to avoid disclosing data for individual companies.
[4]For 1992, data for material code 353102 are combined to avoid disclosing data for individual companies.
[5]For 1992, material codes are combined with material code 970099 to avoid disclosing data for individual companies.
[6]For 1987, material code 336010 included only aluminum castings; other nonferrous castings were included with code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
35451 15	35451 16
35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
35464 15	35461 05
35464 15	35461 07
35464 15	35461 09
35464 19	35461 12
35464 19	35461 15
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35464 19	35461 32
35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
35465 25	35461 25
35465 27	35461 26
35465 28	35461 28
35465 29	35461 29
35465 31	35461 31
35465 33	35461 33
35465 36	35461 36
35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
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35563 19	35563 14
35563 19	35563 15
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35592 04	35592 05
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35593 41	35593 28
35593 41	35593 29
35594 16	35594 09
35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
35594 25	35594 19
35594 25	35594 21

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
35598 53	35599 53
35598 55	35599 55
35598 58	35599 57
35598 58	35599 59
35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
35455 83	35455 79
35455 91	35455 77
35455 92	35455 77
35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
35461 05	35464 09
35461 05	35464 15
35461 05	35465 05
35461 07	35464 09
35461 07	35464 15
35461 07	35465 07
35461 09	35464 09
35461 09	35464 15
35461 09	35465 09
35461 12	35464 19
35461 12	35465 12
35461 15	35464 19
35461 15	35465 15
35461 16	35464 19
35461 16	35465 16
35461 17	35464 19
35461 17	35465 17
35461 18	35464 19
35461 18	35465 11
35461 18	35465 14
35461 19	35464 19
35461 19	35465 13
35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
35461 23	35464 19
35461 23	35465 23
35461 25	35464 19
35461 25	35465 25
35461 26	35464 19
35461 26	35465 24
35461 26	35465 27
35461 28	35464 19
35461 28	35465 28
35461 29	35464 19
35461 29	35465 29
35461 31	35464 19
35461 31	35465 31
35461 32	35464 19
35461 32	35465 41
35461 32	35465 43
35461 33	35464 19
35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
35563 15	35563 19
35592 03	35592 04
35592 05	35592 04
35592 09	35592 15
35593 27	35593 41
35593 28	35593 41
35593 29	35593 41
35594 09	35594 16
35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
35599 22	35598 22
35599 25	35598 25
35599 27	35598 27
35599 29	35598 29
35599 31	35598 31
35599 33	35598 36
35599 35	35598 35
35599 37	35598 36
35599 39	35598 39
35599 41	35598 41
35599 43	35598 43
35599 45	35598 45
35599 47	35598 48
35599 49	35598 48
35599 51	35598 51
35599 53	35598 53
35599 55	35598 55
35599 57	35598 58
35599 59	35598 58
35599 61	35598 61
35599 63	35598 63
35599 65	35598 65
35599 67	35598 67
35599 69	35598 69
35599 71	35598 71
35599 73	35598 74
35599 75	35598 74
35599 77	35598 78
35599 79	35598 78
35599 80	35598 98
35599 81	35598 98
35599 82	35598 84
35599 83	35598 98
35599 85	35598 84
35599 85	35598 98
35599 86	35595 01
35599 86	35595 03
35599 86	35595 05
35599 87	35595 09
35599 88	35598 88
35599 89	35598 89
35599 90	35598 90
35599 92	35598 98
35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
35651 08	35651 28
35651 09	35651 31
35651 11	35651 33
35651 12	35651 35
35651 13	35651 35
35651 14	35651 33

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
35651 15	35651 23
35651 15	35651 37
35651 15	35651 41
35651 16	35651 43
35651 17	35651 45
35651 19	35651 49
35651 19	35651 59
35651 21	35651 25
35651 21	35651 31
35651 21	35651 51
35651 21	35651 52
35651 21	35651 53
35651 21	35651 59
35660 31	35660 34
35660 32	35660 34
35660 33	35660 47
35660 35	35660 37
35660 36	35660 37
35660 38	35660 49
35660 39	35660 49
35660 40	35660 47
35676 03	35676 09
35676 04	35676 09
35676 05	35676 15
35676 06	35676 15
35676 17	35676 21
35676 19	35676 21
35681 11	35681 12
35681 13	35681 12
35683 21	35683 20
35683 22	35683 23
35683 24	35683 20
35683 24	35683 23
35683 27	35683 89
35683 29	35683 89
35683 32	35683 33
35683 34	35683 33
35683 36	35683 99
35683 43	35683 44
35683 45	35683 44
35683 92	35683 89
35683 93	35683 99
35683 95	35683 91
35683 97	35683 89
35683 98	35683 89
35692	35694
35692	35695
35692	35696
35692 00	35694 00
35692 00	35695 00
35692 00	35696 00
35697	35699
35697 00	35699 09
35698	35699
35698 01	35699 01
35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
35698 05	35699 05
35698 06	35699 51
35698 07	35699 41
35698 07	35699 42
35698 07	35699 43
35698 07	35699 44
35698 08	35699 51
35698 11	35699 11
35698 12	35699 51
35698 13	35699 13
35698 14	35699 51
35698 15	35699 15
35698 16	35699 51
35698 17	35699 17
35698 18	35699 51
35698 21	35699 21
35698 22	35699 51
35698 23	35699 23
35698 24	35699 51
35698 25	35699 25
35698 26	35699 51
35698 27	35699 27
35698 28	35699 51
35698 31	35699 31
35698 32	35699 51
35698 35	35699 47
35698 36	35699 51
35698 48	35699 47
35698 49	35699 51
35711	35713
35711	35714
35711	35715
35711	35716
35711	35717
35711	35718
35711 00	35713 00
35711 00	35714 00
35711 00	35715 00
35711 00	35716 00
35711 00	35717 00
35711 00	35718 00
35712	35713
35712	35714
35712	35715
35712	35716
35712	35717
35712	35718
35712 00	35713 00
35712 00	35714 00
35712 00	35715 00
35712 00	35716 00
35712 00	35717 00
35712 00	35718 00
35781	35784
35781 00	35784 00
35782	35784
35782 00	35784 00
35783	35789
35783 00	35789 00
35820 13	35820 12
35820 14	35820 12
35820 21	35820 11
35820 22	35820 29
35820 25	35820 31
35820 26	35820 29
35820 28	35820 29
35820 34	35820 39
35820 35	35820 31
35820 36	35820 31
35820 41	35820 39
35820 43	35820 39
35820 81	35820 39
35853 31	35853 32
35853 33	35853 32
35853 36	35853 37
35853 38	35853 37
35853 73	35853 98
35853 97	35853 98
35859 04	35859 06
35859 05	35859 06
35859 07	35859 06
35892 03	35892 02
35892 04	35892 02
35892 05	35892 01
35892 06	35892 01
35892 07	35892 01
35892 07	35892 02
35892 35	35892 46
35892 44	35892 46
35892 77	35892 84
35892 78	35892 84
35892 79	35892 84
35892 80	35892 97
35892 85	35892 86
35892 87	35892 86
35892 88	35892 86
35892 91	35892 97
35892 98	35892 96
35892 99	35892 97
35893 08	35893 07
35893 09	35893 07
35931	35934
35931	35935
35931 00	35934 00
35931 00	35935 00
35933	35939
35933 00	35939 00
35941	35943
35941	35944
35941	35945
35941	35946
35941 10	35943 00
35941 10	35944 00
35941 10	35945 00
35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
35962 13	35962 14
35962 15	35962 14
35962 17	35962 21
35962 19	35962 21

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 4
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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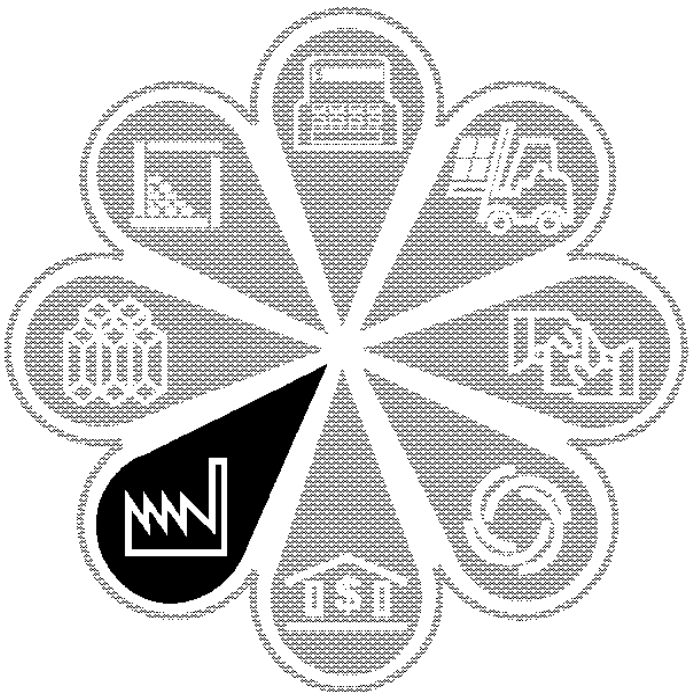
1992 Census of Manufactures

MC92-I-35C

INDUSTRY SERIES

Metalworking Machinery and Equipment

Industries 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, and 3549



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35C

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3541	Machine Tools, Metal Cutting Types
3542	Machine Tools, Metal Forming Types
3543	Industrial Patterns
3544	Special Dies, Tools, Jigs, and Fixtures
3545	Machine Tool Accessories
3546	Power-Driven Handtools
3547	Rolling Mill Machinery
3548	Welding Apparatus
3549	Metalworking Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES

This industry is made up of establishments primarily engaged in manufacturing metal cutting type machine tools, not supported in the hands of an operator when in use, that shape metal by cutting or use of electrical techniques; the rebuilding of such machine tools, and the manufacture of replacement parts for them. Also included in this industry are metalworking machine tools designed primarily for home workshops. Establishments primarily engaged in the manufacture of electric and gas welding and soldering equipment are classified in industry 3548, and those manufacturing portable power-driven handtools are classified in industry 3546.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3541, Machine Tools, Metal Cutting Types, had employment of 27.0 thousand. The employment figure was 15 percent below the 31.7 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Michigan, Illinois, and New York, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3541 shipped $2.8 billion of machine tools, metal cutting types, considered primary to the industry, $317.4 million of secondary products, and had $413.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3541, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tools, metal cutting types, industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES

This industry is made up of establishments primarily engaged in manufacturing metal forming machine tools, not supported in the hands of an operator while in use, for pressing, hammering, extruding, shearing, die-casting, or otherwise forming metal into shape. This industry also includes the rebuilding of such machine tools and the manufacture of repair parts for them. Establishments primarily engaged in the manufacture of electric and gas welding equipment and soldering equipment are classified in industry 3548; those manufacturing portable power-driven handtools are classified in industry 3546; and those manufacturing rolling mill machinery and equipment are classified in industry 3547.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3542, Machine Tools, Metal Forming Types, had employment of 12.2 thousand. The employment figure was 12 percent below the 13.8 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Illinois, Michigan, and New York, accounting for approximately 66 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 68 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3542 shipped $1.2 billion of machine tools, metal forming types, considered primary to the industry, $114.7 million of secondary products, and had $94.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3542, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tools, metal forming types, industry amounted to $700.1 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3543, INDUSTRIAL PATTERNS

This industry is made up of establishments primarily engaged in manufacturing industrial patterns.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3543, Industrial Patterns, had employment of 7.9 thousand. The employment figure was 8 percent below the 8.6 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, Wisconsin, and Tennessee, accounting for approximately 52 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $539.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3543 shipped $485.8 million of industrial patterns considered primary to the industry, $26.6 million of secondary products, and had $26.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 72 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 3543, no matter in what industry they were produced, appear in table 6a and aggregate to $672.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial patterns industry amounted to $125.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES

This industry is made up of establishments commonly known as contract tool and die shops and primarily engaged in manufacturing, on a job or order basis, special tools and fixtures for use with machine tools, hammers, die-casting machines, and presses. The products of establishments classified in this industry include a wide variety of special toolings, such as dies; punches; die sets and components, and subpresses; jigs and fixtures; and special checking devices. Establishments primarily engaged in manufacturing molds for die-casting and foundry casting; metal molds for plaster working, rubber working, plastics working, glass working and similar machinery are also included. Establishments primarily engaged in manufacturing molds for heavy steel ingots are classified in industry 3321, and those manufacturing cutting dies, except metal cutting, are classified in industry 3423.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3544, Special Dies, Tools, Jigs, and Fixtures, had employment of 111.4 thousand. The employment figure was 3 percent below the 114.4 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Pennsylvania, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3544 shipped $8.2 billion of special dies, tools, jigs, and fixtures considered primary to the industry, $507.2 million of secondary products, and had $557.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 80 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3544, no matter in what industry they were produced, appear in table 6a and aggregate to $10.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the special dies, tools, jigs, and fixtures industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3545, MACHINE TOOL ACCESSORIES

This industry is made up of establishments primarily engaged in manufacturing cutting tools, machinists' precision measuring tools, and attachments and accessories for machine tools and for other metalworking machinery, not elsewhere classified. Establishments primarily engaged in manufacturing handtools, except power-driven types, are classified in industry group 342.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3545, Machine Tool Accessories, had employment of 42.7 thousand. The employment figure was 12 percent below the

48.5 thousand reported in 1987. Compared with 1991, employment decreased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Massachusetts, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987 when they also accounted for 49 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3545 shipped $3.3 billion of machine tool accessories considered primary to the industry, $187.7 million of secondary products, and had $286.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 92 percent.

The products primary to industry 3545, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tool accessories industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3546, POWER-DRIVEN HANDTOOLS

This industry is made up of establishments primarily engaged in manufacturing power-driven handtools, such as drills and drilling tools, pneumatic and snagging grinders, and electric hammers. Establishments primarily engaged in manufacturing metal cutting type and metal forming type machines (including home workshop tools) which are not supported in the hands of an operator are classified in industries 3541 and 3542; and those primarily manufacturing power-driven heavy construction or mining handtools are classified in industry group 353.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3546, Power-Driven Handtools, had employment of 16.1 thousand. The employment figure was 4 percent below the 16.8 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arkansas, North Carolina, Ohio, and South Carolina. This represents a shift from 1987 when North Carolina, Arkansas, Tennessee, and Arizona were the leading States.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3546 shipped $2.1 billion of power-driven handtools considered primary to the industry, $377.7 million of secondary products, and had $397.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3546, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the power-driven handtools industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3547, ROLLING MILL MACHINERY

This industry is made up of establishments primarily engaged in manufacturing rolling mill machinery and processing equipment for metal production, such as cold forming mills, structural mills, and finishing equipment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3547, Rolling Mill Machinery, had employment of 5.4 thousand. The employment figure was 38 percent above the 3.9 thousand reported in 1987. Compared with 1991, employment increased 38 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts, Michigan, Ohio, and Pennsylvania. This represents a shift from 1987 when Ohio, Pennsylvania, Massachusetts, and Indiana were the leading States.

The total value of shipments for establishments classified in this industry was $602.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3547 shipped $518.7 million of rolling mill machinery products considered primary to the industry, $30.2 million of secondary products, and had $53.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3547, no matter in what industry they were produced, appear in table 6a and aggregate to $544.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the rolling mill machinery industry amounted to $288.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 23 percent of the total value of shipments.

INDUSTRY 3548, WELDING APPARATUS

This industry is made up of establishments primarily engaged in manufacturing electric and gas welding and soldering equipment and accessories. Also included are establishments primarily engaged in coating welding wire from purchased wire or from wire drawn in the same establishment. Establishments primarily engaged in manufacturing handheld soldering irons are classified in industry 3423, and those manufacturing electron beam, ultrasonic, and laser welding equipment are classified in industry 3699.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3548, Welding Apparatus, had employment of 19.8 thousand. The employment figure was 6 percent above the 18.7 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Michigan, Wisconsin, and California, accounting for approximately 56 percent of the industry's employment. This represents a shift from 1987 when Ohio, Michigan, Wisconsin, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3548 shipped $2.3 billion of welding apparatus considered primary to the industry, $258.0 million of secondary products, and had $168.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio also was 90 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3548, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the welding apparatus industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing metalworking machinery, not elsewhere classified. Establishments primarily engaged in manufacturing automotive maintenance equipment are classified in industry 3559.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3549, Metalworking Machinery, N.E.C., had employment of 13.2 thousand. The employment figure was 17 percent above the 11.3 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Wisconsin, accounting for approximately 54 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 53 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3549 shipped $1.3 billion of metalworking machinery, not elsewhere classified, considered primary to the industry, $190.3 million of secondary products, and had $116.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3549, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metalworking machinery, not elsewhere classified, industry amounted to $687.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES															
1992 Census	391	422	220	27.0	982.1	15.2	32.2	498.5	1 840.9	1 762.0	3 567.8	82.4	1 221.7	90	93
1991 ASM	(NA)	(NA)	(NA)	28.0	931.9	16.5	34.7	503.4	1 664.0	1 629.7	3 369.7	66.4	1 145.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.3	1 002.2	18.2	37.8	534.2	1 890.3	1 682.8	3 606.8	84.2	1 261.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	31.0	991.5	18.4	37.8	531.4	2 112.7	1 629.8	3 622.9	94.6	1 252.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	29.9	940.2	17.7	35.8	484.0	1 828.1	1 404.2	3 137.8	64.5	1 093.3	(NA)	(NA)
1987 Census	381	417	232	31.7	921.5	18.2	35.4	465.7	1 668.7	1 399.5	3 189.5	61.2	1 056.8	83	93
1986 ASM	(NA)	(NA)	(NA)	38.6	1 088.8	22.0	43.6	557.0	1 823.8	1 538.0	3 456.1	62.7	1 215.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.8	1 127.6	24.9	47.7	592.6	2 000.0	1 471.6	3 377.0	91.6	1 349.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.4	1 053.9	24.7	46.5	541.7	1 820.0	1 369.5	3 211.6	108.8	1 196.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	43.0	997.1	24.5	45.9	512.1	1 612.7	1 100.0	2 880.9	104.8	1 281.6	(NA)	(NA)
1982 Census	865	942	293	58.3	1 335.0	33.9	63.6	709.2	2 516.2	1 598.3	4 411.5	157.7	1 435.5	92	93
1981 ASM	(NA)	(NA)	(NA)	74.3	1 633.0	47.9	98.5	964.1	3 739.9	2 187.3	5 865.3	233.2	1 485.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	72.8	1 504.0	47.8	98.8	889.5	3 349.2	2 026.1	5 227.6	171.6	1 419.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	69.1	1 304.1	45.7	95.9	786.9	2 833.8	1 736.9	4 389.0	147.6	1 242.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	64.3	1 120.7	42.2	88.2	679.6	2 267.0	1 417.7	3 611.8	102.0	1 012.3	(NA)	(NA)
1977 Census	872	917	306	59.4	949.0	37.2	76.3	540.7	1 866.1	1 047.7	2 812.7	80.4	877.9	87	92
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES															
1992 Census	211	217	114	12.2	417.6	7.8	15.8	236.9	728.6	700.1	1 450.9	40.4	425.7	92	89
1991 ASM	(NA)	(NA)	(NA)	13.5	443.5	8.5	17.7	253.1	636.4	746.5	1 505.5	31.6	427.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.6	474.5	9.3	19.5	278.9	853.8	778.4	1 652.7	33.3	543.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.0	472.7	9.6	20.0	276.3	959.8	793.9	1 729.6	39.4	562.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.6	458.6	9.4	20.0	269.2	921.2	824.4	1 752.7	36.5	550.4	(NA)	(NA)
1987 Census	196	207	120	13.8	414.3	8.7	18.1	236.7	734.3	637.8	1 396.3	31.2	529.3	91	87
1986 ASM	(NA)	(NA)	(NA)	16.6	440.5	10.7	21.4	257.3	765.7	713.2	1 507.9	33.9	524.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.7	461.6	11.5	23.0	275.4	933.2	598.7	1 412.8	43.7	569.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.1	407.0	10.5	20.7	242.7	775.9	535.4	1 308.7	31.0	424.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.3	357.0	9.6	17.8	196.0	629.6	454.9	1 142.3	28.1	431.6	(NA)	(NA)
1982 Census	435	452	162	19.5	438.1	12.1	23.2	245.3	777.8	574.6	1 428.7	43.4	511.5	89	87
1981 ASM	(NA)	(NA)	(NA)	24.0	496.8	16.0	30.8	294.9	976.5	662.7	1 615.7	63.0	479.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	26.9	514.1	18.2	35.2	313.2	1 042.1	718.5	1 753.1	69.4	455.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.0	485.6	18.7	37.5	305.1	1 004.0	687.0	1 663.5	58.1	447.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.2	415.6	17.0	35.1	253.2	841.3	576.4	1 366.0	40.4	421.7	(NA)	(NA)
1977 Census	411	426	163	23.7	360.7	16.1	32.8	219.4	721.9	444.0	1 130.6	24.7	359.6	90	87
INDUSTRY 3543, INDUSTRIAL PATTERNS															
1992 Census	708	711	87	7.9	258.7	6.5	13.2	199.6	416.3	125.7	539.0	15.1	41.8	95	72
1991 ASM	(NA)	(NA)	(NA)	6.9	223.0	5.6	10.5	168.8	340.5	117.5	461.7	6.0	42.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.1	257.3	6.7	13.5	194.2	396.6	133.0	534.3	11.0	57.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.9	271.2	7.5	15.0	214.2	436.2	132.6	556.9	15.7	57.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.5	315.4	8.4	16.8	250.6	511.6	207.6	719.5	13.0	48.2	(NA)	(NA)
1987 Census	812	813	85	8.6	237.5	6.9	13.8	186.4	389.3	112.5	499.4	18.5	43.0	92	80
1986 ASM	(NA)	(NA)	(NA)	6.9	191.7	5.8	12.3	155.3	384.9	216.8	590.4	14.1	43.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.1	188.1	6.0	12.0	152.6	349.0	216.1	549.3	15.6	60.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.0	173.7	5.8	11.1	137.0	312.2	186.3	461.1	11.4	45.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.2	218.9	8.3	14.9	177.2	311.8	112.2	417.2	14.4	32.9	(NA)	(NA)
1982 Census	994	996	105	9.8	217.6	8.1	14.8	173.4	347.6	97.6	452.3	15.8	29.6	97	76
1981 ASM	(NA)	(NA)	(NA)	9.2	216.6	7.4	13.8	170.0	349.0	103.0	453.3	12.3	37.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.6	183.1	7.6	13.5	145.3	310.7	113.8	415.2	(S)	35.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.9	184.3	8.5	15.0	145.7	302.3	103.9	399.5	10.8	31.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	167.0	8.0	15.5	130.1	268.6	73.8	335.6	17.1	30.1	(NA)	(NA)
1977 Census	1 001	1 002	115	9.3	152.7	8.0	15.8	122.2	252.5	72.0	320.6	11.1	25.2	97	75
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES															
1992 Census	7 227	7 350	1 521	111.4	3 898.3	85.3	188.4	2 744.8	6 644.7	2 690.7	9 309.8	370.1	1 199.1	94	80
1991 ASM	(NA)	(NA)	(NA)	114.0	3 659.1	87.5	190.3	2 585.8	6 281.4	2 615.1	8 890.4	386.0	1 369.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	119.8	3 804.8	92.2	200.5	2 718.8	6 525.4	2 952.5	9 487.2	412.8	1 336.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	122.2	3 750.6	94.7	202.7	2 675.5	6 490.6	2 893.7	9 236.3	385.8	1 255.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	115.7	3 357.8	89.7	193.3	2 430.9	5 528.6	2 606.7	8 078.3	272.9	1 010.3	(NA)	(NA)
1987 Census	7 207	7 317	1 517	114.4	3 163.6	87.7	185.5	2 251.2	5 293.8	2 227.0	7 550.1	375.3	952.1	94	82
1986 ASM	(NA)	(NA)	(NA)	108.9	3 000.1	85.7	179.4	2 165.1	5 582.2	2 158.1	7 725.1	333.6	913.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	110.6	2 904.4	88.6	183.3	2 123.1	5 222.2	2 069.9	7 204.8	401.8	861.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	111.2	2 737.8	89.7	188.1	2 021.3	4 681.5	2 010.7	6 614.7	398.8	703.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	97.9	2 294.4	78.2	161.1	1 662.5	3 801.7	1 537.1	5 310.6	192.4	590.5	(NA)	(NA)
1982 Census	7 132	7 255	1 322	102.9	2 293.3	81.7	164.9	1 684.9	3 780.5	1 535.4	5 374.9	232.9	621.8	94	79
1981 ASM	(NA)	(NA)	(NA)	124.2	2 632.4	99.6	209.3	1 905.7	4 423.7	1 884.8	6 264.3	275.9	693.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	126.3	2 471.0	101.6	214.3	1 798.7	4 121.0	1 734.3	5 823.9	283.5	646.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	122.1	2 231.2	98.9	214.5	1 641.7	3 810.6	1 607.5	5 336.2	294.4	574.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	112.5	1 946.6	92.7	195.2	1 419.9	3 183.2	1 424.2	4 585.1	228.9	510.2	(NA)	(NA)
1977 Census	7 034	7 153	1 427	105.7	1 708.2	86.4	184.0	1 261.7	2 790.1	1 171.8	3 905.3	177.5	450.3	94	79
INDUSTRY 3545, MACHINE TOOL ACCESSORIES															
1992 Census	1 759	1 866	485	42.7	1 243.9	30.1	62.4	748.5	2 653.6	1 113.9	3 786.3	142.2	785.0	95	92
1991 ASM	(NA)	(NA)	(NA)	51.6	1 387.7	35.9	72.5	835.9	2 974.6	1 336.7	4 359.6	125.3	903.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	55.2	1 445.0	39.6	79.9	890.2	3 072.4	1 425.7	4 550.4	182.8	948.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	54.8	1 404.6	39.8	79.8	876.8	3 168.7	1 316.5	4 409.4	169.6	962.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	50.7	1 263.9	36.7	75.2	806.1	2 813.6	1 163.2	3 948.5	102.0	832.8	(NA)	(NA)
1987 Census	1 736	1 881	566	48.5	1 186.8	35.1	71.1	758.4	2 565.6	1 039.6	3 601.0	113.3	813.4	94	92
1986 ASM	(NA)	(NA)	(NA)	47.0	1 113.0	34.0	68.3	720.3	2 423.7	1 002.7	3 452.3	108.5	776.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	49.4	1 099.5	36.4	73.2	718.0	2 429.2	1 025.8	3 458.8	167.9	813.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	49.5	1 087.9	36.2	72.8	711.2	2 432.7	996.4	3 426.3	168.8	828.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	47.3	958.6	32.7	62.7	607.2	1 821.9	800.1	2 675.7	105.1	784.1	(NA)	(NA)
1982 Census	1 444	1 620	562	55.1	1 069.7	38.8	73.5	690.4	2 164.3	980.3	3 165.3	143.9	906.5	92	89
1981 ASM	(NA)	(NA)	(NA)	62.2	1 198.5	45.8	91.1	782.0	2 701.5	1 407.9	4 062.4	194.7	849.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	61.5	1 090.9	45.5	90.7	717.3	2 529.1	1 306.5	3 728.3	140.3	782.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	60.7	991.1	45.9	93.8	664.6	2 278.9	1 193.1	3 376.1	121.4	672.1	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3545, MACHINE TOOL ACCESSORIES—Con.															
1978 ASM	(NA)	(NA)	(NA)	58.2	892.3	43.7	88.5	603.1	1 969.8	979.1	2 876.1	97.3	564.5	(NA)	(NA)
1977 Census	1 270	1 411	491	54.0	762.0	39.9	80.1	498.0	1 584.8	832.5	2 383.0	77.2	468.3	89	88
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS															
1992 Census	214	226	69	16.1	440.6	10.6	21.7	240.5	1 506.8	1 359.9	2 872.5	72.3	377.6	85	87
1991 ASM	(NA)	(NA)	(NA)	17.5	429.1	11.4	21.5	233.4	1 310.9	1 276.7	2 580.7	74.7	407.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.3	446.9	12.6	24.4	248.3	1 471.8	1 344.1	2 805.8	98.4	424.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.5	413.5	12.3	23.3	233.8	1 299.0	1 303.6	2 617.5	66.2	376.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.1	391.2	12.0	23.3	225.8	1 275.7	1 241.0	2 505.0	59.0	388.0	(NA)	(NA)
1987 Census	183	199	68	16.8	382.8	11.7	22.3	222.3	1 125.0	1 045.9	2 161.8	46.2	361.2	83	85
1986 ASM	(NA)	(NA)	(NA)	17.9	383.8	12.5	24.0	229.3	1 121.5	998.3	2 142.4	72.1	362.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	19.2	398.4	13.2	23.9	240.1	1 141.3	996.2	2 155.1	80.3	388.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.0	392.2	14.2	26.4	245.1	1 088.8	965.9	2 016.3	50.6	423.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.5	385.1	13.3	24.9	223.2	1 015.9	788.7	1 801.9	45.4	398.8	(NA)	(NA)
1982 Census	180	203	74	21.6	393.6	14.5	25.9	228.6	940.3	791.5	1 795.3	68.1	415.0	88	91
1981 ASM	(NA)	(NA)	(NA)	26.0	434.2	18.5	35.7	279.4	1 264.1	931.5	2 144.7	79.3	489.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.5	440.0	22.5	41.5	289.9	1 294.6	1 002.1	2 298.8	82.9	448.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	32.3	446.8	24.0	45.9	301.2	1 205.2	1 015.9	2 197.2	85.1	446.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.8	377.5	21.9	41.8	244.1	1 069.2	870.9	1 929.1	49.9	352.9	(NA)	(NA)
1977 Census	99	124	71	27.7	325.7	20.0	38.5	210.4	931.9	703.2	1 623.2	39.0	326.0	91	90
INDUSTRY 3547, ROLLING MILL MACHINERY															
1992 Census	87	89	40	5.4	186.8	3.0	6.3	85.2	313.2	288.6	602.8	13.7	170.7	94	95
1991 ASM	(NA)	(NA)	(NA)	3.9	138.1	2.3	4.9	65.4	260.6	228.5	486.8	11.5	85.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.8	130.1	2.2	4.7	61.7	173.3	226.8	483.4	9.9	213.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.0	130.6	2.4	5.2	64.1	368.8	362.8	605.2	5.8	327.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.8	121.6	2.2	4.9	59.3	246.2	335.3	561.4	5.2	198.1	(NA)	(NA)
1987 Census	83	86	34	3.9	120.7	2.2	4.7	57.4	284.9	249.7	467.8	7.1	170.6	92	94
1986 ASM	(NA)	(NA)	(NA)	3.5	101.1	1.9	3.8	46.9	169.6	209.7	380.8	3.6	94.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.9	106.7	2.2	4.4	53.8	196.7	213.0	453.7	9.2	85.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	3.3	89.3	2.0	3.8	45.5	192.8	168.5	323.1	6.0	128.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.1	94.1	2.5	4.5	51.5	114.2	182.0	373.6	5.3	109.7	(NA)	(NA)
1982 Census	58	63	32	5.1	125.1	3.3	6.1	70.8	276.4	246.8	502.9	14.8	168.1	79	79
1981 ASM	(NA)	(NA)	(NA)	6.0	135.1	3.9	7.6	81.9	410.4	341.4	736.3	8.3	161.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.4	139.4	4.5	8.6	87.3	358.1	314.3	687.1	12.8	132.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.1	119.3	4.2	8.7	76.9	296.1	232.3	481.9	30.9	154.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.6	137.6	5.3	9.3	83.6	289.7	189.3	495.2	7.6	118.8	(NA)	(NA)
1977 Census	58	63	38	7.9	128.2	5.4	10.4	78.4	286.9	198.3	507.4	9.1	131.8	78	86
INDUSTRY 3548, WELDING APPARATUS															
1992 Census	215	240	130	19.8	670.3	11.9	24.7	342.7	1 499.9	1 250.3	2 763.5	65.8	595.5	90	96
1991 ASM	(NA)	(NA)	(NA)	19.5	620.8	11.8	24.5	320.3	1 344.1	1 295.1	2 651.2	50.5	685.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.2	610.4	12.0	24.4	320.9	1 457.0	1 264.5	2 683.6	67.7	608.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.0	578.0	11.6	24.3	307.9	1 274.9	1 223.4	2 520.5	59.1	532.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.7	601.5	12.3	25.8	321.3	1 314.9	1 236.0	2 497.8	49.3	630.1	(NA)	(NA)
1987 Census	203	225	130	18.7	541.5	11.5	24.2	292.9	1 084.4	1 062.1	2 104.6	45.4	556.4	90	92
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.															
1992 Census	389	400	167	13.2	487.5	7.9	17.6	247.2	942.7	687.6	1 618.3	27.6	339.7	87	89
1991 ASM	(NA)	(NA)	(NA)	10.9	358.9	6.5	14.8	183.7	702.0	505.1	1 150.8	32.5	277.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.7	384.4	6.7	15.5	192.9	675.1	584.7	1 231.1	19.6	266.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.7	393.9	7.6	16.8	204.8	756.6	664.2	1 385.3	29.3	307.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.0	370.6	7.3	15.6	193.1	673.1	507.8	1 164.5	26.8	310.1	(NA)	(NA)
1987 Census	292	301	146	11.3	332.1	6.9	14.4	177.4	588.4	438.2	1 033.0	20.9	260.4	89	87

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES									
1992 Census	36 370	56	2 118	15.48	49	77	68 181	53	57.17
1991 ASM	33 282	59	2 103	14.51	48	76	59 429	56	47.95
1990 ASM	33 076	60	2 077	14.13	47	74	62 386	53	50.01
1989 ASM	31 984	59	2 054	14.06	45	72	68 152	47	55.89
1988 ASM	31 445	59	2 023	13.52	45	75	61 140	51	51.06
1987 Census	29 069	57	1 945	13.16	44	73	52 640	55	47.14
1986 ASM	28 207	57	1 982	12.78	45	76	47 249	60	41.83
1985 ASM	26 346	58	1 916	12.42	44	77	46 729	56	41.93
1984 ASM	24 856	58	1 883	11.65	43	75	42 925	58	39.14
1983 ASM	23 188	57	1 873	11.16	38	73	37 505	62	35.14
1982 Census	22 899	58	1 876	11.15	36	66	43 160	53	39.56
1981 ASM	21 978	64	2 056	9.79	37	65	50 335	44	37.97
1980 ASM	20 659	66	2 067	9.00	39	68	46 005	45	33.90
1979 ASM	18 873	66	2 098	8.21	40	69	41 010	46	29.55
1978 ASM	17 429	66	2 090	7.71	39	70	35 257	49	25.70
1977 Census	15 976	63	2 051	7.09	37	71	31 416	51	24.46
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES									
1992 Census	34 230	64	2 026	14.99	48	77	59 721	57	46.11
1991 ASM	32 852	63	2 082	14.30	50	79	47 141	70	35.95
1990 ASM	32 500	64	2 097	14.30	47	76	58 479	56	43.78
1989 ASM	31 513	64	2 083	13.82	46	73	63 987	49	47.99
1988 ASM	31 411	64	2 128	13.46	47	73	63 096	50	46.06
1987 Census	30 022	63	2 080	13.08	46	75	53 210	56	40.57
1986 ASM	26 536	64	2 000	12.02	47	77	46 127	58	35.78
1985 ASM	26 079	65	2 000	11.97	42	75	52 723	49	40.57
1984 ASM	25 280	65	1 971	11.72	41	72	48 193	52	37.48
1983 ASM	23 333	63	1 854	11.01	40	71	41 150	57	35.37
1982 Census	22 467	62	1 917	10.57	40	71	39 887	56	33.53
1981 ASM	20 700	67	1 925	9.57	41	72	40 688	51	31.70
1980 ASM	19 112	68	1 934	8.90	41	70	38 740	49	29.61
1979 ASM	17 985	69	2 005	8.14	41	70	37 185	48	26.77
1978 ASM	16 492	67	2 065	7.21	42	73	33 385	49	23.97
1977 Census	15 219	68	2 037	6.69	39	71	30 460	50	22.01
INDUSTRY 3543, INDUSTRIAL PATTERNS									
1992 Census	32 747	82	2 031	15.12	23	71	52 696	62	31.54
1991 ASM	32 319	81	1 875	16.08	25	74	49 348	65	32.43
1990 ASM	31 765	83	2 015	14.39	25	73	48 963	65	29.38
1989 ASM	30 472	84	2 000	14.28	24	73	49 011	62	29.08
1988 ASM	30 038	80	2 000	14.92	29	73	48 724	62	30.45
1987 Census	27 616	80	2 000	13.51	23	70	45 267	61	28.21
1986 ASM	27 783	84	2 121	12.63	37	69	55 783	50	31.29
1985 ASM	26 493	85	2 000	12.72	39	74	49 155	54	29.08
1984 ASM	24 814	83	1 914	12.34	40	78	44 600	56	28.13
1983 ASM	21 461	81	1 795	11.89	27	79	30 569	70	20.93
1982 Census	22 204	83	1 827	11.72	22	70	35 469	63	23.49
1981 ASM	23 543	80	1 865	12.32	23	71	37 935	62	25.29
1980 ASM	19 073	79	1 776	10.76	27	72	32 365	59	23.01
1979 ASM	18 616	86	1 765	9.71	26	72	30 535	61	20.15
1978 ASM	17 766	85	1 938	8.39	22	72	28 574	62	17.33
1977 Census	16 419	86	1 975	7.73	22	70	27 151	60	15.98
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES									
1992 Census	34 994	77	2 209	14.57	29	71	59 647	59	35.27
1991 ASM	32 097	77	2 175	13.59	29	71	55 100	58	33.01
1990 ASM	31 760	77	2 175	13.56	31	71	54 469	58	32.55
1989 ASM	30 692	77	2 140	13.20	31	72	53 115	58	32.02
1988 ASM	29 022	78	2 155	12.58	32	74	47 784	61	28.60
1987 Census	27 654	77	2 115	12.14	29	71	46 274	60	28.54
1986 ASM	27 549	79	2 093	12.07	28	67	51 260	54	31.12
1985 ASM	26 260	80	2 069	11.58	29	69	47 217	56	28.49
1984 ASM	24 621	81	2 097	10.75	30	72	42 100	58	24.89
1983 ASM	23 436	80	2 060	10.32	29	72	38 832	60	23.60
1982 Census	22 287	79	2 018	10.22	29	71	36 740	61	22.93
1981 ASM	21 195	80	2 101	9.11	30	72	35 618	60	21.14
1980 ASM	19 565	80	2 109	8.39	30	72	32 629	60	19.23
1979 ASM	18 274	81	2 169	7.65	30	72	31 209	59	17.77
1978 ASM	17 303	82	2 106	7.27	31	74	28 295	61	16.31
1977 Census	16 161	82	2 130	6.86	30	74	26 396	61	15.16
INDUSTRY 3545, MACHINE TOOL ACCESSORIES									
1992 Census	29 131	70	2 073	12.00	29	62	62 145	47	42.53
1991 ASM	26 893	70	2 019	11.53	31	62	57 647	47	41.03
1990 ASM	26 178	72	2 018	11.14	31	63	55 659	47	38.45
1989 ASM	25 631	73	2 005	10.99	30	62	57 823	44	39.71
1988 ASM	24 929	72	2 049	10.72	29	61	55 495	45	37.41
1987 Census	24 470	72	2 026	10.67	29	62	52 899	46	36.08
1986 ASM	23 681	72	2 009	10.55	29	61	51 568	46	35.49
1985 ASM	22 257	74	2 011	9.81	30	61	49 174	45	33.19
1984 ASM	21 978	73	2 011	9.77	29	61	49 145	45	33.42
1983 ASM	20 266	69	1 917	9.68	30	66	38 518	53	29.06
1982 Census	19 414	70	1 894	9.39	31	65	39 279	49	29.45
1981 ASM	19 268	74	1 989	8.58	35	64	43 432	44	29.65
1980 ASM	17 738	74	1 993	7.91	35	64	41 124	43	27.88
1979 ASM	16 328	76	2 044	7.09	35	65	37 544	43	24.30
1978 ASM	15 332	75	2 025	6.81	34	65	33 845	45	22.26
1977 Census	14 111	74	2 008	6.22	35	67	29 348	48	19.79

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS								
1992 Census	27 366	66	2 047	11.08	47	63	93 590	29	69.44
1991 ASM	24 520	65	1 886	10.86	49	66	74 909	33	60.97
1990 ASM	24 421	69	1 937	10.18	48	64	80 426	30	60.32
1989 ASM	23 629	70	1 894	10.03	50	66	74 229	32	55.75
1988 ASM	22 877	70	1 942	9.69	50	65	74 602	31	54.75
1987 Census	22 786	70	1 906	9.97	48	66	66 964	34	50.45
1986 ASM	21 441	70	1 920	9.55	47	65	62 654	34	46.73
1985 ASM	20 750	69	1 811	10.05	46	65	59 443	35	47.75
1984 ASM	19 610	71	1 859	9.28	48	67	54 440	36	41.24
1983 ASM	19 749	68	1 872	8.96	44	65	52 097	38	40.80
1982 Census	18 222	67	1 786	8.83	44	66	43 532	42	36.31
1981 ASM	16 700	71	1 930	7.83	43	64	48 619	34	35.41
1980 ASM	14 426	74	1 844	6.99	44	63	42 446	34	31.20
1979 ASM	13 833	74	1 913	6.56	46	67	37 313	37	26.26
1978 ASM	12 668	73	1 909	5.84	45	65	35 879	35	25.58
1977 Census	11 758	72	1 925	5.46	43	63	33 643	35	24.21
	INDUSTRY 3547, ROLLING MILL MACHINERY								
1992 Census	34 593	56	2 100	13.52	48	79	58 000	60	49.71
1991 ASM	35 410	59	2 130	13.35	47	75	66 821	53	53.18
1990 ASM	34 237	58	2 136	13.13	47	74	45 605	75	36.87
1989 ASM	32 650	60	2 167	12.33	60	82	92 200	35	70.92
1988 ASM	32 000	58	2 227	12.10	60	81	64 789	49	50.24
1987 Census	30 949	56	2 136	12.21	53	79	73 051	42	60.62
1986 ASM	28 886	54	2 000	12.34	55	82	48 457	60	44.63
1985 ASM	27 359	56	2 000	12.23	47	70	50 436	54	44.70
1984 ASM	27 061	61	1 900	11.97	52	80	58 424	46	50.74
1983 ASM	22 951	61	1 800	11.44	49	74	27 854	82	25.38
1982 Census	24 529	65	1 848	11.61	49	74	54 196	45	45.31
1981 ASM	22 517	65	1 949	10.78	46	65	68 400	33	54.00
1980 ASM	21 781	70	1 911	10.15	46	66	55 953	39	41.64
1979 ASM	19 557	69	2 071	8.84	48	73	48 541	40	34.03
1978 ASM	18 105	70	1 755	8.99	38	66	38 118	47	31.15
1977 Census	16 228	68	1 926	7.54	39	64	36 316	45	27.59
	INDUSTRY 3548, WELDING APPARATUS								
1992 Census	33 854	60	2 076	13.87	45	69	75 753	45	60.72
1991 ASM	31 836	61	2 076	13.07	49	72	68 928	46	54.86
1990 ASM	31 792	63	2 033	13.15	47	70	75 885	42	59.71
1989 ASM	30 421	61	2 095	12.67	49	71	67 100	45	52.47
1988 ASM	30 533	62	2 098	12.45	49	74	66 746	46	50.97
1987 Census	28 957	61	2 104	12.10	50	76	57 989	50	44.81
	INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.								
1992 Census	36 932	60	2 228	14.05	42	73	71 417	52	53.56
1991 ASM	32 927	60	2 277	12.41	44	75	64 404	51	47.43
1990 ASM	32 855	57	2 313	12.45	47	79	57 701	57	43.55
1989 ASM	31 016	60	2 211	12.19	48	76	59 575	52	45.04
1988 ASM	30 883	61	2 137	12.38	44	75	56 092	55	43.15
1987 Census	29 389	61	2 087	12.32	42	75	52 071	56	40.86

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992													1987	
		All establishments		All employees		Production workers									
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES														
United States	**–**	**422**	**220**	**27.0**	**982.1**	**15.2**	**32.2**	**498.5**	**1 840.9**	**1 762.0**	**3 567.8**	**82.4**	**31.7**	**1 668.7**
California	–	32	9	.8	36.5	.4	1.1	17.5	82.3	65.4	147.7	2.9	.7	38.7
Connecticut	E1	25	9	1.5	49.8	.9	1.7	24.4	57.4	63.2	126.1	1.5	2.2	96.3
Illinois	–	41	18	3.1	116.1	1.6	3.9	60.5	119.3	298.5	423.8	10.3	3.4	202.2
Indiana	–	8	6	.5	18.5	.3	.5	11.7	20.7	30.2	50.9	(D)	.7	25.3
Iowa	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES—Con.														
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	18	4	.6	18.5	.2	.6	7.1	4.1	27.8	58.6	.6	1.2	61.4
Michigan	–	100	59	4.6	187.5	2.8	6.5	107.8	436.1	367.5	769.5	11.2	4.5	299.8
Minnesota	–	11	5	.6	18.2	.4	.7	9.1	26.5	31.6	63.9	2.1	.9	46.3
New Hampshire	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	9	4	.2	7.7	.1	.3	4.1	11.4	6.3	18.1	(D)	.4	20.7
New York	–	18	10	2.6	96.2	1.5	3.1	50.0	144.7	115.9	266.5	(D)	3.2	162.6
North Carolina	–	4	3	.2	8.4	.2	.3	4.6	14.3	47.4	60.5	(D)	(NA)	(D)
Ohio	–	36	24	4.6	175.5	2.4	4.6	76.7	342.8	293.7	659.5	10.0	5.9	298.4
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	7	3	.2	6.4	.1	.2	2.4	10.1	9.5	19.0	.4	.2	9.1
Pennsylvania	–	20	10	.8	26.6	.4	.9	12.9	55.6	48.9	96.6	3.4	1.1	52.7
Rhode Island	–	3	3	.1	4.2	.1	.2	2.5	6.7	8.6	15.7	(D)	F	(D)
South Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	35.4
Virginia	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	28	20	2.6	93.0	1.4	2.8	41.2	226.4	113.9	326.4	3.7	2.2	143.5
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES														
United States	**–**	**217**	**114**	**12.2**	**417.6**	**7.8**	**15.8**	**236.9**	**728.6**	**700.1**	**1 450.9**	**40.4**	**13.8**	**734.3**
Alabama	–	4	2	.1	3.8	.1	.2	2.7	7.1	4.1	11.0	(D)	(NA)	(NA)
California	–	21	12	.8	27.4	.5	.9	13.2	56.4	54.2	113.1	2.3	.8	43.6
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	E6	7	3	.4	15.2	.2	.5	8.0	27.6	19.7	46.5	(D)	.3	16.9
Georgia	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Illinois	–	32	24	2.7	97.9	1.7	3.3	58.2	138.8	209.0	341.0	7.3	3.6	137.7
Indiana	–	8	2	.2	4.9	.1	.3	3.1	8.3	5.1	13.3	.4	.3	16.7
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	4	3	.1	4.6	.1	.2	3.2	11.5	4.5	15.4	.4	(NA)	(D)
Michigan	–	27	15	1.3	50.3	1.0	2.3	33.7	100.1	70.8	173.3	5.4	1.8	108.4
Missouri	–	6	1	.1	4.1	.1	.2	2.6	7.5	5.3	12.9	.1	.2	6.3
New York	–	10	5	1.1	37.7	.6	1.2	18.3	63.9	54.1	117.6	(D)	1.1	70.6
North Carolina	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	31	16	3.0	96.4	1.8	3.6	51.7	165.6	153.5	345.8	9.6	2.9	193.3
Pennsylvania	–	8	6	.5	14.5	.3	.6	9.1	17.3	27.8	45.6	1.1	.5	13.7
South Dakota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E2	4	2	.1	2.9	.1	.2	1.8	4.3	4.1	8.9	(D)	(NA)	(NA)
Virginia	E4	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	3	.1	4.8	.1	.2	2.6	7.3	6.3	13.5	.1	(NA)	(NA)
INDUSTRY 3543, INDUSTRIAL PATTERNS														
United States	**E1**	**711**	**87**	**7.9**	**258.7**	**6.5**	**13.2**	**199.6**	**416.3**	**125.7**	**539.0**	**15.1**	**8.6**	**389.3**
Alabama	–	21	2	.2	5.5	.2	.3	4.5	10.5	6.9	17.4	.4	.2	10.4
California	E2	45	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E1	51	4	.4	13.8	.4	.8	11.2	23.2	5.8	29.0	.5	E	(D)
Indiana	E1	29	8	.5	14.8	.4	.8	11.5	23.0	6.9	30.4	.9	.4	17.6
Iowa	–	13	3	.2	6.3	.1	.3	5.1	11.2	3.4	14.6	1.0	(NA)	(NA)
Kansas	–	13	2	.2	4.2	.1	.3	3.1	6.9	2.2	9.1	.1	(NA)	(NA)
Massachusetts	E2	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Michigan	E1	94	25	1.7	71.7	1.4	2.8	55.0	117.2	29.5	146.4	3.4	1.9	109.6
Minnesota	–	16	2	.2	6.5	.1	.3	4.9	10.1	2.4	12.6	.4	.2	(D)
Missouri	E1	15	2	.1	4.2	.1	.2	3.1	7.2	2.4	9.7	.5	.2	7.4
New York	E4	28	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Ohio	–	94	8	1.1	34.0	.9	1.9	26.2	51.5	16.8	68.1	1.4	1.2	56.9
Pennsylvania	E1	57	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	7	4	.5	10.6	.5	.8	8.2	15.4	9.0	24.4	.6	F	(D)
Texas	E4	28	1	.2	5.4	.1	.3	3.7	5.9	2.9	9.0	.2	(NA)	(D)
Washington	E1	10	1	.1	3.0	.1	.2	2.2	5.0	1.3	6.4	.1	(NA)	(NA)
Wisconsin	–	59	12	.8	30.5	.7	1.5	23.7	47.8	10.8	55.4	2.7	.9	45.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES														
United States	**E1**	**7 350**	**1 521**	**111.4**	**3 898.3**	**85.3**	**188.4**	**2 744.8**	**6 644.7**	**2 690.7**	**9 309.8**	**370.1**	**114.4**	**5 293.8**
Alabama	–	54	17	1.2	30.8	1.0	2.0	23.2	56.3	28.4	85.5	2.9	1.0	34.1
Arizona	E1	86	10	.8	25.6	.6	1.3	17.9	40.4	18.8	57.5	3.1	.8	29.1
Arkansas	E2	69	9	.6	16.1	.5	1.0	11.1	28.4	12.1	40.5	1.6	.5	18.3
California	E1	576	74	5.7	197.6	4.3	9.7	132.1	355.8	150.1	502.3	18.0	7.5	353.2
Colorado	E1	55	6	.5	15.2	.4	.8	10.6	25.6	10.5	35.9	1.1	.5	18.8
Connecticut	–	251	36	2.5	97.3	1.9	4.2	65.2	151.4	62.9	215.0	7.6	3.0	134.8
Florida	E2	177	21	1.6	46.3	1.2	2.5	31.7	80.9	35.2	116.2	3.9	1.5	61.5
Georgia	E1	63	13	.8	22.9	.6	1.2	16.1	41.0	19.2	59.8	3.4	1.0	34.4
Illinois	E1	691	133	10.3	391.4	7.6	17.4	268.1	628.1	275.8	904.0	38.2	10.5	505.2
Indiana	E1	407	94	6.4	201.2	5.0	10.6	144.2	341.4	126.2	468.2	18.7	6.7	300.3
Iowa	–	63	16	1.0	31.7	.8	1.7	23.8	54.0	20.4	74.3	3.0	F	(D)
Kansas	–	32	8	.4	11.7	.3	.7	8.6	20.8	7.1	27.7	.9	E	(D)
Kentucky	–	82	19	1.0	27.4	.8	1.7	20.7	43.2	16.8	59.6	4.5	F	(D)
Maryland	E2	24	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Massachusetts	E2	199	30	2.2	78.0	1.7	3.7	54.5	128.0	48.9	177.2	7.0	2.9	119.6
Michigan	–	1 210	371	26.8	1 084.7	20.5	48.0	764.6	1 875.4	708.9	2 564.0	95.4	27.6	1 480.9
Minnesota	–	184	36	2.8	97.9	2.0	4.4	65.7	175.8	65.0	241.2	13.9	G	(D)
Mississippi	E1	39	4	.3	6.8	.2	.5	4.9	13.1	8.2	21.4	.7	E	(D)
Missouri	–	148	30	2.1	70.7	1.7	3.5	49.6	127.3	62.4	186.6	10.3	2.2	92.9
Nebraska	E4	19	4	.2	4.3	.2	.3	3.1	7.9	2.8	10.7	.6	(NA)	(NA)
New Hampshire	E1	33	5	.3	9.1	.2	.5	6.8	15.0	4.2	19.5	.9	E	(D)
New Jersey	E1	249	41	2.8	97.1	2.2	4.8	66.7	164.7	66.9	231.8	6.3	4.0	178.5
New York	E2	338	57	4.0	122.2	3.1	6.6	85.4	201.2	86.0	288.2	11.4	4.8	147.5
North Carolina	–	107	14	1.3	37.3	1.0	2.0	26.2	70.0	24.5	94.7	4.3	G	(D)
Ohio	–	772	200	15.3	514.4	12.0	26.4	370.9	900.5	345.2	1 239.1	47.6	14.7	692.4
Oklahoma	E1	28	1	.2	5.2	.2	.3	3.5	10.1	5.3	15.3	.4	(NA)	(D)
Oregon	E1	60	3	.4	12.5	.3	.6	9.4	19.6	9.0	28.5	.6	.3	11.6
Pennsylvania	E1	418	116	8.5	280.0	6.7	14.0	199.3	476.1	227.6	705.7	26.9	8.5	383.4
Rhode Island	E1	57	5	.4	13.1	.3	.7	9.1	22.5	6.9	29.8	1.0	E	(D)
South Carolina	E1	46	13	.6	16.9	.4	1.0	11.5	29.7	12.7	42.9	1.4	.6	22.9
Tennessee	E1	148	27	1.7	49.4	1.3	2.7	33.3	74.9	33.0	110.3	3.9	1.5	55.3
Texas	E2	198	20	1.8	47.4	1.4	2.8	34.2	78.7	31.7	109.8	4.4	1.5	57.3
Utah	E3	17	1	.1	2.4	.1	.2	1.7	3.9	1.4	5.3	.1	(NA)	(NA)
Vermont	E1	7	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	32	7	.6	16.9	.4	.8	12.2	26.4	11.3	36.8	.8	E	(D)
Washington	E1	46	5	.5	13.8	.3	.7	9.8	20.5	8.6	28.1	1.1	.3	14.6
Wisconsin	–	315	67	5.1	185.7	4.0	8.5	137.2	305.2	122.7	431.4	22.8	4.8	226.7
INDUSTRY 3545, MACHINE TOOL ACCESSORIES														
United States	**–**	**1 866**	**485**	**42.7**	**1 243.9**	**30.1**	**62.4**	**748.5**	**2 653.6**	**1 113.9**	**3 786.3**	**142.2**	**48.5**	**2 565.6**
Alabama	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	24.3
Arizona	E3	23	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(D)
Arkansas	–	12	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	192	36	2.5	67.7	1.9	4.0	42.6	132.2	59.6	191.8	6.4	2.6	113.3
Connecticut	–	93	18	1.5	44.3	1.0	2.1	26.3	77.4	38.9	118.5	2.2	1.9	88.4
Florida	E3	41	10	.6	14.4	.5	.9	9.3	32.6	12.6	45.1	1.5	.6	24.7
Georgia	–	20	2	.7	21.2	.5	1.1	9.5	37.0	14.7	49.3	(D)	F	(D)
Illinois	–	151	41	4.9	141.6	3.4	7.2	83.1	265.3	138.5	406.7	21.8	3.8	181.6
Indiana	E1	45	13	.9	22.5	.7	1.5	14.9	49.0	16.4	65.2	2.0	1.2	54.2
Iowa	–	17	5	.4	11.5	.3	.6	7.0	25.2	8.3	33.4	.6	E	(D)
Kentucky	E1	11	4	.2	4.9	.1	.3	3.1	9.6	6.2	15.9	1.2	E	(D)
Maine	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	67	24	2.6	76.9	1.8	3.6	47.4	165.6	65.5	232.1	7.7	3.7	165.1
Michigan	–	408	127	8.3	262.2	5.7	11.9	156.4	526.5	211.5	751.2	27.3	9.3	534.3
Minnesota	–	33	5	.6	16.2	.4	.7	7.8	43.7	24.1	65.4	.8	F	(D)
Mississippi	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	19	5	.4	9.1	.2	.5	5.0	19.2	12.7	32.6	.6	.5	23.3
New Hampshire	–	17	5	.2	6.0	.1	.3	3.3	15.0	7.3	22.4	.8	E	(D)
New Jersey	–	54	9	.5	16.6	.3	.7	9.1	36.4	15.0	51.6	2.0	1.2	68.4
New York	E1	100	23	1.5	45.5	1.0	2.0	25.6	85.9	37.1	123.9	6.4	2.2	104.0
North Carolina	–	25	8	.9	23.1	.6	1.4	15.1	71.9	20.0	91.2	6.6	F	(D)
Ohio	–	170	54	4.9	152.0	3.4	7.1	88.5	390.7	120.9	515.3	17.1	6.7	399.6
Pennsylvania	–	79	15	2.2	63.9	1.5	3.1	38.3	115.8	57.0	171.1	8.7	2.8	135.0
Rhode Island	–	20	6	.8	26.6	.5	1.2	15.7	49.8	16.9	69.0	1.6	1.2	63.3
South Carolina	–	34	18	1.8	45.8	1.3	2.8	28.6	133.3	62.3	193.4	7.9	1.5	101.5
Tennessee	–	24	9	1.1	34.7	.8	1.6	21.7	85.1	31.8	118.6	5.0	F	(D)
Texas	–	50	13	.9	22.9	.7	1.3	15.4	51.6	18.5	69.2	2.5	.6	33.1
Vermont	–	14	6	.7	16.5	.5	1.0	11.2	27.8	10.2	38.3	.9	.7	33.8
Virginia	E1	10	1	.2	4.9	.1	.3	3.5	6.7	3.1	9.8	(D)	(NA)	(D)
Wisconsin	E1	45	11	1.5	40.5	1.2	2.3	29.6	84.6	48.6	133.3	2.6	1.5	81.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS														
United States	**–**	**226**	**69**	**16.1**	**440.6**	**10.6**	**21.7**	**240.5**	**1 506.8**	**1 359.9**	**2 872.5**	**72.3**	**16.8**	**1 125.0**
Arizona	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E4	28	4	.3	9.0	.2	.4	4.6	19.5	13.1	32.1	1.0	E	(D)
Connecticut	E4	12	1	.2	4.7	.1	.2	2.6	8.1	8.3	16.3	.6	(NA)	(NA)
Illinois	E2	22	5	.4	13.1	.3	.6	7.6	25.8	15.3	40.6	1.1	.3	8.4
Indiana	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E6	10	2	.3	5.8	.2	.3	3.0	15.6	15.2	31.0	.8	(NA)	(D)
Michigan	E4	15	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	12	6	1.0	36.1	.5	.9	15.0	70.9	61.0	136.9	3.8	1.0	70.4
North Carolina	–	7	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	22	9	1.5	55.8	.9	1.6	26.7	113.5	53.6	165.7	6.1	1.6	92.4
Oregon	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	12	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	4	4	2.0	53.6	1.5	3.1	32.8	124.6	119.8	234.3	2.9	2.1	107.2
Tennessee	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	10	2	.5	13.6	.2	.4	7.9	37.2	12.3	50.5	.4	E	(D)
Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3547, ROLLING MILL MACHINERY														
United States	**E2**	**89**	**40**	**5.4**	**186.8**	**3.0**	**6.3**	**85.2**	**313.2**	**288.6**	**602.8**	**13.7**	**3.9**	**284.9**
California	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	8	4	.2	7.1	.1	.2	3.4	11.7	10.0	21.3	.2	(NA)	(D)
Indiana	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E6	6	3	2.0	59.4	1.0	2.2	23.7	102.3	101.5	203.5	(D)	F	(D)
Michigan	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Ohio	–	16	12	1.3	48.0	.7	1.4	21.7	85.5	77.2	161.7	3.0	1.2	72.9
Pennsylvania	–	10	4	.7	27.1	.3	.6	9.1	37.0	46.0	87.1	1.2	.8	109.6
Wisconsin	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
INDUSTRY 3548, WELDING APPARATUS														
United States	**–**	**240**	**130**	**19.8**	**670.3**	**11.9**	**24.7**	**342.7**	**1 499.9**	**1 250.3**	**2 763.5**	**65.8**	**18.7**	**1 084.4**
California	E1	28	14	1.0	31.4	.6	1.1	13.5	70.9	49.2	120.0	3.2	1.0	64.6
Colorado	E9	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	–	5	3	.2	7.6	.1	.2	2.6	15.9	10.5	27.1	(D)	(NA)	(NA)
Florida	–	8	4	.5	9.9	.4	.8	5.7	20.5	12.5	33.3	.4	E	(D)
Georgia	E1	4	2	.2	5.8	.1	.2	2.6	5.2	17.2	22.5	(D)	(NA)	(D)
Illinois	–	12	7	.5	17.9	.3	.6	8.5	32.6	22.1	54.7	.7	F	(D)
Indiana	–	5	3	.3	9.9	.2	.3	3.9	18.9	8.1	25.3	.8	.2	.6
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E1	46	29	3.0	125.5	1.7	4.2	63.0	200.1	287.9	482.5	11.7	2.8	129.9
Minnesota	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E1	7	5	.5	14.4	.3	.5	5.6	28.0	9.7	37.8	(D)	.7	28.2
New Hampshire	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	5	4	.2	6.3	.1	.2	3.1	11.0	8.4	19.2	.4	.2	10.5
New York	–	8	4	.8	28.2	.3	.6	11.2	67.6	54.7	124.4	(D)	F	(D)
North Carolina	–	4	4	.5	13.5	.3	.6	5.1	37.4	20.4	57.6	1.5	(NA)	(D)
Ohio	–	24	15	4.9	176.1	3.4	6.5	105.7	435.3	339.4	798.1	24.2	4.6	283.6
Pennsylvania	E1	13	6	.9	30.1	.5	1.1	15.4	94.2	46.1	141.0	1.5	1.1	90.4
South Carolina	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	9	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	10	5	2.1	73.2	1.2	2.6	37.4	144.0	147.7	292.3	(D)	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.														
United States	**–**	**400**	**167**	**13.2**	**487.5**	**7.9**	**17.6**	**247.2**	**942.7**	**687.6**	**1 618.3**	**27.6**	**11.3**	**588.4**
California	E2	33	6	.5	14.8	.3	.7	8.1	27.3	16.8	44.1	.6	E	(D)
Colorado	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	23	5	.5	22.1	.4	.7	12.0	41.8	18.1	59.8	.5	.5	31.0
Illinois	–	40	14	1.4	46.6	.8	1.7	25.1	96.1	70.9	158.2	3.8	1.6	79.7
Indiana	–	11	8	.5	18.7	.4	.8	11.6	27.9	17.5	44.8	.9	.4	19.6
Maryland	–	5	2	.1	4.7	(Z)	.1	1.2	4.9	7.6	13.4	(D)	(NA)	(NA)
Massachusetts	–	16	5	.3	9.4	.2	.4	4.3	14.2	11.3	26.4	.4	.4	15.8
Michigan	–	65	37	2.9	123.9	1.8	4.1	66.0	225.6	227.5	456.3	5.9	2.2	123.2
Minnesota	–	8	4	.2	7.3	.1	.2	3.2	12.3	9.1	21.9	.5	(NA)	(D)
New Jersey	–	17	9	.4	13.5	.2	.4	5.1	25.5	22.4	46.7	.3	.4	20.8
New York	–	21	10	.8	27.9	.4	.9	11.8	41.5	34.7	76.9	.6	F	(D)
Ohio	–	43	24	1.9	67.1	1.2	2.8	38.5	144.7	81.8	222.6	4.4	.9	48.1
Oklahoma	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	24	12	.9	29.1	.5	1.1	13.2	47.8	34.5	85.0	2.1	.8	39.1
Rhode Island	E2	6	3	.2	6.5	.1	.3	3.4	13.7	7.6	21.4	(D)	(NA)	(NA)
Tennessee	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	9	2	.2	7.8	.2	.4	3.6	8.7	14.6	25.3	(D)	.4	8.0
Wisconsin	–	15	8	1.0	35.2	.6	1.2	17.4	96.8	28.9	124.0	1.0	1.2	67.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Companies ---- number	391	211	708	7 227	1 759	214	87	215	389
All establishments ---- number	422	217	711	7 350	1 866	226	89	240	400
With 1 to 19 employees ---- number	202	103	624	5 829	1 381	157	49	110	233
With 20 to 99 employees ---- number	161	85	82	1 393	400	39	28	79	134
With 100 employees or more ---- number	59	29	5	128	85	30	12	51	33
Employment and labor costs:									
Employees ---- 1,000	27.0	12.2	7.9	111.4	42.7	16.1	5.4	19.8	13.2
Compensation, total ---- mil dol	1 232.2	532.1	315.7	4 762.5	1 560.6	566.5	231.9	833.7	596.6
Annual payroll ---- mil dol	982.1	417.6	258.7	3 898.3	1 243.9	440.6	186.8	670.3	487.5
Fringe benefits ---- mil dol	250.1	114.6	57.0	864.2	316.7	125.9	45.1	163.4	109.1
Social Security and other legally required payments ---- mil dol	94.6	43.1	21.1	361.1	125.7	45.7	19.0	67.1	44.5
Employer voluntary payments ---- mil dol	155.5	71.5	35.8	503.0	191.0	80.2	26.1	96.3	64.6
Production workers:									
Average for year ---- 1,000	15.2	7.8	6.5	85.3	30.1	10.6	3.0	11.9	7.9
March ---- 1,000	15.5	7.9	6.6	85.5	30.3	10.6	3.0	11.9	8.1
May ---- 1,000	15.2	7.8	6.6	85.5	30.4	10.6	3.0	11.9	8.0
August ---- 1,000	15.2	7.8	6.6	85.6	30.4	10.7	3.0	12.0	7.9
November ---- 1,000	15.0	7.6	6.3	85.0	29.5	10.6	3.0	11.8	7.7
Hours ---- millions	32.2	15.8	13.2	188.4	62.4	21.7	6.3	24.7	17.6
Wages ---- mil dol	498.5	236.9	199.6	2 744.8	748.5	240.5	85.2	342.7	247.2
Cost of materials[1] ---- mil dol	1 762.0	700.1	125.7	2 690.7	1 113.9	1 359.9	288.6	1 250.3	687.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 414.7	593.7	99.4	1 932.1	844.4	1 079.3	218.9	1 057.1	552.4
Resales ---- mil dol	209.4	32.4	3.1	111.0	126.8	235.3	22.8	108.4	40.5
Fuels ---- mil dol	9.6	4.6	2.8	27.9	10.5	3.2	2.4	8.6	3.2
Purchased electricity ---- mil dol	30.8	13.6	6.2	105.5	54.7	19.2	7.2	26.5	10.1
Contract work ---- mil dol	97.5	55.8	14.1	514.3	77.6	22.9	37.4	49.7	81.4
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	488.6	213.4	93.7	1 509.9	833.8	321.2	95.0	397.1	148.9
Generated less sold ---- mil kWh	(D)	–	(Z)	(D)	(D)	–	–	–	–
Total value of shipments ---- mil dol	3 567.8	1 450.9	539.0	9 309.8	3 786.3	2 872.5	602.8	2 763.5	1 618.3
Value added ---- mil dol	1 840.9	728.6	416.3	6 644.7	2 653.6	1 506.8	313.2	1 499.9	942.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Inventories by stage of fabrication:									
Beginning of 1992 ---mil dol	1 181.5	449.5	39.3	1 158.9	793.0	377.7	169.1	655.8	329.7
Finished goods ---mil dol	288.7	167.9	4.0	187.6	365.5	213.0	15.7	229.1	64.2
Work in process ---mil dol	660.0	192.9	26.4	751.4	265.6	74.3	123.1	168.3	199.1
Materials and supplies ---mil dol	232.8	88.6	8.9	219.9	161.9	90.4	30.3	258.4	66.4
End of 1992 ---mil dol	1 221.7	425.7	41.8	1 199.1	785.0	377.6	170.7	595.5	339.7
Finished goods ---mil dol	297.8	122.6	4.2	197.7	349.8	205.6	19.0	212.0	66.9
Work in process ---mil dol	686.0	216.0	29.2	766.9	262.5	75.8	118.9	172.1	208.5
Materials and supplies ---mil dol	237.9	87.1	8.4	234.5	172.7	96.2	32.9	211.4	64.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 309.2	599.6	216.1	4 292.6	1 718.5	835.7	241.2	805.5	458.0
New capital expenditures[1]	82.4	40.4	15.1	370.1	142.2	72.3	13.7	65.8	27.6
Used capital expenditures	13.3	1.2	1.9	66.1	13.9	3.5	1.6	2.3	4.7
Retirements	85.4	25.1	5.9	134.8	60.2	30.0	4.7	15.9	16.2
End of year	1 319.5	616.0	227.1	4 594.0	1 814.4	881.5	251.8	857.6	474.1
Buildings and other structures:									
Beginning of year	327.0	139.3	39.7	651.5	322.8	155.1	48.6	221.8	104.6
New capital expenditures	18.3	7.6	1.1	48.5	17.3	4.3	2.1	21.5	5.3
Used capital expenditures	3.0	.5	.2	7.3	1.8	.6	.2	.3	2.1
Retirements	9.5	4.5	.2	7.6	5.4	1.7	.1	.4	1.9
End of year	338.8	142.8	40.9	699.6	336.5	158.3	50.7	243.2	110.0
Machinery and equipment:									
Beginning of year	982.3	460.3	176.3	3 641.1	1 395.8	680.7	192.6	583.6	353.4
New capital expenditures[1]	64.1	32.8	14.0	321.6	124.9	68.1	11.7	44.3	22.3
Used capital expenditures	10.3	.7	1.7	58.9	12.0	2.8	1.5	1.9	2.6
Retirements	75.9	20.6	5.7	127.2	54.8	28.3	4.6	15.5	14.2
End of year	980.7	473.2	186.2	3 894.4	1 477.9	723.3	201.1	614.4	364.1
Depreciation charges during 1992:									
Total	113.1	40.3	22.1	474.1	128.2	71.3	18.7	63.2	40.1
Buildings and other structures	16.1	5.2	2.5	45.0	13.7	6.7	2.5	9.0	5.4
Machinery and equipment	97.0	35.2	19.7	429.1	114.5	64.6	16.2	54.1	34.7
Rental payments:									
Total	43.1	12.8	11.5	186.3	54.1	15.3	6.2	18.6	24.8
Buildings and other structures	22.5	7.6	6.1	102.5	26.9	5.3	4.4	12.7	12.9
Machinery and equipment	20.6	5.2	5.3	83.8	27.2	10.1	1.8	5.9	11.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)		Machine tools, metal forming types (SIC 3542)		Industrial patterns (SIC 3543)		Special dies, tools, jigs, and fixtures (SIC 3544)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	7.9	(X)	3.0	(X)	.4	(X)	18.2	(X)
Response coverage ratio (percent)[2]	85.1	(X)	84.2	(X)	78.5	(X)	78.1	(X)
Machinery	14.8	(X)	7.4	(X)	1.4	(X)	59.1	(X)
Response coverage ratio (percent)[2]	85.2	(X)	89.4	(X)	78.9	(X)	81.1	(X)
Other purchased services:								
Communications	10.2	(X)	4.3	(X)	1.0	(X)	26.3	(X)
Response coverage ratio (percent)[2]	85.3	(X)	75.8	(X)	74.1	(X)	79.6	(X)
Legal	9.1	(X)	6.5	(X)	1.2	(X)	15.1	(X)
Response coverage ratio (percent)[2]	87.3	(X)	84.2	(X)	77.8	(X)	79.8	(X)
Accounting and bookkeeping	10.6	(X)	2.1	(X)	1.4	(X)	33.3	(X)
Response coverage ratio (percent)[2]	87.4	(X)	77.2	(X)	78.1	(X)	82.5	(X)
Advertising	12.6	(X)	8.0	(X)	.5	(X)	17.5	(X)
Response coverage ratio (percent)[2]	87.3	(X)	89.4	(X)	77.8	(X)	81.3	(X)
Software and other data processing	9.7	(X)	2.1	(X)	.6	(X)	11.2	(X)
Response coverage ratio (percent)[2]	82.3	(X)	77.2	(X)	77.8	(X)	77.9	(X)
Refuse removal, including hazardous waste	2.4	(X)	.8	(X)	.6	(X)	5.5	(X)
Response coverage ratio (percent)[2]	83.3	(X)	77.2	(X)	77.6	(X)	78.9	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)		Machine tools, metal forming types (SIC 3542)		Industrial patterns (SIC 3543)		Special dies, tools, jigs, and fixtures (SIC 3544)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	64.1	(X)	32.8	(X)	14.0	(X)	321.6	(X)
Automobiles, trucks, etc., for highway use	2.6	32	(S)	(X)	(S)	(X)	16.5	16
Computers and peripheral data processing equipment	7.0	13	(S)	(X)	(S)	(X)	41.2	15
All other	54.5	3	(S)	(X)	(S)	(X)	264.0	4
Adjustment ratio[3]	1.3	(X)	(S)	(X)	(S)	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 414.7	(X)	593.7	(X)	99.4	(X)	1 932.1	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	19.7	8	(S)	(X)	32.9	13
Materials purchased or transferred from domestic sources	(S)	(X)	573.9	1	(S)	(X)	1 899.1	1
Adjustment ratio[3]	(S)	(X)	1.6	(X)	(S)	(X)	1.8	(X)

Item	Machine tool accessories (SIC 3545)		Power-driven handtools (SIC 3546)		Rolling mill machinery (SIC 3547)		Welding apparatus (SIC 3548)		Metalworking machinery, n.e.c. (SIC 3549)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	6.8	(X)	3.4	(X)	1.0	(X)	3.6	(X)	2.4	(X)
Response coverage ratio (percent)[2]	80.1	(X)	95.3	(X)	67.2	(X)	91.1	(X)	70.7	(X)
Machinery	35.8	(X)	10.8	(X)	2.1	(X)	9.5	(X)	4.5	(X)
Response coverage ratio (percent)[2]	84.1	(X)	96.3	(X)	73.9	(X)	95.2	(X)	71.5	(X)
Other purchased services:										
Communications	13.8	(X)	7.0	(X)	1.4	(X)	8.1	(X)	3.7	(X)
Response coverage ratio (percent)[2]	81.3	(X)	96.3	(X)	89.4	(X)	79.1	(X)	79.6	(X)
Legal	8.3	(X)	6.1	(X)	1.1	(X)	5.6	(X)	4.3	(X)
Response coverage ratio (percent)[2]	81.2	(X)	96.3	(X)	89.6	(X)	90.2	(X)	78.9	(X)
Accounting and bookkeeping	6.2	(X)	.7	(X)	.9	(X)	4.6	(X)	7.2	(X)
Response coverage ratio (percent)[2]	77.6	(X)	96.3	(X)	89.6	(X)	90.2	(X)	80.8	(X)
Advertising	17.2	(X)	23.5	(X)	1.2	(X)	13.2	(X)	6.7	(X)
Response coverage ratio (percent)[2]	84.2	(X)	96.3	(X)	89.6	(X)	93.9	(X)	80.8	(X)
Software and other data processing	5.5	(X)	3.1	(X)	.2	(X)	2.3	(X)	3.8	(X)
Response coverage ratio (percent)[2]	80.2	(X)	96.3	(X)	89.6	(X)	93.0	(X)	78.9	(X)
Refuse removal, including hazardous waste	3.1	(X)	3.0	(X)	.2	(X)	2.6	(X)	.4	(X)
Response coverage ratio (percent)[2]	77.7	(X)	96.3	(X)	73.9	(X)	94.8	(X)	79.3	(X)
New machinery and equipment expenditures	124.9	(X)	68.1	(X)	11.7	(X)	44.3	(X)	22.3	(X)
Automobiles, trucks, etc., for highway use	6.9	32	.8	44	(S)	(X)	1.3	19	1.0	20
Computers and peripheral data processing equipment	11.1	12	4.4	5	(S)	(X)	8.5	8	6.0	21
All other	106.9	3	62.9	1	(S)	(X)	34.5	3	15.3	9
Adjustment ratio[3]	1.3	(X)	1.1	(X)	(S)	(X)	1.1	(X)	1.7	(X)
Cost of materials, components, parts, etc., used	844.4	(X)	1 079.3	(X)	218.9	(X)	1 057.1	(X)	552.4	(X)
Materials purchased or transferred from foreign sources[4]	130.2	17	161.9	11	(S)	(X)	57.1	8	(S)	(X)
Materials purchased or transferred from domestic sources	714.1	4	917.5	3	(S)	(X)	1 000.0	1	(S)	(X)
Adjustment ratio[3]	1.6	(X)	1.2	(X)	(S)	(X)	1.3	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES												
Total	**–**	**422**	**27.0**	**982.1**	**15.2**	**32.2**	**498.5**	**1 840.9**	**1 762.0**	**3 567.8**	**82.4**	**1 221.7**
Establishments with an average of–												
1 to 4 employees	E1	34	.1	2.7	.1	.2	1.6	4.8	3.4	8.0	.2	2.0
5 to 9 employees	E1	61	.4	13.1	.3	.5	7.1	23.7	19.7	42.7	.7	11.7
10 to 19 employees	E1	107	1.5	44.6	1.0	1.9	24.8	79.0	66.2	145.1	3.0	44.5
20 to 49 employees	–	109	3.4	110.4	2.0	4.2	57.1	197.6	177.5	394.1	8.0	108.8
50 to 99 employees	E1	52	3.6	125.4	1.9	4.1	63.5	266.9	261.7	529.5	11.2	171.1
100 to 249 employees	–	37	5.5	200.4	3.1	6.8	101.0	290.8	332.3	643.1	12.2	250.9
250 to 499 employees	–	16	5.5	204.6	3.4	6.8	111.3	446.7	459.0	869.9	14.9	307.4
500 to 999 employees	–	4	7.1	280.9	3.5	7.6	132.1	531.4	442.1	935.4	32.1	325.2
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2	(Z)	.3	(Z)	(Z)	.1	.3	.2	.5	(Z)	.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES												
Total	**–**	**217**	**12.2**	**417.6**	**7.8**	**15.8**	**236.9**	**728.6**	**700.1**	**1 450.9**	**40.4**	**425.7**
Establishments with an average of—												
1 to 4 employees	E4	13	(Z)	.7	(Z)	(Z)	.4	1.8	1.2	3.1	(Z)	.6
5 to 9 employees	E1	35	.2	7.5	.2	.3	4.1	17.6	13.4	30.1	.3	8.8
10 to 19 employees	–	55	.8	21.9	.5	1.0	12.3	43.4	32.0	72.5	1.5	14.5
20 to 49 employees	–	53	1.6	51.9	1.1	2.3	28.4	90.4	62.6	152.7	4.0	36.0
50 to 99 employees	–	32	2.2	71.9	1.4	2.8	38.5	131.4	148.9	296.0	6.7	77.2
100 to 249 employees	E1	21	3.0	111.3	1.8	3.9	61.4	204.3	193.6	402.7	19.6	145.8
250 to 499 employees	–	3	1.1	38.6	.7	1.5	24.2	78.7	47.9	123.2	(D)	33.5
500 to 999 employees	–	5	3.3	113.8	2.1	4.0	67.7	160.9	200.4	370.5	8.3	109.3
INDUSTRY 3543, INDUSTRIAL PATTERNS												
Total	**E1**	**711**	**7.9**	**258.7**	**6.5**	**13.2**	**199.6**	**416.3**	**125.7**	**539.0**	**15.1**	**41.8**
Establishments with an average of—												
1 to 4 employees	E7	278	.5	15.7	.4	.9	12.4	27.7	9.3	36.9	1.0	2.4
5 to 9 employees	E2	192	1.3	35.9	1.1	2.1	28.6	60.0	17.0	77.1	1.9	4.3
10 to 19 employees	–	154	2.1	68.8	1.7	3.4	53.2	107.4	31.0	138.4	4.2	9.0
20 to 49 employees	–	68	2.1	75.2	1.7	3.6	55.8	120.3	34.6	154.9	4.8	11.7
50 to 99 employees	E2	14	1.0	37.2	.8	1.6	29.0	61.4	18.7	79.1	2.2	8.1
100 to 249 employees	–	4	.9	25.8	.8	1.6	20.7	39.5	15.1	52.5	1.0	6.3
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	287	.8	17.0	.6	1.2	13.1	30.5	11.3	41.8	1.3	2.5
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES												
Total	**E1**	**7 350**	**111.4**	**3 898.3**	**85.3**	**188.4**	**2 744.8**	**6 644.7**	**2 690.7**	**9 309.8**	**370.1**	**1 199.1**
Establishments with an average of—												
1 to 4 employees	E7	2 672	4.8	141.0	3.8	8.4	102.8	258.4	111.3	370.6	13.9	47.8
5 to 9 employees	E1	1 623	10.9	318.7	8.3	17.7	231.6	516.0	224.2	738.6	26.4	81.8
10 to 19 employees	–	1 534	21.1	673.6	16.1	34.3	478.4	1 083.6	451.2	1 535.0	63.9	157.4
20 to 49 employees	–	1 090	32.4	1 158.3	24.9	55.6	802.4	1 916.8	762.0	2 663.1	106.3	327.6
50 to 99 employees	–	303	20.4	755.4	15.8	35.9	529.6	1 351.8	551.0	1 885.6	83.9	262.7
100 to 249 employees	–	112	15.5	582.6	11.3	25.0	394.4	1 045.3	427.7	1 485.5	54.4	235.8
250 to 499 employees	E2	12	4.0	161.9	3.0	6.9	113.0	300.1	128.9	425.1	13.8	62.9
500 to 999 employees	–	4	2.4	106.9	2.1	4.6	92.7	172.8	34.4	206.3	7.6	23.2
Covered by administrative records[2]	E9	2 604	5.7	140.9	4.5	9.7	100.7	256.6	107.3	363.9	14.8	48.4
INDUSTRY 3545, MACHINE TOOL ACCESSORIES												
Total	**–**	**1 866**	**42.7**	**1 243.9**	**30.1**	**62.4**	**748.5**	**2 653.6**	**1 113.9**	**3 786.3**	**142.2**	**785.0**
Establishments with an average of—												
1 to 4 employees	E8	788	1.4	38.9	1.0	2.1	25.1	81.3	38.0	120.6	4.0	25.5
5 to 9 employees	E2	314	2.1	56.7	1.5	3.2	35.8	109.3	45.6	155.0	4.2	29.6
10 to 19 employees	E1	279	3.9	109.3	2.8	5.7	66.5	210.9	87.3	297.1	9.0	50.0
20 to 49 employees	–	285	8.9	259.1	6.4	13.3	162.3	515.0	200.2	717.8	21.3	123.5
50 to 99 employees	–	115	7.9	231.8	5.7	12.0	140.0	521.4	212.8	732.6	23.7	170.0
100 to 249 employees	–	67	10.0	291.9	7.0	14.3	173.1	649.4	302.9	952.0	43.0	217.0
250 to 499 employees	–	13	4.9	156.3	3.1	6.5	80.2	407.5	129.5	550.5	24.1	93.9
500 to 999 employees	–	4	3.6	100.0	2.7	5.2	65.5	159.0	97.6	260.7	12.7	75.5
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	773	1.6	39.2	1.1	2.3	25.1	84.3	39.1	123.5	4.2	27.1
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS												
Total	**–**	**226**	**16.1**	**440.6**	**10.6**	**21.7**	**240.5**	**1 506.8**	**1 359.9**	**2 872.5**	**72.3**	**377.6**
Establishments with an average of—												
1 to 4 employees	E9	81	.2	3.9	.1	.2	2.1	11.0	11.1	22.2	.8	3.3
5 to 9 employees	E7	46	.3	7.7	.2	.4	4.2	20.5	21.3	42.1	1.3	6.4
10 to 19 employees	E3	30	.4	11.0	.3	.5	5.5	24.9	22.8	47.5	1.3	7.8
20 to 49 employees	E3	21	.6	15.7	.4	.8	8.0	42.9	34.7	77.4	2.3	15.1
50 to 99 employees	–	18	1.3	33.1	.8	1.6	16.7	77.1	68.9	145.5	3.6	33.8
100 to 249 employees	E1	10	1.8	55.0	1.0	2.1	28.4	130.6	49.9	178.9	6.8	56.3
250 to 499 employees	–	9	3.3	86.8	2.2	4.2	51.1	263.8	372.2	649.0	13.7	79.8
500 to 999 employees	–	9	8.3	227.4	5.5	11.8	124.4	936.0	779.0	1 710.0	42.5	175.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	102	.3	7.1	.2	.5	3.9	19.0	19.0	38.0	1.3	5.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3547, ROLLING MILL MACHINERY												
Total	**E2**	**89**	**5.4**	**186.8**	**3.0**	**6.3**	**85.2**	**313.2**	**288.6**	**602.8**	**13.7**	**170.7**
Establishments with an average of—												
1 to 4 employees	E8	21	(Z)	1.1	(Z)	(Z)	.6	2.0	1.9	3.9	.1	1.6
5 to 9 employees	E8	15	.1	2.5	.1	.1	1.4	3.7	3.3	7.0	.2	2.4
10 to 19 employees	E2	13	.2	4.1	.1	.2	2.2	7.5	5.1	12.2	.3	4.7
20 to 49 employees	–	17	.5	15.9	.3	.6	7.6	24.9	23.0	48.4	.6	10.6
50 to 99 employees	–	11	.8	30.4	.5	1.1	14.7	62.4	36.4	97.2	1.0	18.6
100 to 249 employees	E1	7	1.2	45.8	.8	1.8	28.7	74.0	64.2	137.9	2.8	54.3
250 to 499 employees	–	4	2.7	87.1	1.2	2.5	30.2	138.6	154.8	296.1	8.6	78.5
1,000 to 2,499 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	31	.1	3.0	.1	.2	1.4	4.6	4.6	9.1	.3	3.7
INDUSTRY 3548, WELDING APPARATUS												
Total	**–**	**240**	**19.8**	**670.3**	**11.9**	**24.7**	**342.7**	**1 499.9**	**1 250.3**	**2 763.5**	**65.8**	**595.5**
Establishments with an average of—												
1 to 4 employees	E9	48	.1	2.2	.1	.1	1.2	5.4	4.4	9.7	.2	2.2
5 to 9 employees	E6	29	.2	4.9	.1	.2	2.6	9.4	7.0	16.6	.4	3.5
10 to 19 employees	E2	33	.5	15.6	.3	.6	8.5	32.0	25.2	56.8	1.1	11.9
20 to 49 employees	E1	59	2.0	62.6	1.2	2.7	33.1	121.8	100.1	227.1	7.1	51.9
50 to 99 employees	–	20	1.4	41.6	.9	1.8	21.4	107.1	74.0	181.6	4.5	41.8
100 to 249 employees	E1	30	4.8	162.1	2.6	5.6	75.7	330.5	300.8	631.1	13.7	142.1
250 to 499 employees	–	16	5.3	176.4	3.2	6.7	87.1	452.8	390.5	834.5	15.6	156.3
500 to 999 employees	–	3	5.6	204.8	3.5	6.9	113.0	441.0	348.2	806.1	23.3	185.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	68	.3	6.7	.2	.3	3.6	13.2	10.6	23.8	.6	5.1
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.												
Total	**–**	**400**	**13.2**	**487.5**	**7.9**	**17.6**	**247.2**	**942.7**	**687.6**	**1 618.3**	**27.6**	**339.7**
Establishments with an average of—												
1 to 4 employees	E8	88	.2	4.6	.1	.2	2.4	9.4	6.6	16.0	.3	3.4
5 to 9 employees	E4	66	.5	12.0	.3	.6	6.4	25.7	19.7	45.9	.6	8.4
10 to 19 employees	E1	79	1.1	35.5	.7	1.5	18.5	73.0	48.0	121.5	2.1	23.3
20 to 49 employees	–	89	2.7	89.6	1.7	3.7	46.2	149.6	111.4	265.0	4.1	53.5
50 to 99 employees	–	45	3.0	113.8	1.7	3.7	54.9	222.5	154.1	370.8	4.6	89.9
100 to 249 employees	–	28	3.9	147.2	2.6	5.8	81.9	305.7	219.5	507.7	12.0	113.1
250 to 499 employees	–	4	1.8	84.8	.9	2.1	37.0	156.8	128.4	291.5	4.0	47.9
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	115	.4	10.4	.3	.6	5.2	18.2	14.6	32.8	.5	7.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3541	**Machine tools, metal cutting types:**										
	All establishments in industry	422	27.0	982.1	15.2	32.2	498.5	1 840.9	1 762.0	3 567.8	82.4
	Establishments with this product class primary:										
35413	Gear cutting machines	6	1.5	62.3	.8	1.7	28.9	90.5	86.9	172.7	(D)
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	62	3.4	114.8	1.7	3.6	51.6	186.4	203.0	404.5	9.5
35415	Lathes (turning machines)	26	2.8	88.4	1.8	3.4	48.1	172.8	208.4	372.3	7.4
35416	Milling machines (excluding machining centers)	18	3.5	135.0	1.9	3.5	62.4	329.1	195.4	508.3	10.1
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	12	.2	6.6	.1	.2	2.4	11.4	10.2	22.5	(D)
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	87	3.9	122.0	2.2	4.3	59.4	230.6	138.5	390.3	5.6
3541A	Machining centers (multifunction numerically controlled machines)	28	3.0	127.9	1.5	3.5	56.9	292.1	267.4	528.2	11.0
3541B	Station type machines	20	3.5	149.1	2.2	5.3	92.1	251.0	424.1	643.4	10.9
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	67	2.4	76.2	1.4	2.8	38.5	142.5	118.9	264.3	4.6
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	35	1.5	54.2	1.0	2.1	32.9	74.0	53.7	143.2	3.9
3542	**Machine tools, metal forming types:**										
	All establishments in industry	217	12.2	417.6	7.8	15.8	236.9	728.6	700.1	1 450.9	40.4
	Establishments with this product class primary:										
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	64	4.2	136.9	2.5	4.9	69.8	277.8	208.0	502.1	21.2
35422	Metalworking presses (except forging and die-stamping presses)	41	3.6	127.6	2.2	4.4	73.7	180.6	221.0	391.7	8.6
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	46	2.9	97.5	2.0	4.3	60.6	163.6	144.1	324.2	5.6
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	39	1.3	47.2	.9	1.8	27.9	90.5	114.2	204.8	4.6
3543	**Industrial patterns:**										
	All establishments in industry	711	7.9	258.7	6.5	13.2	199.6	416.3	125.7	539.0	15.1
3544	**Special dies, tools, jigs, and fixtures:**										
	All establishments in industry	7 350	111.4	3 898.3	85.3	188.4	2 744.8	6 644.7	2 690.7	9 309.8	370.1
	Establishments with this product class primary:										
35441	Special dies and tools, die sets, jigs, and fixtures	2 215	52.6	1 900.5	39.7	86.9	1 318.3	3 226.8	1 281.9	4 489.2	158.6
35442	Industrial molds and mold boxes	1 589	36.8	1 378.4	28.5	64.7	988.3	2 342.2	943.4	3 279.1	153.3
3545	**Machine tool accessories:**										
	All establishments in industry	1 866	42.7	1 243.9	30.1	62.4	748.5	2 653.6	1 113.9	3 786.3	142.2
	Establishments with this product class primary:										
35451	Small cutting tools for machine tools and metalworking machinery	505	24.9	707.5	18.1	37.5	438.5	1 575.6	642.2	2 236.4	92.0
35454	Other attachments and accessories for machine tools and metalworking machinery	145	6.4	201.2	4.2	8.8	114.4	406.4	176.2	584.2	20.4
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	77	4.7	151.4	2.9	6.0	80.5	303.0	131.0	431.5	13.5
3546	**Power-driven handtools:**										
	All establishments in industry	226	16.1	440.6	10.6	21.7	240.5	1 506.8	1 359.9	2 872.5	72.3
	Establishments with this product class primary:										
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	45	5.4	177.3	3.1	5.9	88.1	406.7	217.3	626.6	18.5
35463	Power-driven handtools, engine (internal combustion) driven	6	2.0	46.9	1.2	1.8	21.7	141.5	265.4	416.7	(D)
35464	Power-driven handtools, battery-powered (cordless)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35465	Power-driven handtools, electric (excluding battery-powered)	27	7.0	176.2	5.1	11.2	107.1	724.5	710.9	1 428.9	33.5
3547	**Rolling mill machinery:**										
	All establishments in industry	89	5.4	186.8	3.0	6.3	85.2	313.2	288.6	602.8	13.7
	Establishments with this product class primary:										
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	9	1.3	51.2	.6	1.2	17.5	67.9	77.4	149.3	(D)
35472	Cold rolling mill machinery	7	.4	16.3	.3	.7	9.2	35.3	22.3	58.7	.6
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	29	1.9	70.4	1.0	2.2	34.9	132.0	111.0	239.2	4.4
3548	**Welding apparatus:**										
	All establishments in industry	240	19.8	670.3	11.9	24.7	342.7	1 499.9	1 250.3	2 763.5	65.8
	Establishments with this product class primary:										
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	38	8.8	314.8	5.1	10.3	153.4	623.3	596.4	1 231.5	31.3
35482	Arc welding electrodes, metal	16	2.5	82.2	1.6	3.2	48.0	307.5	223.4	535.5	9.1
35483	Resistance welders, components, accessories, and electrodes	31	2.5	96.2	1.6	4.1	56.6	164.5	136.2	301.0	8.0
35484	Gas welding and cutting equipment, parts, attachments, and accessories	23	2.6	64.6	1.7	3.3	32.6	151.5	111.6	262.6	3.2
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	17	2.1	72.9	1.0	2.0	30.8	162.7	109.0	269.0	10.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3549	**Metalworking machinery, n.e.c.:**										
	All establishments in industry	400	13.2	487.5	7.9	17.6	247.2	942.7	687.6	1 618.3	27.6
	Establishments with this product class primary:										
35492	Assembly machines	108	6.4	275.5	3.9	9.0	145.7	523.6	369.0	880.4	13.5
35495	Other metalworking machinery (except handheld and ultrasonic)	104	4.5	150.0	2.6	5.5	71.4	310.3	232.8	542.1	11.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES			
Total value of shipments	3 567.8	3 189.5	4 411.5
Primary products value of shipments	2 837.4	2 394.1	3 877.2
Secondary products value of shipments	317.4	484.8	340.7
Total miscellaneous receipts	413.0	310.6	193.6
Value of resales	270.8	206.7	91.3
Contract receipts	30.9	37.2	28.0
Other miscellaneous receipts	111.3	66.7	74.2
Sales of scrap and refuse	1.5	.2	.6
Receipts for installation (or construction) of products of this establishment	16.5	(D)	5.7
Receipts for research and development	18.0	4.0	.3
Receipts for repair work	38.4	40.9	40.6
Other miscellaneous receipts	24.6	(D)	25.2
Other miscellaneous receipts, n.s.k.	12.4	.7	1.8
Primary products specialization ratio	90	83	92
Value of primary products shipments made in all industries	3 053.6	2 585.2	4 154.7
Value of primary products shipments made in this industry	2 837.4	2 394.1	3 877.2
Value of primary products shipments made in other industries	216.3	191.2	277.5
Coverage ratio	93	93	93
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES			
Total value of shipments	1 450.9	1 396.3	1 428.7
Primary products value of shipments	1 242.2	1 186.1	1 210.5
Secondary products value of shipments	114.7	116.7	143.6
Total miscellaneous receipts	94.0	93.5	74.6
Value of resales	54.0	70.3	21.6
Contract receipts	9.8	8.4	23.5
Other miscellaneous receipts	30.2	14.8	(D)
Sales of scrap and refuse	.4	.4	(D)
Receipts for installation (or construction) of products of this establishment	3.5	1.2	3.8
Receipts for research and development	(D)	(D)	(D)
Receipts for repair work	14.6	3.8	16.0
Other miscellaneous receipts	(D)	(D)	6.9
Other miscellaneous receipts, n.s.k.	1.8	2.4	(NA)
Primary products specialization ratio	92	91	89
Value of primary products shipments made in all industries	1 396.7	1 370.3	1 383.9
Value of primary products shipments made in this industry	1 242.2	1 186.1	1 210.5
Value of primary products shipments made in other industries	154.5	184.3	173.4
Coverage ratio	89	87	87
INDUSTRY 3543, INDUSTRIAL PATTERNS			
Total value of shipments	539.0	499.4	452.3
Primary products value of shipments	485.8	445.0	428.8
Secondary products value of shipments	26.6	36.5	13.4
Total miscellaneous receipts	26.5	17.9	10.1
Value of resales	3.7	2.2	1.3
Contract receipts	18.0	11.6	(NA)
Other miscellaneous receipts	4.8	4.1	8.8
Primary products specialization ratio	95	92	97
Value of primary products shipments made in all industries	672.3	558.5	561.5
Value of primary products shipments made in this industry	485.8	445.0	428.8
Value of primary products shipments made in other industries	186.5	113.5	132.7
Coverage ratio	72	80	76

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES			
Total value of shipments	9 309.8	7 550.1	5 374.9
Primary products value of shipments	8 245.4	6 678.0	4 795.1
Secondary products value of shipments	507.2	418.8	298.3
Total miscellaneous receipts	557.2	453.2	281.5
Value of resales	174.3	115.6	80.1
Contract receipts	236.8	237.2	142.3
Other miscellaneous receipts	146.1	100.4	59.2
Sales of scrap and refuse	4.3	4.9	1.7
Receipts for research and development	11.0	5.8	1.9
Receipts for repair work	67.7	35.1	30.3
Other miscellaneous receipts	32.6	28.5	13.4
Other miscellaneous receipts, n.s.k.	30.5	26.1	11.9
Primary products specialization ratio	94	94	94
Value of primary products shipments made in all industries	10 252.2	8 147.1	6 099.3
Value of primary products shipments made in this industry	8 245.4	6 678.0	4 795.1
Value of primary products shipments made in other industries	2 006.8	1 469.1	1 304.2
Coverage ratio	80	82	79
INDUSTRY 3545, MACHINE TOOL ACCESSORIES			
Total value of shipments	3 786.3	3 601.0	3 165.3
Primary products value of shipments	3 312.3	3 162.9	2 740.5
Secondary products value of shipments	187.7	217.3	242.9
Total miscellaneous receipts	286.3	220.8	181.9
Value of resales	189.2	144.0	115.6
Contract receipts	56.7	51.9	33.2
Other miscellaneous receipts	40.4	24.9	33.0
Sales of scrap and refuse	2.3	1.0	1.5
Receipts for research and development	1.1	.9	2.4
Receipts for repair work	25.3	17.3	10.6
Other miscellaneous receipts	10.5	4.5	18.0
Other miscellaneous receipts, n.s.k.	1.2	1.2	.5
Primary products specialization ratio	95	94	92
Value of primary products shipments made in all industries	3 619.4	3 422.0	3 069.1
Value of primary products shipments made in this industry	3 312.3	3 162.9	2 740.5
Value of primary products shipments made in other industries	307.1	259.2	328.6
Coverage ratio	92	92	89
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS			
Total value of shipments	2 872.5	2 161.8	1 795.3
Primary products value of shipments	2 097.8	1 609.5	1 457.3
Secondary products value of shipments	377.7	335.6	194.2
Total miscellaneous receipts	397.1	216.6	143.7
Value of resales	376.8	211.4	139.2
Contract receipts	.8	3.3	(D)
Other miscellaneous receipts	19.5	1.9	(D)
Primary products specialization ratio	85	83	88
Value of primary products shipments made in all industries	2 414.5	1 886.9	1 594.8
Value of primary products shipments made in this industry	2 097.8	1 609.5	1 457.3
Value of primary products shipments made in other industries	316.7	277.4	137.5
Coverage ratio	87	85	91
INDUSTRY 3547, ROLLING MILL MACHINERY			
Total value of shipments	602.8	467.8	502.9
Primary products value of shipments	518.7	378.0	352.5
Secondary products value of shipments	30.2	32.3	91.7
Total miscellaneous receipts	53.8	57.5	58.7
Value of resales	29.0	26.3	41.5
Contract receipts	17.5	22.5	7.0
Other miscellaneous receipts	7.3	8.7	10.2
Primary products specialization ratio	94	92	79
Value of primary products shipments made in all industries	544.4	403.0	445.1
Value of primary products shipments made in this industry	518.7	378.0	352.5
Value of primary products shipments made in other industries	25.7	25.0	92.6
Coverage ratio	95	94	79
INDUSTRY 3548, WELDING APPARATUS			
Total value of shipments	2 763.5	2 104.6	(NA)
Primary products value of shipments	2 336.6	1 772.3	(NA)
Secondary products value of shipments	258.0	200.1	(NA)
Total miscellaneous receipts	168.9	132.2	(NA)
Value of resales	147.4	110.7	(NA)
Contract receipts	5.1	5.7	(NA)
Other miscellaneous receipts	16.3	15.8	(NA)
Receipts for repair work	4.5	5.6	(NA)
Other miscellaneous receipts	9.4	9.3	(NA)
Other miscellaneous receipts, n.s.k.	2.4	.9	(NA)
Primary products specialization ratio	90	90	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3548, WELDING APPARATUS—Con.			
Value of primary products shipments made in all industries	2 422.5	1 918.0	(NA)
Value of primary products shipments made in this industry	2 336.6	1 772.3	(NA)
Value of primary products shipments made in other industries	85.8	145.7	(NA)
Coverage ratio	96	92	(NA)
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.			
Total value of shipments	1 618.3	1 055.0	(NA)
Primary products value of shipments	1 311.2	898.8	(NA)
Secondary products value of shipments	190.3	112.7	(NA)
Total miscellaneous receipts	116.8	43.6	(NA)
Value of resales	57.7	11.8	(NA)
Contract receipts	18.0	16.2	(NA)
Other miscellaneous receipts	41.1	15.6	(NA)
Sales of scrap and refuse	.2	(D)	(NA)
Receipts for installation (or construction) of products of this establishment	7.1	.3	(NA)
Receipts for research and development	2.1	(D)	(NA)
Receipts for repair work	8.1	6.4	(NA)
Other miscellaneous receipts	22.8	8.0	(NA)
Other miscellaneous receipts, n.s.k.	.9	.3	(NA)
Primary products specialization ratio	87	89	(NA)
Value of primary products shipments made in all industries	1 475.0	1 004.1	(NA)
Value of primary products shipments made in this industry	1 311.2	876.7	(NA)
Value of primary products shipments made in other industries	163.8	127.4	(NA)
Coverage ratio	89	87	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3541– —	**MACHINE TOOLS, METAL CUTTING TYPES**						
	Total	**(NA)**	**(X)**	**3 053.6**	**(NA)**	**(X)**	**2 585.2**
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	(NA)	(X)	151.4	(NA)	(X)	157.0
3541D 00	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)[3]	62	(X)	151.4	56	(X)	157.0
35413	Gear cutting machines	(NA)	(X)	87.4	(NA)	(X)	62.4
35413 00	Gear cutting machines[3]	10	(X)	87.4	10	(X)	62.4
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	(NA)	(X)	376.0	(NA)	(X)	396.1
35414 00	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing[3]	108	(X)	376.0	98	(X)	396.1
35415	Lathes (turning machines)	(NA)	(X)	329.3	(NA)	(X)	266.5
35415 00	Lathes (turning machines)[3]	48	(X)	329.3	43	(X)	266.5
35416	Milling machines (excluding machining centers)	(NA)	(X)	221.7	(NA)	(X)	197.2
35416 00	Milling machines (excluding machining centers)[3]	43	(X)	221.7	30	(X)	197.2
3541A	Machining centers (multifunction numerically controlled machines)	(NA)	(X)	454.1	(NA)	(X)	231.7
3541A 00	Machining centers (multifunction numerically controlled machines)[3]	52	(X)	454.1	32	(X)	231.7
3541B	Station type machines	(NA)	(X)	469.0	(NA)	(X)	316.4
3541B 00	Station type machines[3]	25	(X)	469.0	30	(X)	316.4
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	(NA)	(X)	222.1	(NA)	(X)	189.1
3541C 00	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)[3]	109	(X)	222.1	95	(X)	189.1

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3541– —	**MACHINE TOOLS, METAL CUTTING TYPES—** Con.						
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	(NA)	(X)	60.9	(NA)	(X)	97.2
35418 11	Drilling machines thousands	5	(S)	18.6	5	(S)	8.8
35418 31	Grinding and polishing machines, including crankshaft regrinding and valve grinding machines thousands	4	(S)	3.8	13	(S)	22.6
35418 51	Lathes thousands	2	–	(D)	3	(S)	11.0
35418 71	Sawing and cut-off machines thousands	7	(D)	(D)	10	(S)	17.5
35418 91	Other metalworking (or primarily metalworking) types, including automotive cylinder reboring machines thousands	11	*55.7	33.2	14	(S)	30.8
35418 00	Machine tools designed primarily for home workshops, labs, etc. (metalworking and primarily metalworking), n.s.k.	(NA)	(X)	.5	(NA)	(X)	6.6
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	(NA)	(X)	606.2	(NA)	(X)	577.5
35419 11	Parts for metal cutting machine tools, sold separately	175	(X)	428.0	124	(X)	380.3
35419 41	Rebuilt metal cutting machine tools	50	(X)	110.3	(NA)	(X)	174.3
35419 00	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools, n.s.k.	(NA)	(X)	67.8	(NA)	(X)	22.9
35410	Machine tools, metal cutting types, n.s.k.	(NA)	(X)	75.4	(NA)	(X)	94.2
35410 00	Machine tools, metal cutting types, n.s.k.[4]	(NA)	(X)	74.9	(NA)	(X)	94.2
35410 02	Machine tools, metal cutting types, n.s.k.[5]	(NA)	(X)	.5	(NA)	(X)	–

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3542– —	**MACHINE TOOLS, METAL FORMING TYPES**				
	Total	**(NA)**	**1 396.7**	**(NA)**	**1 370.3**
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	(NA)	352.7	(NA)	334.4
35421 00	Punching and shearing machines (including power and manual) and bending and forming machines (power only)[3]	87	352.7	94	334.4
35422	Metalworking presses (except forging and die-stamping presses)	(NA)	329.6	(NA)	268.9
35422 00	Metalworking presses (except forging and die-stamping presses)[3]	75	329.6	60	268.9
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	(NA)	317.7	(NA)	307.0
35423 00	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)[3]	84	317.7	66	307.0
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	(NA)	377.9	(NA)	392.9
35424 11	Parts for metal forming machine tools (sold separately)	109	315.7	(NA)	320.1
35424 75	Rebuilt metal forming machine tools	25	38.8	(NA)	48.2
35424 00	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools, n.s.k.	(NA)	23.4	(NA)	24.6
35420	Machine tools, metal forming types, n.s.k.	(NA)	18.8	(NA)	67.3
35420 00	Machine tools, metal forming types, n.s.k.[4]	(NA)	18.8	(NA)	67.3
35420 02	Machine tools, metal forming types, n.s.k.[5]	(NA)	–	(NA)	–
3543– —	**INDUSTRIAL PATTERNS**				
	Total	**(NA)**	**672.3**	**(NA)**	**r558.5**
35430	Industrial patterns, except shoe patterns	(NA)	672.3	(NA)	r558.5
35430 11	Foundry patterns	556	497.2	435	341.5
35430 98	All other industrial patterns (except shoe patterns)	94	82.3	119	83.1
35430 00	Industrial patterns, n.s.k.[4]	(NA)	50.9	(NA)	r83.7
35430 02	Industrial patterns, n.s.k.[5]	(NA)	41.8	(NA)	50.3
3544– —	**SPECIAL DIES, TOOLS, JIGS, AND FIXTURES**				
	Total	**(NA)**	**10 252.2**	**(NA)**	**8 147.1**

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3544– —	**SPECIAL DIES, TOOLS, JIGS, AND FIXTURES**—Con.				
35441	Special dies and tools, die sets, jigs, and fixtures	(NA)	5 076.3	(NA)	r4 171.7
	Jigs and fixtures, all types:				
	Gauging and checking types:				
35441 13	Less than 1,000 lb weight	343	210.4	285	187.3
35441 15	1,000 lb weight or more	64	47.0	60	47.5
	All other jigs and fixtures (holding, positioning, layout, assembly, etc.):				
35441 17	Less than 1,000 lb weight	440	266.5	401	284.5
35441 18	1,000 lb weight or more	132	233.5	136	168.1
35441 19	Standard catalog components and parts for jigs and fixtures, including drill bushings	54	136.0	44	127.8
	Dies, metalworking only:				
35441 21	Press brake dies	54	35.3	37	31.2
	Forming and drawing dies:				
35441 22	500 lb weight or less	218	140.4	208	103.8
35441 24	501 to 3,000 lb weight	226	150.8	229	r150.7
35441 26	More than 3,000 lb weight	143	303.6	148	311.8
	Stamping dies, including lamination and blanking dies:				
	Progressive-type dies:				
35441 27	High-speed steel	546	462.6	467	296.0
35441 28	Carbide	84	82.0	96	75.1
35441 25	Other	261	188.7	242	157.5
35441 23	All other stamping-type dies (punch, trim, notch, pierce, perforate, etc.)	421	468.2	379	543.0
	Forging dies, including cold forging and heading:				
35441 33	Open die type	50	41.1	42	43.8
35441 35	Closed die type	109	99.0	98	102.2
	Extrusion and wiredrawing and straightening dies:				
35441 43	High-speed steel	49	65.4	30	45.1
35441 45	Carbide	43	36.1	34	34.3
35441 42	Ceramic and ceramic composite	2	.3	1	.3
35441 44	Other	49	73.6	32	56.2
	All other dies:				
35441 46	High-speed steel	94	55.7	74	41.8
35441 47	Carbide	57	62.7	48	52.0
35441 48	Other	93	68.5	100	62.2
	Standard and special components and parts for dies:				
35441 73	Die sets	64	94.3	59	91.3
	Standard punches:				
35441 75	Steel	108	188.7	86	130.1
35441 77	Carbide	43	26.7	24	10.3
35441 78	Other	100	162.7	102	124.5
35441 83	Industrial models and prototypes	352	427.2	217	267.6
35441 89	Other specially designed tooling	430	494.3	275	354.2
35441 00	Special dies and tools, die sets, jigs, and fixtures, n.s.k.	(NA)	454.9	(NA)	271.4
35442	Industrial molds and mold boxes	(NA)	3 744.7	(NA)	2 526.1
	Industrial molds made of metal:				
	Molds for metal or metal carbides (except ingot molds):				
	Die-casting dies:				
35442 03	For low-pressure casting	74	50.3	273	265.9
35442 05	For high-pressure casting	207	283.1		
35442 07	Permanent molds (for gravity casting)	38	31.8	55	36.6
35442 09	Other types	37	31.2		
35442 14	Molds for wax	81	70.2	(NA)	65.3
35442 21	Molds for mineral materials	10	6.2	(NA)	27.6
35442 25	Molds for glass	13	111.7	(NA)	110.0
	Molds for rubber:				
35442 41	Injection- or compression-types	172	183.7	104	104.8
35442 42	Other types	47	54.0	38	42.1
	Molds for plastics:				
35442 51	Injection-type	1 526	2 165.1	1181	1 378.3
35442 55	Compression-type, including matched metal molds	138	130.3	142	114.9
35442 59	All other types, including transfer, plunger, and rotational molds	181	157.7	137	129.1
35442 45	Molds for other materials	73	55.2	51	60.1
35442 47	Mold bases	43	120.0	31	40.5
35442 63	Industrial molds made of materials other than metal	46	62.8	41	48.3
35442 67	Mold boxes or flasks for use with patterns and sand molds in foundries	20	21.6	9	7.1
35442 00	Industrial molds and mold boxes, n.s.k.	(NA)	209.9	(NA)	r95.5
35440	Special dies, tools, jigs, and fixtures, n.s.k.	(NA)	1 431.3	(NA)	r1 449.3
35440 00	Special dies, tools, jigs, and fixtures, n.s.k.[4]	(NA)	1 067.4	(NA)	r1 037.6
35440 02	Special dies, tools, jigs, and fixtures, n.s.k.[5]	(NA)	363.9	(NA)	411.7
3545– —	**MACHINE TOOL ACCESSORIES**				
	Total	**(NA)**	**3 619.4**	**(NA)**	**3 422.0**
35451	Small cutting tools for machine tools and metalworking machinery	(NA)	2 051.8	(NA)	1 881.2
35451 14	Broaches (excluding holders and burnishing bars)	48	92.3	35	83.1
	Twist drills (excluding combined drills, countersinks, and gun drills):				
	Carbon steel and high-speed steel:				
35451 15	Taper shank	14	15.5	(NA)	33.9
35451 21	Straight shank	28	241.5	(NA)	196.9
35451 24	Carbide, solid and tipped (excluding tips and blanks sold separately and masonry drills)	42	98.8	32	50.9
35451 22	Masonry drill bits	12	39.0	14	40.0
35451 25	Gun drills and gun reamers	17	20.1	11	14.0
35451 26	Combination drills and countersinks	23	15.9	14	10.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3545– —	**MACHINE TOOL ACCESSORIES**—Con.				
35451	Small cutting tools for machine tools and metalworking machinery—Con.				
35451 27	Countersinks, including port cutters, etc. (except combined drills-countersinks and pilots for interchangeable pilots)	24	13.7	25	12.2
35451 29	Counterbores, including spot facers, etc. (excluding pilots for interchangeable pilot types)	26	12.0	20	7.8
	Reamers (all types, but excluding gun reamers):				
35451 32	Carbon steel and high-speed steel, including blades sold separately	33	27.4	26	30.9
35451 36	Carbide, solid and tipped (including replaceable blades sold separately) (excluding tips and blanks sold separately)	43	36.1	32	26.9
35451 42	Hobs, all types	6	29.7	5	(D)
35451 47	Gear shaper cutters and gear shaving cutters	12	25.4	9	47.5
	End mills and milling cutters:				
	End mills (excluding inserted blade types and shell mills):				
35451 51	High-speed steel	42	91.2	36	97.4
35451 52	Carbide, solid and tipped (excluding blades sold separately)	52	88.6	37	58.6
	Inserted blade type cutters, all types complete:				
35451 53	Nonindexible	13	8.8	10	7.0
35451 54	Indexible or throwaway insert types	22	27.7	21	25.8
	Milling cutters, not elsewhere classified:				
35451 62	High-speed steel	27	59.5	(NA)	78.6
35451 64	Carbide, solid and tipped (excluding tips and blanks sold separately)	20	9.8		
	Threading tools:				
35451 74	Taps (excluding taps in threading sets and screw plates and inserted chaser types)	22	115.3	(NA)	126.2
35451 73	Dies, with two or more thread-forming edges integral with the body (excluding metalworking dies in product class 35441)	8	12.9	8	19.9
35451 75	Chasers, single edge thread-cutting, circular blade and tangent types for mount in/ on holders, die heads, and tap bodies	9	27.0	9	31.9
35451 87	Thread-rolling dies, including circular, flat, and planetary	12	40.0	10	34.5
35451 89	Other threading tools, including screw plates and threading sets	7	(6)	8	6.4
35451 67	Single and double point tools	43	54.2	(NA)	56.9
35451 72	Circular form tools, including semifinished blanks	26	31.0	16	43.7
	Blanks, tips, and inserts:				
35451 79	Molded blanks and tips (excluding pressed-to-size inserts)	25	92.0	(NA)	95.4
	Inserts, indexible and throwaway types:				
	Carbide:				
35451 83	Precision ground	59	271.6	38	172.9
35451 81	Other carbide	17	130.0	(NA)	(D)
35451 95	Ceramic	9	31.9	(NA)	26.4
35451 96	Other than carbide and ceramic	13	15.7		
	Inserts, other than indexible and throwaway types:				
35451 86	Carbide	19	26.9	14	20.6
35451 97	Ceramic	3	[6]23.7	1	(7)
35451 99	Other than carbide and ceramic	12	18.5	(NA)	[7].6
	Other types of cutting tools for machine tools, not elsewhere classified:				
35451 92	Carbon steel (including rotary burrs, rotary files, and spade drills)	12	16.5	24	42.1
35451 94	High-speed steel (including rotary burrs, rotary files, and spade drills)	36	44.5	34	35.1
35451 98	Carbide, solid and tipped (except tips and blanks sold separately) (including rotary burrs, rotary files, spade drills)	60	77.6	52	72.4
35451 00	Small cutting tools for machine tools and metalworking machinery, n.s.k.	(NA)	69.5	(NA)	r108.1
35454	Other attachments and accessories for machine tools and metalworking machinery	(NA)	664.1	(NA)	542.6
	Tool holders:				
35454 12	Turning tool holders, mechanically clamping for inserts and bits (except box tools and screw machine tool holders)	51	83.0	28	70.4
35454 14	Boring bars and heads	29	49.9	33	45.4
35454 17	Drilling, reaming, and tapping chucks	12	76.7	10	39.7
35454 31	Special tooling and attachments for screw and automatic machines (box tools, tool holders, turrets, rollers, etc.)	27	24.1	17	9.6
35454 37	Die heads and tap bodies for chaser-type threading and thread-rolling heads (excluding hand-type die stocks)	9	10.1	8	10.4
35454 38	Other tool holders, including other chucks, drill heads, tool posts, turrets, sleeves, sockets, etc.	38	57.8	37	74.9
	Work holding devices:				
35454 45	Rotary tables and indexing work holders, including numerically controlled	25	46.9	13	27.5
35454 59	Other work holding and positioning devices, including vises, mandrels, feeding fingers and collets, clamps, stops, etc.	75	161.9	71	129.9
	Other attachments and accessories for machine tools and metalworking machinery:				
35454 41	Tracer and tapering attachments, safety devices, centers, dogs, work rests, chutes, etc.	12	14.8	5	3.9
35454 43	Lathe chucks	11	28.4	10	17.7
35454 51	Tool room specialties, including levels, angle plates, parallels, sine bars, V-blocks, flats, etc.	5	4.9	7	5.3
35454 98	Other attachments and accessories	73	92.1	69	93.2
35454 00	Other attachments and accessories for machine tools and metalworking machinery, n.s.k.	(NA)	13.5	(NA)	14.6
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	(NA)	407.3	(NA)	443.8
35455 11	Comparators (excluding optical)	9	4.9	7	6.1
	Fixed size limit gauges (American Gauge Design Type C58-61):				
35455 13	Fixture-type	34	42.9	25	28.4
35455 15	Thread-type	27	37.7	23	30.4
35455 17	Adjustable size limit gauges	15	21.5	15	21.2
35455 21	Gauge blocks	8	5.8	6	6.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3545– —	**MACHINE TOOL ACCESSORIES**—Con.				
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')—Con.				
35455 61	Dial indicators	7	23.6	8	16.2
35455 65	Micrometers and calipers	7	34.9	6	20.6
35455 71	Pneumatic and electronic gauges (manual and automatic)	16	62.0	12	94.8
35455 73	Coordinate and contour measuring machines (inspection and gauging)	13	75.2	(NA)	56.6
35455 77	Other machinists' precision measuring tools (including dividers, gear checking and surface texture measuring machines)	31	72.3	(NA)	(D)
35455 79	Parts and accessories for machinists' precision measuring tools (sold separately)	14	18.1	(NA)	(D)
35455 00	Precision measuring tools (inspection, quality control, tool room, and machinists'), n.s.k.	(NA)	8.3	(NA)	r21.6
35450	Machine tool accessories, n.s.k.	(NA)	496.2	(NA)	r554.4
35450 00	Machine tool accessories, n.s.k.[4]	(NA)	372.7	(NA)	366.6
35450 02	Machine tool accessories, n.s.k.[5]	(NA)	123.5	(NA)	187.8

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3546– —	**POWER-DRIVEN HANDTOOLS**						
	Total	**(NA)**	**(X)**	**2 414.5**	**(NA)**	**(X)**	**r1 886.9**
35464	Power-driven handtools, battery-powered (cordless)	(NA)	(X)	291.4	(NA)	(X)	(8)
35464 01	Screwdrivers (without 3-jaw chuck) thousands	1	(9)	(9)	(NA)	(10)	(10)
35464 05	Driver/drills thousands	3	9**2 952.6	999.0	(NA)	(11)	(11)
	Drills:						
35464 09	With integrated battery packs thousands	1	(D)	(12)	(NA)	(13)	(13)
35464 15	With removable battery packs thousands	5	(D)	(12)	(NA)	(13)	(13)
35464 19	Other battery-powered (cordless) handtools thousands	4	(NA)	12172.0	(NA)	(8)	(8)
35464 21	Parts, attachments, and accessories for battery-powered (cordless) handtools (sold separately)	5	(X)	20.4	(NA)	(X)	(8)
35464 00	Power-driven handtools, battery-powered (cordless), n.s.k.	(NA)	(X)	–	(NA)	(X)	(8)
35465	Power-driven handtools, electric (excluding battery-powered)	(NA)	(X)	1 091.4	(NA)	(X)	81 062.7
	Drills:						
35465 02	Armature mounted primarily on sleeve bearings thousands	4	(D)	(14)	(NA)	134 926.6	13132.6
	Armature mounted primarily on other than sleeve bearings:						
35465 05	1/4 inch (6.35 mm) chuck size or less[15] thousands	2	(D)	(14)	2	(15)	(15)
35465 07	5/16 inch (7.94 mm) to less than 1/2 inch (12.70 mm)[15] thousands	8	(NA)	14171.2	6	151 417.0	1556.4
35465 09	1/2 inch (12.70 mm) or more thousands	7	(S)	58.1	6	13668.0	1356.2
35465 22	Screwdrivers and nut-runners thousands	6	*392.8	32.3	7	102 601.9	1063.1
35465 21	Hammers, percussion and rotary, without drill chuck thousands	4	(S)	36.4	4	84.7	28.6
35465 23	Hammers - drills, with a drill chuck thousands	5	(16)	(16)	4	(D)	(17)
35465 25	Impact wrenches thousands	7	(S)	15.4	3	(D)	(17)
35465 28	Shears and nibblers thousands	7	*48.3	7.1	5	58.6	7.8
35465 31	Planers thousands	2	166 071.9	1631.8	2	(18)	(18)
	Routers:						
35465 41	Less than 1/2 inch collet size (maximum collet capacity) thousands	6	673.5	36.3	(NA)	(18)	(18)
35465 43	1/2 inch collet size (maximum collet capacity) or more thousands	5	*197.8	22.2	(NA)	18801.7	1844.0
	Polishers, circular sanders, and grinders (except bench grinders):						
	Right angle polishers, circular sanders, and grinders:						
35465 24	Less than 7 inch wheel drive thousands	5	677.6	41.4	(NA)	765.2	39.5
35465 27	7 inch wheel drive or more thousands	7	411.4	20.8			
35465 29	All other polishers, circular sanders, and grinders (including die grinders, but excluding bench) thousands	5	663.1	19.7	5	641.2	26.6
	Sanders (except circular):						
35465 33	Belt thousands	7	(S)	36.2	7	633.7	30.4
35465 38	Oscillating, reciprocating, vibrating, and random orbit thousands	5	(S)	57.6	6	191 041.9	1927.0
	Saws, circular:						
35465 12	Armature mounted primarily on sleeve bearings thousands	4	(S)	61.8	4	1 565.5	53.7
	Armature mounted primarily on other than sleeve bearings:						
35465 15	7 inch (177.80 mm) blade or less thousands	2					
35465 16	More than 7 inch (177.80 mm) to less than 8 inch (203.20 mm) blade thousands	5	(S)	96.7	(NA)	1 429.0	72.3
35465 17	8 inch (203.20 mm) blade or more thousands	4	(S)	4.2	4	82.1	8.4
	Saws - jig and saber:						
35465 11	Armature mounted on ball bearings thousands	5	(S)	50.8	(NA)	(20)	(20)
35465 13	Armature mounted on other than ball bearings thousands	4			(NA)	(20)	(20)
35465 14	Reciprocating saws thousands	7	672.9	76.9	(NA)	202 129.9	2087.9
35465 37	Chain saws thousands	4	505.6	23.6	4	384.0	17.4
35465 39	Other electric-powered handtools thousands	18	(S)	99.4	18	(S)	1199.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3546– —	**POWER-DRIVEN HANDTOOLS**—Con.						
35465	Power-driven handtools, electric (excluding battery-powered)—Con.						
35465 36	Parts, attachments, and accessories for electric-powered handtools (sold separately)	20	(X)	89.9	21	(X)	205.1
35465 00	Power-driven handtools, electric (excluding battery-powered), n.s.k.	(NA)	(X)	1.5	(NA)	(X)	r6.6
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	(NA)	(X)	634.4	(NA)	(X)	508.5
	Pneumatic:						
35462 38	Drills, screwdrivers, and nut-runners thousands	16	(S)	89.2	12	(S)	81.9
35462 37	Percussion tools (such as runners, riveters, chippers, scalers) thousands	17	(S)	39.1	7	(S)	24.0
35462 41	Impact wrenches thousands	7	(S)	72.7	7	(S)	40.3
	Grinders, polishers, and sanders:						
35462 42	Rotary thousands	12	(S)	60.1	13	(S)	52.9
35462 44	Other thousands	5	*47.1	7.7	4	(S)	7.0
35462 45	Staplers thousands	4	(S)	46.3	(NA)	(S)	(21)
35462 48	Nailers thousands	4	(S)	52.5	(NA)	(S)	(21)
35462 49	Other pneumatic-powered handtools thousands	18	(S)	44.5	20	(S)	21134.5
35462 51	Parts, attachments, and accessories for pneumatic-powered handtools (sold separately)	30	(X)	144.4	18	(X)	113.0
	Hydraulic:						
35462 71	Chain saws, including pole thousands	2	(D)	(D)	1	(S)	(22)
35462 72	Other hydraulic-powered handtools thousands	14	(S)	38.3	7	(S)	22.4
35462 79	Parts, attachments, and accessories for powder-actuated and hydraulic handtools (sold separately)	9	(X)	17.4	7	(X)	14.0
35462 61	Powder-actuated handtools thousands	3	(D)	(D)	3	(S)	228.0
35462 00	Power-driven handtools, pneumatic, hydraulic, and powder-actuated, n.s.k.	(NA)	(X)	1.8	(NA)	(X)	10.7
35463	Power-driven handtools, engine (internal combustion) driven	(NA)	(X)	295.2	(NA)	(X)	213.7
35463 01	Chain saws thousands	4	1 817.1	265.8	4	(S)	162.1
35463 11	Other, including cut-off saws and drills thousands	1					
35463 19	Parts, attachments, and accessories for engine-driven handtools (sold separately)	5	(X)	29.3	(NA)	(X)	48.0
35463 00	Power-driven handtools, engine (internal combustion) driven, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.6
35460	Power-driven handtools, n.s.k.	(NA)	(X)	102.2	(NA)	(X)	101.9
35460 00	Power-driven handtools, n.s.k.[23]	(NA)	(X)	64.3	(NA)	(X)	37.7
35460 02	Power-driven handtools, n.s.k.[24]	(NA)	(X)	37.9	(NA)	(X)	64.2

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3547– —	**ROLLING MILL MACHINERY**				
	Total	**(NA)**	**544.4**	**(NA)**	**403.0**
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	(NA)	117.8	(NA)	175.3
35471 11	Blooming and slabbing mill machinery	1			
35471 13	Plate rolling mill machinery, except tin plate machinery	1	55.5	(NA)	31.6
35471 17	Hot strip mill	6			
35471 18	Other hot rolling mill machinery and equipment	8	62.4	10	141.0
35471 00	Hot rolling mill machinery (including combination hot and cold) (except tube rolling), n.s.k.	(NA)	–	(NA)	2.6
35472	Cold rolling mill machinery	(NA)	64.9	(NA)	67.2
35472 21	Tandem roll mills	5	10.9	4	11.3
35472 23	Single stand roll mills	6	36.7	5	8.2
35472 27	Double stand roll mills	1	15.9	(NA)	44.2
35472 28	Other cold rolling mill machinery and equipment	9			
35472 00	Cold rolling mill machinery, n.s.k.	(NA)	1.3	(NA)	3.5
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	(NA)	200.5	(NA)	137.3
35473 35	Tube mill machinery	7	26.0	11	21.3
35473 47	Processing lines (including pickling and cleaning, tinning, galvanizing, etc.)	3	(25)	2	(26)
35473 41	Scarfing units	1	(25)	(NA)	(26)
35473 43	Press feed lines	(NA)	–	(NA)	(26)
35473 49	Other rolling mill machinery and equipment, excluding parts	7	2543.7	(NA)	2649.1
35473 51	Machined rolls for rolling mills	17	90.8	13	47.1
35473 52	Parts, excluding rolls, for rolling mill machinery (sold separately)	15	29.2	18	17.2
35473 00	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery, n.s.k.	(NA)	10.7	(NA)	2.7
35470	Rolling mill machinery, n.s.k.	(NA)	161.3	(NA)	23.2
35470 00	Rolling mill machinery, n.s.k.[4]	(NA)	152.2	(NA)	10.4
35470 02	Rolling mill machinery, n.s.k.[5]	(NA)	9.1	(NA)	12.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3548– —	**WELDING APPARATUS**						
	Total	**(NA)**	**(X)**	**2 422.5**	**(NA)**	**(X)**	**1 918.0**
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	(NA)	(X)	873.9	(NA)	(X)	609.9
	Arc welding machines:						
35481 14	Alternating current transformer arc welders — thousands	10	(S)	44.0	(NA)	(S)	[27]
	Direct current arc welders:						
35481 03	Generators only — thousands	3	*46.8	130.8	3	(S)	[27]
35481 04	Rectifier types, including ac/dc — thousands	11	(S)	185.5	12	(S)	144.1
35481 15	Complete units only — thousands	7	(S)	25.7	(NA)	(S)	[27]220.4
	Components and accessories for arc welding machines (except electrodes):						
35481 07	Automatic and semiautomatic wire drive apparatus and related accessories	11	(X)	59.5	10	(X)	36.5
35481 09	Automatic and semiautomatic welding torches, guns and cables, and related accessories	15	(X)	87.2	12	(X)	57.4
35481 08	Special-purpose automatic welding apparatus	10	(X)	17.2	12	(X)	16.3
35481 11	Circuit welding accessories (including electrode holders, ground clamps, cable connectors, cables sold separately, etc.)	8	(X)	58.3	6	(X)	23.0
35481 12	Positioning and manipulating equipment, including turn rolls, head and tail stock, weld head manipulators, seamers, etc.	12	(X)	29.7	9	(X)	21.1
35481 19	All other components and accessories for arc welding machinery, excluding welding rods and electrodes	20	(X)	68.0	17	(X)	52.0
35481 00	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment, n.s.k.	(NA)	(X)	167.9	(NA)	(X)	39.1
35482	Arc welding electrodes, metal	(NA)	(X)	631.7	(NA)	(X)	494.4
	Stick electrodes (including solid, cored, covered, and bare electrodes):						
35482 09	Hard facing — mil lb	7	(S)	19.3	(NA)	(S)	17.4
	Other than hard facing:						
35482 03	Mild steel — mil lb	7	(S)	144.5	8	*270.2	136.6
35482 04	Low alloy steel — mil lb	6	(S)	62.4	6	(S)	[28]
35482 05	Stainless steel (chromium, 4 percent or more) — mil lb	7			7	(S)	[28]32.5
35482 06	Nonferrous — mil lb	7	(S)	25.9	8	(S)	24.1
	Coiled and spooled continuous wire electrodes for automatic arc and inert gas:						
35482 17	Hard facing — mil lb	4	(S)	29.0	(NA)	(S)	48.3
	Other than hard facing:						
	Solid wire:						
35482 11	Mild steel — mil lb	5	(S)	147.8	6	214.6	102.5
35482 12	Low alloy steel — mil lb	4			5	*11.4	13.2
35482 13	Stainless steel (chromium, 4 percent or more) — mil lb	7	4.0	13.1	6	(S)	[29]
35482 14	Nonferrous — mil lb	6	4.7	25.6	3	(S)	[29]40.5
35482 18	Cored wire — mil lb	7	148.4	155.6	(NA)	85.9	67.5
35482 00	Arc welding electrodes, metal, n.s.k.	(NA)	(X)	8.5	(NA)	(X)	11.9
35483	Resistance welders, components, accessories, and electrodes	(NA)	(X)	270.2	(NA)	(X)	303.6
35483 05	Spot and projection welders, single electrode — thousands	13	(S)	33.0	14	(S)	23.1
35483 06	Spot and projection welders, multielectrode — thousands	19	(S)	59.2	21	(S)	123.0
35483 07	Seam welders — thousands	10	(S)	18.2	10	(S)	22.6
35483 08	Other resistance welders, including flash, upset, and butt welders — thousands	14	(S)	24.4	11	(S)	13.1
35483 09	Resistance welder transformers (sold separately) — thousands	10	(S)	30.3	5	(S)	16.2
35483 11	Resistance welder electrodes — mil lb	8	(S)	21.7	4	(S)	13.4
35483 19	Resistance welder components and accessories, including electrode holders, etc.	20	(X)	61.3	21	(X)	55.1
35483 00	Resistance welders, components, accessories, and electrodes, n.s.k.	(NA)	(X)	22.2	(NA)	(X)	37.0
35484	Gas welding and cutting equipment, parts, attachments, and accessories	(NA)	(X)	252.8	(NA)	(X)	205.3
35484 01	Torches (including welding torches and gas air torches) — thousands	15	(S)	37.0	12	(S)	37.7
35484 02	Cutting machines and carriages, stationary and portable — thousands	6	(S)	25.4	8	**2.8	38.4
35484 03	Other gas welding and cutting equipment, excluding pressure containers	7	(X)	49.2	10	(X)	31.9
	Spare parts, accessories, attachments, adaptors, etc., sold separately:						
35484 04	Tips	11	(X)	31.1	9	(X)	24.3
35484 05	Regulators, gas pressure — thousands	10	(S)	46.1	9	(S)	34.8
35484 09	All other	13	(X)	36.7	16	(X)	26.2
35484 00	Gas welding and cutting equipment, parts, attachments, and accessories, n.s.k.	(NA)	(X)	27.2	(NA)	(X)	12.1
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	(NA)	(X)	242.6	(NA)	(X)	182.6
35485 01	Stud welding equipment — number	6	(S)	31.2	2	(S)	[30]
35485 03	Friction welding equipment — number	2			1	(S)	[30]21.3
35485 04	Plasma welding and cutting equipment — number	16	(S)	115.0	13	(S)	93.9
35485 05	All other welding equipment (excluding laser, electron beam, and ultrasonic equipment)	8	(X)	32.9	12	(X)	14.9
35485 07	Soldering equipment (except hand and ultrasonic) — thousands	5	(S)	23.4	6	(S)	23.4
35485 09	Components and accessories for all other welding equipment, excluding arc, resistance, and gas welding equipment	12	(X)	37.7	9	(X)	21.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3548– ––	**WELDING APPARATUS**—Con.						
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)—Con.						
35485 00	Other welding equipment, components, and accessories (excluding arc, resistance, and gas), n.s.k.	(NA)	(X)	2.4	(NA)	(X)	7.7
35480	Welding apparatus, n.s.k.	(NA)	(X)	151.3	(NA)	(X)	122.1
35480 00	Welding apparatus, n.s.k.[31]	(NA)	(X)	127.5	(NA)	(X)	74.6
35480 02	Welding apparatus, n.s.k.[32]	(NA)	(X)	23.8	(NA)	(X)	47.5
3549– ––	**METALWORKING MACHINERY, N.E.C.**						
	Total	**(NA)**	**(X)**	**1 475.0**	**(NA)**	**(X)**	**r1 004.1**
35492	Assembly machines	(NA)	(X)	805.8	(NA)	(X)	r505.3
35492 11	Rotary transfer (dial or rotary, trunnion, center column)—number	52	(S)	84.8	31	(S)	54.0
35492 15	In-line transfer, synchronous—number	38	(S)	100.5	26	(S)	37.6
35492 17	In-line transfer, nonsynchronous—number	32	(S)	151.3	21	(S)	103.9
35492 13	Special-purpose and other types—number	107	(S)	427.7	72	(S)	r253.5
35492 18	Parts and attachments for assembly machines (sold separately)	36	(X)	32.2	18	(X)	15.7
35492 00	Assembly machines, n.s.k.	(NA)	(X)	9.3	(NA)	(X)	40.7
35495	Other metalworking machinery (except handheld and ultrasonic)	(NA)	(X)	487.5	(NA)	(X)	336.9
	Machines for weaving, other wire fabricating, and wiredrawing and draw benches:						
35495 01	Draw benches and wiredrawing machines (except dies)	12	(X)	21.1	7	(X)	18.1
35495 02	Wire rope or wire cable making machines	7	(X)	13.3	6	(X)	15.3
35495 03	Other machines for working wire	25	(X)	61.7	12	(X)	55.6
	Coil handling equipment (conversion or straightening):						
35495 43	Cut-to-length lines	17	(X)	47.4	12	(X)	56.9
35495 45	Slitting lines	12	(X)	41.6	6	(X)	20.8
35495 92	Other metalworking machinery	75	(X)	208.7	48	(X)	124.6
35495 95	Parts and attachments for other metalworking machinery (sold separately)	40	(X)	80.5	15	(X)	23.1
35495 00	Other metalworking machinery (except handheld and ultrasonic), n.s.k.	(NA)	(X)	13.1	(NA)	(X)	22.5
35490	Metalworking machinery, n.e.c., n.s.k.	(NA)	(X)	181.7	(NA)	(X)	161.8
35490 00	Metalworking machinery, n.e.c., n.s.k.[33]	(NA)	(X)	148.9	(NA)	(X)	137.4
35490 02	Metalworking machinery, n.e.c., n.s.k.[34]	(NA)	(X)	32.8	(NA)	(X)	24.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1992, product code 35451 89 is included with product code 35451 97 to avoid disclosing data for individual companies.
[7]For 1987, product codes 35451 97 and 35451 99 were combined to avoid disclosing data for individual companies.
[8]For 1987, product class 35464 was not collected separately; battery-powered (cordless) handtools were included in product class 35465.
[9]For 1992, product code 35464 01 is combined with product code 35464 05 to avoid disclosing data for individual companies.
[10]For 1987, product code 35464 01 was included with product code 35465 22.
[11]For 1987, product code 35464 05 was included with product code 35465 39.
[12]For 1992, product codes 35464 09 and 35464 15 are included with product code 35464 19 to avoid disclosing data for individual companies.
[13]For 1987, product codes 35464 09 and 35464 15 were included with product codes 35465 02, 35465 05, 35465 07, and 35465 09.
[14]For 1992, product codes 35465 02, 35465 05, and 35465 07 are combined to avoid disclosing data for individual companies.
[15]For 1987, product codes 35465 05 and 35465 07 were combined to avoid disclosing data for individual companies.
[16]For 1992, product code 35465 23 is included with product code 35465 31 to avoid disclosing data for individual companies.
[17]For 1987, product codes 35465 23 and 35465 25 were included with product code 35465 39 to avoid disclosing data for individual companies.
[18]For 1987, product codes 35465 31, 35465 41, and 35465 43 were combined to avoid disclosing data for individual companies.
[19]For 1987, product code 35465 38 excluded random orbit sanders (except circular) which were included in product code 35465 39.
[20]For 1987, product codes 35465 11, 35465 13, and 35465 14 were combined to avoid disclosing data for individual companies.
[21]For 1987, product codes 35462 45 and 35462 48 were not collected separately.
[22]For 1987, product code 35462 71 was included with product code 35462 61 to avoid disclosing data for individual companies.
[23]Typically for establishments with 15 employees or more.
[24]Typically for establishments with less than 15 employees.
[25]For 1992, product codes are combined to avoid disclosing data for individual companies.
[26]For 1987, product codes were combined to avoid disclosing data for individual companies and were revised for 1992. See appendix C, parts 1 and 2 for comparability.
[27]For 1987, product codes 35481 14 and 35481 03 were included with product code 35481 15 to avoid disclosing data for individual companies.
[28]For 1987. product codes 35482 04 and 35482 05 were combined to avoid disclosing data for individual companies.
[29]For 1987, product codes 35482 13 and 35482 14 were combined to avoid disclosing data for individual companies.
[30]For 1987, product codes 35485 01 and 35485 03 were combined to avoid disclosing data for individual companies.
[31]Typically for establishments with 20 employees or more.
[32]Typically for establishments with less than 20 employees.
[33]Typically for establishments with 10 employees or more.
[34]Typically for establishments with less than 10 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35413, GEAR CUTTING MACHINES		
United States	**87.4**	**62.4**
35414, GRINDING, POLISHING, BUFFING, HONING, AND LAPPING MACHINES, EXCEPT GEAR-TOOTH GRINDING, LAPPING, POLISHING, AND BUFFING		
United States	**376.0**	**396.1**
California	2.5	(NA)
Illinois	35.8	43.8
Indiana	4.6	(NA)
Massachusetts	24.2	(NA)
Michigan	79.5	70.0
New York	6.1	8.2
Ohio	47.0	44.6
Wisconsin	9.0	(NA)
35415, LATHES (TURNING MACHINES)		
United States	**329.3**	**266.5**
California	8.3	(NA)
Michigan	31.4	20.2
Ohio	64.4	106.2
35416, MILLING MACHINES (EXCLUDING MACHINING CENTERS)		
United States	**221.7**	**197.2**
Michigan	4.8	11.9
35418, MACHINE TOOLS DESIGNED PRIMARILY FOR HOME WORKSHOPS, LABS, GARAGES, ETC. (METALWORKING AND PRIMARILY METALWORKING)		
United States	**60.9**	**97.2**
Michigan	4.1	4.8
Wisconsin	18.0	(NA)
35419, PARTS FOR METAL CUTTING MACHINE TOOLS (SOLD SEPARATELY) AND REBUILT METAL CUTTING MACHINE TOOLS		
United States	**606.2**	**577.5**
California	11.8	6.1
Connecticut	35.4	37.9
Illinois	42.3	44.6
Indiana	9.4	17.2
Kentucky	2.3	(NA)
Massachusetts	6.6	20.3
Michigan	92.3	88.1
Minnesota	8.0	7.4
Missouri	3.8	(NA)
New York	65.6	60.4
Ohio	124.9	138.4
Oregon	4.2	(NA)
Pennsylvania	30.3	23.6
Tennessee	4.8	2.2
Wisconsin	101.8	35.8
3541A, MACHINING CENTERS (MULTIFUNCTION NUMERICALLY CONTROLLED MACHINES)		
United States	**454.1**	**231.7**
Illinois	10.0	(NA)
Michigan	36.4	(NA)
Minnesota	4.2	(NA)
3541B, STATION TYPE MACHINES		
United States	**469.0**	**316.4**
Michigan	321.1	183.8
3541C, OTHER METAL CUTTING MACHINE TOOLS (EXCEPT THOSE DESIGNED PRIMARILY FOR HOME WORKSHOPS, LABORATORIES, GARAGES, ETC.)		
United States	**222.1**	**189.1**
California	12.5	13.0
Connecticut	4.9	5.6
Illinois	38.0	23.6
Michigan	74.7	45.4
Ohio	23.9	34.3
Wisconsin	5.9	14.7
3541D, BORING MACHINES (EXCLUDING MACHINING CENTERS) AND DRILLING MACHINES (EXCLUDING MACHINING CENTERS)		
United States	**151.4**	**157.0**
Illinois	5.6	19.3
Michigan	79.2	76.2
New York	2.1	(NA)
Ohio	9.3	4.9
Wisconsin	20.0	15.3
35421, PUNCHING AND SHEARING MACHINES (INCLUDING POWER AND MANUAL) AND BENDING AND FORMING MACHINES (POWER ONLY)		
United States	**352.7**	**334.4**
California	56.4	51.0
Illinois	59.4	73.6
Minnesota	10.0	4.5
Missouri	8.0	(NA)
New York	30.0	(NA)
Ohio	51.6	62.9
35422, METALWORKING PRESSES (EXCEPT FORGING AND DIE-STAMPING PRESSES)		
United States	**329.6**	**268.9**
California	3.8	(NA)
Michigan	26.9	37.2
New York	19.4	(NA)
Ohio	68.1	58.1
Pennsylvania	20.2	21.9
35423, OTHER METAL FORMING MACHINE TOOLS, INCLUDING FORGING AND DIE-STAMPING MACHINES (EXCEPT METALWORKING PRESSES)		
United States	**317.7**	**307.0**
California	15.0	(NA)
Illinois	28.6	46.3
Michigan	41.7	56.4
New York	24.8	(NA)
Ohio	106.7	125.8
35424, PARTS FOR METAL FORMING MACHINE TOOLS (SOLD SEPARATELY) AND REBUILT METAL FORMING MACHINE TOOLS		
United States	**377.9**	**392.9**
California	17.1	14.8
Connecticut	3.4	12.4
Illinois	60.0	80.6
Indiana	3.8	7.5
Massachusetts	5.4	7.5
Michigan	48.4	58.6
Ohio	160.0	102.4
Pennsylvania	27.2	10.8
35441, SPECIAL DIES AND TOOLS, DIE SETS, JIGS, AND FIXTURES		
United States	**5 076.3**	**4 171.7**
Alabama	27.0	23.8
Arizona	28.7	14.6
Arkansas	28.1	12.8
California	178.5	247.0
Colorado	16.1	13.6
Connecticut	119.3	82.3
Florida	45.1	19.5
Georgia	42.5	21.9
Illinois	399.3	280.3
Indiana	251.2	190.8
Iowa	32.2	26.6
Kansas	15.0	5.2
Kentucky	39.4	25.8
Maine	5.9	7.1
Maryland	7.5	10.0
Massachusetts	57.5	57.5
Michigan	1 676.0	1 541.7
Minnesota	117.3	64.9
Mississippi	8.9	8.1
Missouri	93.1	57.6

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35441, SPECIAL DIES AND TOOLS, DIE SETS, JIGS, AND FIXTURES—Con.		
Nebraska	3.4	3.8
New Hampshire	6.0	2.8
New Jersey	64.7	56.7
New York	224.5	158.1
North Carolina	31.2	19.1
Ohio	711.3	650.3
Oklahoma	8.0	4.3
Oregon	7.5	2.5
Pennsylvania	396.4	331.9
Rhode Island	15.3	10.4
South Carolina	19.1	10.7
Tennessee	98.1	58.4
Texas	36.2	26.6
Vermont	4.9	(NA)
Virginia	31.2	4.5
Washington	7.9	3.7
Wisconsin	214.8	153.1
35442, INDUSTRIAL MOLDS AND MOLD BOXES		
United States	**3 744.7**	**2 526.1**
Alabama	28.1	19.0
Arizona	30.6	14.1
Arkansas	7.0	5.0
California	242.6	213.8
Colorado	24.2	12.3
Connecticut	74.1	53.2
Florida	54.8	35.8
Georgia	9.0	16.5
Illinois	417.3	290.3
Indiana	179.6	121.0
Iowa	24.3	7.0
Kansas	11.1	6.9
Kentucky	26.2	9.9
Maine	4.0	2.9
Maryland	3.9	(NA)
Massachusetts	98.8	73.9
Michigan	791.6	514.2
Minnesota	118.5	79.7
Mississippi	9.6	2.1
Missouri	107.0	56.1
Nebraska	5.4	2.3
New Hampshire	19.6	10.3
New Jersey	143.4	125.7
New York	119.7	65.1
North Carolina	40.8	22.3
Ohio	460.0	343.2
Oklahoma	3.4	(NA)
Oregon	30.4	6.9
Pennsylvania	297.4	188.2
Rhode Island	6.0	5.4
South Carolina	13.3	10.9
Tennessee	37.8	11.4
Texas	44.3	21.5
Utah	4.7	2.2
Vermont	2.4	3.5
Virginia	10.6	6.2
Washington	26.5	12.4
Wisconsin	207.9	145.6
35451, SMALL CUTTING TOOLS FOR MACHINE TOOLS AND METALWORKING MACHINERY		
United States	**2 051.8**	**1 881.2**
Arizona	5.1	4.9
California	94.7	61.8
Connecticut	48.5	46.2
Florida	22.8	18.3
Illinois	255.6	176.7
Indiana	39.0	31.3
Kentucky	13.3	9.3
Massachusetts	93.7	87.1
Michigan	335.8	362.7
Minnesota	20.3	(NA)
Missouri	12.7	(NA)
New Hampshire	10.3	(NA)
New Jersey	22.0	49.8
New York	41.5	43.0
North Carolina	75.1	74.6
Ohio	313.5	304.1
Pennsylvania	127.0	121.1
Rhode Island	10.1	15.6
South Carolina	126.5	125.6
Tennessee	78.0	56.5
Texas	28.1	18.8
Vermont	34.4	49.3
Wisconsin	87.1	81.5
35454, OTHER ATTACHMENTS AND ACCESSORIES FOR MACHINE TOOLS AND METALWORKING MACHINERY		
United States	**664.1**	**542.6**
California	11.8	15.5
Connecticut	20.5	50.3
Illinois	53.7	26.9
Indiana	16.7	11.7
Kentucky	2.6	(NA)
Massachusetts	17.8	16.9
Michigan	162.9	110.4
Missouri	31.7	(NA)
New Jersey	7.6	11.7
New York	34.1	35.1
Ohio	90.3	92.5
Pennsylvania	19.2	12.5
Tennessee	10.7	(NA)
Texas	27.5	(NA)
Vermont	2.5	(NA)
Wisconsin	19.8	24.9
35455, PRECISION MEASURING TOOLS (INSPECTION, QUALITY CONTROL, TOOL ROOM, AND MACHINISTS')		
United States	**407.3**	**443.8**
California	17.6	11.9
Connecticut	15.3	16.7
Illinois	15.7	11.3
Indiana	3.2	5.8
Michigan	97.1	98.2
New York	34.4	68.9
Ohio	70.1	74.2
35462, POWER-DRIVEN HANDTOOLS, PNEUMATIC, HYDRAULIC, AND POWDER-ACTUATED		
United States	**634.4**	**508.5**
California	21.8	22.0
Illinois	42.4	(NA)
Michigan	7.6	(NA)
New York	75.6	63.3
Ohio	149.2	125.1
35463, POWER-DRIVEN HANDTOOLS, ENGINE (INTERNAL COMBUSTION) DRIVEN		
United States	**295.2**	**213.7**
35464, POWER-DRIVEN HANDTOOLS, BATTERY-POWERED (CORDLESS)		
United States	**291.4**	**(NA)**
35465, POWER-DRIVEN HANDTOOLS, ELECTRIC (EXCLUDING BATTERY-POWERED)		
United States	**1 091.4**	**(NA)**
Illinois	9.0	(NA)
Ohio	19.8	(NA)
Pennsylvania	13.8	(NA)
Texas	10.9	(NA)
35471, HOT ROLLING MILL MACHINERY (INCLUDING COMBINATION HOT AND COLD) (EXCEPT TUBE ROLLING)		
United States	**117.8**	**175.3**
Ohio	5.7	(NA)
35472, COLD ROLLING MILL MACHINERY		
United States	**64.9**	**67.2**
Ohio	12.2	7.7
35473, OTHER ROLLING MILL MACHINERY (INCLUDING TUBE MILL MACHINERY) AND PARTS FOR ALL ROLLING MILL MACHINERY		
United States	**200.5**	**137.3**
Illinois	16.8	9.6
Ohio	93.9	65.8
Pennsylvania	35.5	15.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35481, ARC WELDING MACHINES, COMPONENTS, AND ACCESSORIES (EXCEPT ELECTRODES), EXCLUDING STUD WELDING EQUIPMENT		
United States	**873.9**	**609.9**
California	57.7	33.1
Illinois	30.3	33.5
Missouri	16.1	10.7
North Carolina	10.1	(NA)
35482, ARC WELDING ELECTRODES, METAL		
United States	**631.7**	**494.4**
Michigan	21.9	(NA)
35483, RESISTANCE WELDERS, COMPONENTS, ACCESSORIES, AND ELECTRODES		
United States	**270.2**	**303.6**
Illinois	10.3	16.8
Michigan	174.0	216.5
Ohio	38.9	29.6
Wisconsin	19.4	(NA)
35484, GAS WELDING AND CUTTING EQUIPMENT, PARTS, ATTACHMENTS, AND ACCESSORIES		
United States	**252.8**	**205.3**
California	7.4	5.5
Florida	16.3	(NA)
Pennsylvania	10.1	11.1
35485, OTHER WELDING EQUIPMENT, COMPONENTS, AND ACCESSORIES (EXCLUDING ARC, RESISTANCE, AND GAS)		
United States	**242.6**	**182.6**
California	25.6	4.8
Ohio	26.6	22.4
35492, ASSEMBLY MACHINES		
United States	**805.8**	**505.3**
California	11.8	4.8
Connecticut	33.2	36.0
Illinois	51.9	43.8
Indiana	13.8	25.0
Massachusetts	3.9	10.1
Michigan	347.3	228.3
New York	36.1	35.7
North Carolina	3.0	(NA)
Ohio	85.5	40.1
Pennsylvania	29.6	20.8
35495, OTHER METALWORKING MACHINERY (EXCEPT HANDHELD AND ULTRASONIC)		
United States	**487.5**	**336.9**
California	16.8	19.1
Connecticut	19.0	3.0
Illinois	68.8	52.5
Indiana	20.1	(NA)
Massachusetts	15.8	9.1
Michigan	54.7	32.7
New Jersey	19.6	23.3
New York	19.8	10.0
Ohio	86.0	31.8
Oklahoma	14.0	(NA)
Wisconsin	31.2	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3541-	**Machine tools, metal cutting types**	**3 053.6**	**2 837.9**	**3 249.4**	**3 171.7**	**2 611.5**	**2 585.2**	**4 154.7**	**2 560.5**
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	151.4	136.1	184.9	176.5	127.9	157.0	266.0	202.4
35413	Gear cutting machines	87.4	104.8	102.6	94.5	45.7	62.4	87.3	67.1
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	376.0	405.4	494.8	452.4	354.7	396.1	515.3	288.3
35415	Lathes (turning machines)	329.3	282.2	326.7	313.3	277.2	266.5	523.6	455.9
35416	Milling machines (excluding machining centers)	221.7	225.7	203.1	206.8	168.2	197.2	264.5	167.8
3541A	Machining centers (multifunction numerically controlled machines)	454.1	416.7	454.6	440.2	346.2	231.7	365.7	
3541B	Station type machines	469.0	355.2	375.3	459.3	248.4	316.4	735.4	647.3
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	222.1	172.6	183.7	198.6	181.7	189.1	250.6	
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	60.9	98.6	130.5	135.7	104.5	97.2	85.7	66.3
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	606.2	609.4	757.6	686.1	666.4	577.5	891.9	502.1
35410	Machine tools, metal cutting types, n.s.k.	75.4	31.1	35.6	8.3	90.7	94.2	168.7	163.3
3542-	**Machine tools, metal forming types**	**1 396.7**	**1 452.9**	**1 556.8**	**1 684.9**	**1 702.7**	**1 370.3**	**1 383.9**	**1 114.7**
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	352.7	385.3	406.3	416.9	391.3	334.4	317.3	280.1
35422	Metalworking presses (except forging and die-stamping presses)	329.6	316.7	316.5	383.1	391.9	268.9	369.2	282.6
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	317.7	(D)	327.0	344.9	386.9	307.0	217.0	171.7
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	377.9	(D)	450.8	487.0	476.4	392.9	380.0	295.5
35420	Machine tools, metal forming types, n.s.k.	18.8	31.6	56.1	53.0	56.1	67.3	100.5	85.0
3543-	**Industrial patterns**	**672.3**	**561.0**	**624.0**	**668.6**	**713.5**	**558.5**	**561.5**	**411.9**
35430	Industrial patterns, except shoe patterns	672.3	561.0	624.0	668.6	713.5	558.5	561.5	411.9
3544-	**Special dies, tools, jigs, and fixtures**	**10 252.2**	**9 691.6**	**10 054.6**	**9 911.0**	**8 789.5**	**8 147.1**	**6 099.3**	**4 450.2**
35441	Special dies and tools, die sets, jigs, and fixtures	5 076.3	5 097.1	5 522.6	5 426.5	4 533.7	4 171.7	3 425.9	2 578.0
35442	Industrial molds and mold boxes	3 744.7	3 015.4	2 932.7	2 983.8	2 929.0	2 526.1	1 800.6	1 040.0
35440	Special dies, tools, jigs, and fixtures, n.s.k.	1 431.3	1 579.1	1 599.3	1 500.7	1 326.8	1 449.3	872.8	832.2

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3545-	**Machine tool accessories**	**3 619.4**	**4 054.0**	**4 245.8**	**4 123.4**	**3 823.0**	**3 422.0**	**3 069.1**	**2 238.9**
35451	Small cutting tools for machine tools and metalworking machinery	2 051.8	2 214.6	2 252.9	2 265.1	2 120.4	1 881.2	1 755.7	1 376.4
35454	Other attachments and accessories for machine tools and metalworking machinery	664.1	708.3	637.4	661.0	596.2	542.6	593.6	430.9
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	407.3	445.4	603.9	494.8	559.4	443.8	402.7	208.2
35450	Machine tool accessories, n.s.k.	496.2	685.7	751.6	702.5	547.1	554.4	317.1	223.5
3546-	**Power-driven handtools**	**2 414.5**	**2 238.5**	**2 365.4**	**2 281.3**	**2 155.3**	**1 886.9**	**1 594.8**	**1 496.5**
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	634.4	535.0	593.4	579.1	542.1	508.5	382.4	371.1
35463	Power-driven handtools, engine (internal combustion) driven	295.2	274.4	306.0	290.7	235.7	213.7	326.5	347.1
35464	Power-driven handtools, battery-powered (cordless)	291.4	1 302.8	1 323.8	1 279.5	1 282.5	1 062.7	829.9	748.7
35465	Power-driven handtools, electric (excluding battery-powered)	1 091.4							
35460	Power-driven handtools, n.s.k.	102.2	126.3	142.1	132.0	95.0	101.9	56.0	29.6
3547-	**Rolling mill machinery**	**544.4**	**440.4**	**455.3**	**547.8**	**485.8**	**403.0**	**445.1**	**361.0**
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	117.8	121.3	142.9	(D)	260.6	175.3	180.5	147.0
35472	Cold rolling mill machinery	64.9	129.8	122.1	(D)	84.2	67.2	65.1	74.9
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	200.5	154.7	160.7	171.5	117.7	137.3	188.2	120.8
35470	Rolling mill machinery, n.s.k.	161.3	34.6	29.6	37.1	23.3	23.2	11.4	18.3
3548-	**Welding apparatus**	**2 422.5**	**2 434.3**	**2 474.8**	**2 297.5**	**2 263.3**	**1 918.0**	**1 606.6**	**(NA)**
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	873.9	891.6	947.1	842.5	786.8	609.9	511.6	407.8
35482	Arc welding electrodes, metal	631.7	691.5	680.1	662.9	604.0	494.4	469.6	447.6
35483	Resistance welders, components, accessories, and electrodes	270.2	309.2	300.5	277.7	279.7	303.6	187.8	136.9
35484	Gas welding and cutting equipment, parts, attachments, and accessories	252.8	191.3	182.4	153.1	262.8	205.3	226.6	(NA)
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	242.6	245.4	253.6	245.4	209.1	182.6	148.4	(NA)
35480	Welding apparatus, n.s.k.	151.3	105.3	111.1	115.9	120.9	122.1	62.7	(NA)
3549-	**Metalworking machinery, n.e.c.**	**1 475.0**	**1 236.0**	**1 287.7**	**1 415.8**	**1 094.7**	**1 004.1**	**780.2**	**(NA)**
35492	Assembly machines	805.8	639.9	619.6	688.6	556.7	505.3	367.6	128.4
35495	Other metalworking machinery (except handheld and ultrasonic)	487.5	476.0	517.9	518.3	376.3	336.9	313.0	(NA)
35490	Metalworking machinery, n.e.c., n.s.k.	181.7	120.1	150.2	208.9	161.7	161.8	99.6	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES		
	Materials, ingredients, containers, and supplies	**1 414.7**	**1 151.4**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	33.1	7.3
359301	Cylinders and rotary actuators	15.1	3.4
356921	Filters	4.5	2.1
349261	Hose or tube fittings and assemblies	11.2	3.4
349271	Valves	13.3	10.3
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	18.2	8.9
340078	Other fabricated metal products, except fluid power products	65.7	(1)
	Forgings:		
346200	Iron and steel	8.4	2.7
346300	Nonferrous	.6	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	117.4	55.3
336005	Aluminum and aluminum-base alloy	6.6	2.9
336003	Other nonferrous	1.7	1.8
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	39.4	
331022	Sheet and strip	18.2	
331071	Structural shapes	10.4	55.9
331091	All other	6.2	
335001	Aluminum and aluminum-base alloy	8.4	3.7
335091	Other nonferrous	4.2	.5
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	20.7	22.6
362115	Other fractional horsepower electric motors (under 1 hp)	12.6	9.5
362120	Integral horsepower motors and generators (1 hp or more)	19.7	24.5
360101	Electrical transmission, distribution, and control equipment	37.2	24.2
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	13.4	11.1
362520	Numerical controls for metalworking machinery (except programmable)	46.5	35.6
362521	Programmable controllers for metalworking machinery	67.7	28.7
	Bearings (mounted or unmounted):		
356218	Ball	18.6	12.8
356201	Roller	7.3	4.1
356601	Speed changers, gears, and industrial high-speed drives	40.5	3.7
244021	Wood boxes, pallets, skids, and containers	5.9	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES—Con.		
354501	Cutting tools for machine tools	23.0	13.9
970099	All other materials and components, parts, containers, and supplies	295.5	[1]415.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	423.5	386.8
	INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES		
	Materials, ingredients, containers, and supplies	**593.7**	**542.9**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	17.6	7.9
359301	Cylinders and rotary actuators	8.2	9.3
356921	Filters	2.2	.2
349261	Hose or tube fittings and assemblies	3.2	4.3
349271	Valves	8.9	5.1
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	11.4	5.8
340078	Other fabricated metal products, except fluid power products	25.0	(1)
	Forgings:		
346200	Iron and steel	10.5	5.4
346300	Nonferrous	.4	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	29.4	24.0
336005	Aluminum and aluminum-base alloy	4.0	.8
336003	Other nonferrous	.4	2.0
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	75.8	
331022	Sheet and strip	7.8	
331071	Structural shapes	19.1	49.3
331091	All other	16.0	
335001	Aluminum and aluminum-base alloy	1.3	4.3
335091	Other nonferrous	4.8	2.0
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	1.4	3.4
362115	Other fractional horsepower electric motors (under 1 hp)	.5	.5
362120	Integral horsepower motors and generators (1 hp or more)	14.9	9.1
360101	Electrical transmission, distribution, and control equipment	16.3	9.5
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	4.0	6.1
362520	Numerical controls for metalworking machinery (except programmable)	3.7	1.7
362521	Programmable controllers for metalworking machinery	22.2	10.5
	Bearings (mounted or unmounted):		
356218	Ball	4.3	4.2
356201	Roller	2.9	4.7
356601	Speed changers, gears, and industrial high-speed drives	6.9	4.8
244021	Wood boxes, pallets, skids, and containers	2.8	(1)
354501	Cutting tools for machine tools	16.6	6.1
970099	All other materials and components, parts, containers, and supplies	141.6	118.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	109.4	243.6
	INDUSTRY 3543, INDUSTRIAL PATTERNS		
	Materials, ingredients, containers, and supplies	**99.4**	**91.4**
340091	Fabricated metal products, except forgings	2.4	(1)
346000	Forgings	(Z)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	8.9	6.4
336005	Aluminum and aluminum-base alloy	4.4	2.0
336003	Other nonferrous	1.1	.2
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	.8	1.3
335001	Aluminum and aluminum-base alloy	1.1	1.1
335091	Other nonferrous	.1	(1)
242101	Rough and dressed lumber	3.0	1.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	1.1	.8
970099	All other materials and components, parts, containers, and supplies	27.1	[1]20.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	49.4	57.6
	INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES		
	Materials, ingredients, containers, and supplies	**1 932.1**	**1 638.1**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	39.7	24.2
340098	Other fabricated metal products	95.6	(1)
346000	Forgings	13.1	[3]2.9
	Castings (rough and semifinished):		
332001	Iron and steel	85.8	28.7
336010	Nonferrous	19.7	41.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES—Con.		
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	261.3	
331022	Sheet and strip	35.9	324.3
331034	All other	38.4	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	25.6	13.8
335011	All other	12.3	8.1
335091	Other nonferrous	11.7	10.4
	Metal powders:		
339916	Tungsten carbide	20.4	14.7
339919	All other	2.2	3.0
190074	Iron and steel scrap (excluding home scrap)	2.0	15.0
329903	Industrial diamonds	8.7	4.6
360101	Electrical transmission, distribution, and control equipment	10.6	17.2
329101	Grinding wheels and other abrasive products, except industrial diamonds	19.0	12.4
190090	Fluid power products, including pumps, motors, valves, cylinders, rotary actuators, etc. (hydraulic and pneumatic)	23.7	8.6
280020	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	3.7	1.3
320601	Ceramic and ceramic composite parts, components, and accessories	1.3	.5
970099	All other materials and components, parts, containers, and supplies	345.6	[1]307.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	855.8	799.4
	INDUSTRY 3545, MACHINE TOOL ACCESSORIES		
	Materials, ingredients, containers, and supplies	**844.4**	**800.6**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	20.4	5.9
340098	Other fabricated metal products	29.0	(1)
346000	Forgings	1.6	[3]1.5
	Castings (rough and semifinished):		
332001	Iron and steel	9.7	11.5
336010	Nonferrous	2.3	1.6
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	170.4	
331022	Sheet and strip	17.8	195.1
331034	All other	12.8	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	2.7	.7
335011	All other	1.7	2.3
335091	Other nonferrous	3.2	(D)
	Metal powders:		
339916	Tungsten carbide	123.9	100.5
339919	All other	4.3	7.1
190074	Iron and steel scrap (excluding home scrap)	.1	1.8
329903	Industrial diamonds	23.9	14.2
360101	Electrical transmission, distribution, and control equipment	14.0	30.4
329101	Grinding wheels and other abrasive products, except industrial diamonds	27.9	34.0
190090	Fluid power products, including pumps, motors, valves, cylinders, rotary actuators, etc. (hydraulic and pneumatic)	11.4	4.9
280020	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	1.0	1.5
320601	Ceramic and ceramic composite parts, components, and accessories	6.4	(D)
970099	All other materials and components, parts, containers, and supplies	171.1	[1]177.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	188.6	203.2
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS[2]		
	Materials, ingredients, containers, and supplies	**1 079.3**	**846.6**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	1.3	(D)
359301	Cylinders and rotary actuators	(4)	(1)
356921	Filters	.1	(1)
349261	Hose or tube fittings and assemblies	.5	(1)
349271	Valves	.3	(1)
190089	Other fluid power products	.2	(1)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	37.7	31.7
340078	All other fabricated metal products	120.9	(1)
346000	Forgings	1.8	[3](D)
	Castings (rough and semifinished):		
332001	Iron and steel	29.2	15.7
336005	Aluminum and aluminum-base alloy	68.9	51.2
336003	Other nonferrous	7.4	.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	51.1	
331087	All other	12.8	33.0
336002	Nonferrous	5.3	(D)
335792	Insulated copper wire and cable, except magnet wire	14.7	11.3
335770	Magnet wire	20.6	13.8
362100	Electric motors and generators	29.0	(D)
369101	Storage batteries	43.9	(1)
356200	Ball and roller bearings (mounted or unmounted)	46.0	18.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS[2]—Con.		
356601	Speed changers, gears, and industrial high-speed drives	18.9	8.8
308006	Fabricated plastics products, except gaskets	86.6	41.8
265001	Paperboard containers, boxes, and corrugated paperboard	29.5	(1)
267101	Packaging paper and plastics film, coated and laminated	4.0	(1)
970099	All other materials and components, parts, containers, and supplies	[4]319.8	[1]441.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	128.8	151.1
	INDUSTRY 3547, ROLLING MILL MACHINERY		
	Materials, ingredients, containers, and supplies	**218.9**	**192.8**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	4.8	(D)
359301	Cylinders and rotary actuators	2.1	1.3
356921	Filters	.3	(Z)
349261	Hose or tube fittings and assemblies	1.7	(D)
349271	Valves	.7	.7
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	2.1	.6
340078	Other fabricated metal products, except fluid power products	9.6	(1)
	Forgings:		
346200	Iron and steel	16.2	22.3
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	10.0	3.9
336005	Aluminum and aluminum-base alloy	(Z)	(Z)
336003	Other nonferrous	.6	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	16.9	
331022	Sheet and strip	1.5	
331071	Structural shapes	2.5	18.7
331091	All other	5.1	
335001	Aluminum and aluminum-base alloy	.6	.6
335091	Other nonferrous	.2	.3
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	1.4	
362115	Other fractional horsepower electric motors (under 1 hp)	(D)	4.2
362120	Integral horsepower motors and generators (1 hp or more)	1.5	
360101	Electrical transmission, distribution, and control equipment	3.7	.4
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	(D)	(D)
362520	Numerical controls for metalworking machinery (except programmable)	(D)	–
362521	Programmable controllers for metalworking machinery	2.6	5.5
	Bearings (mounted or unmounted):		
356218	Ball	(D)	(D)
356201	Roller	2.5	1.7
356601	Speed changers, gears, and industrial high-speed drives	(D)	6.3
244021	Wood boxes, pallets, skids, and containers	.3	(1)
354501	Cutting tools for machine tools	2.7	1.2
970099	All other materials and components, parts, containers, and supplies	45.4	[1]73.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	68.4	41.4
	INDUSTRY 3548, WELDING APPARATUS		
	Materials, ingredients, containers, and supplies	**1 057.1**	**899.8**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	11.2	7.9
340098	All other fabricated metal products	37.2	(1)
346000	Forgings	2.8	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	4.2	2.5
336006	Copper and copper-base alloy	4.2	8.4
336011	Other nonferrous	2.7	2.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	19.7	
331022	Sheet and strip	55.0	
331027	Wire and wire products	91.1	160.6
331019	All other	29.0	
335105	Copper and copper-base alloy	36.6	51.1
335001	Aluminum and aluminum-base alloy	11.7	20.7
335099	All other nonferrous	15.5	(1)
335792	Insulated copper wire and cable, except magnet wire	9.4	9.4
	Electric motors and generators:		
	Fractional horsepower electric motors (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	2.3	1.3
362114	Other (excluding timing motors)	9.5	9.4
362120	Integral horsepower motors and generators (1 hp or more)	9.0	.2
360101	Electrical transmission, distribution, and control equipment	47.7	12.6
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	25.1	23.7
382301	Pressure gauges	9.9	(1)
	Bearings (mounted or unmounted):		
356218	Ball	4.3	3.4
356201	Roller	1.4	.9
265001	Paperboard containers, boxes, and corrugated paperboard	21.8	12.3
356971	Industrial robots purchased for fabrication with welding equipment	6.7	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3548, WELDING APPARATUS—Con.		
970099	All other materials and components, parts, containers, and supplies	400.1	[1]332.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	188.9	240.5
	INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**552.4**	**[r]384.9**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	10.0	2.5
359301	Cylinders and rotary actuators	6.5	2.3
356921	Filters	1.1	.4
349261	Hose or tube fittings and assemblies	3.2	1.1
349271	Valves	5.0	2.9
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	6.7	1.4
340078	Other fabricated metal products, except fluid power products	18.1	([1])
	Forgings:		
346200	Iron and steel	.3	.7
346300	Nonferrous	([4])	([1])
	Castings (rough and semifinished):		
332001	Iron and steel	8.7	5.0
336005	Aluminum and aluminum-base alloy	4.3	4.7
336003	Other nonferrous	.6	.3
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	23.4	
331022	Sheet and strip	5.1	
331071	Structural shapes	4.2	23.7
331091	All other	4.0	
335001	Aluminum and aluminum-base alloy	2.5	9.6
335091	Other nonferrous	.8	.2
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	2.1	1.4
362115	Other fractional horsepower electric motors (under 1 hp)	2.5	1.5
362120	Integral horsepower motors and generators (1 hp or more)	12.4	2.9
360101	Electrical transmission, distribution, and control equipment	40.6	11.9
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	3.0	1.2
362520	Numerical controls for metalworking machinery (except programmable)	1.4	1.6
362521	Programmable controllers for metalworking machinery	12.1	5.4
	Bearings (mounted or unmounted):		
356218	Ball	4.3	1.8
356201	Roller	3.4	1.2
356601	Speed changers, gears, and industrial high-speed drives	8.4	6.1
244021	Wood boxes, pallets, skids, and containers	1.6	([1])
354501	Cutting tools for machine tools	2.7	1.6
970099	All other materials and components, parts, containers, and supplies	[4]180.4	[1]120.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	172.7	[r]173.0

[1]For 1987, material codes are included with material code 970099 because these codes were not collected seperately.
[2]Total cost of materials of establishments that did not report detialed materials data, including establishments that were not mailed a form.
[3]For 1987, material code 346000 included only iron and steel forgings.
[4]For 1992, material codes are combined to avoid disclosing data for individual companies.

TIPS UPF [MCD_SRB,V_HARLEY] 6/ 23/ 95 08:42:15 EPCV23 TLP:35C.BTI;59 6/ 23/ 95 08:40:31 DATA:NONE UPF:DIR:35CDAT.UPF PAGE: 31
TSF:35C_92.DAT;2 6/ 23/ 95 08:40:42 UTF:35C_93.DAT;2 6/ 23/ 95 08:40:42 META:TIPS96-08403927.DAT;1 6/ 23/ 95 08:41:46

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
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35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
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35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
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35451 62	35451 61
35451 64	35451 58
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35451 64	35451 63
35451 67	35451 65
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35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
35464 15	35461 05
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35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
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35465 27	35461 26
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35465 29	35461 29
35465 31	35461 31
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35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
35563 19	35563 09
35563 19	35563 14
35563 19	35563 15
35592 04	35592 03
35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
35594 16	35594 09
35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
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35594 25	35594 21

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Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
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35598 55	35599 55
35598 58	35599 57
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35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
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35419 26	35419 41
35424 01	35424 11
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35424 03	35424 75
35424 04	35424 75
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35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
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35451 70	35451 74
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35451 91	35451 79
35451 93	35451 79
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35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
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35461 04	35465 02
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35463 12	35463 19
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35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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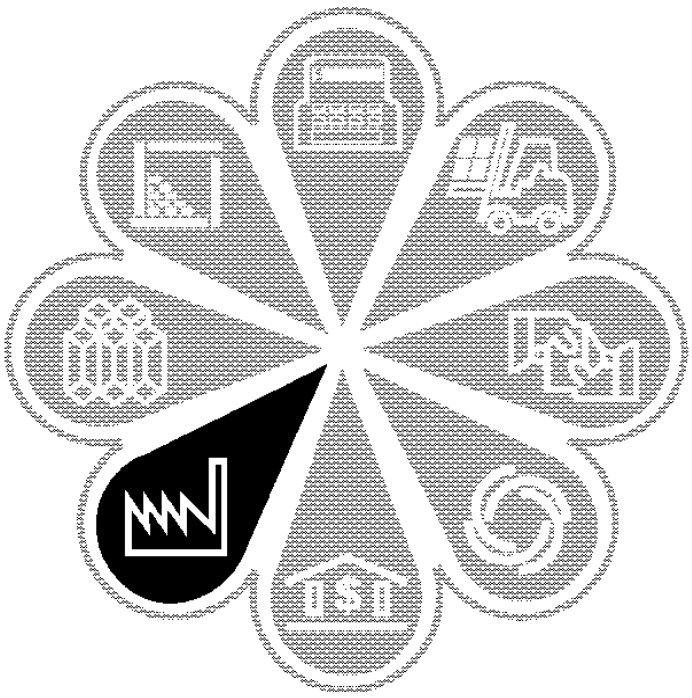
1992 Census of Manufactures

MC92-I-35D

INDUSTRY SERIES

Special Industry Machinery, Except Metalworking Machinery

Industries 3552, 3553, 3554, 3555, 3556, and 3559



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35D

INDUSTRY SERIES

Special Industry Machinery, Except Metalworking Machinery

Industries 3552, 3553, 3554, 3555, 3556, and 3559

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Joanna T.Q. Nguyen.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3552	Textile Machinery
3553	Woodworking Machinery
3554	Paper Industries Machinery
3555	Printing Trades Machinery
3556	Food Products Machinery
3559	Special Industry Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3552, TEXTILE MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery for the textile industry. Also included in this industry are establishments primarily engaged in manufacturing parts, attachments, and accessories. Establishments primarily engaged in manufacturing industrial sewing machines are classified in industry 3559. Establishments primarily engaged in manufacturing household sewing machines are classified in industry 3639.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3552, Textile Machinery, had employment of 15.0 thousand. The employment figure was 4 percent below the 15.6 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, South Carolina, and Georgia, accounting for approximately 64 percent of the industry's employment. This represents a shift from 1987 when South Carolina, North Carolina, Georgia, and New York, were the leading States.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3552 shipped $1.3 billion of textile machinery products considered primary to the industry, $15.2 million of secondary products, and had $251.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3552, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the textile machinery industry amounted to $644.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3553, WOODWORKING MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery for sawmills, for making particleboard and similar products, and for otherwise working or producing wood products. Establishments primarily engaged in manufacturing handtools such as planes, axes, draw knives and handsaws are classified in industry group 342. Establishments primarily engaged in manufacturing portable power-driven handtools are classified in industry 3546.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3553, Woodworking Machinery, had employment of 7.2 thousand. The employment figure was 19 percent below the 8.9 thousand reported in 1987.

The leading States in employment in 1992 were Oregon, Tennessee, Mississippi, and Indiana, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when North Carolina, Ohio, Oregon, and Tennessee were the leading States.

The total value of shipments for establishments classified in this industry was $894.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3553 shipped $723.1 million of woodworking machinery products considered primary to the industry, $35.1 million of secondary products, and had $136.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3553, no matter in what industry they were produced, appear in table 6a and aggregate to $775.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the woodworking machinery industry amounted to $439.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3554, PAPER INDUSTRIES MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery for the pulp, paper, and paper product industries. Establishments primarily engaged in manufacturing mining trades machinery are classified in industry 3555.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3554, Paper Industries Machinery, had employment of 18.2 thousand. The employment figure was 6 percent above the 17.1 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Pennsylvania, Massachusetts, and New Jersey, accounting for approximately 55 percent of the industry's employment. This represents a shift from 1987 when Wisconsin, Pennsylvania, Massachusetts, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $2.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3554 shipped $2.1 billion of paper industries machinery products considered primary to the industry, $180.8 million of secondary products, and had $264.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3554, no matter in what industry they were produced, appear in table 6a and aggregate to $2.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the paper industries machinery industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3555, PRINTING TRADES MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery and equipment used by the printing and book binding trades. Establishments primarily engaged in manufacturing textile printing machinery are classified in industry 3552.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3555, Printing Trades Machinery, had employment of 18.7 thousand. The employment figure was 25 percent below the 25.0 thousand reported in 1987. Compared with 1991, employment decreased 22 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Illinois, New Jersey, and Massachusetts, accounting for approximately 36 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3555 shipped $2.2 billion of printing trades machinery products considered primary to the industry, $123.9 million of secondary products, and had $288.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3555, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the printing trades machinery industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3556, FOOD PRODUCTS MACHINERY

This industry is made up of establishments primarily engaged in manufacturing machinery for use by the food products and beverage manufacturing industries and similar machinery for use in manufacturing animal foods. Establishments primarily engaged in manufacturing food packaging machinery are classified in industry 3565. Establishments primarily engaged in manufacturing industrial refrigeration machinery are classified in industry group 358.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3556, Food Products Machinery, had employment of 18.8 thousand. The employment figure was 2 percent below the 19.2 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Illinois, California, and Ohio accounting for approximately 40 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 43 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3556 shipped $1.9 billion of food products machinery considered primary to the industry, $238.0 million of secondary products, and had $247.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 91 percent.

The products primary to industry 3556, no matter in what industry they were produced, appear in table 6a and aggregate to $2.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the food products machinery industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing special industries machinery not elsewhere classified, such as smelting and refining equipment, cement making, clayworking, cotton ginning, glass making, incandescent lamp making, paint working, rubberworking, tobacco working, printed circuit board, semiconductor, shoe making, and stone working machinery, and industrial sewing machines and automotive maintenance machinery and equipment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3559, Special Industry Machinery, N.E.C., had employment of 81.9 thousand. The employment figure was 2 percent below the 83.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Ohio, Michigan, and Massachusetts, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, New York, and Massachusetts accounted for approximately 39 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $11.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3559 shipped $9.8 billion of special industry machinery not elsewhere classified products considered primary to the industry, $591.5 million of secondary products, and had $886.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3559, no matter in what industry they were produced, appear in table 6a and aggregate to $10.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the special industry machinery not elsewhere classified industry amounted to $5.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3552, TEXTILE MACHINERY															
1992 Census	480	506	158	15.0	424.5	9.6	19.8	218.6	908.1	644.4	1 565.2	39.5	388.7	99	98
1991 ASM	(NA)	(NA)	(NA)	14.9	437.1	10.1	20.9	238.7	776.8	621.8	1 395.8	32.9	357.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.0	452.7	11.0	22.7	246.4	814.9	687.3	1 505.1	46.6	370.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.4	428.7	11.5	23.9	245.2	889.0	710.7	1 561.0	37.4	383.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.1	409.9	11.7	24.3	239.8	837.7	672.5	1 487.4	40.6	366.8	(NA)	(NA)
1987 Census	475	506	172	15.6	352.4	10.6	22.2	206.9	712.1	547.1	1 240.7	33.2	318.9	96	96
1986 ASM	(NA)	(NA)	(NA)	15.8	331.7	10.7	21.6	195.3	669.3	478.4	1 132.2	22.1	311.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.2	316.9	10.9	21.5	184.9	543.0	451.0	1 019.8	29.2	269.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.7	340.1	11.9	23.4	195.3	627.8	485.6	1 089.3	24.3	306.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	17.5	324.3	12.0	23.4	188.4	534.5	454.7	1 038.2	35.4	267.0	(NA)	(NA)
1982 Census	511	551	197	19.4	322.9	12.8	23.9	184.5	641.6	424.1	1 059.0	46.1	298.7	96	96
1981 ASM	(NA)	(NA)	(NA)	22.9	366.5	15.7	30.8	214.6	776.7	472.1	1 245.0	38.4	279.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	24.3	352.2	16.8	33.7	210.7	715.3	477.6	1 170.5	33.0	262.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.1	323.4	16.8	32.7	195.2	656.8	413.6	1 055.2	33.2	240.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.0	320.4	16.8	32.9	178.5	559.5	428.0	996.1	50.1	240.3	(NA)	(NA)
1977 Census	599	638	217	25.9	300.8	18.3	36.3	185.3	539.4	388.9	950.0	32.2	233.5	93	94
INDUSTRY 3553, WOODWORKING MACHINERY															
1992 Census	277	289	90	7.2	206.1	4.7	9.5	109.8	458.8	439.5	894.6	19.5	158.1	95	93
1991 ASM	(NA)	(NA)	(NA)	6.2	184.7	3.9	8.1	90.3	420.3	368.9	811.4	7.2	114.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.8	226.2	5.4	10.6	119.2	477.4	439.8	936.6	14.2	143.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.8	258.5	6.4	12.8	130.6	590.4	563.5	1 141.4	18.5	179.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.9	208.2	5.8	11.3	114.8	451.5	469.7	921.1	12.5	155.5	(NA)	(NA)
1987 Census	280	292	97	8.9	205.3	5.8	11.9	115.7	464.3	423.7	884.3	17.0	161.3	91	91
INDUSTRY 3554, PAPER INDUSTRIES MACHINERY															
1992 Census	298	333	153	18.2	651.8	10.2	21.3	314.3	1 273.8	1 209.8	2 524.2	65.4	527.7	92	93
1991 ASM	(NA)	(NA)	(NA)	17.8	606.6	9.6	20.8	308.4	987.8	1 200.0	2 206.3	62.6	529.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.3	648.3	12.2	26.3	346.9	1 118.7	1 591.2	2 770.4	72.0	549.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.9	624.8	11.7	24.7	339.4	1 208.8	1 410.1	2 579.8	84.6	598.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.3	538.2	10.4	22.2	281.4	1 022.5	1 064.6	2 012.1	60.0	503.6	(NA)	(NA)
1987 Census	256	278	127	17.1	502.1	9.6	19.1	239.0	1 027.0	868.8	1 867.1	45.6	405.2	90	93
1986 ASM	(NA)	(NA)	(NA)	15.4	448.9	8.7	17.4	215.9	706.0	860.6	1 630.7	37.8	341.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.6	442.6	8.9	17.6	221.4	792.9	654.3	1 408.2	40.6	382.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.4	392.8	8.5	16.9	190.8	731.7	566.2	1 274.3	22.6	331.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.1	352.0	7.1	13.7	166.8	596.4	497.5	1 150.8	15.7	296.6	(NA)	(NA)
1982 Census	231	253	126	17.8	405.8	10.0	20.2	201.5	762.6	622.5	1 387.4	29.4	360.3	89	93
1981 ASM	(NA)	(NA)	(NA)	19.1	404.4	10.8	21.6	203.8	685.3	674.0	1 382.3	45.6	357.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	19.6	385.0	11.3	22.7	197.7	651.2	671.6	1 322.8	55.6	377.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.5	349.7	11.1	22.0	181.3	641.1	601.6	1 207.6	33.2	373.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.2	285.5	10.1	19.5	142.9	567.7	438.8	938.9	26.3	284.7	(NA)	(NA)
1977 Census	193	213	103	16.4	247.5	9.3	18.8	123.8	464.9	357.8	826.9	17.2	220.2	84	90
INDUSTRY 3555, PRINTING TRADES MACHINERY															
1992 Census	461	506	180	18.7	655.9	10.3	22.0	300.3	1 266.4	1 267.6	2 591.9	59.6	729.6	95	95
1991 ASM	(NA)	(NA)	(NA)	24.0	799.9	12.1	25.5	338.9	1 850.1	1 706.2	3 538.1	74.7	891.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	25.0	821.2	12.9	27.7	362.0	1 808.2	1 752.8	3 538.2	89.6	937.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	26.4	833.9	13.6	28.6	365.1	1 948.7	1 820.4	3 691.9	99.5	898.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.6	806.1	13.1	27.0	345.8	1 739.8	1 600.1	3 313.1	86.3	830.3	(NA)	(NA)
1987 Census	408	438	194	25.0	751.6	12.1	25.3	306.1	1 606.6	1 315.1	2 857.8	114.2	770.3	96	94
INDUSTRY 3556, FOOD PRODUCTS MACHINERY															
1992 Census	495	518	228	18.8	605.5	11.1	22.2	289.9	1 392.1	1 008.4	2 407.2	46.8	482.0	89	91
1991 ASM	(NA)	(NA)	(NA)	17.9	570.5	10.5	21.0	266.7	1 183.9	996.6	2 193.1	42.1	467.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.0	566.3	11.2	22.0	265.6	1 266.3	1 008.5	2 260.9	45.8	475.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.0	531.5	11.1	22.0	252.9	1 253.2	886.4	2 125.9	63.6	457.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	20.0	525.7	12.2	24.1	274.9	1 249.0	866.8	2 091.8	33.7	498.0	(NA)	(NA)
1987 Census	483	512	219	19.2	490.9	11.8	22.8	258.0	1 140.5	832.7	1 971.4	47.4	457.7	86	91
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.															
1992 Census	2 469	2 557	814	81.9	2 903.9	44.0	89.8	1 168.8	6 226.2	5 146.9	11 297.2	348.1	2 456.5	94	93
1991 ASM	(NA)	(NA)	(NA)	83.0	2 778.4	45.7	91.9	1 225.2	5 657.4	4 882.9	10 542.5	285.6	2 284.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	84.2	2 709.8	47.3	95.2	1 201.3	5 517.0	4 724.2	10 247.1	311.7	2 292.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	83.5	2 580.7	47.9	97.3	1 178.7	5 450.7	4 480.9	9 853.8	297.7	2 201.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	84.6	2 444.8	47.7	95.7	1 114.8	5 414.9	4 066.0	9 338.2	189.1	2 245.1	(NA)	(NA)
1987 Census	2 438	2 531	817	83.3	2 285.6	46.3	92.8	1 057.5	4 704.0	3 592.9	8 274.7	217.3	2 023.2	94	91

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3552, TEXTILE MACHINERY									
1992 Census	28 300	64	2 062	11.04	41	68	60 540	47	45.86
1991 ASM	29 336	68	2 069	11.42	45	76	52 134	56	37.17
1990 ASM	28 294	69	2 064	10.85	46	76	50 931	56	35.90
1989 ASM	26 140	70	2 078	10.26	46	73	54 207	48	37.20
1988 ASM	23 971	68	2 077	9.87	45	73	48 988	49	34.47
1987 Census	22 590	68	2 094	9.32	44	72	45 647	49	32.08
1986 ASM	20 994	68	2 019	9.04	42	72	42 361	50	30.99
1985 ASM	19 562	67	1 972	8.60	44	75	33 519	58	25.26
1984 ASM	19 215	67	1 966	8.35	45	76	35 469	54	26.83
1983 ASM	18 531	69	1 950	8.05	44	75	30 543	61	22.84
1982 Census	16 644	66	1 867	7.72	40	71	33 072	50	26.85
1981 ASM	16 004	69	1 962	6.97	38	67	33 917	47	25.22
1980 ASM	14 494	69	2 006	6.25	41	71	29 436	49	21.23
1979 ASM	13 419	70	1 946	5.97	39	70	27 253	49	20.09
1978 ASM	12 816	67	1 958	5.43	43	75	22 380	57	17.01
1977 Census	11 614	71	1 984	5.10	41	73	20 826	56	14.86
INDUSTRY 3553, WOODWORKING MACHINERY									
1992 Census	28 625	65	2 021	11.56	49	72	63 722	45	48.29
1991 ASM	29 790	63	2 077	11.15	45	68	67 790	44	51.89
1990 ASM	29 000	69	1 963	11.25	47	71	61 205	47	45.04
1989 ASM	26 378	65	2 000	10.20	49	72	60 245	44	46.13
1988 ASM	23 393	65	1 948	10.16	51	74	50 730	46	39.96
1987 Census	23 067	65	2 052	9.72	48	71	52 169	44	39.02
INDUSTRY 3554, PAPER INDUSTRIES MACHINERY									
1992 Census	35 813	56	2 088	14.76	48	74	69 989	51	59.80
1991 ASM	34 079	54	2 167	14.83	54	82	55 494	61	47.49
1990 ASM	31 936	60	2 156	13.19	57	81	55 108	58	42.54
1989 ASM	31 397	59	2 111	13.74	55	79	60 744	52	48.94
1988 ASM	31 110	60	2 135	12.68	53	80	59 104	53	46.06
1987 Census	29 363	56	1 990	12.51	47	73	60 058	49	53.77
1986 ASM	29 149	56	2 000	12.41	53	80	45 844	64	40.57
1985 ASM	28 372	57	1 978	12.58	46	78	50 827	56	45.05
1984 ASM	25 506	55	1 988	11.29	44	75	47 513	54	43.30
1983 ASM	24 965	50	1 930	12.18	43	74	42 298	59	43.53
1982 Census	22 798	56	2 020	9.98	45	74	42 843	53	37.75
1981 ASM	21 173	57	2 000	9.44	49	78	35 880	59	31.73
1980 ASM	19 643	58	2 009	8.71	51	80	33 224	59	28.69
1979 ASM	17 933	57	1 982	8.24	50	79	32 877	55	29.14
1978 ASM	16 599	59	1 931	7.33	47	77	33 006	50	29.11
1977 Census	15 091	57	2 022	6.59	43	73	28 348	53	24.73
INDUSTRY 3555, PRINTING TRADES MACHINERY									
1992 Census	35 075	55	2 136	13.65	49	74	67 722	52	57.56
1991 ASM	33 329	50	2 107	13.29	48	71	77 088	43	72.55
1990 ASM	32 848	52	2 147	13.07	50	73	72 328	45	65.28
1989 ASM	31 587	52	2 103	12.77	49	72	73 814	43	68.14
1988 ASM	31 488	51	2 061	12.81	48	73	67 961	46	64.44
1987 Census	30 064	48	2 091	12.10	46	72	64 264	47	63.50
INDUSTRY 3556, FOOD PRODUCTS MACHINERY									
1992 Census	32 207	59	2 000	13.06	42	67	74 048	43	62.71
1991 ASM	31 872	59	2 000	12.70	45	71	66 140	48	56.38
1990 ASM	29 805	59	1 964	12.07	45	70	66 647	45	57.56
1989 ASM	27 974	58	1 982	11.50	42	67	65 958	42	56.96
1988 ASM	26 285	61	1 975	11.41	41	67	62 450	42	51.83
1987 Census	25 568	61	1 932	11.32	42	67	59 401	43	50.02
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.									
1992 Census	35 457	54	2 041	13.02	46	71	76 022	47	69.33
1991 ASM	33 475	55	2 011	13.33	46	73	68 161	49	61.56
1990 ASM	32 183	56	2 013	12.62	46	73	65 523	49	57.95
1989 ASM	30 907	57	2 031	12.11	45	72	65 278	47	56.02
1988 ASM	28 898	56	2 006	11.65	44	70	64 006	45	56.58
1987 Census	27 438	56	2 004	11.40	43	71	56 471	49	50.69

Note: For qualifications of data, see footnotes on table 1a.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 2
TSF:35D_92.DAT;3 3/27/95 14:40:38 UTF:35D_93.DAT;3 3/27/95 14:40:38 META:TIPS96-14402817.DAT;1 3/27/95 14:42:03

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3552, TEXTILE MACHINERY														
United States	–	**506**	**158**	**15.0**	**424.5**	**9.6**	**19.8**	**218.6**	**908.1**	**644.4**	**1 565.2**	**39.5**	**15.6**	**712.1**
California	E1	18	5	.3	6.5	.2	.4	3.6	14.2	9.8	22.7	.3	(NA)	(NA)
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	21.5
Georgia	–	55	19	1.2	32.2	.8	1.8	17.9	56.5	46.1	104.5	1.7	1.2	55.9
Illinois	–	8	2	.2	6.7	.1	.2	3.1	11.7	6.6	18.6	(D)	E	(D)
Kentucky	–	7	2	.2	4.3	.1	.3	2.6	9.9	3.2	13.1	.2	(NA)	(NA)
Massachusetts	E5	21	6	.4	13.5	.3	.6	7.0	17.7	17.9	36.2	1.4	F	(D)
Missouri	E1	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
New Jersey	E1	25	6	.5	11.6	.2	.4	5.4	26.6	17.2	43.7	.3	.4	23.3
New York	E1	33	9	.8	27.1	.5	1.1	12.9	53.7	40.3	93.1	1.7	1.0	50.5
North Carolina	–	124	49	4.4	124.9	2.8	5.8	61.9	299.8	215.8	517.5	15.3	(NA)	(D)
Ohio	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	23	7	.5	14.0	.3	.6	7.0	27.4	19.8	47.0	1.6	.6	22.6
Rhode Island	E1	14	–	.1	2.5	.1	.1	1.4	5.1	2.9	7.7	.1	(NA)	(D)
South Carolina	–	68	28	3.9	111.0	2.7	5.8	63.2	220.2	153.8	371.6	8.4	4.8	201.6
Tennessee	–	14	5	.4	14.2	.3	.6	7.1	24.8	21.3	45.8	1.0	E	(D)
INDUSTRY 3553, WOODWORKING MACHINERY														
United States	**E1**	**289**	**90**	**7.2**	**206.1**	**4.7**	**9.5**	**109.8**	**458.8**	**439.5**	**894.6**	**19.5**	**8.9**	**464.3**
Arizona	–	3	2	.1	2.2	.1	.1	1.3	3.9	2.9	6.8	.1	(NA)	(NA)
Arkansas	E1	5	4	.2	6.1	.1	.3	3.2	12.3	9.9	21.9	.6	(NA)	(D)
California	E1	26	8	.4	15.0	.3	.7	7.8	28.2	24.7	53.0	1.1	E	(D)
Illinois	E4	13	4	.3	6.7	.1	.3	2.7	14.0	7.5	21.5	(D)	E	(D)
Indiana	–	11	6	.5	15.3	.3	.5	6.4	34.5	19.5	54.3	1.5	E	(D)
Louisiana	E6	4	3	.1	3.0	.1	.2	1.7	6.1	4.8	10.8	.3	(NA)	(NA)
Michigan	E1	16	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	E	(D)
Minnesota	–	5	4	.3	9.2	.2	.3	4.2	14.0	14.3	28.8	.1	E	(D)
Mississippi	E1	8	4	.5	15.2	.4	.8	9.8	41.0	36.0	78.0	(D)	F	(D)
North Carolina	–	21	3	.5	12.5	.3	.7	7.4	39.1	41.6	80.8	.5	F	(D)
Ohio	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	41.2
Oregon	E1	33	16	1.1	32.7	.7	1.3	17.3	61.9	58.0	119.0	2.9	1.3	68.5
Pennsylvania	–	10	4	.2	4.2	.1	.2	2.5	9.2	4.0	13.8	.1	.4	14.7
Tennessee	–	6	5	.7	17.1	.5	.9	9.3	41.7	91.0	129.0	2.5	.9	43.4
Vermont	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	13	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.4	31.4
Wisconsin	–	15	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3554, PAPER INDUSTRIES MACHINERY														
United States	–	**333**	**153**	**18.2**	**651.8**	**10.2**	**21.3**	**314.3**	**1 273.8**	**1 209.8**	**2 524.2**	**65.4**	**17.1**	**1 027.0**
Alabama	E2	13	5	.3	7.7	.2	.4	4.3	14.4	12.9	27.4	.4	E	(D)
California	E2	18	1	.2	9.0	.1	.3	3.8	18.5	12.5	31.3	.2	E	(D)
Colorado	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	4	3	.2	7.1	.1	.2	3.1	15.1	6.5	20.8	(D)	(NA)	(D)
Florida	–	7	3	.2	7.6	.1	.4	3.5	14.4	14.3	27.7	(D)	.2	12.9
Georgia	E3	9	4	.3	11.9	.2	.4	4.7	20.7	33.2	56.8	1.0	(NA)	(NA)
Illinois	–	11	3	.2	7.1	.1	.2	2.6	8.2	12.0	20.3	.2	(NA)	(D)
Indiana	–	9	4	.3	9.4	.2	.4	5.3	18.5	13.6	32.1	(D)	(NA)	(D)
Kansas	–	3	3	.1	3.8	.1	.1	1.8	5.2	8.2	13.5	(D)	(NA)	(NA)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	E3	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	7	3	.4	18.5	.3	.6	10.1	32.7	38.5	70.4	.8	.3	25.9
Massachusetts	–	28	13	1.4	50.8	.7	1.6	19.8	95.1	83.0	185.3	4.4	G	(D)
Michigan	E1	11	5	.2	4.9	.1	.3	2.6	12.2	14.5	25.3	.5	E	(D)
Mississippi	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	6	3	.2	5.8	.1	.2	3.1	9.6	6.6	17.8	(D)	(NA)	(NA)
New Hampshire	E1	10	7	.9	32.4	.6	1.1	20.7	35.9	61.3	99.3	2.7	.8	31.6
New Jersey	–	14	6	1.1	50.4	.6	1.3	23.5	97.5	169.6	262.6	6.1	1.0	91.0
New York	–	30	11	1.0	34.8	.6	1.2	17.1	62.8	50.3	115.2	2.3	G	(D)
North Carolina	–	6	4	.4	15.3	.2	.3	4.4	48.7	28.5	80.0	.8	(NA)	(D)
Ohio	E1	20	11	1.1	39.0	.6	1.3	18.9	59.3	90.7	153.0	2.5	1.1	75.2
Oregon	–	7	4	.4	11.0	.2	.4	5.9	21.9	13.6	36.1	.3	.3	16.8
Pennsylvania	–	20	9	1.4	50.0	.7	1.8	23.5	86.3	55.6	144.0	2.8	2.2	125.7
Texas	–	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	14	6	.6	20.5	.4	.7	11.0	38.4	52.3	92.6	.3	.5	27.6
Wisconsin	–	40	25	6.0	219.6	3.4	6.7	107.2	481.1	335.3	831.8	31.9	5.4	342.9

See footnotes at end of table.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 3
TSF:35D_92.DAT;3 3/27/95 14:40:38 UTF:35D_93.DAT;3 3/27/95 14:40:38 META:TIPS96-14402817.DAT;1 3/27/95 14:42:03

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992											1987	
		All establishments		All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3555, PRINTING TRADES MACHINERY														
United States	–	**506**	**180**	**18.7**	**655.9**	**10.3**	**22.0**	**300.3**	**1 266.4**	**1 267.6**	**2 591.9**	**59.6**	**25.0**	**1 606.6**
Arizona	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	5.4
California	E1	49	13	1.2	42.5	.6	1.3	16.0	98.1	51.7	149.6	2.6	1.3	90.1
Connecticut	–	13	6	.5	20.2	.2	.4	6.6	56.7	35.8	68.5	.5	F	(D)
Florida	–	19	4	.4	12.8	.2	.4	4.5	24.5	20.5	43.6	(D)	.4	14.1
Georgia	E5	12	2	.1	4.2	.1	.2	2.3	8.6	6.5	15.1	.5	(NA)	(NA)
Illinois	E1	59	22	1.8	63.0	1.1	2.4	30.1	126.4	88.1	215.9	3.4	G	(D)
Indiana	–	9	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Iowa	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	8	4	.6	15.2	.3	.8	9.4	26.8	32.0	59.4	.8	.7	37.5
Massachusetts	–	25	10	1.2	43.3	.6	1.3	18.2	85.9	70.3	161.6	4.2	(NA)	(D)
Michigan	–	12	6	.6	23.0	.4	.8	11.4	28.6	39.9	69.0	8.1	.5	30.4
Minnesota	E4	15	6	.4	14.5	.2	.3	4.5	33.4	16.5	49.7	1.4	E	(D)
Missouri	–	18	7	.8	24.8	.5	1.0	12.0	51.4	39.7	89.9	2.8	.6	31.7
New Hampshire	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	34	14	1.6	61.1	.6	1.3	21.4	56.0	178.3	293.3	4.4	2.8	135.5
New York	E1	50	16	1.0	28.8	.6	1.5	15.4	61.2	44.9	105.6	1.3	G	(D)
North Carolina	–	9	4	.3	7.7	.1	.3	3.0	25.9	12.4	38.0	.9	E	(D)
Ohio	–	35	14	2.1	77.2	1.1	2.2	32.1	174.5	120.1	292.6	5.3	2.0	120.1
Oregon	E2	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Pennsylvania	–	23	8	1.1	36.9	.7	1.3	18.3	65.2	114.7	185.9	8.5	1.4	81.1
Texas	E1	21	6	.6	19.6	.4	.8	10.5	31.3	24.3	58.3	(D)	.8	58.2
Virginia	–	8	4	.3	11.1	.2	.4	6.5	22.7	16.8	38.6	(D)	E	(D)
Washington	–	7	3	.1	4.8	.1	.2	2.6	8.7	10.2	19.0	(D)	(NA)	(D)
Wisconsin	–	20	11	1.1	39.0	.7	1.4	19.5	74.2	47.4	120.1	2.9	1.0	59.6
INDUSTRY 3556, FOOD PRODUCTS MACHINERY														
United States	–	**518**	**228**	**18.8**	**605.5**	**11.1**	**22.2**	**289.9**	**1 392.1**	**1 008.4**	**2 407.2**	**46.8**	**19.2**	**1 140.5**
Alabama	E9	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	77	32	1.9	59.5	1.1	2.5	27.8	102.7	85.9	191.5	4.1	2.1	95.4
Colorado	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	20.8
Florida	E2	15	6	.6	17.0	.2	.4	4.4	38.5	13.9	53.0	2.6	.6	28.8
Georgia	–	23	11	.9	28.2	.5	1.1	13.2	78.5	60.2	139.0	1.5	1.3	86.9
Illinois	–	47	20	2.0	68.3	1.3	2.3	36.8	163.4	128.6	290.5	6.7	1.8	132.6
Indiana	–	9	5	.5	25.3	.3	.7	12.8	63.3	41.7	105.0	1.6	.8	55.4
Iowa	E1	15	10	.8	28.7	.5	.9	12.6	67.3	42.0	108.9	(D)	G	(D)
Kansas	–	12	6	.6	18.2	.3	.5	5.9	34.9	32.6	67.0	1.2	.3	17.1
Kentucky	E1	7	4	.4	13.4	.2	.3	3.8	22.4	31.7	56.5	(D)	E	(D)
Louisiana	E1	6	3	.2	4.1	.1	.2	2.8	8.8	4.6	13.2	.3	E	(D)
Maryland	–	5	3	.2	4.6	.1	.2	2.5	8.5	7.4	16.3	(D)	(NA)	(NA)
Massachusetts	–	9	2	.1	3.0	.1	.1	1.2	13.3	10.1	23.5	.7	(NA)	(NA)
Michigan	–	13	6	.5	16.3	.3	.6	7.1	35.9	29.1	69.0	(D)	.6	16.6
Minnesota	E1	23	9	.6	19.6	.4	.8	10.6	37.8	27.3	62.4	1.0	.4	17.2
Mississippi	–	3	3	.1	2.8	.1	.2	1.5	8.0	7.3	15.2	(D)	(NA)	(NA)
Missouri	–	9	3	.3	8.7	.2	.4	4.8	17.9	14.8	31.0	(D)	.4	14.8
Nebraska	–	4	3	.1	4.3	.1	.2	2.1	9.8	8.9	18.7	.3	(NA)	(NA)
New Jersey	–	18	4	.3	9.4	.1	.3	4.0	22.4	16.1	38.0	(D)	.2	9.4
New York	E1	30	9	.7	21.0	.4	.8	11.5	42.6	25.2	68.0	1.6	.8	34.0
North Carolina	–	11	7	.8	24.7	.5	1.0	11.1	62.0	52.8	112.6	1.5	F	(D)
Ohio	–	31	15	1.5	53.0	1.0	1.9	27.3	172.5	79.1	253.8	6.2	2.3	235.3
Oklahoma	–	5	3	.1	2.9	.1	.1	.9	5.5	4.3	10.0	.1	(NA)	(NA)
Oregon	E2	13	3	.2	5.2	.1	.2	2.7	11.7	6.5	17.1	(D)	.2	5.5
Pennsylvania	–	20	11	.5	16.4	.3	.7	7.8	37.4	29.0	69.6	.8	.3	15.7
Texas	E3	14	6	.4	9.8	.2	.4	4.0	18.6	15.3	34.4	(D)	F	(D)
Virginia	–	13	7	.6	18.8	.4	.7	8.5	50.2	30.3	80.5	1.0	.5	20.2
Washington	E1	14	6	.3	11.1	.2	.4	6.3	23.9	17.9	42.4	.4	.3	14.2
Wisconsin	–	34	18	2.1	68.4	1.2	2.5	35.6	106.7	111.3	219.6	5.5	2.0	94.5
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.														
United States	–	**2 557**	**814**	**81.9**	**2 903.9**	**44.0**	**89.8**	**1 168.8**	**6 226.2**	**5 146.9**	**11 297.2**	**348.1**	**83.3**	**4 704.0**
Alabama	E2	18	3	.6	17.4	.4	.7	7.1	26.3	37.3	61.1	1.4	F	(D)
Arizona	E1	28	14	1.0	31.8	.5	1.0	13.2	80.0	71.9	148.2	3.2	.7	36.5
Arkansas	–	16	5	.8	21.1	.4	.8	9.1	42.4	63.3	108.1	1.8	.8	41.3
California	–	320	101	12.5	574.5	5.3	11.2	145.7	1 377.5	845.7	2 193.4	109.6	11.2	720.2
Colorado	E1	32	5	.5	13.1	.3	.6	6.1	23.0	23.4	44.7	1.7	E	(D)
Connecticut	–	65	24	2.8	109.1	1.4	2.9	45.2	231.4	173.1	401.7	7.3	4.3	285.8
Delaware	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	69	16	1.3	39.5	.7	1.6	15.5	89.5	69.7	156.1	2.6	1.1	45.5
Georgia	E1	51	15	1.6	47.4	1.1	2.2	23.2	72.7	92.3	161.4	7.7	1.6	73.6
Idaho	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	127	47	4.5	148.3	2.7	5.2	72.8	322.9	239.7	563.1	10.8	(NA)	(D)
Indiana	–	79	22	1.8	61.5	1.2	2.7	33.7	113.8	120.2	217.0	5.6	2.7	129.0
Iowa	E1	36	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.7	F	(D)
Kansas	–	22	10	.9	28.2	.5	1.1	13.1	75.6	42.6	120.2	2.5	.9	60.5
Kentucky	E2	24	8	.6	15.4	.4	.7	7.3	26.3	29.3	54.5	(D)	.8	41.9

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.—Con.														
Louisiana	–	13	4	.5	14.8	.3	.6	7.4	23.4	21.8	49.8	.9	E	(D)
Maine	–	9	3	.2	6.3	.1	.1	1.6	16.5	22.7	38.9	.1	E	(D)
Maryland	–	19	7	.7	22.5	.4	.7	8.9	57.1	34.3	92.0	(D)	F	(D)
Massachusetts	–	117	52	5.7	227.4	2.5	5.2	83.0	480.1	367.3	855.5	30.4	6.3	351.1
Michigan	–	188	71	5.9	217.9	3.5	7.5	110.6	403.9	462.8	872.6	11.4	5.3	289.8
Minnesota	–	59	20	1.9	56.2	.9	2.1	22.9	111.2	87.3	193.4	4.9	1.1	59.7
Mississippi	E1	12	5	.6	13.1	.4	.9	8.2	43.3	24.1	65.9	(D)	E	(D)
Missouri	–	41	10	1.0	34.3	.5	1.0	12.1	92.7	51.0	143.8	3.2	.8	65.2
Nebraska	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	25.3
New Hampshire	E4	15	4	.4	11.5	.2	.3	4.2	20.9	15.0	35.9	(D)	F	(D)
New Jersey	–	141	43	3.3	122.7	1.7	3.5	51.1	225.7	193.4	431.8	5.9	5.1	266.5
New York	–	137	31	3.8	124.2	2.2	4.0	61.1	316.8	243.5	545.0	16.8	6.5	375.3
North Carolina	E1	69	26	1.4	38.9	.9	1.7	19.6	92.6	69.6	161.2	4.1	G	(D)
Ohio	E1	210	80	8.2	275.0	4.5	9.2	122.1	567.2	570.0	1 118.3	27.4	8.4	497.8
Oklahoma	–	40	15	2.0	62.1	1.0	2.0	23.2	130.1	85.5	212.7	25.5	1.3	76.3
Oregon	E2	32	6	.3	9.7	.1	.3	3.0	17.5	15.4	31.7	2.1	.4	22.0
Pennsylvania	–	134	46	4.8	158.8	2.5	5.3	66.3	302.0	322.9	622.2	12.6	4.7	217.2
Rhode Island	E3	26	4	.4	12.9	.2	.4	4.0	27.3	16.8	43.1	1.8	.5	18.9
South Carolina	E2	33	8	.8	27.5	.5	1.0	11.6	49.8	52.5	101.2	2.1	.7	30.2
Tennessee	E1	38	12	.9	26.8	.6	1.1	12.1	77.3	70.8	148.0	2.8	1.3	67.0
Texas	E1	137	32	3.5	105.3	2.2	4.4	45.6	228.9	196.2	423.0	7.7	1.9	85.5
Utah	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	9	3	.2	8.7	.1	.2	2.0	15.2	14.9	31.9	(D)	(NA)	(D)
Virginia	E1	25	10	.9	26.3	.5	1.1	13.5	55.1	39.4	96.1	1.5	.8	60.0
Washington	E1	37	8	1.4	46.7	.8	1.6	21.4	75.6	81.5	160.7	3.4	1.2	64.3
Wisconsin	E2	66	22	1.8	52.1	1.0	1.9	24.6	104.3	102.9	209.1	4.4	1.6	77.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Textile machinery (SIC 3552)	Woodworking machinery (SIC 3553)	Paper industries machinery (SIC 3554)	Printing trades machinery (SIC 3555)	Food products machinery (SIC 3556)	Special industry machinery, n.e.c. (SIC 3559)
Companies	number	480	277	298	461	495	2 469
All establishments	number	506	289	333	506	518	2 557
With 1 to 19 employees	number	348	199	180	326	290	1 743
With 20 to 99 employees	number	133	75	109	139	180	625
With 100 employees or more	number	25	15	44	41	48	189
Employment and labor costs:							
Employees	1,000	15.0	7.2	18.2	18.7	18.8	81.9
Compensation, total	mil dol	525.1	261.2	815.0	808.7	757.2	3 587.2
Annual payroll	mil dol	424.5	206.1	651.8	655.9	605.5	2 903.9
Fringe benefits	mil dol	100.5	55.0	163.2	152.8	151.7	683.3
Social Security and other legally required payments	mil dol	43.7	23.1	64.3	60.1	55.0	267.8
Employer voluntary payments	mil dol	56.8	31.9	98.9	92.7	96.7	415.5
Production workers:							
Average for year	1,000	9.6	4.7	10.2	10.3	11.1	44.0
March	1,000	9.6	4.6	10.2	10.8	11.1	44.1
May	1,000	9.6	4.7	10.1	10.5	11.1	44.2
August	1,000	9.6	4.8	10.3	10.1	11.2	44.4
November	1,000	9.5	4.7	10.2	10.0	11.0	43.5
Hours	millions	19.8	9.5	21.3	22.0	22.2	89.8
Wages	mil dol	218.6	109.8	314.3	300.3	289.9	1 168.8
Cost of materials[1]	mil dol	644.4	439.5	1 209.8	1 267.6	1 008.4	5 146.9
Materials, parts, containers, etc., consumed[2]	mil dol	509.1	334.0	968.1	1 078.7	834.3	4 299.3
Resales	mil dol	93.2	86.6	126.1	125.7	116.3	383.2
Fuels	mil dol	4.0	1.9	6.7	4.3	5.3	22.9
Purchased electricity	mil dol	16.5	7.6	16.6	16.4	12.8	83.5
Contract work	mil dol	21.6	9.4	92.4	42.5	39.6	357.9
Quantity of electric energy used for heat and power:							
Purchased	mil kWh	292.6	132.6	263.6	255.0	209.4	1 193.8
Generated less sold	mil kWh	–	–	–	–	–	(D)
Total value of shipments	mil dol	1 565.2	894.6	2 524.2	2 591.9	2 407.2	11 297.2
Value added	mil dol	908.1	458.8	1 273.8	1 266.4	1 392.1	6 226.2

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Textile machinery (SIC 3552)	Woodworking machinery (SIC 3553)	Paper industries machinery (SIC 3554)	Printing trades machinery (SIC 3555)	Food products machinery (SIC 3556)	Special industry machinery, n.e.c. (SIC 3559)
Inventories by stage of fabrication:						
Beginning of 1992 ---mil dol---	381.4	151.9	564.4	825.7	479.9	2 348.7
Finished goods ---mil dol---	129.9	62.9	139.5	143.7	149.2	577.4
Work in process ---mil dol---	119.1	51.6	269.8	360.8	141.8	965.5
Materials and supplies ---mil dol---	132.3	37.3	155.0	321.2	188.9	805.8
End of 1992 ---mil dol---	388.7	158.1	527.7	729.6	482.0	2 456.5
Finished goods ---mil dol---	111.9	63.8	138.3	166.4	143.1	590.3
Work in process ---mil dol---	124.4	54.5	230.6	280.1	141.1	1 028.4
Materials and supplies ---mil dol---	152.3	39.8	158.8	283.0	197.8	837.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Textile machinery (SIC 3552)	Woodworking machinery (SIC 3553)	Paper industries machinery (SIC 3554)	Printing trades machinery (SIC 3555)	Food products machinery (SIC 3556)	Special industry machinery, n.e.c. (SIC 3559)
Gross book value of depreciable assets:						
Total:						
Beginning of year	465.7	225.4	771.3	916.1	594.0	2 904.4
New capital expenditures[1]	39.5	19.5	65.4	59.6	46.8	348.1
Used capital expenditures	3.1	1.5	5.1	4.0	3.3	24.8
Retirements	17.2	5.7	17.2	27.2	15.9	156.2
End of year	491.0	240.7	824.7	952.5	628.2	3 121.1
Buildings and other structures:						
Beginning of year	120.4	57.5	217.0	242.6	181.7	866.0
New capital expenditures	6.1	3.1	14.3	7.7	8.1	88.2
Used capital expenditures	.3	.1	1.1	.8	.5	4.9
Retirements	1.3	.2	1.5	2.3	1.6	25.5
End of year	125.5	60.4	230.9	248.8	188.7	933.5
Machinery and equipment:						
Beginning of year	345.3	167.9	554.3	673.5	412.2	2 038.4
New capital expenditures[1]	33.4	16.4	51.1	52.0	38.7	259.9
Used capital expenditures	2.7	1.5	4.0	3.2	2.8	19.9
Retirements	15.9	5.5	15.6	24.9	14.3	130.7
End of year	365.5	180.3	593.8	703.7	439.4	2 187.6
Depreciation charges during 1992:						
Total	35.5	16.0	75.0	62.9	41.2	214.7
Buildings and other structures	5.3	2.5	13.2	9.1	7.3	44.4
Machinery and equipment	30.2	13.4	61.8	53.9	33.9	170.2
Rental payments:						
Total	20.3	13.2	27.1	37.4	26.5	173.7
Buildings and other structures	12.5	8.9	14.9	24.7	16.3	101.5
Machinery and equipment	7.8	4.3	12.2	12.8	10.3	72.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Textile machinery (SIC 3552)		Woodworking machinery (SIC 3553)		Paper industries machinery (SIC 3554)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.4	(X)	1.0	(X)	3.0	(X)
Response coverage ratio (percent)[2]	71.7	(X)	61.9	(X)	80.0	(X)
Machinery	3.7	(X)	3.5	(X)	10.9	(X)
Response coverage ratio (percent)[2]	71.7	(X)	64.7	(X)	79.2	(X)
Other purchased services:						
Communications	5.8	(X)	3.2	(X)	6.6	(X)
Response coverage ratio (percent)[2]	66.1	(X)	72.9	(X)	80.4	(X)
Legal	5.9	(X)	3.4	(X)	5.6	(X)
Response coverage ratio (percent)[2]	70.0	(X)	64.7	(X)	82.2	(X)
Accounting and bookkeeping	2.4	(X)	1.2	(X)	3.0	(X)
Response coverage ratio (percent)[2]	60.3	(X)	62.3	(X)	80.6	(X)
Advertising	4.7	(X)	8.7	(X)	5.4	(X)
Response coverage ratio (percent)[2]	62.8	(X)	72.9	(X)	80.1	(X)
Software and other data processing	1.7	(X)	.4	(X)	4.4	(X)
Response coverage ratio (percent)[2]	66.4	(X)	64.7	(X)	81.0	(X)
Refuse removal, including hazardous waste	1.0	(X)	.5	(X)	1.8	(X)
Response coverage ratio (percent)[2]	69.8	(X)	64.7	(X)	81.0	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Textile machinery (SIC 3552)		Woodworking machinery (SIC 3553)		Paper industries machinery (SIC 3554)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	33.4	(X)	16.4	(X)	51.1	(X)
Automobiles, trucks, etc., for highway use	1.3	18	.9	46	1.1	49
Computers and peripheral data processing equipment	4.8	8	2.9	34	9.2	19
All other	27.3	3	12.6	11	40.7	6
Adjustment ratio[3]	1.4	(X)	1.1	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	509.1	(X)	334.0	(X)	968.1	(X)
Materials purchased or transferred from foreign sources[4]	49.3	21	(S)	(X)	249.3	20
Materials purchased or transferred from domestic sources	459.7	3	(S)	(X)	718.9	8
Adjustment ratio[3]	1.9	(X)	(S)	(X)	1.5	(X)

Item	Printing trades machinery (SIC 3555)		Food products machinery (SIC 3556)		Special industry machinery, n.e.c. (SIC 3559)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.8	(X)	3.9	(X)	17.1	(X)
Response coverage ratio (percent)[2]	61.0	(X)	67.6	(X)	83.1	(X)
Machinery	5.7	(X)	12.4	(X)	45.0	(X)
Response coverage ratio (percent)[2]	63.3	(X)	67.7	(X)	84.1	(X)
Other purchased services:						
Communications	10.8	(X)	7.8	(X)	43.1	(X)
Response coverage ratio (percent)[2]	66.4	(X)	67.7	(X)	81.6	(X)
Legal	9.5	(X)	8.5	(X)	38.9	(X)
Response coverage ratio (percent)[2]	66.6	(X)	67.2	(X)	82.8	(X)
Accounting and bookkeeping	3.5	(X)	4.1	(X)	13.7	(X)
Response coverage ratio (percent)[2]	63.1	(X)	64.3	(X)	81.4	(X)
Advertising	9.4	(X)	16.2	(X)	47.6	(X)
Response coverage ratio (percent)[2]	64.7	(X)	67.6	(X)	84.3	(X)
Software and other data processing	3.9	(X)	2.0	(X)	14.4	(X)
Response coverage ratio (percent)[2]	59.1	(X)	66.5	(X)	79.3	(X)
Refuse removal, including hazardous waste	1.2	(X)	1.6	(X)	8.3	(X)
Response coverage ratio (percent)[2]	61.0	(X)	65.0	(X)	81.3	(X)
New machinery and equipment expenditures	52.0	(X)	38.7	(X)	259.9	(X)
Automobiles, trucks, etc., for highway use	1.7	30	2.0	19	11.0	20
Computers and peripheral data processing equipment	10.4	9	10.1	18	49.1	6
All other	39.9	3	26.6	7	199.8	3
Adjustment ratio[3]	1.4	(X)	1.5	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	1 078.7	(X)	834.3	(X)	4 299.3	(X)
Materials purchased or transferred from foreign sources[4]	80.3	17	54.9	23	247.8	10
Materials purchased or transferred from domestic sources	998.5	2	779.5	3	4 051.4	1
Adjustment ratio[3]	1.7	(X)	1.9	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3552, TEXTILE MACHINERY												
Total	–	**506**	**15.0**	**424.5**	**9.6**	**19.8**	**218.6**	**908.1**	**644.4**	**1 565.2**	**39.5**	**388.7**
Establishments with an average of–												
1 to 4 employees	E8	156	.3	6.8	.2	.4	3.5	13.4	10.7	23.8	.6	5.5
5 to 9 employees	E3	106	.7	16.7	.5	1.0	9.2	31.2	27.2	58.3	.8	12.2
10 to 19 employees	E1	86	1.2	29.6	.8	1.5	15.8	58.9	40.1	98.2	2.2	17.3
20 to 49 employees	–	88	2.8	81.2	1.9	4.0	42.7	152.7	120.8	271.6	6.5	61.8
50 to 99 employees	–	45	3.1	95.8	1.9	4.3	46.5	181.7	177.1	355.0	10.1	93.0
100 to 249 employees	–	17	2.7	75.4	1.5	2.9	34.1	199.4	136.2	338.4	7.3	93.5
250 to 499 employees	–	4	1.3	35.8	.9	2.0	20.4	82.2	42.0	124.6	3.3	30.4
500 to 999 employees	–	4	2.8	83.2	1.7	3.7	46.4	188.7	90.3	295.3	8.7	75.0
Covered by administrative records[2]	E9	194	.6	11.7	.4	.8	6.1	20.8	17.0	37.8	1.0	9.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3553, WOODWORKING MACHINERY												
Total	**E1**	**289**	**7.2**	**206.1**	**4.7**	**9.5**	**109.8**	**458.8**	**439.5**	**894.6**	**19.5**	**158.1**
Establishments with an average of—												
1 to 4 employees	E9	101	.2	3.9	.1	.2	2.0	9.7	9.1	18.9	.5	3.7
5 to 9 employees	E3	51	.3	7.7	.2	.4	4.4	16.8	12.8	29.1	.4	5.3
10 to 19 employees	E1	47	.7	19.3	.4	.9	10.5	39.5	33.1	72.4	1.1	12.1
20 to 49 employees	E2	50	1.6	47.0	1.0	2.0	23.4	89.2	75.6	164.6	4.8	36.8
50 to 99 employees	E1	25	1.7	51.1	1.1	2.3	26.8	104.5	72.2	177.5	3.2	34.1
100 to 249 employees	–	13	2.8	77.2	1.8	3.6	42.8	199.1	236.7	432.1	9.6	66.0
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	111	.3	5.3	.2	.4	2.7	12.8	12.3	25.1	.6	5.0
INDUSTRY 3554, PAPER INDUSTRIES MACHINERY												
Total	**–**	**333**	**18.2**	**651.8**	**10.2**	**21.3**	**314.3**	**1 273.8**	**1 209.8**	**2 524.2**	**65.4**	**527.7**
Establishments with an average of—												
1 to 4 employees	E8	68	.1	3.8	.1	.2	2.3	8.3	9.5	17.8	.6	3.2
5 to 9 employees	E6	53	.4	10.2	.2	.4	5.1	20.6	23.5	45.5	.6	8.2
10 to 19 employees	E2	59	.8	22.8	.5	1.1	12.5	43.4	46.1	89.1	2.0	15.8
20 to 49 employees	E1	69	2.1	66.3	1.2	2.5	31.2	133.3	122.4	260.8	3.6	41.9
50 to 99 employees	–	40	2.7	95.0	1.7	3.6	50.3	203.2	165.5	369.3	9.4	71.6
100 to 249 employees	–	27	4.1	155.0	2.2	5.1	70.7	274.3	236.9	523.9	12.4	94.8
250 to 499 employees	–	13	4.6	173.8	2.5	5.2	84.8	375.0	433.2	819.2	28.6	214.9
500 to 999 employees	–	3	3.4	124.8	1.7	3.3	57.4	215.7	172.8	398.6	8.3	77.4
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	101	.4	9.5	.3	.6	5.3	16.2	21.7	37.9	.7	7.2
INDUSTRY 3555, PRINTING TRADES MACHINERY												
Total	**–**	**506**	**18.7**	**655.9**	**10.3**	**22.0**	**300.3**	**1 266.4**	**1 267.6**	**2 591.9**	**59.6**	**729.6**
Establishments with an average of—												
1 to 4 employees	E6	134	.2	6.5	.1	.3	3.3	16.7	16.5	33.3	.7	9.9
5 to 9 employees	E6	93	.6	18.2	.4	.8	9.3	29.4	29.4	58.4	1.3	20.6
10 to 19 employees	E2	99	1.4	44.1	.8	1.8	22.0	92.2	73.7	165.9	3.6	39.9
20 to 49 employees	E1	93	2.8	94.4	1.7	3.9	45.6	199.8	141.4	342.2	7.9	75.8
50 to 99 employees	–	46	3.3	112.9	1.9	4.1	50.3	243.8	177.3	418.2	12.9	90.3
100 to 249 employees	–	29	4.4	154.4	2.5	5.0	71.7	281.4	317.5	633.1	8.9	212.8
250 to 499 employees	–	8	3.0	110.3	1.6	3.4	50.0	204.4	178.0	389.8	14.7	110.7
500 to 999 employees	–	4	2.9	115.0	1.3	2.6	48.0	198.8	333.9	551.1	9.6	169.5
Covered by administrative records[2]	E9	191	.8	20.2	.5	1.0	10.3	29.8	33.3	63.1	1.5	19.3
INDUSTRY 3556, FOOD PRODUCTS MACHINERY												
Total	**–**	**518**	**18.8**	**605.5**	**11.1**	**22.2**	**289.9**	**1 392.1**	**1 008.4**	**2 407.2**	**46.8**	**482.0**
Establishments with an average of—												
1 to 4 employees	E8	109	.2	5.9	.1	.3	2.9	14.7	10.0	24.8	.5	4.8
5 to 9 employees	E4	75	.5	15.4	.3	.6	6.9	33.6	24.1	57.6	1.0	10.8
10 to 19 employees	E1	106	1.5	43.3	1.0	1.9	22.3	97.1	77.5	172.0	4.4	38.7
20 to 49 employees	–	136	4.3	129.6	2.6	5.4	63.9	274.2	203.6	478.0	7.0	85.9
50 to 99 employees	–	44	3.0	95.3	1.8	3.7	48.2	210.4	161.6	377.6	6.4	68.9
100 to 249 employees	–	40	6.1	211.2	3.3	6.6	89.0	496.6	357.6	851.0	17.8	194.5
250 to 499 employees	–	6	3.1	104.8	1.9	3.7	56.7	265.5	174.1	446.2	9.7	78.5
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	133	.5	10.5	.3	.6	4.9	21.9	16.8	38.6	.9	8.2
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.												
Total	**–**	**2 557**	**81.9**	**2 903.9**	**44.0**	**89.8**	**1 168.8**	**6 226.2**	**5 146.9**	**11 297.2**	**348.1**	**2 456.5**
Establishments with an average of—												
1 to 4 employees	E8	839	1.4	41.6	.9	1.8	17.2	83.4	74.2	157.5	4.0	34.7
5 to 9 employees	E3	472	3.1	84.8	1.8	3.5	36.7	178.8	149.6	327.4	6.1	63.3
10 to 19 employees	E1	432	6.1	181.4	3.7	6.8	81.1	357.5	295.7	649.8	13.4	123.0
20 to 49 employees	E1	414	12.7	412.1	7.4	15.1	187.1	789.7	680.1	1 456.4	37.6	293.7
50 to 99 employees	E1	211	14.7	492.4	8.3	17.5	217.5	985.3	909.1	1 896.8	36.6	396.1
100 to 249 employees	–	137	20.4	713.6	10.9	22.7	305.6	1 476.9	1 301.1	2 780.1	84.6	640.3
250 to 499 employees	–	39	13.3	492.9	6.7	13.6	199.7	1 132.3	871.2	1 981.4	47.8	428.9
500 to 999 employees	–	11	10.2	485.1	4.4	8.8	123.8	1 222.4	865.8	2 048.0	118.0	476.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	993	2.7	63.6	1.7	3.3	26.5	117.4	104.9	222.3	6.4	50.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3552	**Textile machinery:**										
	All establishments in industry	506	15.0	424.5	9.6	19.8	218.6	908.1	644.4	1 565.2	39.5
	Establishments with this product class primary:										
35521	Textile machinery, except parts, attachments, and accessories	131	7.0	210.8	4.1	8.5	100.9	480.3	390.5	885.3	18.8
35522	Parts and attachments for textile machinery	116	5.9	163.3	4.1	8.6	91.6	329.7	180.1	509.9	15.8
3553	**Woodworking machinery:**										
	All establishments in industry	289	7.2	206.1	4.7	9.5	109.8	458.8	439.5	894.6	19.5
	Establishments with this product class primary:										
35533	Woodworking machinery, including parts, attachments, and accessories	124	5.1	156.3	3.3	6.7	83.1	314.3	243.1	557.6	11.9
35534	Woodworking machinery for home workshops, garages, service shops	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3554	**Paper industries machinery:**										
	All establishments in industry	333	18.2	651.8	10.2	21.3	314.3	1 273.8	1 209.8	2 524.2	65.4
	Establishments with this product class primary:										
35543	Paper industries machinery	129	13.4	486.2	7.5	15.5	238.4	929.2	954.0	1 915.0	52.7
35544	Parts and attachments for paper industries machinery (sold separately)	53	3.3	121.2	1.7	3.7	50.8	263.0	160.7	431.5	9.5
3555	**Printing trades machinery:**										
	All establishments in industry	506	18.7	655.9	10.3	22.0	300.3	1 266.4	1 267.6	2 591.9	59.6
	Establishments with this product class primary:										
35551	Printing presses, offset lithographic	29	4.2	161.7	2.4	5.1	82.2	251.1	493.3	804.5	17.2
35552	Printing presses, other than lithographic	25	2.5	90.0	1.3	2.7	38.8	196.4	154.5	342.6	8.3
35553	Typesetting machinery, excluding justifying typewriters	4	1.3	47.8	.4	.8	12.5	73.2	72.8	153.4	4.8
35556	Binding machinery and equipment, including paper cutting and collating or gathering machines	24	1.4	48.0	.9	1.7	22.6	96.6	86.4	185.0	3.0
35558	Printing trades machinery, n.e.c.	141	6.6	229.2	3.7	8.1	102.6	513.4	327.6	837.7	20.2
3556	**Food products machinery:**										
	All establishments in industry	518	18.8	605.5	11.1	22.2	289.9	1 392.1	1 008.4	2 407.2	46.8
	Establishments with this product class primary:										
35561	Dairy and milk products plant machinery and equipment, except bottling and packaging	25	2.4	81.9	1.6	3.0	48.1	159.3	160.7	318.3	5.9
35562	Commercial food products machinery, except packaging machinery and food cooking and warming equipment	96	5.5	185.1	3.3	6.8	90.2	488.2	323.2	814.3	12.1
35563	Industrial machinery and equipment for manufacturing or processing foods, beverages, and animal or fowl feed	180	7.9	259.2	4.5	9.1	116.1	549.6	390.9	947.3	20.8
3559	**Special industry machinery, n.e.c.:**										
	All establishments in industry	2 557	81.9	2 903.9	44.0	89.8	1 168.8	6 226.2	5 146.9	11 297.2	348.1
	Establishments with this product class primary:										
35591	Chemical manufacturing machinery, equipment, and parts	99	6.5	234.1	3.4	7.0	101.1	430.5	426.0	865.9	19.8
35592	Foundry machinery and equipment, excluding patterns and molds	61	2.9	95.7	1.5	3.0	38.7	197.0	173.0	365.6	5.3
35593	Plastics working machinery and equipment, excluding patterns and molds	175	11.4	396.9	6.3	13.2	183.9	871.4	813.4	1 681.3	25.4
35594	Rubber working machinery and equipment, excluding tire molds	33	1.4	44.8	.8	1.8	22.1	80.5	97.1	176.5	4.9
35595	Printed circuit board manufacturing machinery, except testing	72	4.7	140.6	2.8	6.2	67.6	287.3	229.5	514.5	13.1
35596	Semiconductor manufacturing equipment (except furnaces and ovens, instruments and photographics)	115	12.3	595.5	4.5	9.5	143.5	1 463.9	964.3	2 374.9	116.1
35597	Automotive maintenance equipment, except handtools	45	2.7	81.4	1.6	3.0	35.9	271.3	203.9	475.9	12.3
35598	Special industry machinery and equipment, n.e.c.	538	24.3	832.1	14.0	28.0	372.1	1 751.1	1 465.2	3 195.7	107.1

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3552, TEXTILE MACHINERY			
Total value of shipments	1 565.2	1 240.7	1 059.0
Primary products value of shipments	1 298.5	1 064.9	922.6
Secondary products value of shipments	15.2	39.4	42.0
Total miscellaneous receipts	251.6	136.4	94.4
Value of resales	120.6	77.7	38.7
Contract receipts	13.7	17.0	29.9
Other miscellaneous receipts	117.3	41.7	25.8
Receipts for installation (or construction) of products of this establishment	12.3	9.7	6.4
Receipts for repair work	38.7	18.2	8.1
Other miscellaneous receipts	58.2	13.8	11.3
Other miscellaneous receipts, n.s.k.	8.0	–	–
Primary products specialization ratio	99	96	96
Value of primary products shipments made in all industries	1 327.6	1 104.2	965.5
Value of primary products shipments made in this industry	1 298.5	1 064.9	922.6
Value of primary products shipments made in other industries	29.1	39.2	43.0
Coverage ratio	98	96	95
INDUSTRY 3553, WOODWORKING MACHINERY			
Total value of shipments	894.6	884.3	(NA)
Primary products value of shipments	723.1	722.8	(NA)
Secondary products value of shipments	35.1	72.5	(NA)
Total miscellaneous receipts	136.4	89.1	(NA)
Value of resales	110.1	70.0	(NA)
Contract receipts	10.3	6.5	(NA)
Other miscellaneous receipts	16.0	12.6	(NA)
Sales of scrap and refuse	(D)	.3	(NA)
Receipts for installation (or construction) of products of this establishment	4.4	2.4	(NA)
Receipts for repair work	(D)	4.5	(NA)
Other miscellaneous receipts	3.5	5.4	(NA)
Other miscellaneous receipts, n.s.k.	.3	–	(NA)
Primary products specialization ratio	95	91	(NA)
Value of primary products shipments made in all industries	775.3	793.4	(NA)
Value of primary products shipments made in this industry	723.1	722.8	(NA)
Value of primary products shipments made in other industries	52.2	70.6	(NA)
Coverage ratio	93	91	(NA)
INDUSTRY 3554, PAPER INDUSTRIES MACHINERY			
Total value of shipments	2 524.2	1 867.1	1 387.4
Primary products value of shipments	2 079.4	1 466.2	1 112.6
Secondary products value of shipments	180.8	155.1	138.3
Total miscellaneous receipts	264.0	245.8	136.5
Value of resales	157.0	168.0	72.1
Contract receipts	21.2	18.1	22.1
Other miscellaneous receipts	85.8	59.8	42.3
Receipts for repair work	41.9	47.2	21.1
Other miscellaneous receipts	39.4	12.6	16.7
Other miscellaneous receipts, n.s.k.	4.5	–	4.5
Primary products specialization ratio	92	90	89
Value of primary products shipments made in all industries	2 229.8	1 580.7	1 199.0
Value of primary products shipments made in this industry	2 079.4	1 466.2	1 112.6
Value of primary products shipments made in other industries	150.5	114.5	86.4
Coverage ratio	93	93	93
INDUSTRY 3555, PRINTING TRADES MACHINERY			
Total value of shipments	2 591.9	2 857.8	(NA)
Primary products value of shipments	2 179.7	2 389.9	(NA)
Secondary products value of shipments	123.9	96.7	(NA)
Total miscellaneous receipts	288.3	371.3	(NA)
Value of resales	182.6	224.6	(NA)
Contract receipts	9.5	6.4	(NA)
Other miscellaneous receipts	96.1	140.2	(NA)
Receipts for installation (or construction) of products of this establishment	22.2	24.6	(NA)
Receipts for repair work	29.6	81.4	(NA)
Other miscellaneous receipts	41.7	34.2	(NA)
Other miscellaneous receipts, n.s.k.	2.6	–	(NA)
Primary products specialization ratio	95	96	(NA)
Value of primary products shipments made in all industries	2 301.3	2 554.3	(NA)
Value of primary products shipments made in this industry	2 179.7	2 389.9	(NA)
Value of primary products shipments made in other industries	121.6	164.4	(NA)
Coverage ratio	95	94	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3556, FOOD PRODUCTS MACHINERY			
Total value of shipments	2 407.2	1 971.4	(NA)
Primary products value of shipments	1 921.4	1 586.5	(NA)
Secondary products value of shipments	238.0	254.5	(NA)
Total miscellaneous receipts	247.9	130.5	(NA)
Value of resales	162.8	89.4	(NA)
Contract receipts	6.6	12.2	(NA)
Other miscellaneous receipts	78.5	28.8	(NA)
Sales of scrap and refuse	.9	.4	(NA)
Receipts for installation (or construction) of products of this establishment	24.6	10.5	(NA)
Receipts for repair work	23.1	7.0	(NA)
Other miscellaneous receipts	14.8	10.9	(NA)
Other miscellaneous receipts, n.s.k.	15.1	–	(NA)
Primary products specialization ratio	89	86	(NA)
Value of primary products shipments made in all industries	2 113.3	1 735.2	(NA)
Value of primary products shipments made in this industry	1 921.4	1 586.5	(NA)
Value of primary products shipments made in other industries	191.9	148.7	(NA)
Coverage ratio	91	91	(NA)
INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.			
Total value of shipments	11 297.2	8 274.7	(NA)
Primary products value of shipments	9 818.8	7 216.0	(NA)
Secondary products value of shipments	591.5	495.6	(NA)
Total miscellaneous receipts	886.9	563.1	(NA)
Value of resales	538.1	371.5	(NA)
Contract receipts	95.4	90.7	(NA)
Other miscellaneous receipts	253.5	100.9	(NA)
Sales of scrap and refuse	2.5	.9	(NA)
Receipts for installation (or construction) of products of this establishment	36.9	20.7	(NA)
Receipts for repair work	40.0	32.0	(NA)
Other miscellaneous receipts	167.2	47.3	(NA)
Other miscellaneous receipts, n.s.k.	6.9	–	(NA)
Primary products specialization ratio	94	94	(NA)
Value of primary products shipments made in all industries	10 534.9	7 951.0	(NA)
Value of primary products shipments made in this industry	9 818.8	7 216.0	(NA)
Value of primary products shipments made in other industries	716.0	735.0	(NA)
Coverage ratio	93	91	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3552– —	**TEXTILE MACHINERY**						
	Total	**(NA)**	**(X)**	**1 327.6**	**(NA)**	**(X)**	**1 104.2**
35521	Textile machinery, except parts, attachments, and accessories	(NA)	(X)	697.0	(NA)	(X)	515.4
	Fiber-to-fabrics textile machinery:						
35521 15	Cleaning and opening machinery, including picker, garnetting, and other	11	(X)	27.2	6	(X)	14.4
35521 25	Carding machines and combing machines	5	(X)	5.9	5	(X)	20.7
35521 36	Drawing and roving frames number	2	(D)	(D)	2	(D)	(D)
	Spinning and twisting frames:						
35521 38	Frames number	2	(D)	(D)	3	(D)	(D)
	Yarn preparing machines:						
35521 51	Winding machines (skein, spool, bobbin, quill, cone, etc.)	9	(X)	25.3	6	(X)	14.5
35521 53	Other yarn preparing machines (beaming, warping, warp tying, warp drawing in, slashing, etc.)	9	(X)	18.2	9	(X)	38.3
35521 57	Other fiber-to-fabrics machinery, including machines for extruding, drawing, or cutting manmade textile fibers	11	(X)	44.1	(NA)	(X)	84.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3552– —	**TEXTILE MACHINERY**—Con.						
35521	Textile machinery, except parts, attachments, and accessories—Con.						
	Fabrics machinery:						
35521 67	Weaving machinery, power-driven (including machinery for broad and narrow fabrics), shuttle and shuttleless	5	(X)	10.0	(NA)	(X)	(D)
35521 71	Knitting machinery	5	(X)	(D)	5	(X)	36.8
35521 81	Other fabrics machinery, including lace, embroidery, braiding, and tufting machinery and hand looms	15	(X)	69.2	15	(X)	51.1
35521 82	Bleaching, mercerizing, and dyeing machinery	8	(X)	73.6	8	(X)	48.9
35521 83	Printing machinery	12	(X)	31.1	7	(X)	18.5
35521 86	Finishing machinery, including calendering or rolling machines	20	(X)	65.9	(NA)	(X)	57.5
35521 87	Machinery for drying stocks, yarns, cloth, carpet, nonwoven, etc.	16	(X)	56.4	18	(X)	34.1
35521 98	Other textile industries machinery, n.e.c. (except parts, attachments, and accessories)	44	(X)	173.1	31	(X)	62.5
35521 00	Textile machinery, except parts, attachments, and accessories, n.s.k.	(NA)	(X)	16.3	(NA)	(X)	19.2
35522	Parts and attachments for textile machinery	(NA)	(X)	473.8	(NA)	(X)	433.9
35522 11	Textile machinery turnings and shapes (bobbins, shuttles, spools, picker sticks, cops, etc.)	23	(X)	46.2	15	(X)	36.8
	Parts and attachments:						
	Fiber-to-fabrics machinery:						
35522 22	Card clothing	8	(X)	22.8	8	(X)	34.0
35522 31	Other fiber-to-fabrics machinery, except card clothing	31	(X)	85.1	35	(X)	112.7
35522 43	Weaving machines, including broad and narrow fabrics	17	(X)	77.4	19	(X)	67.9
35522 45	Knitting machines, excluding needles	17	(X)	31.5	16	(X)	22.5
35522 74	Finishing machinery	20	(X)	33.2	28	(X)	39.7
35522 79	Other textile machinery, including printing	86	(X)	162.7	67	(X)	91.5
35522 00	Parts and attachments for textile machinery, n.s.k.	(NA)	(X)	14.8	(NA)	(X)	28.8
35520	Textile machinery, n.s.k.	(NA)	(X)	156.9	(NA)	(X)	154.9
35520 00	Textile machinery, n.s.k.[3]	(NA)	(X)	119.4	(NA)	(X)	108.9
35520 02	Textile machinery, n.s.k.[4]	(NA)	(X)	37.5	(NA)	(X)	46.0
3553– —	**WOODWORKING MACHINERY**						
	Total	**(NA)**	**(X)**	**775.3**	**(NA)**	**(X)**	**793.4**
35533	Woodworking machinery, including parts, attachments, and accessories	(NA)	(X)	479.0	(NA)	(X)	476.0
	Sawmill equipment:						
	Saws (head rigs):						
35533 11	Circular	13	(X)	17.7	9	(X)	10.8
35533 13	Band	11	(X)	43.9	8	(X)	20.2
35533 15	Other sawmill equipment, except saws (head rigs)	26	(X)	75.7	21	(X)	80.1
35533 19	Sawing machines, except sawmill equipment	18	(X)	44.7	19	(X)	64.3
35533 21	Planing machinery, including single and double planers, facers, jointers, and abrasive planers	7	(X)	11.4	13	(X)	27.4
35533 23	Sanding machines	14	(X)	24.9	11	(X)	28.9
35533 25	Boring machines	4	(X)	2.8	3	(X)	2.1
35533 27	Mortising and tenoning machines	4	(X)	([5])	5	(X)	6.3
35533 29	Lathes or turning machines	5	(X)	3.5	(NA)	(X)	33.6
35533 33	Routers	9	(X)	26.8	5	(X)	8.4
35533 34	Shapers and profilers	9	(X)	9.8	(NA)	(X)	([6])
35533 35	Assembling, gluing, laminating, and finishing machines	15	(X)	23.1	10	(X)	18.9
35533 37	Multifunction machines	5	(X)	4.5	6	(X)	14.3
35533 38	Other woodworking machines and equipment, including moulders	31	(X)	[5]64.9	34	(X)	[6]92.4
35533 87	Parts, attachments, and accessories for woodworking machinery (sold separately), excluding saw blades and cutting tools	61	(X)	120.1	55	(X)	62.7
35533 00	Woodworking machinery, including parts, attachments, and accessories, n.s.k.	(NA)	(X)	5.1	(NA)	(X)	5.6
35534	Woodworking machinery for home workshops, garages, service shops	(NA)	(X)	181.6	(NA)	(X)	199.1
35534 12	Saws, including circular and band saws, excluding chain saws — thousands	6	541.2	125.8	(NA)	779.2	123.1
35534 13	Other woodworking machines and equipment, designed primarily for home workshops, etc., except power-driven handtools	5	(X)	34.6	(NA)	(X)	42.9
35534 11	Parts, attachments, and accessories for woodworking machinery designed for home workshops, etc. (sold separately)	7	(X)	18.8	6	(X)	28.3
35534 00	Woodworking machinery for home workshops, garages, service shops, n.s.k.	(NA)	(X)	2.4	(NA)	(X)	4.7
35530	Woodworking machinery, n.s.k.	(NA)	(X)	114.7	(NA)	(X)	118.3
35530 00	Woodworking machinery, n.s.k.[3]	(NA)	(X)	89.6	(NA)	(X)	82.2
35530 02	Woodworking machinery, n.s.k.[4]	(NA)	(X)	25.1	(NA)	(X)	36.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3554– —	**PAPER INDUSTRIES MACHINERY**				
	Total	**(NA)**	**2 229.8**	**(NA)**	**1 580.7**
35543	Paper industries machinery	(NA)	1 375.4	(NA)	936.1
35543 01	Wood preparation equipment, including debarkers, chippers, knotters, splitters, chipscreens, etc.	12	42.1	5	52.8
	Pulp mill machinery:				
35543 02	Grinders and refiners (TMP) for the manufacture of mechanical pulp	3	(D)	4	18.8
35543 03	Digesters and other equipment for the manufacture of chemical pulp	2	(D)	5	24.1
35543 04	Deckers, thickeners, wet lap machines, bleaching equipment, pulp screens, washers, and save-alls	8	72.6	6	23.2
35543 05	Other pulp mill machinery	5	34.4	11	22.3
	Paper mill machinery:				
35543 09	Stock preparation equipment: refiners (chip, conical, deflaker, disk, etc.), pulpers, beaters, jordans, etc.	9	70.9	7	34.0
	Paper machines:				
35543 11	Paper making machines, including headbox forming area, presses, dryers, and reels	18	230.7	11	158.7
35543 12	Coating machines, including equipment for applying sizing or pigment coating to paper	14	34.4	6	16.0
35543 13	Calendering and similar rolling machines for finishing paper	7	29.7	8	38.1
35543 14	Machines for finishing paper, except calendering or similar rolling	24	125.6	13	66.4
35543 15	Other paper machines	20	112.9	6	36.8
	Paper and paperboard converting equipment:				
35543 21	Cutting machines, except sheeters and winders	16	32.6	12	24.7
35543 22	Machines for making bags, sacks, or envelopes	3	(D)	6	19.7
35543 23	Corrugated box making machines	17	178.1	12	71.6
35543 24	Machines for making cartons, boxes, cases, tubes, drums, or similar containers, except by molding	7	(D)	(NA)	(7)
35543 25	Machines for molding articles in paper pulp, paper, or paperboard	3	13.8	(NA)	791.8
35543 26	Other paper and paperboard converting equipment (folding, gluing, laminating, gumming, scoring, sandpapering, etc.)	39	172.2	40	201.3
35543 00	Paper industries machinery, n.s.k.	(NA)	33.7	(NA)	35.9
35544	Parts and attachments for paper industries machinery (sold separately)	(NA)	690.7	(NA)	507.8
35544 01	Parts and attachments for wood preparation equipment	7	15.9	(NA)	100.6
35544 02	Parts and attachments for pulp mill machinery	20	69.6		
35544 03	Parts and attachments for machines for finishing paper	13	70.1	16	59.3
35544 04	Parts and attachments for paper mill machinery, except machines for finishing paper	36	278.6	27	189.8
35544 05	Parts and attachments for paper and paperboard converting equipment	45	241.1	44	143.3
35544 00	Parts and attachments for paper industries machinery (sold separately), n.s.k.	(NA)	15.5	(NA)	14.8
35540	Paper industries machinery, n.s.k.	(NA)	163.7	(NA)	136.9
35540 00	Paper industries machinery, n.s.k.[8]	(NA)	125.8	(NA)	76.6
35540 02	Paper industries machinery, n.s.k.[9]	(NA)	37.9	(NA)	60.3

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3555– —	**PRINTING TRADES MACHINERY**						
	Total	**(NA)**	**(X)**	**2 301.3**	**(NA)**	**(X)**	**2 554.3**
35551	Printing presses, offset lithographic	(NA)	(X)	616.5	(NA)	(X)	724.4
	Sheet-fed:						
35551 01	Small offset lithographic presses, less than 14 inches	4	(X)	14.0	7	(X)	59.8
35551 03	Other offset lithographic presses, 14 inches or more	4	(X)	13.2			
	Roll-fed (web-fed):						
35551 32	Newspaper — complete presses	7	(S)	301.7	8	986	205.2
35551 33	Business form presses — complete presses	8	179	44.1	6	346	71.2
35551 35	Commercial, including heat-set — complete presses	11	767	225.1	10	*1 532	363.5
35551 36	All other roll-fed (web-fed) offset lithographic printing presses	6	(X)	10.6	6	(X)	23.0
35551 00	Printing presses, offset lithographic, n.s.k.	(NA)	(X)	8.0	(NA)	(X)	1.7
35552	Printing presses, other than lithographic	(NA)	(X)	302.2	(NA)	(X)	175.9
	Flexographic, sheet-fed and web-fed:						
35552 03	Presses less than 16 inches — complete presses	10	**413	71.4	11	(S)	76.7
35552 05	Presses 16 inches or more — complete presses	9	62	61.2			

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3555– —	**PRINTING TRADES MACHINERY**—Con.						
35552	Printing presses, other than lithographic—Con.						
35552 09	Other printing presses, including letterpress, gravure, metal decorating, proof, screen, pad printing, and rebuilt	22	(X)	162.4	(NA)	(X)	95.0
35552 00	Printing presses, other than lithographic, n.s.k.	(NA)	(X)	7.2	(NA)	(X)	4.1
35553	Typesetting machinery, excluding justifying typewriters	(NA)	(X)	133.4	(NA)	(X)	333.1
35553 00	Typesetting machinery, excluding justifying typewriters	5	(X)	133.4	(NA)	(X)	333.1
35556	Binding machinery and equipment, including paper cutting and collating or gathering machines	(NA)	(X)	171.0	(NA)	(X)	276.1
35556 61	Saddle, perfect/ adhesive, and hard case (edition) binding equipment	10	(X)	47.8	6	(X)	105.9
35556 66	Paper cutting machines	6	(X)	16.7	9	(X)	28.8
35556 67	Collating and/ or gathering machines (sold separately)	12	(X)	22.5	17	(X)	57.1
35556 71	Folding machines	6	(X)	18.2			
35556 73	Newspaper inserting equipment	5	(X)	43.9	20	(X)	84.3
35556 79	Other binding machinery and equipment, including stitchers and trimmers	14	(X)	21.8			
35556 00	Binding machinery and equipment, including paper cutting and collating or gathering machines, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
35558	Printing trades machinery, n.e.c.	(NA)	(X)	828.0	(NA)	(X)	784.5
	Pre-press preparation equipment, excluding typesetting equipment, cameras:						
35558 01	Digital electronic pre-press systems, components, and elements	5	(X)	32.1	(NA)	(X)	(10)
35558 03	Digital proofing devices, miscellaneous digital electronic pre-press systems	3	(X)	36.0	(NA)	(X)	(10)
35558 11	Other pre-press preparatory equipment, except densitometers	10			(NA)	(X)	1077.5
35558 69	Engravers' materials and equipment, including metal plates, etc.	17	(X)	66.1	12	(X)	85.4
35558 99	Other printing trades machinery and equipment, including platens, except typewriters	40	(X)	156.7	32	(X)	126.9
	Parts, attachments, and accessories for printing trades machinery, all types:						
35558 83	For printing presses, including flying pasters, dryers, folders, and reels	76	(X)	395.6	68	(X)	293.1
35558 85	For typesetting machines	1	(X)	11 1.7	9	(X)	78.8
35558 87	For bindery equipment	14	(X)	30.4	10	(X)	14.9
35558 91	For pre-press preparatory equipment, excluding typesetting and camera parts	6	(X)	14.9	(NA)	(X)	(12)
35558 93	For other printing trades machinery and equipment	35	(X)	1177.5	(NA)	(X)	1257.4
35558 00	Printing trades machinery, n.e.c., n.s.k.	(NA)	(X)	17.1	(NA)	(X)	50.5
35550	Printing trades machinery, n.s.k.	(NA)	(X)	250.2	(NA)	(X)	260.3
35550 00	Printing trades machinery, n.s.k.[8]	(NA)	(X)	187.1	(NA)	(X)	211.1
35550 02	Printing trades machinery, n.s.k.[9]	(NA)	(X)	63.1	(NA)	(X)	49.2

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3556– —	**FOOD PRODUCTS MACHINERY**				
	Total	**(NA)**	**2 113.3**	**(NA)**	**1 735.2**
35561	Dairy and milk products plant machinery and equipment, except bottling and packaging	(NA)	261.7	(NA)	262.3
35561 05	Ice cream freezers	6	(D)	7	155.5
35561 06	Butter and cheese processing plant machinery and equipment	9	15.5	7	18.0
35561 09	Homogenizers	4	(D)	3	19.6
35561 18	Other dairy and milk products plant machinery and equipment, including cream separators, pasteurizers, sterilizers, etc.	21	98.2	(NA)	57.2
35561 21	Parts and attachments for dairy and milk products plant machinery and equipment	17	31.6	8	11.5
35561 00	Dairy and milk products plant machinery and equipment, except bottling and packaging, n.s.k.	(NA)	1.0	(NA)	.5
35562	Commercial food products machinery, except packaging machinery and food cooking and warming equipment	(NA)	750.9	(NA)	619.5
35562 11	Slicers	20	111.1	16	138.1
35562 21	Choppers, grinders, cutters, dicers, and similar machines	23	114.0	25	120.7
35562 31	Mixers and whippers, except drink mixers	16	80.4	17	116.7
	Industrial bakery machinery and equipment:				
35562 65	Dough mixers, dividers, and molders	20	60.9	13	32.9
35562 73	Bake ovens, including traveling tray	15	49.9	(NA)	42.3
35562 89	Other bakery machinery and equipment, including pastry rolling machines	28	82.3	(NA)	79.6
35562 41	Other commercial food preparation machines, including tenderizers (power-driven)	34	99.2	18	22.5
35562 51	Parts and attachments for commercial food preparation machines	37	118.3	25	46.5

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3556– —	**FOOD PRODUCTS MACHINERY**—Con.				
35562	Commercial food products machinery, except packaging machinery and food cooking and warming equipment—Con.				
35562 00	Commercial food products machinery, except packaging machinery and food cooking and warming equipment, n.s.k.	(NA)	35.0	(NA)	20.1
35563	Industrial machinery and equipment for manufacturing or processing foods, beverages, and animal or fowl feed	(NA)	814.4	(NA)	559.8
35563 04	Presses, crushers, and similar machinery used in the production of wine, cider, fruit juices, and similar beverages	4	([13])	6	37.1
35563 05	Machinery for sorting, grading, or cleaning fruits, vegetables, or eggs	43	106.9	23	56.4
35563 11	Meat and poultry processing and preparation machinery and equipment (killing, dehairing, stuffing, cooking, rendering)	49	141.8	38	157.7
35563 12	Machinery, not specified above, for the preparation of fruits, vegetables, and nuts	32	63.5	20	53.1
35563 19	Other industrial food and feed products machinery	97	[13]336.6	(NA)	150.4
35563 21	Parts and attachments for industrial food products machinery	84	148.1	49	72.4
35563 00	Industrial machinery and equipment for manufacturing or processing foods, beverages, and animal or fowl feed, n.s.k.	(NA)	17.5	(NA)	32.7
35560	Food products machinery, n.s.k.	(NA)	286.3	(NA)	293.6
35560 00	Food products machinery, n.s.k.[3]	(NA)	244.9	(NA)	234.8
35560 02	Food products machinery, n.s.k.[4]	(NA)	41.4	(NA)	58.8
3559– —	**SPECIAL INDUSTRY MACHINERY, N.E.C.**				
	Total	**(NA)**	**10 534.9**	**(NA)**	**[r]7 951.0**
35591	Chemical manufacturing machinery, equipment, and parts	(NA)	821.5	(NA)	719.7
35591 01	Distilling, rectifying, or fractionating	14	37.8	6	29.4
35591 03	Heat exchange units	19	65.2	7	78.0
35591 05	Dryers	24	64.0	10	31.3
35591 07	Gas or air liquefying machinery	7	79.2	8	121.4
35591 09	Mixing, kneading, crushing, grinding, sifting, homogenizing (except dairy), emulsifying, or stirring machines	41	161.3	39	157.1
35591 11	Other chemical manufacturing machines and equipment	52	215.7	46	168.7
35591 13	Parts for distilling, rectifying, fractionating, heat exchange, dryers, gas or air liquefying machinery and equipment	22	103.8	10	28.2
35591 15	Parts for other chemical manufacturing machinery and equipment	28	50.2	35	63.3
35591 00	Chemical manufacturing machinery, equipment, and parts, n.s.k.	(NA)	44.3	(NA)	42.3
35592	Foundry machinery and equipment, excluding patterns and molds	(NA)	319.0	(NA)	240.9
35592 01	Foundry pouring equipment, including ladles, crucibles, and pouring machines	12	22.6	14	21.1
35592 04	Molding machines	10	18.5	(NA)	14.3
35592 11	Casting machines, except die-casting machines	5	14.0	7	24.8
35592 07	Blast cleaning machines (hydraulic, pneumatic, and airless)	14	70.4	8	61.4
35592 15	Other foundry machinery and equipment, including converters	29	87.7	22	54.8
35592 19	Parts for foundry machinery and equipment	31	83.9	22	47.5
35592 00	Foundry machinery and equipment, excluding patterns and molds, n.s.k.	(NA)	22.0	(NA)	16.9
35593	Plastics working machinery and equipment, excluding patterns and molds	(NA)	1 564.2	(NA)	[r]1 234.4
35593 01	Compression molding machines	8	16.5	6	6.5
	Extrusion machines:				
	Single screw extruders:				
35593 03	Up to 2.49 inch screw diameter	15	42.3	12	17.0
35593 05	2.50 to 5.49 inch screw diameter	14	100.0	18	80.2
35593 07	5.50 inch screw diameter or larger	14	32.7	10	13.2
35593 09	Multiple screw extruders	6	12.0	5	28.7
	Injection molding machines:				
35593 11	500 tons or less	19	219.4	22	192.7
35593 13	More than 500 tons	7	136.0	11	123.9
35593 15	Blow molding machines	13	87.6	9	97.3
35593 17	Granulators and pelletizers	12	65.4	12	42.4
35593 19	Thermoforming machines	12	58.1	13	76.1
35593 21	Calendering or other rolling machines for working plastics	5	15.7	7	23.0
35593 23	Machines for cold working plastics drilling, milling, slicing, grinding, etc.	6	7.0	10	14.9
35593 25	Other machinery for working plastics or making products from plastics	88	370.3	70	268.3
35593 41	Parts for plastics working machinery	69	287.3	(NA)	177.4
35593 00	Plastics working machinery and equipment, excluding patterns and molds, n.s.k.	(NA)	114.1	(NA)	[r]72.9
35594	Rubber working machinery and equipment, excluding tire molds	(NA)	184.9	(NA)	196.2
35594 01	High-intensity solids mixers	6	15.4	5	24.7
35594 03	Extruding machines	8	6.5	7	8.7
35594 05	Tire building equipment, except tire molds	11	47.2	16	48.2
35594 07	Tire recapping and repairing machinery and equipment, including recapping vulcanizers	10	26.2	6	36.3
35594 16	Other machinery for working rubber or making products of rubber	29	44.9	(NA)	35.0
35594 25	Parts for rubber working machinery	21	27.1	(NA)	24.9
35594 00	Rubber working machinery and equipment, excluding tire molds, n.s.k.	(NA)	17.6	(NA)	18.4

See footnotes at end of table.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 15
TSF:35D_92.DAT;3 3/27/95 14:40:38 UTF:35D_93.DAT;3 3/27/95 14:40:38 META:TIPS96-14402817.DAT;1 3/27/95 14:42:03

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3559– –	**SPECIAL INDUSTRY MACHINERY, N.E.C.**—Con.				
35595	Printed circuit board manufacturing machinery, except testing	(NA)	541.2	(NA)	427.6
35595 01	Surface mount machinery	32	176.9	25	347.6
35595 03	Through-hole machinery	35	203.3		
35595 05	Other printed circuit board manufacturing machinery and equipment	42	95.0		
35595 09	Parts, attachments and accessories for printed circuit board manufacturing machinery and equipment	25	46.5	11	80.0
35595 00	Printed circuit board manufacturing machinery, except testing, n.s.k.	(NA)	19.6	(NA)	(14)
35596	Semiconductor manufacturing equipment (except furnaces and ovens, instruments and photographics)	(NA)	2 274.2	(NA)	1 014.3
	Wafer processing equipment:				
	Microlithography:				
	Aligners:				
35596 01	Contact/ proximity	2	11.7	(NA)	(15)
35596 03	Scan optical	2	2.5	(NA)	(15)
35596 05	Step and repeat	4	18.5	(NA)	(15)
35596 07	Other	3	5.1	(NA)	(15)
	Other lithography systems:				
35596 09	E-beam direct writers	(NA)	–	(NA)	(15)
35596 11	E-beam mask makers	1	21.3	(NA)	(15)
35596 13	Focused ion beam writers	(NA)	–	(NA)	1545.8
	Thin layer deposition:				
35596 15	Chemical vapor deposition	15	356.0	(NA)	133.9
35596 17	Physical vapor deposition	9	175.2		
35596 19	Epitaxial growth	8	70.2	4	47.4
	Etch and strip:				
35596 21	Wet etch	10	79.2	10	42.9
35596 23	Plasma etch	6	227.2	(NA)	191.8
35596 25	Reactive ion etch	4	194.2		
35596 27	Stripping systems	2	5.1	4	5.8
	Ion implantation:				
35596 29	Current ion implanters	2	78.0	(NA)	339.1
35596 31	Voltage ion implanters	2	62.0		
35596 33	Other wafer processing equipment	34	309.1		
	Assembly and packaging equipment:				
	Assembly:				
	Dicing:				
35596 35	Dicing saws	3	13.9	4	10.6
35596 37	Scribing/ fracturing machines	2	5.5	3	1.2
	Bonding:				
35596 39	Die bonders	6	8.5	5	7.6
35596 41	Wire bonders	3	55.7	5	25.5
35596 43	Lead frame inserting machines	(NA)	–	(NA)	–
	Packaging:				
35596 45	Surface mounted (chip) placement machines (mold and seal)	3	37.5	(NA)	28.7
35596 47	Finish and mark equipment	2	8.6		
35596 49	Other assembly and packaging equipment	24	183.8	12	43.4
35596 51	Parts for semiconductor manufacturing machinery	24	286.2	27	69.8
35596 00	Semiconductor manufacturing equipment (except furnaces and ovens, instruments and photographics), n.s.k.	(NA)	59.2	(NA)	20.9
35597	Automotive maintenance equipment, except handtools	(NA)	463.7	(NA)	374.2
35597 01	Frame and body alignment equipment	7	49.1	9	173.6
35597 02	Wheel alignment equipment	6	125.1		
35597 03	Wheel balancing equipment	6	40.7	11	59.1
35597 04	Tire and wheel mounting equipment	3	38.7	4	36.9
35597 05	Brake service equipment	10	54.6	8	34.1
35597 09	All other automotive maintenance equipment, except handtools	26	83.2	19	46.6
35597 11	Parts and attachments for automotive maintenance equipment, excluding handtools (sold separately)	13	54.7	6	13.5
35597 00	Automotive maintenance equipment, except handtools, n.s.k.	(NA)	17.7	(NA)	10.4
35598	Special industry machinery and equipment, n.e.c.	(NA)	2 901.1	(NA)	2 545.6
35598 01	Petroleum refining machinery	26	163.9	12	93.9
35598 03	Parts for petroleum refining machinery	11	100.5	13	37.2
35598 05	Ammunition and explosive loading machinery	9	19.4	6	25.3
35598 07	Parts for ammunition and explosive loading machinery	2	1.4	5	1.0
35598 09	Tobacco processing machinery	13	25.2	8	22.1
35598 11	Parts for tobacco processing machinery	9	10.0	11	5.3
	Machines for working stone, ceramics, or like mineral materials including glass:				
35598 13	Sawing machines	5	8.7	3	5.3
	Grinding or polishing machines:				
35598 15	Glass working	3	1.8	9	56.5
35598 17	Other	10	15.7	7	8.5
	Other machines:				
35598 19	Glass working	11	59.7	8	22.8
35598 22	Other	17	33.7	7	8.8
35598 25	Parts	15	21.3	10	9.6
35598 27	Clay products forming equipment (brick, tile, ceramic)	13	30.7	11	17.8
35598 29	Parts for clay products forming equipment	5	15.8	7	16.9
	Concrete products forming equipment:				
35598 31	Concrete block equipment	5	32.0	4	28.1
35598 35	Other concrete products equipment	10	18.5	11	28.2
35598 36	Parts for concrete products forming equipment	8	53.6	(NA)	52.7
35598 39	Cement making machinery	5	22.1	5	6.2
35598 41	Parts for cement making machinery	4	11.3	6	11.0
35598 43	Glass making machinery and equipment, including machines for hot working glass or glassware	19	190.5	20	168.0
35598 45	Parts for glass making machinery and equipment	13	83.0	12	51.5
35598 48	Machines for assembling electric or electronic lamps, tubes, or flashbulbs in glass envelopes	3	2.1	(NA)	(16)

See footnotes at end of table.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 16
TSF:35D_92.DAT;3 3/27/95 14:40:38 UTF:35D_93.DAT;3 3/27/95 14:40:38 META:TIPS96-14402817.DAT;1 3/27/95 14:42:03

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3559– –	**SPECIAL INDUSTRY MACHINERY, N.E.C.**—Con.				
35598	Special industry machinery and equipment, n.e.c.—Con.				
35598 51	Parts for machines for assembling electric or electronic lamps, tubes, or flashbulbs in glass envelopes	–	(Z)	4	[16]
35598 53	Cotton ginning machinery	7	66.4	8	49.3
35598 55	Parts for cotton ginning machinery	6	24.5	4	14.1
35598 58	Fuel-fired kilns for cement, wood, and chemical processing and parts thereof	12	35.6	(NA)	23.1
35598 61	Electroplating equipment (except rolling mill lines)	20	46.0	16	22.2
35598 63	Parts for electroplating equipment	6	7.8	6	5.9
	Metal finishing equipment, except electroplating and rolling mill:				
35598 65	Vibratory finishing machines	7	9.8	5	12.9
35598 67	Plating equipment	14	21.0	10	40.4
35598 69	Other equipment	29	113.4	24	83.4
35598 71	Parts for metal finishing equipment	14	12.6	14	69.4
35598 74	Metal degreasing machines and parts thereof	15	31.5	(NA)	28.7
35598 78	Desalinization equipment and parts thereof	9	118.1	(NA)	[16]
35598 84	Footwear manufacturing or repairing machinery and parts thereof	10	19.3	(NA)	[16]
	Industrial sewing machines, excluding shoe sole stitching machines:				
35598 88	Industrial sewing machine heads	10	11.9	8	21.8
35598 89	Industrial sewing machinery, except heads	20	72.4	17	[16]65.1
35598 90	Parts and attachments for industrial sewing machinery	21	63.2	18	79.7
35598 91	Machines for insulating electrical wire for cable and parts thereof	5	20.7	(NA)	11.5
35598 96	Electric battery manufacturing machinery	12	23.9	10	17.5
35598 97	Parts for battery making machines	6	8.2	6	5.1
35598 98	Special industry machinery, not elsewhere classified, and parts thereof	342	1 210.6	(NA)	[16]1 273.5
35598 00	Special industry machinery and equipment, n.e.c., n.s.k.	(NA)	63.2	(NA)	[14]45.2
35590	Special industry machinery, n.e.c., n.s.k.	(NA)	1 465.0	(NA)	[r]1 198.1
35590 00	Special industry machinery, n.e.c., n.s.k.[3]	(NA)	1 242.8	(NA)	[r]853.6
35590 02	Special industry machinery, n.e.c., n.s.k.[4]	(NA)	222.2	(NA)	344.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 5 employees or more.
[4]Typically for establishments with less than 5 employees.
[5]For 1992, product codes are combined to avoid disclosing data for individual companies.
[6]For 1987, product codes were combined to avoid disclosing data for individual companies.
[7]For 1987, product codes were combined to avoid disclosing data for individual companies.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.
[10]For 1987, product codes were combined to avoid disclosing data for individual companies.
[11]For 1992, product codes are combined to avoid disclosing data for individual companies.
[12]For 1987, product codes were combined to avoid disclosing data for individual companies.
[13]For 1992, product codes are combined to avoid disclosing data for individual companies.
[14]For 1987, product codes were combined to avoid disclosing data for individual companies.
[15]For 1987, product codes were combined to avoid disclosing data for individual companies.
[16]For 1987, product codes were combined to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35521, TEXTILE MACHINERY, EXCEPT PARTS, ATTACHMENTS, AND ACCESSORIES		
United States	**697.0**	**515.4**
Georgia	44.1	54.9
Kentucky	9.7	(NA)
Massachusetts	15.8	12.1
New Jersey	30.9	(NA)
New York	41.1	35.5
North Carolina	209.9	134.4
Ohio	13.1	7.3
Pennsylvania	18.0	18.1
South Carolina	137.9	103.4
Tennessee	26.0	(NA)

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35522, PARTS AND ATTACHMENTS FOR TEXTILE MACHINERY		
United States	**473.8**	**433.9**
Connecticut	24.1	12.9
Georgia	37.4	20.5
Massachusetts	17.3	26.7
New Jersey	5.2	7.7
New York	20.8	20.8
North Carolina	174.4	143.8
Ohio	2.4	(NA)
Pennsylvania	7.8	6.8
Rhode Island	2.4	6.5
South Carolina	152.5	154.5
Tennessee	5.5	9.3

See footnotes at end of table.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 17
TSF:35D_92.DAT;3 3/27/95 14:40:38 UTF:35D_93.DAT;3 3/27/95 14:40:38 META:TIPS96-14402817.DAT;1 3/27/95 14:42:03

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35533, WOODWORKING MACHINERY, INCLUDING PARTS, ATTACHMENTS, AND ACCESSORIES		
United States	**479.0**	**476.0**
Alabama	3.4	(NA)
Arizona	6.0	(NA)
California	28.5	25.8
Florida	4.6	(NA)
Idaho	6.0	(NA)
Illinois	11.0	13.9
Indiana	45.2	24.4
Michigan	11.1	14.3
Minnesota	28.4	30.3
Mississippi	50.3	(NA)
North Carolina	39.8	34.6
Oregon	86.6	86.1
Pennsylvania	9.9	17.2
Tennessee	17.5	21.6
Wisconsin	18.8	20.2
35534, WOODWORKING MACHINERY FOR HOME WORKSHOPS, GARAGES, SERVICE SHOPS		
United States	**181.6**	**199.1**
35543, PAPER INDUSTRIES MACHINERY		
United States	**1 375.4**	**936.1**
Alabama	11.1	(NA)
California	6.0	(NA)
Connecticut	19.8	(NA)
Illinois	27.6	6.4
Indiana	16.3	(NA)
Kansas	8.6	10.8
Maryland	42.6	17.6
Massachusetts	89.2	73.4
Michigan	16.7	(NA)
New Hampshire	49.5	37.0
New York	62.2	55.6
Ohio	76.5	86.8
Pennsylvania	79.7	35.3
South Carolina	20.3	4.1
Washington	48.8	28.9
Wisconsin	444.5	346.5
35544, PARTS AND ATTACHMENTS FOR PAPER INDUSTRIES MACHINERY (SOLD SEPARATELY)		
United States	**690.7**	**507.8**
Alabama	11.2	(NA)
Georgia	9.7	(NA)
Indiana	5.5	6.1
Massachusetts	72.8	77.5
New Hampshire	38.3	21.6
New Jersey	63.7	17.9
New York	50.6	40.8
Ohio	42.3	27.7
Oregon	21.8	11.7
Pennsylvania	19.3	83.5
Washington	22.9	15.4
Wisconsin	237.0	133.4
35551, PRINTING PRESSES, OFFSET LITHOGRAPHIC		
United States	**616.5**	**724.4**
New York	10.8	44.0
35552, PRINTING PRESSES, OTHER THAN LITHOGRAPHIC		
United States	**302.2**	**175.9**
Illinois	44.0	(NA)
Massachusetts	22.6	9.2
Pennsylvania	40.1	(NA)
Wisconsin	31.9	(NA)
35553, TYPESETTING MACHINERY, EXCLUDING JUSTIFYING TYPEWRITERS		
United States	**133.4**	**333.1**
California	51.1	(NA)
Massachusetts	35.5	(NA)
New Jersey	46.7	(NA)
35556, BINDING MACHINERY AND EQUIPMENT, INCLUDING PAPER CUTTING AND COLLATING OR GATHERING MACHINES		
United States	**171.0**	**276.1**
Illinois	18.7	67.9
Michigan	23.9	(NA)
Ohio	39.9	(NA)
35558, PRINTING TRADES MACHINERY, N.E.C.		
United States	**828.0**	**784.5**
California	36.7	22.9
Connecticut	33.8	35.1
Florida	12.3	36.3
Georgia	7.4	(NA)
Illinois	80.6	88.3
Indiana	19.5	12.2
Kansas	19.5	(NA)
Massachusetts	67.4	121.4
Michigan	20.8	9.8
Minnesota	27.1	27.8
Missouri	33.1	12.0
New Hampshire	76.6	35.9
New Jersey	28.5	49.6
New York	50.7	58.0
North Carolina	19.6	9.4
Ohio	84.9	36.2
Pennsylvania	31.6	35.6
Texas	32.6	20.5
Virginia	11.7	7.7
Wisconsin	63.0	67.3
35561, DAIRY AND MILK PRODUCTS PLANT MACHINERY AND EQUIPMENT, EXCEPT BOTTLING AND PACKAGING		
United States	**261.7**	**262.3**
California	3.9	(NA)
Minnesota	16.8	(NA)
New York	2.8	7.6
Wisconsin	117.0	59.3
35562, COMMERCIAL FOOD PRODUCTS MACHINERY, EXCEPT PACKAGING MACHINERY AND FOOD COOKING AND WARMING EQUIPMENT		
United States	**750.9**	**619.5**
California	28.1	35.8
Illinois	88.9	33.5
Indiana	73.6	67.9
Iowa	8.0	(NA)
Kentucky	31.6	(NA)
Massachusetts	4.4	7.0
Minnesota	13.6	(NA)
New Jersey	11.7	(NA)
New York	9.5	19.2
Ohio	160.1	201.7
Pennsylvania	32.3	15.2
Texas	2.6	7.9
Wisconsin	20.9	14.2
35563, INDUSTRIAL MACHINERY AND EQUIPMENT FOR MANUFACTURING OR PROCESSING FOODS, BEVERAGES, AND ANIMAL OR FOWL FEED		
United States	**814.4**	**559.8**
California	120.8	60.5
Florida	34.3	31.2
Georgia	73.1	49.4
Idaho	6.1	(NA)
Illinois	30.4	55.7
Iowa	51.0	35.2
Kansas	37.0	(NA)
Louisiana	11.0	14.6
Massachusetts	8.7	7.2
Michigan	18.6	(NA)
Minnesota	18.0	(NA)
Mississippi	4.0	(NA)
Missouri	12.7	4.8
Nebraska	16.0	(NA)
New York	27.4	14.2

See footnotes at end of table.

TIPS [UPF] BATCH_2 [EISS,BA_TAYLOR] EISS 3/27/95 2:42 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 18
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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35563, INDUSTRIAL MACHINERY AND EQUIPMENT FOR MANUFACTURING OR PROCESSING FOODS, BEVERAGES, AND ANIMAL OR FOWL FEED—Con.		
North Carolina	24.5	15.9
Ohio	87.7	75.7
Oregon	15.8	(NA)
Pennsylvania	32.8	21.0
Tennessee	2.4	(NA)
Texas	18.1	17.0
Virginia	20.3	11.3
Washington	23.7	(NA)
Wisconsin	34.2	21.9
35591, CHEMICAL MANUFACTURING MACHINERY, EQUIPMENT, AND PARTS		
United States	**821.5**	**719.7**
California	53.8	52.2
Florida	18.3	(NA)
Illinois	42.2	(NA)
Kentucky	16.9	(NA)
Massachusetts	27.8	(NA)
Missouri	3.5	(NA)
New Jersey	46.6	91.1
New York	33.5	126.2
North Carolina	23.1	4.2
Ohio	101.2	82.6
Oklahoma	40.1	(NA)
Pennsylvania	138.6	83.3
Texas	19.4	10.5
35592, FOUNDRY MACHINERY AND EQUIPMENT, EXCLUDING PATTERNS AND MOLDS		
United States	**319.0**	**240.9**
Illinois	51.5	37.3
Michigan	53.6	20.0
Missouri	27.7	(NA)
Ohio	27.5	36.7
Pennsylvania	13.1	14.9
Wisconsin	13.6	(NA)
35593, PLASTICS WORKING MACHINERY AND EQUIPMENT, EXCLUDING PATTERNS AND MOLDS		
United States	**1 564.2**	**1 234.4**
California	18.3	14.8
Connecticut	60.7	66.8
Florida	11.8	7.3
Illinois	46.8	27.7
Kansas	13.0	7.8
Massachusetts	153.7	135.0
Michigan	216.4	151.1
Missouri	5.0	(NA)
New Jersey	115.9	127.6
New York	55.5	21.6
North Carolina	23.4	4.9
Ohio	478.8	398.3
Pennsylvania	140.0	118.2
Tennessee	13.5	(NA)
Texas	9.1	13.3
Virginia	37.5	(NA)
Wisconsin	28.1	18.7
35594, RUBBER WORKING MACHINERY AND EQUIPMENT, EXCLUDING TIRE MOLDS		
United States	**184.9**	**196.2**
California	6.0	11.9
New Jersey	3.8	(NA)
Ohio	85.5	78.0
Pennsylvania	9.3	9.2
35595, PRINTED CIRCUIT BOARD MANUFACTURING MACHINERY, EXCEPT TESTING		
United States	**541.2**	**427.6**
California	170.7	(NA)
Florida	20.1	(NA)
Massachusetts	58.7	(NA)
Michigan	2.7	(NA)
Minnesota	24.5	(NA)
New Jersey	14.5	(NA)
Ohio	10.5	(NA)
Pennsylvania	83.2	(NA)
35596, SEMICONDUCTOR MANUFACTURING EQUIPMENT (EXCEPT FURNACES AND OVENS, INSTRUMENTS AND PHOTOGRAPHICS)		
United States	**2 274.2**	**1 014.3**
Arizona	72.2	20.4
California	1 377.6	568.4
Massachusetts	156.6	139.8
New Jersey	39.6	38.8
Pennsylvania	112.9	57.5
Texas	90.6	32.3
35597, AUTOMOTIVE MAINTENANCE EQUIPMENT, EXCEPT HANDTOOLS		
United States	**463.7**	**374.2**
Indiana	14.9	(NA)
Kansas	6.9	(NA)
Michigan	23.6	(NA)
Minnesota	14.0	6.8
35598, SPECIAL INDUSTRY MACHINERY AND EQUIPMENT, N.E.C.		
United States	**2 901.1**	**2 545.6**
Arizona	28.7	(NA)
California	207.8	(NA)
Colorado	15.6	(NA)
Connecticut	213.6	(NA)
Florida	69.6	(NA)
Georgia	79.9	(NA)
Illinois	242.5	(NA)
Indiana	134.0	(NA)
Iowa	42.0	(NA)
Kansas	4.8	(NA)
Kentucky	25.6	(NA)
Louisiana	28.5	(NA)
Massachusetts	192.6	(NA)
Michigan	327.5	(NA)
Minnesota	44.0	(NA)
Missouri	28.0	(NA)
New Jersey	126.7	(NA)
New York	41.9	(NA)
North Carolina	53.0	(NA)
Ohio	202.8	(NA)
Oklahoma	131.2	(NA)
Oregon	8.6	(NA)
Pennsylvania	123.2	(NA)
South Carolina	4.7	(NA)
Tennessee	50.1	(NA)
Texas	181.9	(NA)
Virginia	37.2	(NA)
Washington	77.2	(NA)
Wisconsin	94.4	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3552-	**Textile machinery**	**1 327.6**	**1 234.9**	**1 324.7**	**1 338.4**	**1 311.8**	**1 104.2**	**965.5**	**857.1**
35521	Textile machinery, except parts, attachments, and accessories	697.0	626.8	702.1	657.0	631.8	515.4	454.3	361.6
35522	Parts and attachments for textile machinery	473.8	492.1	501.2	528.1	517.7	433.9	390.0	405.2
35520	Textile machinery, n.s.k.	156.9	116.0	121.4	153.3	162.4	154.9	121.3	90.3
3553-	**Woodworking machinery**	**775.3**	**667.0**	**780.6**	**935.1**	**793.5**	**793.4**	**(NA)**	**(NA)**
35533	Woodworking machinery, including parts, attachments, and accessories	479.0	362.8	445.5	582.0	496.4	476.0	288.2	301.1
35534	Woodworking machinery for home workshops, garages, service shops	181.6	168.9	188.0	187.5	179.5	199.1	(NA)	(NA)
35530	Woodworking machinery, n.s.k.	114.7	135.3	147.1	165.6	117.6	118.3	(NA)	(NA)
3554-	**Paper industries machinery**	**2 229.8**	**2 061.3**	**2 453.4**	**2 237.6**	**1 832.2**	**1 580.7**	**1 199.0**	**698.3**
35543	Paper industries machinery	1 375.4	1 222.9	1 552.0	1 465.1	1 177.2	936.1	870.7	
35544	Parts and attachments for paper industries machinery (sold separately)	690.7	626.1	650.7	597.8	536.4	507.8	258.9	698.3
35540	Paper industries machinery, n.s.k.	163.7	212.3	250.7	174.7	118.6	136.9	69.4	
3555-	**Printing trades machinery**	**2 301.3**	**3 171.3**	**3 141.1**	**3 302.5**	**2 783.0**	**2 554.3**	**1 971.8**	**1 168.8**
35551	Printing presses, offset lithographic	616.5	999.5	837.3	1 029.8	859.0	724.4	665.0	290.9
35552	Printing presses, other than lithographic	302.2	233.5	225.8	258.5	181.0	175.9	148.9	121.3
35553	Typesetting machinery, excluding justifying typewriters	133.4	303.1	288.6	306.9	333.9	333.1	303.4	252.8
35556	Binding machinery and equipment, including paper cutting and collating or gathering machines	171.0	356.0	364.2	357.8	277.6	276.1	171.6	68.4
35558	Printing trades machinery, n.e.c.	828.0	1 056.4	1 135.8	1 091.9	877.2	784.5	567.0	344.7
35550	Printing trades machinery, n.s.k.	250.2	222.9	289.4	257.6	254.2	260.3	116.0	90.7
3556-	**Food products machinery**	**2 113.3**	**1 969.5**	**1 953.6**	**1 881.4**	**1 780.4**	**1 735.2**	**(NA)**	**(NA)**
35561	Dairy and milk products plant machinery and equipment, except bottling and packaging	261.7	222.8	240.0	327.7	286.4	262.3	176.4	128.5
35562	Commercial food products machinery, except packaging machinery and food cooking and warming equipment	750.9	554.0	569.0	592.7	629.7	619.5	479.7	357.2
35563	Industrial machinery and equipment for manufacturing or processing foods, beverages, and animal or fowl feed	814.4	794.5	767.6	698.6	584.5	559.8	585.6	426.5
35560	Food products machinery, n.s.k.	286.3	398.1	377.0	262.4	279.7	293.6	(NA)	(NA)
3559-	**Special industry machinery, n.e.c.**	**10 534.9**	**9 755.3**	**9 886.8**	**9 576.6**	**9 193.9**	**7 951.0**	**(NA)**	**(NA)**
35591	Chemical manufacturing machinery, equipment, and parts	821.5	905.7	977.1	864.2	812.2	719.7	(NA)	(NA)
35592	Foundry machinery and equipment, excluding patterns and molds	319.0	344.7	298.5	303.4	274.4	240.9	260.0	319.2
35593	Plastics working machinery and equipment, excluding patterns and molds	1 564.2	1 359.0	1 394.8	1 407.0	1 359.6	1 234.4	785.7	669.6
35594	Rubber working machinery and equipment, excluding tire molds	184.9	187.2	265.9	241.7	248.8	196.2	187.0	158.1
35595	Printed circuit board manufacturing machinery, except testing	541.2	(NA)	(NA)	(NA)	(NA)	427.6	(NA)	(NA)
35596	Semiconductor manufacturing equipment (except furnaces and ovens, instruments and photographics)	2 274.2	2 030.6	1 899.4	1 770.3	1 430.5	1 014.3	815.3	(NA)
35597	Automotive maintenance equipment, except handtools	463.7	324.2	358.5	391.2	389.3	374.2	200.3	188.0
35598	Special industry machinery and equipment, n.e.c.	2 901.1	(NA)	(NA)	(NA)	(NA)	2 545.6	(NA)	(NA)
35590	Special industry machinery, n.e.c., n.s.k.	1 465.0	1 146.9	1 274.7	1 178.8	1 275.2	1 198.1	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3552, TEXTILE MACHINERY		
	Materials, ingredients, containers, and supplies	**509.1**	**457.6**
190090	Fluid power products	25.8	(1)
340075	Fabricated metal products, except forgings	31.4	(1)
346000	Forgings	6.4	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	14.8	27.0
336005	Aluminum and aluminum-base alloy	4.8	5.4
336003	Other nonferrous castings	1.1	2.0
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	24.7	
331022	Sheet and strip	10.4	
331023	Structural shapes and sheet piling	4.3	92.5
331027	Wire and wire products	26.5	
331088	All other steel shapes and forms	11.8	
335010	Aluminum and aluminum-base alloy	9.2	7.8
335091	All other nonferrous shapes and forms	3.1	(1)
362120	Integral horsepower electric motors and generators (1 hp or more)	8.9	8.9
	Bearings (mounted or unmounted):		
356218	Ball	6.4	5.4
356201	Roller	1.8	3.5
356023	Speed reducers, gears, drives, and other mechanical power transmission equipment, except bearings	15.2	13.2
308006	Fabricated plastics products, except gaskets	4.5	5.5
360101	Electrical transmission, distribution, and control equipment	39.6	26.8
970099	All other materials and components, parts, containers, and supplies	142.2	[1]139.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	116.2	120.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3553, WOODWORKING MACHINERY		
	Materials, ingredients, containers, and supplies	**334.0**	**356.4**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	5.8	2.1
356102	All other pumps	.2	(1)
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
349271	Valves	3.1	2.5
349261	Hose or tube fittings and assemblies	1.4	.8
359301	Cylinders and rotary actuators	4.5	3.2
356921	Filters	1.0	.2
190089	Other fluid power products	1.4	1.2
340075	Fabricated metal products, except forgings	14.6	(1)
346000	Forgings	.5	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	23.5	18.2
336005	Aluminum and aluminum-base alloy	6.9	6.6
336003	Other nonferrous	(3)	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	33.5	
331022	Sheet and strip	9.5	56.0
331034	Other steel shapes and forms	4.9	
336002	Nonferrous shapes and forms	2.3	(1)
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	14.2	18.2
362120	Integral horsepower electric motors and generators (1 hp or more)	33.5	15.1
	Bearings (mounted or unmounted):		
356218	Ball	7.2	4.7
356201	Roller	2.3	4.2
308006	Fabricated plastics products, except gaskets	4.9	4.1
357004	Electronic computing equipment and parts	6.2	2.7
360101	Electrical transmission, distribution, and control equipment	11.6	3.6
362522	Numerical controls for woodworking machinery and equipment	2.2	3.7
265001	Paperboard containers, boxes, and corrugated paperboard	5.9	9.3
970099	All other materials and components, parts, containers, and supplies	3 49.7	1 91.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	83.3	108.2
	INDUSTRY 3554, PAPER INDUSTRIES MACHINERY		
	Materials, ingredients, containers, and supplies	**968.1**	**656.6**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	8.0	4.3
356102	All other pumps	.4	(1)
	Fluid power products, (hydraulic and pneumatic) except pumps and motors:		
349271	Valves	9.5	3.6
349261	Hose or tube fittings and assemblies	7.6	5.5
359301	Cylinders and rotary actuators	9.6	3.8
356921	Filters	.5	(1)
190089	Other fluid power products	4.6	(1)
340075	Fabricated metal products, except forgings	46.9	(1)
346000	Forgings	7.3	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	35.2	33.1
336010	Nonferrous	15.3	16.1
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	65.8	
331022	Sheet and strip	19.1	80.8
331034	All other steel shapes and forms	13.0	
336002	Nonferrous shapes and forms	7.9	(1)
362120	Integral horsepower electric motors and generators (1 hp or more)	14.2	14.3
	Bearings (mounted or unmounted):		
356218	Ball	8.2	6.4
356201	Roller	7.8	10.8
356810	Plain bearings and bushings	7.0	5.3
356601	Speed changers, gears, and industrial high-speed drives	28.1	19.6
360101	Electrical transmission, distribution, and control equipment	53.3	25.5
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	9.9	10.7
970099	All other materials and components, parts, containers, and supplies	478.8	1 288.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	110.0	128.5
	INDUSTRY 3555, PRINTING TRADES MACHINERY		
	Materials, ingredients, containers, and supplies	**1 078.7**	**1 084.4**
190090	Fluid power products	29.7	(1)
340075	Fabricated metal products, except forgings	98.3	(1)
346000	Forgings	5.2	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	47.7	48.0
336010	Nonferrous	4.7	7.9
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	47.0	
331087	All other	16.4	66.8
335010	Aluminum and aluminum-base alloy	13.1	21.5
335091	Other nonferrous	3.0	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3555, PRINTING TRADES MACHINERY—Con.		
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	12.5	18.6
362120	Integral horsepower electric motors and generators (1 hp or more)	15.2	13.6
	Bearings (mounted or unmounted):		
356218	Ball	16.6	10.0
356201	Roller	7.8	6.0
356601	Speed changers, gears, and industrial high-speed drives	66.0	39.6
360101	Electrical transmission, distribution, and control equipment	80.7	119.1
970099	All other materials and components, parts, containers, and supplies	443.4	[1]471.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	171.5	262.1
	INDUSTRY 3556, FOOD PRODUCTS MACHINERY		
	Materials, ingredients, containers, and supplies	**834.3**	**720.4**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	9.2	4.8
356102	All other pumps	9.9	(NA)
	Fluid power products, hydraulic and pneumatic, except pumps and motors:		
349271	Valves	9.9	4.4
359301	Cylinders and rotary actuators	3.8	(1)
349261	Hose or tube fittings and assemblies	4.7	3.3
356921	Filters	2.5	(1)
190089	Other fluid power products	1.4	(1)
	Fabricated metal products, except forgings:		
344310	Metal tanks, heat exchangers, steam condensers, and other boiler products; fabricated steel plate and weldments	13.7	6.1
340076	All other fabricated metal products	35.1	(1)
346000	Forgings	2.6	(1)
	Castings, rough and semifinished:		
332001	Iron and steel	27.5	30.5
336005	Aluminum and aluminum-base alloy	10.9	10.4
336003	All other nonferrous castings	5.6	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	47.8	127.6
331022	Sheet and strip	52.2	
331034	All other steel shapes and forms	20.6	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	16.2	6.7
335011	All other (except sheet, plate, foil, and welded tubing)	8.0	8.3
335091	Other nonferrous	11.4	(1)
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	7.5	8.7
362120	Integral horsepower electric motors and generators (1 hp or more)	24.2	14.9
356200	Ball and roller bearings (mounted or unmounted)	12.5	8.7
356601	Speed changers, gears, and industrial high-speed drives	20.0	20.1
360101	Electrical transmission, distribution, and control equipment	33.1	20.2
244021	Wood boxes, pallets, skids, and containers	3.8	(1)
970099	All other materials and components, parts, containers, and supplies	264.3	[1]253.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	175.7	191.8
	INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**4 299.3**	**[r]3 054.9**
360101	Electrical transmission, distribution, and control equipment	226.9	152.8
	Pumps, complete assemblies:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	88.2	16.4
356101	Other pumps and pump parts, except fluid power	71.7	42.1
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
349271	Valves	55.5	21.7
359301	Cylinders and rotary actuators	40.9	20.9
349261	Hose or tube fittings and assemblies	25.7	(1)
356921	Filters	11.0	3.7
190089	Other fluid power products	27.6	(1)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	70.2	26.7
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	92.9	46.8
349402	Pipe, valves, and pipe fittings	57.6	26.3
340072	Other fabricated metal products, except fluid power	205.8	9.7
346000	Forgings	16.3	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	185.3	61.5
336005	Aluminum and aluminum-base alloy	28.4	21.9
336003	Other nonferrous	29.1	6.7
	Shapes and forms, except castings, forgings and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	169.1	351.3
331022	Sheet and strip	106.5	
331023	Structural shapes and sheet piling	34.9	
331091	All other steel shapes and forms	61.5	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	62.0	20.9
335011	All other (except sheet, plate, foil, and welded tubing)	55.8	21.4
335091	Other nonferrous	29.0	16.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3559, SPECIAL INDUSTRY MACHINERY, N.E.C.—Con.		
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	36.7	21.1
362120	Integral horsepower electric motors and generators (1 hp or more)	69.8	42.8
356200	Ball and roller bearings (mounted or unmounted)	42.4	22.0
356601	Speed changers, gears, and industrial high-speed drives	55.0	33.4
356301	Air and gas compressors except refrigeration compressors	4.0	4.3
262195	Filter paper	113.8	(1)
970099	All other materials and components, parts, containers, and supplies	1 099.4	[1]925.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	1 126.4	r1 139.3

[1]For 1987, material codes were combined to avoid disclosing data for individual companies.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1992, material codes are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
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35442 25	35442 19
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35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
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35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
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35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
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35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
35465 25	35461 25
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35465 29	35461 29
35465 31	35461 31
35465 33	35461 33
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35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
35563 19	35563 09
35563 19	35563 14
35563 19	35563 15
35592 04	35592 03
35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
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35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
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35595	35599
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35595 03	35599 86
35595 05	35599 86
35595 09	35599 87

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Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987 —Con.

1992	1987
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
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35598 22	35599 22
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35598 27	35599 27
35598 29	35599 29
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35598 43	35599 43
35598 45	35599 45
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35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
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3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
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35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
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35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
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35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
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35463 12	35463 19
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35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
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35556 65	35556 79
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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

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35892 98	35892 96
35892 99	35892 97
35893 08	35893 07
35893 09	35893 07
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35931	35935
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35931 00	35935 00
35933	35939
35933 00	35939 00
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35941	35944
35941	35945
35941	35946
35941 10	35943 00
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35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
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35962 19	35962 21

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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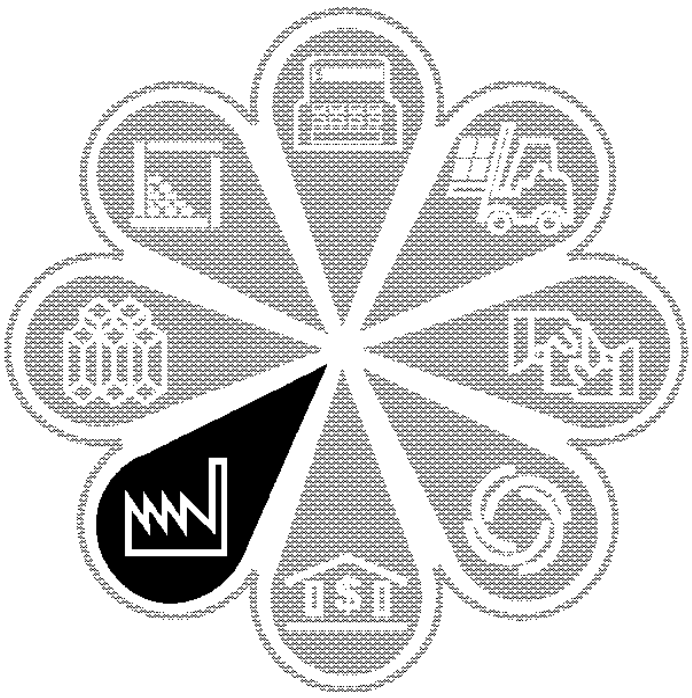
1992 Census of Manufactures

MC92-I-35E

INDUSTRY SERIES

General Industrial Machinery and Equipment

Industries 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, and 3569



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35E

INDUSTRY SERIES

General Industrial Machinery and Equipment

Industries 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, and 3569

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Richard Wiesler.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3561	Pumps and Pumping Equipment
3562	Ball and Roller Bearings
3563	Air and Gas Compressors
3564	Blowers and Fans
3565	Packaging Machinery
3566	Speed Changers, Drives, and Gears
3567	Industrial Furnaces and Ovens
3568	Power Transmission Equipment, N.E.C.
3569	General Industrial Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing pumps and pumping equipment for general industrial, commercial, or household use, except fluid power pumps and motors. Also included in this industry are establishments primarily engaged in manufacturing domestic water and sump pumps. Establishments primarily engaged in manufacturing fluid power pumps and motors are classified in industry 3594; those manufacturing measuring and dispensing pumps for gasoline service station use are classified in industry 3586; those manufacturing vacuum pumps, except laboratory, are classified in industry 3563; those manufacturing laboratory vacuum pumps are classified in industry 3821; and those manufacturing pumps for motor vehicles are classified in industry 3714.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3561, Pumps and Pumping Equipment, had employment of 36.9 thousand. The employment figure was 5 percent above the 35.2 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, Pennsylvania, and Texas, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Oklahoma, and Texas accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

3561 shipped $4.3 billion of pumps and pumping equipment (except hydraulic fluid power) considered primary to the industry, $465.0 million of secondary products, and had $496.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3561, no matter in what industry they were produced, appear in table 6a and aggregate to $4.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pumps and pumping equipment industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3562, BALL AND ROLLER BEARINGS

This industry is made up of establishments primarily engaged in manufacturing ball and roller bearings (including ball or roller bearing pillow block, flange, takeup cartridge, and hangar units) and parts. Establishments primarily engaged in manufacturing plain bearings are classified in industry 3568. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35Q, Anti-Friction Bearings. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3562, Ball and Roller Bearings, had employment of 34.9 thousand. The employment figure was 5 percent below the 36.9 thousand reported in 1987.

The leading States in employment in 1992 were Connecticut, New Hampshire, Ohio, and South Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3562 shipped $4.1 billion of ball and roller bearings products considered primary to the industry, $92.1 million of secondary products, and had $128.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3562, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ball and roller bearings industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3563, AIR AND GAS COMPRESSORS

This industry is made up of establishments primarily engaged in manufacturing air and gas compressors and vacuum pumps for general industrial use. Also included in this industry are establishments primarily engaged in manufacturing nonagricultural spraying and dusting equipment. Establishments primarily engaged in refrigeration and air-conditioning compressors and compressing units are classified in industry 3585; those manufacturing pneumatic pumps and motors for fluid power transmission are classified in industry 3594; those manufacturing agricultural spraying and dusting equipment are classified in industry 3523; and those manufacturing laboratory vacuum pumps are classified in industry 3821.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3563, Air and Gas Compressors, had employment of 23.4 thousand. The employment figure was 2 percent below the 23.8 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, Pennsylvania, Illinois, and Ohio, accounting for approximately 53 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3563 shipped $3.3 billion of air and gas compressors, vacuum pumps, and industrial spraying equipment considered primary to the industry, $384.0 million of secondary products, and had $536.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio also was 89 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3563, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the air and gas compressors industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3564, BLOWERS AND FANS

This industry is made up of establishments primarily engaged in manufacturing industrial and commercial blowers, industrial and commercial exhaust and ventilating fans, and attic fans. Also included in this industry are establishments primarily engaged in manufacturing dust collection and other air-purification equipment for heating, ventilating, and air-conditioning systems, or for industrial gas cleaning and air pollution abatement systems. Establishments primarily engaged in manufacturing air-conditioning units are classified in industry 3585; those manufacturing free air-circulating fans for use on desks, pedestals, or wall brackets as well as household window-type fans and roll-abouts, kitchen and household ventilating and exhaust electric fans, except attic, are classified in industry 3634.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3564, Blowers and Fans, had employment of 26.0 thousand. The employment figure was 5 percent above the 24.8 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Illinois, California, and North Carolina, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Ohio, New York, California, and North Carolina accounted for approximately 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3564 shipped $2.7 billion of blowers, fans, and purification equipment considered primary to the industry, $154.3 million of secondary products, and had $148.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 90 percent.

The products primary to industry 3564, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the blowers and fans industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3565, PACKAGING MACHINERY

This industry is made up of establishments primarily engaged in manufacturing packaging machinery, including wrapping and bottling machinery.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3565, Packaging and Machinery, had employment of 26.2 thousand. The employment figure was 16 percent above the 22.6 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Wisconsin, and Ohio, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when Illinois, Ohio, California, and New Jersey accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3565 shipped $2.7 billion of packaging, wrapping, and bottling machinery and dedicated parts considered primary to the industry, $210.5 million of secondary products, and had $246.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3565, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the packaging machinery industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS

This industry is made up of establishments primarily engaged in manufacturing speed changers, industrial high-speed drives (except hydrostatic drives), and gears. Establishments primarily engaged in manufacturing automotive power transmission equipment are classified in industry 3714; those manufacturing aircraft power transmission equipment are classified in industry 3728; and those manufacturing industrial hydrostatic drives (transmissions) are classified in industry 3594.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3566, Speed Changers, Drives, and Gears, had employment of 15.7 thousand. The employment figure was 12 percent below the 17.9 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Indiana, New York, and Wisconsin. This represents a shift from 1987 when Wisconsin, Illinois, Indiana, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3566 shipped $1.5 billion of speed changers, industrial high-speed drives, and gears considered primary to the industry, $191.2 million of secondary products, and had $116.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3566, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the speed changers, drives, and gears industry amounted to $646.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS

This industry is made up of establishments primarily engaged in manufacturing industrial process furnaces, ovens, induction and dielectric heating equipment, and related devices. Establishments primarily engaged in manufacturing bakery ovens are classified in industry 3556; those manufacturing cement, wood, and chemical kilns are classified in industry 3559; those manufacturing cremating ovens are classified in industry 3569; and those manufacturing laboratory furnaces and ovens are classified in industry 3821.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3567, Industrial Furnaces and Ovens, had employment of 17.0 thousand. The employment figure was 2 percent above the 16.6 thousand reported in 1987.

The leading States in employment in 1992 were California, Missouri, Michigan, and Illinois, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Ohio, and Illinois accounted for approximately 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3567 shipped $1.5 billion of industrial furnaces, ovens, kilns, and related heating units considered primary to the industry, $126.4 million of secondary products, and had $100.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3567, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial furnaces and ovens industry amounted to $764.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing mechanical power transmission equipment and parts, for industrial machinery. Establishments primarily engaged in manufacturing motor vehicle power transmission equipment are classified in industry 3714; those manufacturing aircraft power transmission equipment are classified in industry 3728; those manufacturing ball and roller bearings are classified in industry 3562; and those manufacturing speed changers, industrial high-speed drives, and gears are classified in industry 3566.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3568, Power Transmission Equipment, N.E.C., had employment of 21.8 thousand. The employment figure was 1 percent below the 22.0 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Wisconsin, Ohio, and Indiana, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when Illinois, Wisconsin, Michigan, and Ohio also accounted for approximately 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3568 shipped $2.1 billion of plain bearings and bushings, clutches, brakes, couplings, chains, sprockets, and related products considered primary to the industry, $194.6 million of secondary products, and had $158.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio also was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3568, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the power

transmission equipment, not elsewhere classified, industry amounted to $922.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 9 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing machinery, equipment, and components for general industrial use, for which no other specific classification is provided. Machine shops primarily engaged in producing machine and equipment parts, usually on a job or order basis, are classified in industry 3599.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3569, General Industrial Machinery, N.E.C., had employment of 41.5 thousand. The employment figure was 2 percent above the 40.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, California, Michigan, and Pennsylvania, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, Michigan, Massachusetts, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $5.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3569 shipped $4.5 billion of filters, strainers, robots, mixers, separators, automatic fire sprinklers, compressed air and gas dryers, centralized automatic industrial lubricating systems, and other similarly disparate products considered primary to the industry, $537.7 million of secondary products, and had $444.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3569, no matter in what industry they were produced, appear in table 6a and aggregate to $5.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the general industrial machinery, not elsewhere classified, industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT															
1992 Census	354	430	231	36.9	1 225.3	20.9	41.0	582.1	2 746.0	2 473.1	5 268.4	155.0	1 220.0	90	94
1991 ASM	(NA)	(NA)	(NA)	37.8	1 168.1	20.8	40.5	543.5	2 706.0	2 501.7	5 218.1	140.1	1 326.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	37.4	1 110.4	20.5	40.1	527.3	2 552.8	2 311.9	4 830.3	146.2	1 247.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	37.4	1 077.1	20.4	40.6	516.1	2 379.6	2 179.2	4 520.0	99.8	1 208.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	36.9	1 040.2	20.7	41.0	506.5	2 436.1	2 126.2	4 497.9	102.2	1 185.5	(NA)	(NA)
1987 Census	333	405	226	35.2	969.9	19.7	38.4	458.7	2 154.5	1 837.2	3 998.3	95.8	1 125.5	88	91
INDUSTRY 3562, BALL AND ROLLER BEARINGS															
1992 Census	122	183	122	34.9	1 091.2	28.2	57.5	824.6	2 546.7	1 717.4	4 287.9	206.5	889.8	98	98
1991 ASM	(NA)	(NA)	(NA)	36.6	1 054.0	29.8	57.3	793.8	2 451.9	1 540.3	4 051.2	305.7	918.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	39.0	1 102.1	32.1	64.2	843.5	2 481.7	1 790.8	4 306.3	363.9	981.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	39.1	1 108.3	32.1	66.9	849.6	2 575.5	1 828.9	4 327.3	271.2	1 033.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.8	1 077.7	31.4	67.2	818.2	2 361.2	1 818.6	4 143.7	196.1	941.3	(NA)	(NA)
1987 Census	113	169	116	36.9	949.9	29.2	60.0	719.3	2 203.3	1 511.5	3 723.7	154.7	858.2	98	98
1986 ASM	(NA)	(NA)	(NA)	38.4	961.2	30.3	60.6	709.5	2 159.9	1 402.3	3 597.3	173.0	870.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	39.6	969.6	31.1	60.8	715.3	2 220.4	1 410.2	3 679.3	138.7	886.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.4	1 026.5	34.0	66.7	762.6	2 222.0	1 623.4	3 775.8	126.8	935.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	37.7	863.7	29.9	58.4	635.2	1 655.3	1 272.0	2 964.6	114.7	806.9	(NA)	(NA)
1982 Census	109	162	116	43.8	910.4	33.6	61.6	647.8	1 849.1	1 220.0	3 149.5	164.8	891.0	96	99
1981 ASM	(NA)	(NA)	(NA)	53.3	1 091.4	42.4	83.0	825.6	2 251.3	1 686.6	3 916.7	186.3	855.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	52.6	988.7	42.3	83.1	757.9	2 022.8	1 493.6	3 449.0	245.1	814.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	53.3	955.0	43.1	87.3	738.4	1 875.6	1 570.8	3 411.2	140.0	746.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	52.7	858.8	43.2	86.9	665.3	1 663.0	1 330.4	2 946.3	122.0	687.6	(NA)	(NA)
1977 Census	102	149	104	50.6	752.6	41.3	82.4	579.9	1 472.7	1 139.9	2 567.3	132.9	621.7	96	98
INDUSTRY 3563, AIR AND GAS COMPRESSORS															
1992 Census	220	258	120	23.4	777.5	13.5	27.4	382.1	2 069.8	2 120.2	4 170.3	138.0	1 007.4	89	92
1991 ASM	(NA)	(NA)	(NA)	26.1	837.0	14.8	30.1	415.4	2 016.5	2 305.0	4 389.7	96.8	1 035.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.5	768.1	13.5	27.4	366.5	1 769.9	2 057.6	3 806.9	60.3	944.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.9	742.9	13.1	26.8	355.1	1 600.3	1 936.1	3 537.3	49.2	906.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.2	735.4	14.0	28.4	360.0	1 606.4	1 879.6	3 485.7	70.7	934.2	(NA)	(NA)
1987 Census	223	259	136	23.8	651.8	12.4	24.5	298.7	1 415.1	1 609.8	3 050.9	68.8	932.5	89	94
1986 ASM	(NA)	(NA)	(NA)	23.3	640.1	12.1	23.8	289.4	1 392.7	1 419.0	2 817.5	68.0	813.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.8	681.3	14.7	28.3	325.3	1 557.1	1 481.4	3 077.5	110.3	842.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.8	695.0	15.3	29.9	335.9	1 586.8	1 507.3	3 108.9	115.3	902.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.2	606.1	13.8	25.9	286.1	1 347.3	1 328.2	2 683.4	94.8	903.0	(NA)	(NA)
1982 Census	239	282	144	31.8	709.3	17.3	34.1	344.0	1 470.1	1 698.3	3 270.0	118.1	985.6	90	91
1981 ASM	(NA)	(NA)	(NA)	32.7	701.9	19.0	38.1	367.3	1 635.6	1 597.9	3 185.1	117.6	901.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	34.1	664.6	20.3	41.0	354.8	1 616.1	1 499.9	3 050.6	89.5	863.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.9	625.7	21.6	43.9	341.8	1 560.3	1 338.3	2 854.2	71.4	819.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.9	536.2	19.8	39.9	299.6	1 347.5	1 087.4	2 341.7	81.2	724.3	(NA)	(NA)
1977 Census	148	175	103	32.0	465.6	19.1	38.2	255.2	1 145.5	953.3	2 075.6	55.8	610.9	88	89
INDUSTRY 3564, BLOWERS AND FANS															
1992 Census	517	587	257	26.0	723.9	17.5	34.9	394.5	1 647.9	1 339.0	3 000.9	60.7	361.0	95	90
1991 ASM	(NA)	(NA)	(NA)	26.6	700.2	16.4	32.8	351.9	1 557.7	1 293.9	2 863.5	46.0	427.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.7	724.8	16.8	33.9	363.5	1 519.6	1 341.7	2 850.1	56.9	457.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.7	674.7	17.3	34.7	354.5	1 528.8	1 254.1	2 760.4	55.1	413.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.2	576.0	16.9	33.9	325.3	1 365.6	1 097.6	2 441.0	42.1	367.7	(NA)	(NA)
1987 Census	445	507	242	24.8	548.6	16.0	32.6	309.0	1 282.4	996.7	2 272.4	46.8	334.9	91	90
1986 ASM	(NA)	(NA)	(NA)	26.3	575.6	17.5	34.5	325.1	1 155.5	1 034.5	2 239.1	53.6	334.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.2	538.0	17.7	33.4	301.6	1 198.2	947.5	2 149.7	42.6	351.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.4	533.7	17.8	34.4	305.7	1 169.7	955.9	2 119.4	47.9	372.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.8	528.8	16.9	32.6	280.5	1 131.6	915.8	2 055.9	34.7	366.6	(NA)	(NA)
1982 Census	450	502	240	29.8	553.6	19.1	37.2	306.0	1 160.0	999.8	2 173.5	57.1	388.7	88	92
1981 ASM	(NA)	(NA)	(NA)	30.1	517.6	19.7	39.0	296.5	1 069.5	966.7	2 033.4	40.1	314.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	483.0	20.6	39.9	282.2	966.7	949.1	1 908.1	41.7	307.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.1	450.4	21.0	41.7	264.0	914.6	836.8	1 737.5	36.9	294.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.0	401.3	19.6	39.0	232.0	817.9	718.9	1 528.6	36.8	249.5	(NA)	(NA)
1977 Census	432	482	198	28.0	356.8	18.6	36.7	209.6	776.7	662.8	1 430.8	37.5	242.9	89	87
INDUSTRY 3565, PACKAGING MACHINERY															
1992 Census	590	631	264	26.2	894.4	15.4	31.0	427.6	1 913.5	1 252.4	3 126.9	70.1	753.0	93	94
1991 ASM	(NA)	(NA)	(NA)	23.9	797.2	13.7	28.1	393.2	1 627.0	1 222.4	2 879.9	68.4	592.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.5	762.2	13.3	27.1	368.8	1 735.4	1 080.3	2 762.2	73.5	615.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.5	699.2	14.0	28.4	359.4	1 553.6	950.9	2 497.8	67.1	581.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.7	650.8	12.5	25.1	316.2	1 362.0	841.9	2 185.9	39.4	527.1	(NA)	(NA)
1987 Census	415	439	231	22.6	631.9	13.4	26.6	327.2	1 406.8	785.1	2 189.9	54.4	538.4	90	90
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS															
1992 Census	256	287	145	15.7	495.8	10.4	20.6	283.7	1 160.5	646.3	1 823.1	69.8	406.3	89	90
1991 ASM	(NA)	(NA)	(NA)	17.2	509.5	11.5	23.1	296.6	1 194.1	703.8	1 916.5	63.2	433.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.4	551.0	12.6	26.0	338.2	1 353.0	734.9	2 055.7	81.1	464.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.2	524.2	12.6	25.5	330.7	1 166.5	727.1	1 911.6	59.0	414.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.3	530.0	13.3	26.5	326.0	1 260.8	667.3	1 916.9	63.4	424.7	(NA)	(NA)
1987 Census	251	276	157	17.9	474.0	11.9	23.8	289.0	1 004.4	555.4	1 569.0	65.0	404.5	91	87
1986 ASM	(NA)	(NA)	(NA)	17.4	474.3	11.7	23.7	283.3	986.6	527.8	1 529.8	65.6	385.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.6	478.1	12.7	25.8	297.4	992.2	552.1	1 555.6	71.3	394.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.6	505.0	13.8	28.1	306.0	1 029.6	586.7	1 609.0	73.6	430.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.6	436.2	12.8	24.2	247.0	857.3	476.4	1 363.7	79.7	423.2	(NA)	(NA)
1982 Census	282	309	180	24.1	503.9	15.8	29.7	298.4	1 020.9	552.7	1 631.6	93.2	457.8	86	87
1981 ASM	(NA)	(NA)	(NA)	25.7	529.7	17.6	35.3	328.0	1 158.3	673.7	1 788.7	95.1	444.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	28.3	516.9	19.6	38.1	318.1	1 097.2	647.9	1 740.2	77.5	390.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.7	474.8	19.4	39.1	300.7	1 070.9	602.7	1 603.8	82.9	385.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.9	410.3	17.8	35.2	252.5	861.2	485.5	1 345.8	74.8	311.1	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS—Con.															
1977 Census	307	327	162	25.3	365.4	17.6	35.0	226.7	803.1	429.7	1 222.3	48.5	297.8	87	84
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS															
1992 Census	377	409	181	17.0	529.4	10.3	20.1	230.9	982.1	764.2	1 757.7	27.6	306.9	92	90
1991 ASM	(NA)	(NA)	(NA)	17.5	472.3	10.9	22.1	229.9	940.0	714.3	1 679.6	29.0	302.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.9	500.0	11.7	23.6	246.2	902.5	791.4	1 766.1	40.2	307.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.6	508.6	12.5	25.0	258.7	1 009.1	798.2	1 778.7	46.1	360.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.2	453.4	11.1	21.6	212.0	970.9	744.5	1 697.6	39.4	298.0	(NA)	(NA)
1987 Census	342	370	170	16.6	401.1	9.9	19.1	195.7	821.6	623.6	1 434.8	27.2	249.5	88	93
1986 ASM	(NA)	(NA)	(NA)	15.4	357.7	8.4	16.0	160.2	687.3	580.6	1 291.7	21.9	232.0	(NA)	(S)
1985 ASM	(NA)	(NA)	(NA)	15.2	327.1	8.6	15.7	153.1	686.9	596.5	1 288.5	27.4	228.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.7	306.0	8.7	16.5	148.3	702.7	519.6	1 197.2	26.5	238.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.8	267.7	8.2	15.5	131.2	582.3	383.2	954.2	12.2	204.3	(NA)	(NA)
1982 Census	321	353	172	16.1	312.6	9.2	17.8	149.2	624.9	465.2	1 102.2	21.1	204.5	93	94
1981 ASM	(NA)	(NA)	(NA)	16.7	300.2	10.1	19.1	152.4	643.2	496.3	1 115.9	22.1	203.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	17.9	287.9	11.2	21.1	147.6	599.6	489.3	1 108.2	17.6	180.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.6	263.1	11.3	21.4	140.0	563.4	444.3	1 004.2	21.1	188.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	224.9	9.0	17.2	113.0	464.4	342.0	810.5	20.7	157.8	(NA)	(NA)
1977 Census	311	327	137	15.2	209.4	9.3	17.9	107.4	469.3	305.4	746.3	13.4	151.4	91	90
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.															
1992 Census	270	311	171	21.8	679.0	14.6	29.6	386.3	1 493.0	922.0	2 411.4	72.5	549.7	91	89
1991 ASM	(NA)	(NA)	(NA)	21.7	606.0	14.8	29.8	352.7	1 442.4	1 049.8	2 479.1	61.9	532.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.7	638.2	16.6	33.7	391.5	1 503.3	1 102.0	2 596.5	68.1	529.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.3	643.7	17.2	34.7	398.2	1 527.7	1 092.8	2 598.9	57.6	538.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.5	676.7	17.7	35.3	406.5	1 438.9	1 016.6	2 409.1	63.1	582.2	(NA)	(NA)
1987 Census	262	308	183	22.0	562.5	15.0	29.6	351.1	1 258.6	776.0	2 041.1	62.4	472.3	91	86
1986 ASM	(NA)	(NA)	(NA)	22.4	599.2	15.3	31.0	361.4	1 295.8	922.4	2 221.3	60.0	524.7	(NA)	(S)
1985 ASM	(NA)	(NA)	(NA)	23.7	611.6	16.3	33.1	374.6	1 325.5	996.3	2 343.0	81.8	553.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.7	623.3	18.2	36.2	394.1	1 366.2	1 019.4	2 357.5	83.6	604.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.7	497.0	15.8	29.3	302.7	980.0	686.5	1 672.8	48.4	499.3	(NA)	(NA)
1982 Census	242	293	194	26.9	553.0	18.0	33.1	335.2	1 144.1	763.1	1 926.8	74.7	508.5	90	84
1981 ASM	(NA)	(NA)	(NA)	30.9	643.7	21.9	41.9	409.6	1 322.7	908.5	2 227.6	65.5	500.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	33.7	616.0	23.7	45.7	393.3	1 284.7	883.2	2 156.0	96.5	516.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.6	614.2	26.2	51.8	414.5	1 308.1	863.6	2 139.1	56.4	504.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.0	536.1	24.9	49.1	361.9	1 154.5	721.5	1 839.0	54.6	462.7	(NA)	(NA)
1977 Census	184	226	163	32.5	464.8	23.8	45.8	306.8	1 009.1	650.2	1 626.0	50.3	418.8	82	74
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.															
1992 Census	965	1 028	426	41.5	1 308.4	23.3	47.1	548.9	3 229.4	2 316.8	5 526.1	180.1	1 040.7	89	89
1991 ASM	(NA)	(NA)	(NA)	48.1	1 382.8	28.3	55.9	630.4	2 897.0	2 496.6	5 331.1	305.2	1 159.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	47.0	1 353.1	27.3	56.6	605.5	2 992.8	2 423.0	5 364.7	171.7	1 047.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	47.4	1 249.2	27.1	58.0	588.7	2 818.5	2 169.7	4 886.4	164.4	1 044.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	41.4	1 072.7	24.8	49.7	506.7	2 621.1	1 872.4	4 420.5	100.2	903.8	(NA)	(NA)
1987 Census	1 159	1 219	444	40.6	1 013.7	23.6	47.5	467.5	2 236.0	1 614.6	3 840.4	105.2	794.4	91	86

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT									
1992 Census	33 206	57	1 962	14.20	47	70	74 417	45	66.98
1991 ASM	30 902	55	1 947	13.42	48	70	71 587	43	66.81
1990 ASM	29 690	55	1 956	13.15	48	71	68 257	43	63.66
1989 ASM	28 799	55	1 990	12.71	48	72	63 626	45	58.61
1988 ASM	28 190	56	1 981	12.35	47	70	66 019	43	59.42
1987 Census	27 554	56	1 949	11.95	46	70	61 207	45	56.11

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3562, BALL AND ROLLER BEARINGS									
1992 Census	31 266	81	2 039	14.34	40	66	72 971	43	44.29
1991 ASM	28 798	81	1 923	13.85	38	64	66 992	43	42.79
1990 ASM	28 259	82	2 000	13.14	42	67	63 633	44	38.66
1989 ASM	28 345	82	2 084	12.70	42	68	65 870	43	38.50
1988 ASM	27 776	81	2 140	12.18	44	70	60 856	46	35.14
1987 Census	25 743	79	2 055	11.99	41	66	59 710	43	36.72
1986 ASM	25 031	79	2 000	11.71	39	66	56 247	45	35.64
1985 ASM	24 485	79	1 955	11.76	38	65	56 071	44	36.52
1984 ASM	24 210	80	1 962	11.43	43	70	52 406	46	33.31
1983 ASM	22 910	79	1 953	10.88	43	72	43 907	52	28.34
1982 Census	20 785	77	1 833	10.52	39	68	42 217	49	30.02
1981 ASM	20 477	80	1 958	9.95	43	71	42 238	48	27.12
1980 ASM	18 797	80	1 965	9.12	43	72	38 456	49	24.34
1979 ASM	17 917	81	2 026	8.46	46	74	35 189	51	21.48
1978 ASM	16 296	82	2 012	7.66	45	74	31 556	52	19.14
1977 Census	14 874	82	1 995	7.04	44	74	29 105	51	17.87
INDUSTRY 3563, AIR AND GAS COMPRESSORS									
1992 Census	33 226	58	2 030	13.95	51	69	88 453	38	75.54
1991 ASM	32 069	57	2 034	13.80	53	72	77 261	42	66.99
1990 ASM	31 351	55	2 030	13.38	54	74	72 241	43	64.59
1989 ASM	31 084	55	2 046	13.25	55	76	66 958	46	59.71
1988 ASM	29 183	56	2 029	12.68	54	75	63 746	46	56.56
1987 Census	27 387	52	1 976	12.19	53	74	59 458	46	57.76
1986 ASM	27 472	52	1 967	12.16	50	73	59 773	46	58.52
1985 ASM	25 422	55	1 925	11.49	48	70	58 101	44	55.02
1984 ASM	25 000	55	1 954	11.23	48	71	57 079	44	53.07
1983 ASM	23 134	53	1 877	11.05	49	72	51 424	45	52.02
1982 Census	22 305	54	1 971	10.09	52	74	46 230	48	43.11
1981 ASM	21 465	58	2 005	9.64	50	72	50 018	43	42.93
1980 ASM	19 490	60	2 020	8.65	49	71	47 393	41	39.42
1979 ASM	17 429	60	2 032	7.79	47	69	43 462	40	35.54
1978 ASM	16 298	60	2 015	7.51	46	69	40 957	40	33.77
1977 Census	14 550	60	2 000	6.68	46	68	35 797	41	29.99
INDUSTRY 3564, BLOWERS AND FANS									
1992 Census	27 842	67	1 994	11.30	45	69	63 381	44	47.22
1991 ASM	26 323	62	2 000	10.73	45	70	58 560	45	47.49
1990 ASM	26 166	61	2 018	10.72	47	73	54 859	48	44.83
1989 ASM	24 357	62	2 006	10.22	45	70	55 191	44	44.06
1988 ASM	22 857	67	2 006	9.60	45	69	54 190	42	40.28
1987 Census	22 121	65	2 037	9.48	44	68	51 710	43	39.34
1986 ASM	21 886	67	1 971	9.42	46	72	43 935	50	33.49
1985 ASM	20 534	68	1 887	9.03	44	69	45 733	45	35.87
1984 ASM	20 216	67	1 933	8.89	45	70	44 307	46	34.00
1983 ASM	19 731	63	1 929	8.60	45	70	42 224	47	34.71
1982 Census	18 577	64	1 948	8.23	46	71	38 926	48	31.18
1981 ASM	17 196	65	1 980	7.60	48	73	35 532	48	27.42
1980 ASM	15 581	66	1 937	7.07	50	75	31 184	50	24.23
1979 ASM	14 482	68	1 986	6.33	48	74	29 408	49	21.93
1978 ASM	13 838	68	1 990	5.95	47	73	28 203	49	20.97
1977 Census	12 743	66	1 973	5.71	46	71	27 739	46	21.16
INDUSTRY 3565, PACKAGING MACHINERY									
1992 Census	34 137	59	2 013	13.79	40	69	73 034	47	61.73
1991 ASM	33 356	57	2 051	13.99	42	70	68 075	49	57.90
1990 ASM	32 434	57	2 038	13.61	39	67	73 847	44	64.04
1989 ASM	29 753	60	2 029	12.65	38	66	66 111	45	54.70
1988 ASM	29 991	58	2 008	12.60	39	68	62 765	48	54.26
1987 Census	27 960	59	1 985	12.30	36	65	62 248	45	52.89
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS									
1992 Census	31 580	66	1 981	13.77	35	63	73 917	43	56.33
1991 ASM	29 622	67	2 009	12.84	37	63	69 424	43	51.69
1990 ASM	29 946	68	2 063	13.01	36	63	73 533	41	52.04
1989 ASM	28 802	69	2 024	12.97	38	65	64 093	45	45.75
1988 ASM	27 461	69	1 992	12.30	35	62	65 326	42	47.58
1987 Census	26 480	66	2 000	12.14	35	66	56 112	47	42.20
1986 ASM	27 259	67	2 026	11.95	35	66	56 701	48	41.63
1985 ASM	25 704	68	2 031	11.53	35	66	53 344	48	38.46
1984 ASM	24 515	67	2 036	10.89	36	68	49 981	49	36.64
1983 ASM	22 255	65	1 891	10.21	35	67	43 740	51	35.43
1982 Census	20 909	66	1 880	10.05	34	65	42 361	49	34.37
1981 ASM	20 611	68	2 006	9.29	38	67	45 070	46	32.81
1980 ASM	18 265	69	1 944	8.35	37	67	38 770	47	28.80
1979 ASM	17 141	70	2 015	7.69	38	67	38 661	44	27.39
1978 ASM	15 842	69	1 978	7.17	36	67	33 251	48	24.47
1977 Census	14 443	70	1 989	6.48	35	65	31 743	45	22.95

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS								
1992 Census	31 141	61	1 951	11.49	43	74	57 771	54	48.86
1991 ASM	26 989	62	2 028	10.40	43	71	53 714	50	42.53
1990 ASM	26 455	62	2 017	10.43	45	73	47 751	55	38.24
1989 ASM	25 949	64	2 000	10.35	45	73	51 485	50	40.36
1988 ASM	24 912	61	1 946	9.81	44	71	53 346	47	44.95
1987 Census	24 163	60	1 929	10.25	43	71	49 494	49	43.02
1986 ASM	23 227	55	1 905	10.01	45	73	44 630	52	42.96
1985 ASM	21 520	57	1 826	9.75	46	72	45 191	48	43.75
1984 ASM	20 816	59	1 897	8.99	43	69	47 803	44	42.59
1983 ASM	19 399	59	1 890	8.46	40	68	42 196	46	37.57
1982 Census	19 416	57	1 935	8.38	42	71	38 814	50	35.11
1981 ASM	17 976	60	1 891	7.98	44	71	38 515	47	33.68
1980 ASM	16 084	63	1 884	7.00	44	70	33 497	48	28.42
1979 ASM	14 949	64	1 894	6.54	44	70	32 011	47	26.33
1978 ASM	14 894	60	1 911	6.57	42	70	30 755	48	27.00
1977 Census	13 776	61	1 925	6.00	41	69	30 875	45	26.22
	INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.								
1992 Census	31 147	67	2 027	13.05	38	66	68 486	45	50.44
1991 ASM	27 926	68	2 014	11.84	42	67	66 470	42	48.40
1990 ASM	26 928	70	2 030	11.62	42	67	63 430	42	44.61
1989 ASM	26 490	71	2 017	11.48	42	67	62 868	42	44.03
1988 ASM	26 537	69	1 994	11.52	42	70	56 427	47	40.76
1987 Census	25 568	68	1 973	11.86	38	66	57 209	45	42.52
1986 ASM	26 750	68	2 026	11.66	42	69	57 848	46	41.80
1985 ASM	25 806	69	2 031	11.32	43	69	55 928	46	40.05
1984 ASM	24 253	71	1 989	10.89	43	70	53 160	46	37.74
1983 ASM	21 894	70	1 854	10.33	41	71	43 172	51	33.45
1982 Census	20 558	67	1 839	10.13	40	68	42 532	48	34.56
1981 ASM	20 832	71	1 913	9.78	41	70	42 806	49	31.57
1980 ASM	18 279	70	1 928	8.61	41	70	38 122	48	28.11
1979 ASM	17 253	74	1 977	8.00	40	69	36 744	47	25.25
1978 ASM	15 768	73	1 972	7.37	39	68	33 956	46	23.51
1977 Census	14 302	73	1 924	6.70	40	69	31 049	46	22.03
	INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.								
1992 Census	31 528	56	2 021	11.65	42	66	77 817	41	68.56
1991 ASM	28 748	59	1 975	11.28	47	73	60 229	48	51.82
1990 ASM	28 789	58	2 073	10.70	45	70	63 677	45	52.88
1989 ASM	26 354	57	2 140	10.15	44	70	59 462	44	48.59
1988 ASM	25 911	60	2 004	10.20	42	67	63 312	41	52.74
1987 Census	24 968	58	2 013	9.84	42	68	55 074	45	47.07

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT														
United States	**E1**	**430**	**231**	**36.9**	**1 225.3**	**20.9**	**41.0**	**582.1**	**2 746.0**	**2 473.1**	**5 268.4**	**155.0**	**35.2**	**2 154.5**
Alabama	E1	4	2	.1	2.6	.1	.1	1.5	6.9	3.1	10.1	.2	(NA)	(NA)
Arkansas	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
California	E1	61	31	4.0	141.0	2.4	4.6	62.9	294.9	345.3	644.8	16.8	4.4	251.1
Colorado	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E5	23	8	.5	14.2	.3	.6	7.1	26.4	23.2	49.2	1.6	E	(D)
Georgia	E2	14	8	1.1	28.5	.7	1.5	15.1	63.0	60.1	123.1	10.5	.8	42.7
Illinois	–	23	14	2.2	75.5	1.2	2.6	35.9	171.5	116.1	291.2	8.0	2.2	117.6
Indiana	E3	8	5	.8	24.0	.4	1.0	11.2	48.3	91.3	139.2	2.4	.9	46.5
Iowa	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	7	4	.6	17.4	.3	.5	6.5	27.4	42.1	71.5	1.6	E	(D)
Kentucky	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	E1	13	4	.2	6.4	.1	.3	3.2	10.7	8.4	19.4	.4	.2	11.2
Maryland	E9	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Massachusetts	–	7	6	.6	20.5	.3	.4	9.7	48.6	27.1	74.1	1.8	1.3	70.9
Michigan	E4	9	5	1.2	46.1	.6	1.2	13.4	92.7	47.1	141.5	5.8	1.0	80.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT—Con.														
Minnesota	–	5	4	1.5	56.9	.9	1.6	32.9	181.0	100.7	281.5	(D)	1.5	135.2
Missouri	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
Nebraska	–	6	4	.4	10.0	.2	.6	5.4	20.7	36.9	58.5	.5	E	(D)
New Jersey	–	23	9	2.0	73.9	1.1	2.3	33.1	133.6	117.6	262.0	10.3	1.2	34.2
New York	–	16	11	2.2	74.3	1.2	2.3	37.2	194.5	215.9	415.1	17.5	2.2	177.4
North Carolina	E2	7	4	.4	12.6	.2	.4	5.0	30.6	22.1	53.6	1.6	E	(D)
Ohio	–	25	18	4.2	128.9	2.4	4.9	68.0	334.0	268.1	597.7	15.9	4.2	293.4
Oklahoma	E3	24	14	2.8	90.1	1.5	2.6	40.0	202.6	175.4	377.3	10.5	3.1	162.0
Oregon	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	21	15	3.1	110.2	1.8	3.2	56.0	216.5	148.4	375.4	10.4	2.9	171.0
Rhode Island	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	7	4	.4	13.3	.2	.5	6.2	34.9	29.4	65.3	.8	F	(D)
Texas	E2	56	26	3.1	97.7	1.8	3.5	48.3	197.8	224.1	430.8	8.7	2.9	146.5
Utah	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	4	2	.1	7.4	.1	.2	3.1	21.1	9.8	31.6	(D)	(NA)	(NA)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	11	6	1.3	40.5	.7	1.5	20.8	68.6	100.0	174.8	5.7	.9	74.9
INDUSTRY 3562, BALL AND ROLLER BEARINGS														
United States	**–**	**183**	**122**	**34.9**	**1 091.2**	**28.2**	**57.5**	**824.6**	**2 546.7**	**1 717.4**	**4 287.9**	**206.5**	**36.9**	**2 203.3**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	11	3	.4	13.0	.3	.7	9.8	30.0	16.5	47.8	(D)	.6	39.9
Connecticut	–	17	12	3.3	111.8	2.6	4.9	86.5	162.7	103.9	262.6	16.8	5.1	265.6
Georgia	–	9	7	2.1	56.1	1.8	3.8	42.5	139.8	97.4	242.7	7.7	G	(D)
Illinois	–	13	10	1.9	49.7	1.5	2.6	36.6	142.6	107.0	246.9	20.4	1.3	85.8
Indiana	–	10	9	2.1	67.8	1.6	3.4	46.6	175.6	84.2	255.1	6.1	2.1	124.3
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	F	(D)
Michigan	–	10	5	1.0	39.0	.7	1.5	25.9	96.2	53.7	152.0	8.5	G	(D)
Missouri	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	8	4	.4	16.4	.3	.6	7.1	26.8	23.0	50.8	(D)	.9	33.1
New York	–	16	8	2.3	75.5	1.8	3.9	48.9	143.2	76.1	211.4	8.3	2.4	141.6
North Carolina	–	9	7	1.4	40.0	1.2	2.4	31.1	92.4	86.0	178.7	10.2	G	(D)
Ohio	–	13	10	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	14	9	1.8	60.1	1.4	3.0	43.7	191.8	115.2	321.4	11.5	G	(D)
South Carolina	–	14	13	5.0	126.8	4.2	8.9	99.9	387.9	239.2	627.4	38.3	4.9	264.1
Tennessee	–	8	6	1.6	46.4	1.3	2.6	33.9	163.2	82.7	245.0	7.2	G	(D)
Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3563, AIR AND GAS COMPRESSORS														
United States	**E1**	**258**	**120**	**23.4**	**777.5**	**13.5**	**27.4**	**382.1**	**2 069.8**	**2 120.2**	**4 170.3**	**138.0**	**23.8**	**1 415.1**
Alabama	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
California	E1	25	11	.7	22.7	.4	.7	8.2	46.2	42.2	87.6	2.6	.6	31.9
Connecticut	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Florida	E4	11	3	.1	4.0	.1	.1	1.7	9.9	5.4	14.8	.2	(NA)	(D)
Illinois	–	24	9	3.1	107.8	2.0	4.0	58.3	227.5	126.2	363.7	12.3	3.5	190.3
Indiana	E1	13	10	.8	20.0	.5	1.0	10.3	61.9	99.3	163.6	1.8	1.1	60.8
Kentucky	E2	7	4	1.2	34.8	.8	1.6	21.1	92.2	120.5	212.2	(D)	F	(D)
Massachusetts	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E7	9	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	113.3
Minnesota	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	5	3	.3	11.3	.2	.5	7.3	63.2	33.7	94.9	(D)	.4	39.4
New Hampshire	E6	4	3	.2	4.8	.1	.2	2.2	6.1	14.6	20.4	.3	(NA)	(NA)
New Jersey	–	9	4	.9	36.5	.4	.8	14.6	86.4	50.8	140.1	(D)	.6	29.6
New York	–	13	10	3.7	119.5	2.4	5.2	74.7	360.6	413.4	772.4	(D)	4.0	243.2
North Carolina	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E2	13	8	2.3	81.9	1.2	2.3	36.9	244.4	133.5	367.5	(D)	2.8	158.8
Oklahoma	–	10	4	.4	13.6	.2	.5	5.2	19.2	58.4	86.5	3.0	.4	30.6
Pennsylvania	–	17	11	3.2	117.2	1.8	3.8	57.6	322.2	188.4	485.2	16.7	2.5	131.7
Tennessee	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	33	12	1.2	39.3	.7	1.5	19.3	90.0	95.7	182.6	2.2	.9	49.9
Virginia	–	3	3	.2	5.8	.1	.3	2.6	17.4	24.1	40.8	.7	(NA)	(NA)
Wisconsin	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3564, BLOWERS AND FANS														
United States	**E1**	**587**	**257**	**26.0**	**723.9**	**17.5**	**34.9**	**394.5**	**1 647.9**	**1 339.0**	**3 000.9**	**60.7**	**24.8**	**1 282.4**
Alabama	–	12	7	.6	15.0	.4	.7	7.1	25.6	23.7	49.6	.6	.4	14.7
Arkansas	–	3	3	.3	7.3	.3	.6	5.6	16.9	15.0	31.4	.6	(NA)	(D)
California	E2	72	28	2.0	58.7	1.3	2.5	31.5	139.7	96.7	243.8	2.6	2.1	89.0
Colorado	E1	11	1	.1	3.2	.1	.2	1.9	6.1	6.6	12.6	.2	(NA)	(NA)
Florida	–	25	7	.8	18.1	.6	1.1	12.3	39.3	37.3	76.6	1.5	.5	19.6
Georgia	–	10	6	.4	10.9	.2	.5	3.3	18.8	55.1	74.5	1.7	.2	11.1
Illinois	E1	46	20	2.0	52.7	1.4	2.7	29.2	121.0	102.4	225.6	4.9	1.8	93.2
Indiana	–	15	9	1.4	47.0	1.0	1.9	27.5	84.9	43.0	128.4	2.7	G	(D)
Iowa	–	7	3	.1	2.3	.1	.2	1.4	7.6	5.0	12.3	.1	.2	10.7
Kansas	E4	9	3	.5	16.4	.3	.7	8.2	44.6	41.1	86.2	(D)	E	(D)
Kentucky	–	12	10	.9	23.5	.7	1.3	14.5	61.9	49.4	111.6	1.4	F	(D)
Maryland	E5	9	4	.9	31.0	.4	.7	11.8	72.2	52.9	124.5	3.1	F	(D)
Massachusetts	E2	14	3	.2	7.3	.2	.3	4.4	21.2	17.1	38.3	1.1	E	(D)
Michigan	–	27	17	1.1	30.9	.7	1.4	15.4	58.7	52.9	111.7	1.9	F	(D)
Minnesota	E2	19	7	.4	10.7	.3	.5	5.9	25.9	18.4	44.1	.5	F	(D)
Missouri	E1	10	5	.6	15.6	.4	.9	9.4	38.0	23.7	61.6	(D)	1.0	48.5
New Jersey	–	13	6	.4	12.9	.3	.5	5.7	34.9	36.6	70.2	1.1	1.1	47.3
New York	E1	20	10	1.7	56.0	1.0	1.8	26.5	117.8	79.6	199.9	5.3	2.2	116.4
North Carolina	E1	29	15	1.9	41.6	1.5	3.0	25.4	91.2	70.6	163.8	1.7	2.0	81.1
Ohio	E1	38	24	2.7	79.0	1.8	3.7	41.8	159.0	153.8	314.4	5.1	2.8	142.5
Oklahoma	–	13	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	F	(D)
Oregon	–	10	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	32	14	1.4	43.4	.9	1.7	19.8	95.9	88.3	184.3	2.5	1.3	99.4
South Carolina	E3	7	3	.2	3.3	.1	.2	2.0	6.4	5.6	11.4	.6	(NA)	(NA)
South Dakota	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	E1	14	7	.4	11.1	.3	.6	6.6	16.8	17.1	34.6	.4	E	(D)
Texas	–	44	15	1.3	23.0	.9	1.9	13.2	57.7	58.3	115.8	2.3	.8	36.1
Utah	E1	4	2	.1	2.1	.1	.2	1.6	4.9	3.7	8.6	(D)	(NA)	(NA)
Virginia	–	7	5	.6	11.5	.4	.9	7.4	68.1	35.3	104.5	1.0	E	(D)
Wisconsin	–	14	7	1.1	34.8	.7	1.4	21.5	92.6	63.4	155.5	2.7	.7	47.4
INDUSTRY 3565, PACKAGING MACHINERY														
United States	**E1**	**631**	**264**	**26.2**	**894.4**	**15.4**	**31.0**	**427.6**	**1 913.5**	**1 252.4**	**3 126.9**	**70.1**	**22.6**	**1 406.8**
Alabama	–	5	2	.1	3.4	.1	.2	1.9	5.0	3.2	8.6	.1	(NA)	(NA)
California	E1	87	28	3.0	107.9	1.8	3.7	55.0	224.4	118.3	339.1	6.2	2.1	110.8
Colorado	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	14	5	.4	17.4	.2	.5	7.2	21.6	22.5	44.7	(D)	E	(D)
Florida	–	31	20	1.2	40.6	.7	1.6	18.7	84.3	51.5	133.1	2.5	1.1	52.3
Georgia	–	18	8	.8	28.4	.5	1.0	13.4	57.5	47.7	111.3	2.4	.6	34.7
Illinois	E1	58	27	2.9	96.3	1.7	3.1	42.0	234.3	170.0	403.5	6.8	3.2	222.6
Indiana	E1	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	4	3	.1	3.7	.1	.2	2.0	8.4	4.8	12.9	.1	(NA)	(NA)
Kentucky	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	4	2	.2	7.7	.2	.4	5.4	16.9	7.7	23.0	(D)	(NA)	(D)
Maryland	E5	6	3	.7	28.8	.4	1.0	14.7	62.1	31.4	87.1	1.2	F	(D)
Massachusetts	E3	18	7	1.0	33.9	.6	1.2	15.0	59.7	30.7	90.3	1.8	.7	34.1
Michigan	–	20	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	E1	22	11	1.5	49.1	.9	1.8	23.0	70.4	78.1	155.3	3.9	G	(D)
Missouri	E8	10	4	.4	12.5	.2	.6	6.6	19.3	27.9	47.2	(D)	(NA)	(NA)
New Hampshire	E5	5	2	.2	6.7	.1	.2	3.1	14.3	13.1	28.1	.2	(NA)	(D)
New Jersey	E2	44	22	1.3	49.2	.7	1.4	19.7	89.1	58.1	146.4	2.8	2.0	104.5
New York	E2	36	11	1.0	30.2	.6	1.3	15.9	60.3	40.0	100.8	.9	G	(D)
North Carolina	–	15	3	.3	13.0	.2	.4	7.4	31.7	14.8	45.2	1.7	E	(D)
Ohio	–	43	21	2.7	93.1	1.6	3.1	41.3	299.1	150.6	434.9	8.4	2.3	234.8
Pennsylvania	–	30	14	.8	27.8	.5	1.0	13.7	60.0	39.3	100.3	1.1	F	(D)
South Carolina	–	10	5	.7	19.2	.4	.8	11.4	39.7	62.8	97.7	1.6	.7	48.6
Texas	E1	24	12	.7	20.4	.4	.7	8.4	39.3	22.9	61.7	.8	.4	23.7
Virginia	–	6	4	.1	5.3	.1	.2	2.6	10.5	3.7	14.2	(D)	(NA)	(NA)
Washington	E1	22	8	.8	22.0	.5	.9	11.3	46.1	26.1	71.1	1.7	.9	70.4
Wisconsin	–	41	19	2.8	92.0	1.5	3.1	42.0	187.0	135.8	313.9	13.8	1.9	105.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992											1987	
		All establishments		All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS														
United States	**–**	**287**	**145**	**15.7**	**495.8**	**10.4**	**20.6**	**283.7**	**1 160.5**	**646.3**	**1 823.1**	**69.8**	**17.9**	**1 004.4**
California	–	27	8	.7	26.1	.4	.8	12.6	53.3	39.5	95.9	1.6	.5	21.4
Colorado	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E4	7	4	.2	4.7	.1	.3	2.9	10.4	5.9	16.0	.4	(NA)	(NA)
Illinois	–	35	20	2.2	76.5	1.5	3.3	45.5	146.4	87.4	231.1	8.3	2.4	120.3
Indiana	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	5	3	.2	4.4	.1	.2	2.6	7.1	5.2	11.8	(D)	(NA)	(NA)
Kansas	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	14	9	.5	15.9	.3	.6	8.1	30.9	12.6	44.2	1.9	1.0	56.8
Michigan	–	20	11	.8	28.4	.6	1.3	15.5	65.3	26.5	91.7	2.8	.8	47.4
Minnesota	–	12	5	.4	13.5	.3	.6	8.0	27.2	15.0	43.2	3.7	F	(D)
Missouri	E6	12	7	.6	16.5	.5	1.0	10.5	29.9	28.8	58.9	2.5	.7	29.7
New Jersey	E3	12	6	.4	14.5	.2	.5	7.4	27.1	18.8	46.9	.6	.7	39.3
New York	E3	19	8	1.0	25.6	.6	1.3	14.7	53.4	22.0	75.2	3.6	G	(D)
North Carolina	–	10	9	.6	16.9	.4	.8	9.3	62.2	22.1	85.0	2.8	E	(D)
Ohio	E1	26	13	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	G	(D)
Pennsylvania	–	16	6	.9	32.6	.6	1.1	14.1	67.4	38.4	107.1	4.6	1.4	63.2
South Carolina	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	52.3
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	12	5	.3	9.4	.2	.5	5.3	26.6	17.8	43.8	2.8	.2	8.9
Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	17	9	2.1	63.8	1.3	2.4	36.5	187.9	76.2	272.7	9.4	2.4	151.9
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS														
United States	**E1**	**409**	**181**	**17.0**	**529.4**	**10.3**	**20.1**	**230.9**	**982.1**	**764.2**	**1 757.7**	**27.6**	**16.6**	**821.6**
Alabama	–	4	3	.2	7.1	.1	.2	2.5	10.2	11.4	23.7	(D)	.3	14.5
California	–	48	19	2.0	70.4	1.2	2.1	25.6	123.2	114.7	237.0	(D)	1.8	91.1
Connecticut	E6	7	2	.2	4.5	.1	.3	2.7	9.5	8.4	17.9	(D)	.2	11.5
Illinois	–	29	13	1.3	38.4	.8	1.5	15.7	64.9	47.1	110.8	1.0	1.3	65.0
Indiana	–	10	3	.4	10.5	.2	.4	4.8	20.2	11.8	31.3	.8	E	(D)
Kansas	–	7	4	.3	6.6	.2	.4	3.1	13.2	11.4	25.2	.2	(NA)	(NA)
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E2	15	6	.9	31.3	.5	1.0	10.9	45.5	42.3	91.1	1.1	1.2	42.5
Michigan	–	40	17	1.4	46.5	.8	1.7	22.9	90.5	66.2	157.9	3.1	1.2	61.2
Minnesota	–	8	5	.6	20.8	.3	.5	7.0	30.5	26.7	58.0	.5	E	(D)
Missouri	–	15	12	1.6	36.6	1.2	2.2	20.1	77.1	23.9	100.8	(D)	1.0	38.5
Nebraska	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	E8	5	3	.2	7.6	.1	.2	2.4	15.9	10.4	26.5	.3	E	(D)
New Jersey	E1	24	11	1.0	38.3	.5	.9	12.5	77.4	54.8	134.5	2.4	.9	53.3
New York	E3	16	8	.5	14.5	.3	.6	7.0	28.5	20.2	50.8	(D)	.9	29.9
North Carolina	–	9	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	38	15	1.2	39.2	.6	1.3	20.5	72.4	71.1	143.6	1.1	1.5	73.8
Oklahoma	–	8	4	.5	18.9	.2	.5	6.6	13.6	23.0	36.4	(D)	(NA)	(D)
Pennsylvania	E1	34	17	1.3	41.5	.6	1.4	15.5	77.8	82.2	164.2	1.6	1.7	88.7
Rhode Island	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	12.9
South Carolina	–	5	1	.1	3.0	.1	.1	1.2	5.7	5.3	11.1	(D)	(NA)	(D)
Tennessee	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	24.7
Texas	–	15	4	.2	6.5	.1	.3	2.9	11.4	9.9	21.6	.2	(NA)	(D)
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	17	9	.9	28.2	.5	1.1	13.6	54.5	32.1	86.2	2.0	.7	41.0
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.														
United States	**–**	**311**	**171**	**21.8**	**679.0**	**14.6**	**29.6**	**386.3**	**1 493.0**	**922.0**	**2 411.4**	**72.5**	**22.0**	**1 258.6**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	24	9	.8	21.7	.6	1.1	12.9	45.3	24.7	71.6	.8	1.1	58.4
Colorado	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	E3	12	6	.7	20.2	.5	.8	9.3	42.6	19.5	63.8	1.1	.7	37.9
Georgia	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.4	27.2
Illinois	–	29	19	3.2	103.1	2.0	4.0	53.5	222.6	120.7	345.2	17.0	3.4	223.3
Indiana	–	12	7	1.5	45.1	1.0	2.1	28.0	87.7	37.8	121.8	2.2	1.1	51.2
Iowa	E9	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E1	11	4	.6	17.5	.3	.6	11.2	18.7	16.3	40.5	1.5	F	(D)
Michigan	–	25	15	1.3	40.7	.9	1.8	27.3	88.0	73.5	161.8	4.3	1.7	115.1
Minnesota	E1	6	5	.3	10.5	.2	.5	6.4	17.7	12.1	29.7	2.1	E	(D)
Missouri	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	5	4	.3	8.7	.2	.4	4.8	20.4	18.9	39.1	.8	.2	9.8
New Hampshire	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	15	6	.5	13.7	.3	.6	7.9	32.3	17.8	50.5	.7	.4	21.4
New York	–	19	8	1.2	33.5	.8	1.6	20.0	79.3	38.8	118.5	3.0	F	(D)
North Carolina	–	9	7	.8	19.5	.7	1.2	13.2	50.9	37.2	86.7	2.7	F	(D)
Ohio	–	29	21	1.9	63.4	1.2	2.5	34.6	153.1	105.0	249.0	5.0	1.6	100.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.—Con.														
Oregon	–	4	3	.2	6.4	.2	.4	4.1	12.0	6.9	18.6	.4	.2	9.7
Pennsylvania	–	11	8	1.0	34.3	.7	1.2	18.0	75.3	28.8	103.2	6.2	1.3	75.1
Tennessee	–	8	3	.6	15.7	.4	.7	7.2	33.9	23.6	57.2	(D)	E	(D)
Texas	E1	21	9	1.1	25.9	.8	1.8	15.1	58.5	44.2	103.9	.8	G	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	23	13	2.2	79.2	1.6	3.3	54.4	188.2	107.3	294.2	10.3	2.1	140.6
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.														
United States	**E1**	**1 028**	**426**	**41.5**	**1 308.4**	**23.3**	**47.1**	**548.9**	**3 229.4**	**2 316.8**	**5 526.1**	**180.1**	**40.6**	**2 236.0**
Alabama	–	9	4	.3	9.0	.2	.5	6.5	18.9	13.6	35.1	(D)	.2	10.2
Arizona	–	6	3	.2	5.4	.1	.3	2.3	9.5	6.8	18.5	(D)	(NA)	(NA)
Arkansas	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	111	47	3.7	118.7	2.0	4.0	46.1	267.1	188.6	445.4	15.8	4.0	197.0
Colorado	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.2
Connecticut	–	33	13	1.2	40.8	.6	1.4	15.8	88.8	49.0	138.2	7.4	1.6	83.2
Delaware	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	38	16	1.9	56.6	1.1	2.2	27.4	151.5	86.5	244.2	8.7	1.3	74.2
Georgia	–	15	6	.6	14.9	.4	.7	7.1	31.0	36.8	70.5	.6	.9	53.2
Idaho	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	75	32	2.5	73.4	1.6	3.3	33.6	159.0	141.6	300.0	9.1	2.8	168.6
Indiana	–	32	19	1.6	45.1	1.1	2.2	21.6	104.2	81.6	184.9	3.7	1.3	84.0
Iowa	–	5	3	.3	7.2	.2	.4	3.7	16.1	20.4	36.2	.4	.3	15.8
Kansas	–	9	6	.4	9.3	.3	.5	5.3	18.6	10.3	28.6	.5	.3	10.5
Kentucky	E1	11	4	.9	19.4	.6	1.4	10.0	41.4	43.9	84.0	1.8	F	(D)
Louisiana	E2	9	3	.2	4.4	.1	.2	2.1	9.6	8.5	18.0	.1	.2	11.0
Maryland	E5	12	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	27.2
Massachusetts	E5	33	11	1.3	44.8	.8	1.5	22.6	136.3	112.2	255.1	5.4	3.2	146.0
Michigan	–	90	25	3.6	128.3	1.8	3.6	43.7	324.3	232.5	547.5	11.4	3.4	190.9
Minnesota	E1	27	12	1.2	37.2	.7	1.2	16.3	113.7	60.5	171.9	7.4	F	(D)
Missouri	–	11	6	.3	10.3	.2	.4	3.9	23.3	15.7	38.4	(D)	.3	23.5
New Hampshire	–	6	5	1.2	41.5	.6	1.2	13.8	131.6	44.4	173.0	(D)	G	(D)
New Jersey	–	47	22	1.7	59.4	.9	1.9	24.1	117.9	91.6	207.3	3.6	2.3	130.3
New York	–	48	25	4.4	136.5	2.0	3.6	50.2	247.1	189.8	431.9	36.3	(NA)	(D)
North Carolina	–	27	16	1.4	39.8	.9	1.8	18.2	99.6	69.2	173.5	4.8	1.2	78.6
Ohio	–	66	23	1.6	49.6	.8	1.6	17.4	115.1	101.5	217.8	2.7	1.6	77.6
Oklahoma	–	18	5	.4	10.7	.2	.4	4.6	23.1	18.6	41.3	1.0	.4	15.6
Oregon	–	16	5	.3	9.2	.1	.3	3.3	28.0	10.2	38.5	1.3	(NA)	(NA)
Pennsylvania	E1	52	26	2.8	100.8	1.5	3.4	48.9	229.0	203.2	437.7	23.0	3.0	184.2
Rhode Island	–	8	4	.2	5.2	.1	.2	2.0	12.3	6.9	19.0	(D)	(NA)	(NA)
South Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	19	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.4	.3	11.9
Texas	–	63	21	1.8	47.3	1.2	2.5	25.5	103.9	93.9	195.7	3.3	1.7	93.7
Vermont	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	20	7	.6	14.6	.4	.7	7.3	33.2	26.9	60.5	3.2	.3	23.4
Washington	–	16	7	.5	14.7	.2	.4	5.1	45.6	23.3	68.8	(D)	(NA)	(NA)
Wisconsin	–	36	20	1.5	45.3	.9	1.7	20.1	108.5	77.5	185.7	4.0	1.1	85.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Companies—number	354	122	220	517	590	256	377	270	965
All establishments—number	430	183	258	587	631	287	409	311	1 028
With 1 to 19 employees—number	199	61	138	330	367	142	228	140	602
With 20 to 99 employees—number	129	45	66	177	200	108	133	107	320
With 100 employees or more—number	102	77	54	80	64	37	48	64	106

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Employment and labor costs:									
Employees, 1,000	36.9	34.9	23.4	26.0	26.2	15.7	17.0	21.8	41.5
Compensation, total, mil dol	1 555.3	1 448.4	999.8	903.1	1 099.3	638.4	663.0	867.4	1 622.3
Annual payroll, mil dol	1 225.3	1 091.2	777.5	723.9	894.4	495.8	529.4	679.0	1 308.4
Fringe benefits, mil dol	330.0	357.2	222.3	179.2	204.9	142.6	133.7	188.4	313.9
Social Security and other legally required payments, mil dol	129.9	116.1	78.6	75.6	82.9	50.4	58.8	67.4	125.7
Employer voluntary payments, mil dol	200.1	241.1	143.7	103.5	122.0	92.2	74.8	121.0	188.1
Production workers:									
Average for year, 1,000	20.9	28.2	13.5	17.5	15.4	10.4	10.3	14.6	23.3
March, 1,000	21.3	28.6	13.8	17.4	15.6	10.4	10.4	14.6	23.6
May, 1,000	21.1	27.9	13.5	17.6	15.5	10.5	10.4	14.8	23.6
August, 1,000	20.6	28.1	13.3	17.7	15.4	10.5	10.2	14.6	23.5
November, 1,000	20.6	28.0	13.3	17.1	15.3	10.3	10.0	14.6	22.8
Hours, millions	41.0	57.5	27.4	34.9	31.0	20.6	20.1	29.6	47.1
Wages, mil dol	582.1	824.6	382.1	394.5	427.6	283.7	230.9	386.3	548.9
Cost of materials[1], mil dol	2 473.1	1 717.4	2 120.2	1 339.0	1 252.4	646.3	764.2	922.0	2 316.8
Materials, parts, containers, etc., consumed[2], mil dol	2 129.4	1 499.0	1 629.9	1 189.8	1 062.6	539.6	673.4	740.5	1 951.6
Resales, mil dol	238.7	70.5	282.3	74.0	115.4	47.9	33.7	102.9	226.4
Fuels, mil dol	10.1	25.3	9.9	8.0	4.7	5.6	4.6	8.7	14.5
Purchased electricity, mil dol	47.3	81.0	28.2	21.9	18.6	21.7	15.6	31.4	44.4
Contract work, mil dol	47.5	41.6	169.8	45.2	51.1	31.6	37.0	38.5	79.9
Quantity of electric energy used for heat and power:									
Purchased, mil kWh	709.4	1 584.3	458.6	344.0	278.3	356.5	219.9	519.7	680.2
Generated less sold, mil kWh	(D)	–	(D)	–	–	–	(D)	(D)	–
Total value of shipments, mil dol	5 268.4	4 287.9	4 170.3	3 000.9	3 126.9	1 823.1	1 757.7	2 411.4	5 526.1
Value added, mil dol	2 746.0	2 546.7	2 069.8	1 647.9	1 913.5	1 160.5	982.1	1 493.0	3 229.4
Inventories by stage of fabrication:									
Beginning of 1992, mil dol	1 262.4	921.6	971.3	371.5	696.0	431.7	320.6	552.8	1 017.8
Finished goods, mil dol	554.2	340.7	446.4	84.9	222.4	176.4	41.5	272.9	359.1
Work in process, mil dol	379.1	323.9	328.1	116.7	249.0	165.1	131.7	160.4	303.8
Materials and supplies, mil dol	329.2	257.0	196.7	169.9	224.6	90.2	147.4	119.6	355.0
End of 1992, mil dol	1 220.0	889.8	1 007.4	361.0	753.0	406.3	306.9	549.7	1 040.7
Finished goods, mil dol	519.7	315.4	458.2	80.8	236.2	172.5	43.0	288.2	373.6
Work in process, mil dol	364.2	325.5	336.0	106.8	274.3	152.7	118.8	148.7	309.4
Materials and supplies, mil dol	336.1	248.9	213.1	173.5	242.5	81.1	145.1	112.8	357.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 909.4	3 231.8	1 205.0	825.1	893.4	941.6	475.2	1 075.3	1 696.7
New capital expenditures[1]	155.0	206.5	138.0	60.7	70.1	69.8	27.6	72.5	180.1
Used capital expenditures	16.7	23.5	6.6	6.3	4.4	12.7	2.5	5.6	12.8
Retirements	43.5	58.8	36.8	25.4	37.2	28.2	29.5	44.7	37.5
End of year	2 037.6	3 403.0	1 312.9	866.7	930.7	995.8	475.8	1 108.7	1 852.1
Buildings and other structures:									
Beginning of year	443.5	584.9	311.4	236.4	245.0	173.5	142.5	226.3	493.4
New capital expenditures	24.8	12.4	36.0	10.6	18.6	20.1	5.2	10.2	53.7
Used capital expenditures	7.0	1.3	2.1	1.1	2.1	.9	1.1	.5	2.7
Retirements	2.7	.8	7.7	1.0	1.4	1.2	6.8	4.8	4.9
End of year	472.7	597.7	341.8	247.1	264.3	193.3	142.0	232.2	544.8
Machinery and equipment:									
Beginning of year	1 465.9	2 647.0	893.6	588.7	648.4	768.1	332.7	849.0	1 203.3
New capital expenditures[1]	130.1	194.2	102.1	50.0	51.4	49.7	22.4	62.3	126.4
Used capital expenditures	9.7	22.2	4.5	5.1	2.3	11.8	1.4	5.1	10.1
Retirements	40.8	58.0	29.1	24.3	35.8	27.0	22.7	39.9	32.6
End of year	1 564.9	2 805.3	971.1	619.6	666.4	802.6	333.8	876.5	1 307.3
Depreciation charges during 1992:									
Total	138.7	218.8	84.8	60.6	77.0	66.2	39.1	92.5	146.1
Buildings and other structures	22.0	35.0	15.0	10.2	17.0	7.4	7.4	15.2	25.5
Machinery and equipment	116.7	183.9	69.8	50.4	60.0	58.8	31.7	77.4	120.6
Rental payments:									
Total	38.9	16.6	26.0	30.7	35.1	20.3	25.1	20.0	62.4
Buildings and other structures	24.9	6.4	12.4	20.5	21.4	10.2	16.5	11.8	36.9
Machinery and equipment	14.1	10.2	13.6	10.2	13.6	10.2	8.6	8.3	25.5

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pumps and pumping equipment (SIC 3561)		Ball and roller bearings (SIC 3562)		Air and gas compressors (SIC 3563)		Blowers and fans (SIC 3564)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	8.7	(X)	10.9	(X)	7.6	(X)	4.0	(X)
Response coverage ratio (percent)[2]	83.1	(X)	95.7	(X)	81.6	(X)	84.7	(X)
Machinery	30.8	(X)	108.2	(X)	23.6	(X)	10.2	(X)
Response coverage ratio (percent)[2]	83.1	(X)	95.7	(X)	83.6	(X)	85.7	(X)
Other purchased services:								
Communications	17.2	(X)	6.0	(X)	9.9	(X)	10.7	(X)
Response coverage ratio (percent)[2]	81.6	(X)	94.6	(X)	82.0	(X)	84.5	(X)
Legal	6.3	(X)	2.9	(X)	6.8	(X)	11.8	(X)
Response coverage ratio (percent)[2]	77.8	(X)	94.9	(X)	83.6	(X)	85.8	(X)
Accounting and bookkeeping	3.3	(X)	1.4	(X)	2.3	(X)	3.5	(X)
Response coverage ratio (percent)[2]	76.6	(X)	94.0	(X)	82.5	(X)	85.8	(X)
Advertising	29.5	(X)	1.3	(X)	18.4	(X)	16.6	(X)
Response coverage ratio (percent)[2]	79.5	(X)	94.7	(X)	83.6	(X)	86.3	(X)
Software and other data processing	7.2	(X)	4.0	(X)	7.2	(X)	4.0	(X)
Response coverage ratio (percent)[2]	75.8	(X)	94.9	(X)	82.6	(X)	86.3	(X)
Refuse removal, including hazardous waste	5.4	(X)	14.2	(X)	3.2	(X)	3.2	(X)
Response coverage ratio (percent)[2]	79.6	(X)	95.7	(X)	81.5	(X)	86.3	(X)
New machinery and equipment expenditures	130.1	(X)	194.2	(X)	102.1	(X)	50.0	(X)
Automobiles, trucks, etc., for highway use	3.5	8	.3	37	1.3	9	8.1	65
Computers and peripheral data processing equipment	14.2	7	3.7	31	10.0	7	6.1	24
All other	112.4	1	190.1	1	90.7	1	35.9	12
Adjustment ratio[3]	1.2	(X)	.7	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	2 129.4	(X)	1 499.0	(X)	1 629.9	(X)	1 189.8	(X)
Materials purchased or transferred from foreign sources[4]	127.3	21	438.3	38	209.2	11	18.6	15
Materials purchased or transferred from domestic sources	2 002.1	2	1 060.7	16	1 420.7	3	1 171.2	1
Adjustment ratio[3]	1.6	(X)	1.0	(X)	1.6	(X)	1.9	(X)

Item	Packaging machinery (SIC 3565)		Speed changers, drives, and gears (SIC 3566)		Industrial furnaces and ovens (SIC 3567)		Power transmission equipment, n.e.c. (SIC 3568)		General industrial machinery, n.e.c. (SIC 3569)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	3.9	(X)	3.9	(X)	2.9	(X)	3.5	(X)	8.2	(X)
Response coverage ratio (percent)[2]	67.2	(X)	86.7	(X)	75.6	(X)	90.1	(X)	76.1	(X)
Machinery	8.3	(X)	18.4	(X)	6.8	(X)	15.3	(X)	20.4	(X)
Response coverage ratio (percent)[2]	69.8	(X)	90.4	(X)	86.0	(X)	90.1	(X)	76.1	(X)
Other purchased services:										
Communications	10.2	(X)	4.9	(X)	7.3	(X)	5.0	(X)	25.9	(X)
Response coverage ratio (percent)[2]	69.4	(X)	90.4	(X)	83.5	(X)	86.6	(X)	73.1	(X)
Legal	11.8	(X)	3.7	(X)	5.2	(X)	2.4	(X)	16.2	(X)
Response coverage ratio (percent)[2]	72.0	(X)	86.0	(X)	84.6	(X)	90.1	(X)	77.5	(X)
Accounting and bookkeeping	4.1	(X)	1.4	(X)	3.2	(X)	1.6	(X)	10.3	(X)
Response coverage ratio (percent)[2]	72.0	(X)	84.9	(X)	86.0	(X)	88.4	(X)	76.3	(X)
Advertising	17.6	(X)	8.5	(X)	8.9	(X)	6.8	(X)	60.3	(X)
Response coverage ratio (percent)[2]	70.0	(X)	87.8	(X)	84.5	(X)	88.4	(X)	76.1	(X)
Software and other data processing	4.6	(X)	2.7	(X)	1.8	(X)	4.1	(X)	8.4	(X)
Response coverage ratio (percent)[2]	67.7	(X)	90.4	(X)	77.0	(X)	87.9	(X)	75.2	(X)
Refuse removal, including hazardous waste	2.2	(X)	2.6	(X)	1.5	(X)	2.6	(X)	5.7	(X)
Response coverage ratio (percent)[2]	68.8	(X)	87.8	(X)	82.6	(X)	86.8	(X)	72.2	(X)
New machinery and equipment expenditures	51.4	(X)	49.7	(X)	22.4	(X)	62.3	(X)	126.4	(X)
Automobiles, trucks, etc., for highway use	1.3	24	.3	57	1.8	42	.5	47	3.1	28
Computers and peripheral data processing equipment	10.8	15	4.9	13	6.4	26	11.3	7	25.1	6
All other	39.4	5	44.5	2	14.3	12	50.4	2	98.2	2
Adjustment ratio[3]	1.1	(X)	1.4	(X)	1.3	(X)	1.6	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	1 062.6	(X)	539.6	(X)	673.4	(X)	740.5	(X)	1 951.6	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	6.0	35	16.3	31	73.8	21	144.3	19
Materials purchased or transferred from domestic sources	(S)	(X)	533.6	1	657.1	1	666.7	3	1 807.3	2
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.5	(X)	1.8	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT												
Total	**E1**	**430**	**36.9**	**1 225.3**	**20.9**	**41.0**	**582.1**	**2 746.0**	**2 473.1**	**5 268.4**	**155.0**	**1 220.0**
Establishments with an average of—												
1 to 4 employees	E7	67	.1	3.3	.1	.2	1.6	7.7	8.2	15.9	.5	3.9
5 to 9 employees	E6	65	.4	11.3	.2	.5	5.6	27.1	23.0	48.4	1.4	12.4
10 to 19 employees	E2	67	1.0	27.1	.5	1.1	12.1	67.9	58.3	127.7	2.7	26.5
20 to 49 employees	–	89	3.0	90.7	1.8	3.6	42.7	219.3	176.6	390.9	8.5	88.1
50 to 99 employees	E1	40	2.9	83.8	1.8	3.6	40.3	197.2	185.3	388.3	9.3	82.2
100 to 249 employees	E1	55	8.9	287.1	4.9	9.9	135.1	618.4	682.1	1 322.2	28.2	285.1
250 to 499 employees	E1	36	12.0	408.6	6.8	13.5	184.2	906.8	855.7	1 773.4	56.2	461.3
500 to 999 employees	E1	8	5.1	175.0	2.9	5.6	89.1	346.7	283.5	637.8	25.9	130.1
1,000 to 2,499 employees	–	3	3.5	138.3	1.9	3.1	71.4	354.9	200.3	563.8	22.3	130.5
Covered by administrative records[2]	E9	109	.5	11.6	.3	.6	5.5	20.4	19.7	40.1	1.4	9.7
INDUSTRY 3562, BALL AND ROLLER BEARINGS												
Total	**–**	**183**	**34.9**	**1 091.2**	**28.2**	**57.5**	**824.6**	**2 546.7**	**1 717.4**	**4 287.9**	**206.5**	**889.8**
Establishments with an average of—												
1 to 4 employees	E9	20	(Z)	.8	(Z)	.1	.6	1.7	1.2	2.9	.2	.7
5 to 9 employees	E5	20	.1	4.3	.1	.2	3.1	8.1	7.0	15.1	.8	3.8
10 to 19 employees	E3	21	.3	7.8	.2	.5	5.3	14.1	11.6	25.7	1.1	7.9
20 to 49 employees	E1	20	.7	21.3	.5	1.0	12.6	60.6	35.4	95.0	10.2	17.8
50 to 99 employees	–	25	2.0	56.9	1.5	3.1	38.8	143.3	129.0	265.2	20.6	59.5
100 to 249 employees	–	27	4.1	123.1	3.2	6.7	81.5	301.1	167.0	466.1	33.6	125.6
250 to 499 employees	–	31	11.6	356.8	9.4	19.1	268.4	1 008.3	627.9	1 654.8	59.9	362.9
500 to 999 employees	–	16	10.7	318.9	8.7	17.6	247.5	711.0	460.0	1 172.9	57.6	245.2
1,000 to 2,499 employees	–	3	5.4	201.3	4.5	9.3	166.9	298.6	278.4	590.2	22.5	66.4
Covered by administrative records[2]	E9	37	.2	4.6	.2	.3	3.6	8.3	7.1	15.4	.8	3.4
INDUSTRY 3563, AIR AND GAS COMPRESSORS												
Total	**E1**	**258**	**23.4**	**777.5**	**13.5**	**27.4**	**382.1**	**2 069.8**	**2 120.2**	**4 170.3**	**138.0**	**1 007.4**
Establishments with an average of—												
1 to 4 employees	E6	53	.1	2.7	.1	.1	1.4	7.8	6.8	15.2	.2	4.0
5 to 9 employees	E5	40	.3	6.6	.2	.3	3.0	15.7	14.9	30.6	.6	7.9
10 to 19 employees	E2	45	.6	19.7	.3	.7	7.8	44.6	56.8	101.1	1.9	24.7
20 to 49 employees	E1	35	1.1	33.3	.6	1.3	17.4	81.9	70.8	154.2	4.7	30.7
50 to 99 employees	E1	31	2.2	63.0	1.3	2.6	29.0	139.0	163.0	302.7	5.3	89.7
100 to 249 employees	–	29	4.5	150.1	2.6	5.7	72.6	415.0	462.6	884.7	25.5	172.0
250 to 499 employees	E3	15	5.1	163.7	2.6	5.0	68.0	465.5	626.8	1 091.5	27.7	135.3
500 to 999 employees	–	6	3.9	147.2	2.6	5.3	86.4	442.9	431.5	887.8	40.8	315.1
1,000 to 2,499 employees	–	4	5.6	191.2	3.2	6.4	96.6	457.3	286.9	702.4	31.2	228.0
Covered by administrative records[2]	E9	71	.3	6.5	.2	.3	3.0	12.3	13.3	25.6	.5	6.2
INDUSTRY 3564, BLOWERS AND FANS												
Total	**E1**	**587**	**26.0**	**723.9**	**17.5**	**34.9**	**394.5**	**1 647.9**	**1 339.0**	**3 000.9**	**60.7**	**361.0**
Establishments with an average of—												
1 to 4 employees	E8	150	.3	6.3	.2	.4	3.5	13.2	12.2	25.5	.5	3.0
5 to 9 employees	E6	92	.6	14.7	.4	.7	7.6	30.8	26.7	57.4	1.3	6.2
10 to 19 employees	E2	88	1.3	31.4	.8	1.6	16.0	75.0	53.5	129.0	1.4	14.4
20 to 49 employees	E1	124	4.0	111.2	2.6	5.3	54.3	260.2	238.3	499.8	7.2	57.0
50 to 99 employees	E1	53	3.8	94.7	2.6	5.2	52.5	216.3	187.6	403.5	7.3	56.1
100 to 249 employees	–	64	9.9	270.3	7.0	14.2	158.0	690.7	547.7	1 248.7	30.3	138.6
250 to 499 employees	E2	12	3.9	116.8	2.5	4.8	57.1	225.6	183.3	411.2	8.1	51.8
500 to 999 employees	–	4	2.2	78.5	1.4	2.7	45.5	136.1	89.7	225.9	4.5	34.0
Covered by administrative records[2]	E9	219	.9	17.3	.6	1.1	9.6	33.7	30.6	64.2	1.5	8.1
INDUSTRY 3565, PACKAGING MACHINERY												
Total	**E1**	**631**	**26.2**	**894.4**	**15.4**	**31.0**	**427.6**	**1 913.5**	**1 252.4**	**3 126.9**	**70.1**	**753.0**
Establishments with an average of—												
1 to 4 employees	E9	143	.3	8.0	.2	.4	3.9	17.6	10.4	27.9	.7	6.7
5 to 9 employees	E6	114	.8	22.2	.5	.9	10.7	41.7	25.6	67.3	1.5	15.0
10 to 19 employees	E1	110	1.5	44.3	.9	1.8	21.3	99.7	58.3	155.0	4.1	37.7
20 to 49 employees	–	123	4.2	136.0	2.6	5.4	66.9	265.2	169.4	433.8	8.2	99.9
50 to 99 employees	–	77	5.3	176.1	3.1	6.4	82.7	360.3	245.7	607.9	9.9	145.4
100 to 249 employees	E1	48	7.3	248.8	4.4	8.7	119.2	518.9	415.2	927.7	25.5	224.1
250 to 499 employees	E1	11	3.9	145.1	2.3	4.7	70.2	338.6	175.2	495.0	11.7	115.1
500 to 999 employees	–	5	3.0	114.0	1.6	2.8	52.8	271.4	152.6	412.2	8.4	109.1
Covered by administrative records[2]	E9	236	1.0	24.8	.6	1.2	12.1	49.4	28.5	77.9	2.1	18.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS												
Total	**–**	**287**	**15.7**	**495.8**	**10.4**	**20.6**	**283.7**	**1 160.5**	**646.3**	**1 823.1**	**69.8**	**406.3**
Establishments with an average of—												
1 to 4 employees	E9	43	.1	2.7	.1	.1	1.7	6.0	2.9	8.9	.3	1.9
5 to 9 employees	E3	40	.3	8.0	.2	.4	4.7	18.3	9.3	27.6	1.1	5.3
10 to 19 employees	E1	59	.8	27.0	.6	1.3	15.4	48.9	33.3	81.6	2.4	16.1
20 to 49 employees	–	70	2.3	67.4	1.5	3.1	37.2	136.9	84.4	221.2	7.6	48.5
50 to 99 employees	E1	38	2.6	83.7	1.7	3.6	44.9	188.5	127.4	318.8	14.0	67.6
100 to 249 employees	–	24	3.6	116.0	2.3	4.8	66.1	312.5	165.2	481.8	18.1	116.2
250 to 499 employees	E1	11	6.0	191.1	4.0	7.3	113.6	449.4	223.8	683.2	26.2	150.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	69	.3	8.0	.2	.5	4.8	15.6	8.1	23.7	.8	5.4
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS												
Total	**E1**	**409**	**17.0**	**529.4**	**10.3**	**20.1**	**230.9**	**982.1**	**764.2**	**1 757.7**	**27.6**	**306.9**
Establishments with an average of—												
1 to 4 employees	E6	67	.1	3.5	.1	.2	1.7	6.7	11.7	18.7	.3	2.6
5 to 9 employees	E4	76	.5	13.9	.3	.6	6.1	24.3	22.4	46.7	.4	7.6
10 to 19 employees	E1	85	1.2	37.6	.7	1.4	16.0	70.9	56.7	127.7	1.2	20.3
20 to 49 employees	–	87	2.6	76.4	1.5	3.0	33.6	154.3	115.4	270.3	3.3	47.7
50 to 99 employees	E1	46	3.3	105.7	1.9	4.0	43.9	189.8	171.5	369.0	4.3	50.9
100 to 249 employees	E1	39	5.8	181.1	3.4	6.7	85.2	334.6	225.1	562.9	8.9	110.3
250 to 499 employees	–	8	3.5	111.2	2.3	4.2	44.3	201.5	161.3	362.4	9.3	67.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	98	.4	8.2	.3	.5	3.8	16.3	13.1	29.4	.3	5.4
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.												
Total	**–**	**311**	**21.8**	**679.0**	**14.6**	**29.6**	**386.3**	**1 493.0**	**922.0**	**2 411.4**	**72.5**	**549.7**
Establishments with an average of—												
1 to 4 employees	E8	41	.1	1.7	.1	.1	1.1	3.7	2.9	6.5	.1	1.2
5 to 9 employees	E7	41	.3	8.3	.2	.4	5.0	16.4	12.5	28.9	.9	6.2
10 to 19 employees	E4	58	.8	21.8	.6	1.1	12.9	39.6	25.4	65.2	1.5	13.0
20 to 49 employees	E1	74	2.4	67.3	1.6	3.3	35.7	144.1	123.2	267.9	9.9	47.4
50 to 99 employees	–	33	2.3	70.1	1.7	3.5	40.7	166.7	110.6	278.1	7.7	48.8
100 to 249 employees	E1	45	7.5	223.7	4.9	9.8	128.1	487.2	301.7	799.2	27.6	189.7
250 to 499 employees	–	14	4.8	151.6	3.4	6.9	92.9	377.4	169.1	531.3	12.7	137.5
500 to 999 employees	–	4	3.6	134.5	2.3	4.5	69.9	258.0	176.7	434.3	12.0	105.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	80	.5	11.4	.4	.7	6.9	18.1	14.6	32.7	.7	6.2
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.												
Total	**E1**	**1 028**	**41.5**	**1 308.4**	**23.3**	**47.1**	**548.9**	**3 229.4**	**2 316.8**	**5 526.1**	**180.1**	**1 040.7**
Establishments with an average of—												
1 to 4 employees	E7	247	.5	12.8	.3	.5	5.1	26.9	21.8	48.3	1.4	9.1
5 to 9 employees	E3	163	1.1	29.6	.6	1.3	12.7	68.9	48.6	117.1	2.6	18.3
10 to 19 employees	E1	192	2.7	77.7	1.5	3.1	33.1	164.9	129.3	292.6	6.7	54.3
20 to 49 employees	E1	218	6.9	202.9	4.2	8.6	90.7	469.2	331.2	798.5	28.8	148.2
50 to 99 employees	–	102	7.7	226.6	4.4	8.8	96.2	486.9	385.7	876.0	26.0	161.4
100 to 249 employees	E1	81	12.3	385.0	7.2	14.5	175.5	1 011.5	801.5	1 811.3	48.6	360.9
250 to 499 employees	–	20	6.7	237.0	3.6	7.3	90.6	774.0	436.6	1 196.9	27.4	199.5
500 to 999 employees	–	4	3.8	136.7	1.5	3.0	45.0	227.1	162.2	385.4	38.6	89.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	270	.8	16.8	.5	.9	7.2	36.0	28.8	64.8	2.2	12.5

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3561	**Pumps and pumping equipment:**										
	All establishments in industry	430	36.9	1 225.3	20.9	41.0	582.1	2 746.0	2 473.1	5 268.4	155.0
	Establishments with this product class primary:										
35611	Industrial pumps, except fluid power pumps	163	20.9	721.0	11.2	22.1	329.6	1 607.8	1 386.6	3 030.0	91.8
35613	Domestic water systems	18	3.0	88.4	1.9	3.7	42.8	189.9	330.0	520.2	13.6
35615	Pumps, n.e.c.	63	6.5	208.6	4.0	8.1	105.3	475.0	417.5	903.1	25.4
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	55	5.5	183.7	3.2	6.1	93.0	423.1	292.8	720.3	21.0
3562	**Ball and roller bearings:**										
	All establishments in industry	183	34.9	1 091.2	28.2	57.5	824.6	2 546.7	1 717.4	4 287.9	206.5
	Establishments with this product class primary:										
35621	Ball bearings, complete, unmounted	59	14.9	486.9	11.8	24.1	361.8	941.7	769.4	1 728.1	95.2
35622	Tapered roller bearings (including cups and cones), unmounted	10	6.5	209.6	5.5	11.3	176.4	499.0	404.6	910.1	39.7
35623	Roller bearings, except tapered, unmounted	29	8.3	237.6	6.7	13.6	175.4	600.7	299.6	911.7	38.0
35624	Mounted bearings, except plain	11	2.5	76.9	1.9	3.9	55.1	290.0	119.4	404.7	9.8
35629	Parts for ball and roller bearings, except cups and cones	30	2.3	67.6	1.9	3.9	46.2	186.2	103.9	283.7	21.0
3563	**Air and gas compressors:**										
	All establishments in industry	258	23.4	777.5	13.5	27.4	382.1	2 069.8	2 120.2	4 170.3	138.0
	Establishments with this product class primary:										
35631	Air and gas compressors and vacuum pumps	98	13.9	456.7	7.5	15.2	209.3	1 188.0	1 307.5	2 502.2	85.0
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	35	5.1	179.9	3.2	6.8	102.4	547.1	403.0	930.4	39.0
35635	Industrial spraying equipment	52	4.0	127.5	2.4	4.8	64.2	307.8	382.6	684.0	12.9
3564	**Blowers and fans:**										
	All establishments in industry	587	26.0	723.9	17.5	34.9	394.5	1 647.9	1 339.0	3 000.9	60.7
	Establishments with this product class primary:										
35643	Centrifugal fans and blowers	60	6.1	190.3	4.1	8.1	107.7	447.7	281.0	733.7	21.1
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	57	5.5	163.5	3.8	7.7	94.9	383.4	296.3	686.1	10.5
35645	Dust collection and other air purification equipment for cleaning incoming air	127	8.7	203.6	6.1	12.0	110.9	441.1	431.0	873.8	13.3
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	72	3.8	126.5	2.3	4.7	57.5	301.0	266.1	568.5	11.6
3565	**Packaging machinery:**										
	All establishments in industry	631	26.2	894.4	15.4	31.0	427.6	1 913.5	1 252.4	3 126.9	70.1
	Establishments with this product class primary:										
35651	Packing, packaging, and bottling machinery, except parts	299	21.5	746.6	12.7	25.3	350.8	1 626.5	1 057.2	2 652.7	56.4
35652	Parts for packing, packaging, and bottling machinery	29	2.5	89.0	1.5	3.1	48.6	162.1	127.2	281.8	5.9
3566	**Speed changers, drives, and gears:**										
	All establishments in industry	287	15.7	495.8	10.4	20.6	283.7	1 160.5	646.3	1 823.1	69.8
3567	**Industrial furnaces and ovens:**										
	All establishments in industry	409	17.0	529.4	10.3	20.1	230.9	982.1	764.2	1 757.7	27.6
	Establishments with this product class primary:										
35671	Electric industrial furnaces, ovens, and kilns	70	3.8	136.0	1.8	3.6	44.8	213.0	213.2	433.3	3.7
35674	High-frequency induction and dielectric heating equipment	24	1.3	48.8	.7	1.5	19.6	109.2	68.3	176.2	4.4
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	83	6.6	167.3	4.8	9.0	88.6	363.1	196.1	556.8	12.1
35676	Fuel-fired industrial furnaces, ovens, and kilns	77	3.8	134.8	2.0	4.0	58.3	211.7	216.7	438.7	5.6
3568	**Power transmission equipment, n.e.c.:**										
	All establishments in industry	311	21.8	679.0	14.6	29.6	386.3	1 493.0	922.0	2 411.4	72.5
	Establishments with this product class primary:										
35681	Plain bearings and bushings	40	3.4	104.7	2.5	4.8	64.5	242.6	109.9	355.9	11.5
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	146	17.0	538.8	11.2	22.8	299.7	1 183.0	755.3	1 931.2	58.2
3569	**General industrial machinery, n.e.c.:**										
	All establishments in industry	1 028	41.5	1 308.4	23.3	47.1	548.9	3 229.4	2 316.8	5 526.1	180.1
	Establishments with this product class primary:										
35693	Filters and strainers, except fluid power	204	13.2	414.7	8.0	15.7	179.9	1 254.3	797.0	2 043.1	78.4
35694	Filters for hydraulic fluid power systems, nonaerospace	19	1.4	39.9	.9	1.9	19.6	111.6	63.1	175.4	5.8
35695	Filters for pneumatic fluid power systems, nonaerospace	5	.5	14.6	.3	.6	5.8	30.8	19.9	48.8	(D)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35699	General industrial machinery, n.e.c.	380	22.5	741.4	11.9	24.3	299.8	1 618.0	1 302.1	2 909.8	82.4

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT			
Total value of shipments	5 268.4	3 998.3	(NA)
Primary products value of shipments	4 307.4	3 150.6	(NA)
Secondary products value of shipments	465.0	431.8	(NA)
Total miscellaneous receipts	496.1	415.9	(NA)
Value of resales	320.3	206.9	(NA)
Contract receipts	10.9	11.5	(NA)
Other miscellaneous receipts	164.9	197.5	(NA)
Sales of scrap and refuse	1.4	.3	(NA)
Receipts for installation (or construction) of products of this establishment	(D)	(D)	(NA)
Receipts for repair work	53.6	143.7	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Other miscellaneous receipts, n.s.k.	43.6	6.3	(NA)
Primary products specialization ratio	90	88	(NA)
Value of primary products shipments made in all industries	4 603.3	3 447.6	(NA)
Value of primary products shipments made in this industry	4 307.4	3 150.6	(NA)
Value of primary products shipments made in other industries	296.0	297.0	(NA)
Coverage ratio	94	91	(NA)
INDUSTRY 3562, BALL AND ROLLER BEARINGS			
Total value of shipments	4 287.9	3 723.7	3 149.5
Primary products value of shipments	4 067.4	3 506.1	2 939.2
Secondary products value of shipments	92.1	82.6	134.3
Total miscellaneous receipts	128.4	135.1	76.0
Value of resales	110.6	122.1	61.1
Contract receipts	(D)	1.9	(D)
Other miscellaneous receipts	(D)	11.1	(D)
Primary products specialization ratio	98	98	96
Value of primary products shipments made in all industries	4 138.6	3 563.8	2 973.1
Value of primary products shipments made in this industry	4 067.4	3 506.1	2 939.2
Value of primary products shipments made in other industries	71.2	57.7	33.9
Coverage ratio	98	98	99
INDUSTRY 3563, AIR AND GAS COMPRESSORS			
Total value of shipments	4 170.3	3 050.9	3 270.0
Primary products value of shipments	3 250.2	2 470.0	2 603.3
Secondary products value of shipments	384.0	317.0	300.4
Total miscellaneous receipts	536.1	263.9	366.3
Value of resales	332.9	159.5	163.0
Contract receipts	8.3	21.1	9.3
Other miscellaneous receipts	195.0	83.3	194.0
Sales of scrap and refuse	(D)	(D)	(NA)
Receipts for installation (or construction) of products of this establishment	20.4	(D)	(D)
Receipts for repair work	64.2	16.2	52.0
Other miscellaneous receipts	(D)	14.1	117.2
Other miscellaneous receipts, n.s.k.	1.0	14.4	(D)
Primary products specialization ratio	89	89	90
Value of primary products shipments made in all industries	3 541.8	2 628.9	2 846.2
Value of primary products shipments made in this industry	3 250.2	2 470.0	2 603.3
Value of primary products shipments made in other industries	291.5	158.9	242.9
Coverage ratio	92	94	91
INDUSTRY 3564, BLOWERS AND FANS			
Total value of shipments	3 000.9	2 272.4	2 173.5
Primary products value of shipments	2 698.7	1 957.0	1 827.1
Secondary products value of shipments	154.3	191.9	252.4
Total miscellaneous receipts	148.0	123.5	93.9
Value of resales	99.7	77.4	59.5
Contract receipts	17.7	26.4	6.8
Other miscellaneous receipts	30.5	19.7	27.6
Primary products specialization ratio	95	91	88
Value of primary products shipments made in all industries	2 999.9	2 181.6	1 994.5
Value of primary products shipments made in this industry	2 698.7	1 957.0	1 827.1
Value of primary products shipments made in other industries	301.2	224.6	167.4
Coverage ratio	90	90	92

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3565, PACKAGING MACHINERY			
Total value of shipments	3 126.9	2 189.9	(NA)
Primary products value of shipments	2 669.6	1 845.2	(NA)
Secondary products value of shipments	210.5	214.9	(NA)
Total miscellaneous receipts	246.8	129.8	(NA)
Value of resales	158.3	71.4	(NA)
Contract receipts	16.4	3.8	(NA)
Other miscellaneous receipts	72.1	54.6	(NA)
Sales of scrap and refuse	.3	.1	(NA)
Receipts for installation (or construction) of products of this establishment	11.2	5.8	(NA)
Receipts for repair work	31.7	21.4	(NA)
Other miscellaneous receipts	16.9	11.1	(NA)
Other miscellaneous receipts, n.s.k.	12.0	16.2	(NA)
Primary products specialization ratio	93	90	(NA)
Value of primary products shipments made in all industries	2 836.7	2 039.9	(NA)
Value of primary products shipments made in this industry	2 669.6	1 845.2	(NA)
Value of primary products shipments made in other industries	167.0	194.7	(NA)
Coverage ratio	94	90	(NA)
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS			
Total value of shipments	1 823.1	1 569.0	1 631.6
Primary products value of shipments	1 515.9	1 343.1	1 347.8
Secondary products value of shipments	191.2	133.5	212.8
Total miscellaneous receipts	116.0	92.4	71.0
Value of resales	67.9	63.1	38.4
Contract receipts	31.9	23.4	21.9
Other miscellaneous receipts	16.3	5.9	10.7
Primary products specialization ratio	89	91	86
Value of primary products shipments made in all industries	1 693.5	1 541.4	1 557.4
Value of primary products shipments made in this industry	1 515.9	1 343.1	1 347.8
Value of primary products shipments made in other industries	177.6	198.4	209.6
Coverage ratio	90	87	87
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS			
Total value of shipments	1 757.7	1 434.8	1 102.2
Primary products value of shipments	1 530.6	1 145.2	968.1
Secondary products value of shipments	126.4	162.3	75.7
Total miscellaneous receipts	100.6	127.4	58.4
Value of resales	47.7	42.6	19.1
Contract receipts	21.7	22.7	5.5
Other miscellaneous receipts	31.3	62.1	33.8
Primary products specialization ratio	92	88	93
Value of primary products shipments made in all industries	1 709.0	1 235.5	1 026.8
Value of primary products shipments made in this industry	1 530.6	1 145.2	968.1
Value of primary products shipments made in other industries	178.4	90.3	58.6
Coverage ratio	90	93	94
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.			
Total value of shipments	2 411.4	2 041.1	1 926.8
Primary products value of shipments	2 058.6	1 779.2	1 661.6
Secondary products value of shipments	194.6	166.4	178.2
Total miscellaneous receipts	158.2	95.5	87.0
Value of resales	140.4	80.5	68.9
Contract receipts	11.2	7.0	10.2
Other miscellaneous receipts	6.6	8.0	7.9
Primary products specialization ratio	91	91	90
Value of primary products shipments made in all industries	2 325.4	2 071.0	1 985.6
Value of primary products shipments made in this industry	2 058.6	1 779.2	1 661.6
Value of primary products shipments made in other industries	266.8	291.9	324.0
Coverage ratio	89	86	84
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.			
Total value of shipments	5 526.1	3 840.4	(NA)
Primary products value of shipments	4 544.0	3 303.1	(NA)
Secondary products value of shipments	537.7	330.1	(NA)
Total miscellaneous receipts	444.4	207.1	(NA)
Value of resales	351.1	134.0	(NA)
Contract receipts	30.6	22.2	(NA)
Other miscellaneous receipts	62.6	50.9	(NA)
Sales of scrap and refuse	1.2	1.9	(NA)
Receipts for installation (or construction) of products of this establishment	9.1	4.4	(NA)
Receipts for repair work	25.3	17.6	(NA)
Other miscellaneous receipts	21.3	17.0	(NA)
Other miscellaneous receipts, n.s.k.	5.7	10.0	(NA)
Primary products specialization ratio	89	91	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C. —Con.			
Value of primary products shipments made in all industries	5 093.3	3 840.5	(NA)
Value of primary products shipments made in this industry	4 544.0	3 303.1	(NA)
Value of primary products shipments made in other industries	549.3	537.4	(NA)
Coverage ratio	89	86	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3561– —	**PUMPS AND PUMPING EQUIPMENT**				
	Total	**(NA)**	**4 603.3**	**(NA)**	**3 447.6**
35611	Industrial pumps, except fluid power pumps	(NA)	2 390.7	(NA)	1 659.8
35611 00	Industrial pumps, except hydraulic fluid power pumps, automotive circulating pumps, and measuring and dispensing pumps[3]	196	2 390.7	142	1 659.8
35613	Domestic water systems	(NA)	317.6	(NA)	276.9
35613 00	Domestic water systems (pumps for farm and home use), excluding irrigation pumps[3]	32	317.6	24	276.9
35615	Pumps, n.e.c.	(NA)	697.6	(NA)	446.9
35615 30	Domestic sump pumps (1 hp or less) (including the value of the driver if shipped as a complete unit)[3]	23	150.8	16	136.7
35615 10	Oil-well and oil-field pumps, except boiler feed (including the value of the driver if shipped as a complete unit)[3]	28	208.0	20	108.4
35615 20	Other pumps, except automotive circulating pumps and measuring and dispensing pumps[3]	61	338.8	41	183.9
35615 00	Pumps, n.e.c., n.s.k.	(NA)	–	(NA)	17.8
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	(NA)	1 103.8	(NA)	875.3
35616 00	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	125	1 103.8	113	875.3
35610	Pumps and pumping equipment, n.s.k.	(NA)	93.7	(NA)	188.9
35610 00	Pumps and pumping equipment, n.s.k.[4]	(NA)	61.3	(NA)	108.6
35610 02	Pumps and pumping equipment, n.s.k.[5]	(NA)	32.3	(NA)	80.3
3562– —	**BALL AND ROLLER BEARINGS**				
	Total	**(NA)**	**4 138.6**	**(NA)**	**3 563.8**
35621	Ball bearings, complete, unmounted	(NA)	1 555.1	(NA)	1 306.1
35621 00	Ball bearings, complete, unmounted[3]	57	1 555.1	50	1 306.1
35622	Tapered roller bearings (including cups and cones), unmounted	(NA)	936.1	(NA)	756.2
35622 00	Tapered roller bearings (including cups and cones), unmounted[3]	11	936.1	13	756.2
35623	Roller bearings, except tapered, unmounted	(NA)	810.4	(NA)	735.5
35623 00	Roller bearings, except tapered, unmounted[3]	29	810.4	31	735.5
35624	Mounted bearings, except plain	(NA)	359.4	(NA)	300.4
35624 00	Mounted bearings, except plain[3]	20	359.4	16	300.4
35629	Parts for ball and roller bearings, except cups and cones	(NA)	429.4	(NA)	425.5
35629 00	Parts and components for ball and roller bearings (including ball and rollers sold separately)[3]	47	429.4	42	425.5
35620	Ball and roller bearings, n.s.k.	(NA)	48.2	(NA)	40.2
35620 00	Ball and roller bearings, n.s.k.[6]	(NA)	37.2	(NA)	10.6
35620 02	Ball and roller bearings, n.s.k.[7]	(NA)	11.0	(NA)	29.5

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3563– —	**AIR AND GAS COMPRESSORS**						
	Total	**(NA)**	**(X)**	**3 541.8**	**(NA)**	**(X)**	**2 628.9**
35631	Air and gas compressors and vacuum pumps	(NA)	(X)	2 054.7	(NA)	(X)	1 259.8
35631 20	Vacuum pumps (compressors) (including value of the driver if shipped as a complete unit), except laboratory[3]	36	(X)	176.5	22	(X)	124.0
35631 30	Air and gas compressors, except compressors for ice making, refrigeration, or air-conditioning equipment, and air motors	89	(X)	1 874.2	67	(X)	1 070.9
35631 00	Air and gas compressors and vacuum pumps, n.s.k.[3]	(NA)	(X)	4.0	(NA)	(X)	64.8
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	(NA)	(X)	735.7	(NA)	(X)	538.5
35632 00	Parts and attachments for air and gas compressors, except for refrigeration, ice making, and air-conditioning equipment	86	(X)	735.7	54	(X)	538.5
35635	Industrial spraying equipment	(NA)	(X)	705.0	(NA)	(X)	669.1
35635 31	Power paint spraying outfits and other liquid power sprayers, except agricultural	44	(X)	650.2	29	(X)	566.3
35635 51	Hand sprayers, except agricultural and flame — thousands	17	(S)	50.7	9	(S)	81.6
35635 00	Industrial spraying equipment, n.s.k.	(NA)	(X)	4.1	(NA)	(X)	21.2
35630	Air and gas compressors, n.s.k.	(NA)	(X)	46.4	(NA)	(X)	161.6
35630 00	Air and gas compressors, n.s.k.[4]	(NA)	(X)	28.3	(NA)	(X)	113.5
35630 02	Air and gas compressors, n.s.k.[5]	(NA)	(X)	18.1	(NA)	(X)	48.1

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3564– —	**BLOWERS AND FANS**				
	Total	**(NA)**	**2 999.9**	**(NA)**	**2 181.6**
35643	Centrifugal fans and blowers	(NA)	741.8	(NA)	587.6
35643 17	Blower-filter units	12	99.9	15	52.6
35643 19	Classes I and II fans (more than 1 1/2 inch to 6 3/4 inch maximum total pressure)	28	73.7	35	102.6
35643 21	Classes III and IV fans (more than 6 3/4 inch maximum total pressure)	23	73.8	(NA)	[8]
35643 24	Industrial fans, excluding blowers, turboblowers, and multistage blowers	31	149.3	42	187.9
35643 27	Positive displacement blowers, excluding turboblowers	7	102.4	8	77.6
35643 29	Multistage blowers	7	57.7	8	41.6
35643 31	Small housed blowers (utility sets)	15	15.6	17	25.0
35643 39	Other centrifugal fans and blowers (including furnace blowers, lightweight air-conditioning blowers, and turboblowers)	26	160.4	(NA)	[8]79.1
35643 00	Centrifugal fans and blowers, n.s.k.	(NA)	9.1	(NA)	21.3
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	(NA)	621.7	(NA)	464.7
	Axial fans:				
35644 13	Directly connected to driver	37	138.1	22	115.2
35644 15	Belt-driven	26	35.4	21	27.9
	Propeller fans and accessories:				
	Industrial:				
35644 33	Directly connected to driver	25	86.3	22	41.4
35644 35	Belt-driven	21	69.5	18	62.5
35644 37	Penthouses, shutters, guards, and other accessories	15	22.0	14	36.2
35644 39	Parts for fans and blowers	38	124.4	20	(D)
	Power roof ventilators group:				
35644 41	Axial and propeller type	17	43.9	21	59.4
35644 43	Centrifugal type	14	86.6	12	75.7
35644 45	Parts for power roof ventilators	8	8.6	3	(D)
35644 00	Propeller fans and accessories, axial fans and power roof ventilators, and parts, n.s.k.	(NA)	7.0	(NA)	7.0
35645	Dust collection and other air purification equipment for cleaning incoming air	(NA)	959.1	(NA)	574.9
35645 31	Air washers	10	57.5	11	17.2
	Dust collection and other air purification equipment:				
35645 41	Electrostatic precipitation equipment	10	80.0	9	57.4
35645 43	Air filters for air-conditioners and furnaces, etc., of 2400 CFM or less	42	320.8	35	174.7
35645 46	Other dust collection and other air purification equipment (including air filters for air-conditioners and furnaces)	88	427.8	44	268.6
35645 47	Parts	17	45.3	20	39.3
35645 00	Dust collection and other air purification equipment for cleaning incoming air, n.s.k.	(NA)	27.7	(NA)	17.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3564– —	**BLOWERS AND FANS**—Con.				
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	(NA)	545.0	(NA)	296.9
35646 11	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	87	529.2	41	260.2
35646 21	Parts for industrial air purification equipment	16	10.7	19	29.9
35646 00	Dust collection and other air purification equipment for industrial gas cleaning systems, n.s.k.	(NA)	5.1	(NA)	6.8
35640	Blowers and fans, n.s.k.	(NA)	132.5	(NA)	257.4
35640 00	Blowers and fans, n.s.k.[9]	(NA)	68.2	(NA)	191.2
35640 02	Blowers and fans, n.s.k.[10]	(NA)	64.2	(NA)	66.2
3565– —	**PACKAGING MACHINERY**				
	Total	**(NA)**	**2 836.7**	**(NA)**	**2 039.9**
35651	Packing, packaging, and bottling machinery, except parts	(NA)	2 208.0	(NA)	1 690.4
35651 23	Cartoning, multipacking, and leaflet/ coupon placing machinery	41	272.1	(NA)	(11)
35651 25	Thermoforming, blister, and skin (including carded display) machinery	11	30.6	(NA)	(12)
35651 03	Bag (preform) opening, filling, and closing machinery and systems	25	70.7	18	42.0
35651 31	Vacuum, gas, and other modified atmosphere laminating and bagging machines	6	9.2	(NA)	(12)
	Bag or pouch form, fill, and seal machinery (must perform all three functions):				
35651 04	Horizontal	21	77.0	14	75.0
35651 05	Vertical	12	79.7	9	42.5
35651 52	Adhesive devices (hot melt and cold glue)	7	(13)	(NA)	(12)
35651 22	Machinery for cleaning or drying bottles or other containers	11	22.5	12	14.7
35651 51	Bottling and canning machinery (including fillers, all types of closers, and accessory equipment)	21	86.7	(NA)	(12)
	Filling machinery:				
35651 33	Dry products (free and nonfree flowing), including by count machinery, except bags	22	57.6	(NA)	30.7
35651 35	Liquids and viscous products (very heavy liquids, slurries, and pumpable semisolids)	36	107.2	(NA)	86.4
35651 45	Glass or plastics container or can capping, sealing, and lidding machinery (except all filling, bottling, and canning)	19	79.9	23	65.5
35651 37	Labeling machinery (all types of applications and methods)	42	271.5	(NA)	(11)
35651 41	Coding, dating, imprinting, jet printing, marking, and stamping machinery	15	56.5	(NA)	11417.4
35651 43	Corrugated and solid fiber case and tray forming, loading, and sealing machinery	41	158.5	29	170.3
35651 18	Accumulating, collating, feeding, and unscrambling machinery	23	27.5	17	20.8
35651 49	Testing, inspecting, detecting, checkweighing, and other quality control devices	19	95.9	(NA)	(12)
35651 27	Paper, film, and foil wrapping machines (all types, except shrink and stretch film equipment)	12	30.4	(NA)	257.6
35651 28	Shrink and stretch film overwrapping, banding, and bundling machinery (excluding pallet unitizing)	34	135.1		
35651 53	Palletizing, depalletizing, and pallet unitizing machinery with stretch film, adhesive, or strapping	12	45.1	(NA)	(12)
35651 59	Other packing, packaging, and bottling machinery or systems and combination or equipment not listed above, except parts	72	13394.7	(NA)	12303.5
35651 00	Packing, packaging, and bottling machinery, except parts, n.s.k.	(NA)	99.5	(NA)	164.0
35652	Parts for packing, packaging, and bottling machinery	(NA)	427.7	(NA)	303.8
35652 00	Parts for packing, packaging, and bottling machinery	159	427.7	139	303.8
35650	Packaging machinery, n.s.k.	(NA)	201.0	(NA)	45.7
35650 00	Packaging machinery, n.s.k.[9]	(NA)	124.7	(NA)	3.1
35650 02	Packaging machinery, n.s.k.[10]	(NA)	76.4	(NA)	42.6
3566– —	**SPEED CHANGERS, DRIVES, AND GEARS**				
	Total	**(NA)**	**1 693.5**	**(NA)**	**1 541.4**
35660	Speed changers, industrial high-speed drives, and gears	(NA)	1 693.5	(NA)	1 541.4
35660 11	Mechanical nonhydraulic variable speed changers and parts, excluding value of drivers	26	113.4	25	132.9
35660 21	Industrial high-speed drives, fixed ratio (pitch line velocity of 5,000 feet (1,525 meters) per minute or more)	15	58.3	8	44.9
	Speed reducers, fixed ratio, enclosed, except gear motors (sold without motor):				
	Worm gear reducers, including "C" flange or scoop mount:				
35660 17	6 inch (15.24 cm) centers or more	13	25.6	15	44.5
35660 18	3 inch (7.62 cm) to 5.99 inch (15.22 cm) centers	16	67.3	22	88.3
35660 24	Less than 3 inch (7.62 cm) centers	16	74.8	11	73.1
	Shaft mounted reducers and screw conveyor drives, including repair parts:				
35660 25	Hollow shaft diameter, 2 1/ 2 inch (6.35 cm) or less	13	52.0	11	26.4
35660 29	Hollow shaft diameter, more than 2 1/ 2 inch (6.35 cm)	11	45.9	8	34.8
	Helical, herringbone, spur, and spiral bevel reducers:				
35660 27	More than 15 inch (38.10 cm) low-speed center	20	103.0	19	55.7
35660 28	15 inch (38.10 cm) low-speed center or less	27	126.7	26	121.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3566– —	**SPEED CHANGERS, DRIVES, AND GEARS**—Con.				
35660	Speed changers, industrial high-speed drives, and gears—Con.				
	Gearmotors, sold with motors, including "C" flange and scoop mount units:				
	Worm gearmotors:				
35660 34	Less than 1 horsepower (746.0 w)	10	65.4	(NA)	(D)
35660 37	1 horsepower (746.0 w) or more	10	18.0	(NA)	(D)
	Helical, herringbone, spur, or spiral bevel gearmotors:				
35660 47	Less than 1 horsepower (746.0 w)	9	77.0	(NA)	(D)
35660 49	1 horsepower (746.0 w) or more	14	55.0	(NA)	36.3
	Loose gears, pinions, and racks (excluding spare parts for reducers):				
35660 41	Fine pitch (19.99 diametral pitch and finer)	46	56.2	30	40.2
	Coarse pitch (less than 19.99 diametral pitch):				
	Helical, herringbone, and spur gears:				
35660 42	24 inch (60.96 cm) or less	79	146.3	63	145.1
35660 43	More than 24 inch (60.96 cm) diameter through 72 inch (182.88 cm) diameter	38	164.1	31	46.4
35660 44	More than 72 inch (182.88 cm) diameter	14	12.9	12	31.7
35660 45	Worms and worm gearing	48	69.5	35	45.5
35660 46	Others, including bevel gears and racks	52	86.8	40	128.7
35660 51	Other parts and components for speed changers, including housings, shafts, pins, and spacers	27	99.8	38	101.8
35660 00	Speed changers, drives, and gears, n.s.k.[9]	(NA)	151.9	(NA)	131.4
35660 02	Speed changers, drives, and gears, n.s.k.[10]	(NA)	23.7	(NA)	52.5
3567– —	**INDUSTRIAL FURNACES AND OVENS**				
	Total	**(NA)**	**1 709.0**	**(NA)**	**1 235.5**
35671	Electric industrial furnaces, ovens, and kilns	(NA)	406.4	(NA)	367.7
	Electric furnaces (excluding induction):				
35671 11	Metal melting	13	30.5	8	27.0
35671 21	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces)	47	129.4	33	136.5
35671 29	Other electric furnaces	23	149.2	18	95.2
35671 43	Electric industrial ovens and kilns, including infrared	44	97.4	24	79.9
35671 00	Electric industrial furnaces, ovens, and kilns, n.s.k.	(NA)	(Z)	(NA)	29.2
35674	High-frequency induction and dielectric heating equipment	(NA)	155.7	(NA)	126.2
	Furnaces and ovens, induction or dielectric:				
35674 01	Radio frequency type (includes spark gap) and line and motor-generator set frequency types, except metal melting	9	18.4	10	25.1
35674 02	Metal melting induction furnaces	8	98.8	10	46.6
35674 03	Other induction or dielectric furnaces and ovens	4	19.3	6	26.5
35674 04	Other induction or dielectric heating equipment	13	18.8	6	27.8
35674 00	High-frequency induction and dielectric heating equipment, n.s.k.	(NA)	.5	(NA)	.2
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	(NA)	645.1	(NA)	321.5
	Industrial electric heating units and devices:				
35675 01	Tubular heaters	26	65.0	15	54.8
35675 02	Space heaters	10	20.3	6	29.4
35675 03	All other, including strip heaters, ring heaters, water and oil immersion heaters, glue and compound pots, etc.	55	403.0	40	135.2
	Parts and attachments for electrical industrial furnaces and ovens:				
35675 11	For space heaters	7	19.0	7	20.1
35675 12	For other electrical	53	137.9	35	75.5
35675 00	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments, n.s.k.	(NA)	(Z)	(NA)	6.4
35676	Fuel-fired industrial furnaces, ovens, and kilns	(NA)	355.7	(NA)	263.6
	Furnaces:				
35676 01	Metal melting, including blast furnaces and cupolas	8	7.5	11	44.9
35676 02	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces)	35	144.2	(NA)	91.4
35676 09	Other fuel-fired furnaces (including hot rolling, forging, forming, and extruding)	25	51.0		
35676 15	Industrial ovens and kilns (except cement, wood, and chemical)	38	109.7	(NA)	91.6
	Parts and attachments:				
35676 21	For other fuel-fired furnaces, ovens, and kilns	29	41.3	(NA)	13.2
35676 00	Fuel-fired industrial furnaces, ovens, and kilns, n.s.k.	(NA)	2.0	(NA)	22.5
35670	Industrial furnaces and ovens, n.s.k.	(NA)	146.1	(NA)	156.4
35670 00	Industrial furnaces and ovens, n.s.k.[14]	(NA)	116.7	(NA)	97.6
35670 02	Industrial furnaces and ovens, n.s.k.[15]	(NA)	29.4	(NA)	58.8
3568– —	**POWER TRANSMISSION EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**2 325.4**	**(NA)**	**2 071.0**
35681	Plain bearings and bushings	(NA)	346.0	(NA)	373.8
35681 12	Plain bearings and bushings, unmounted, machined	42	271.7	(NA)	236.4
35681 51	Mounted bearings, plain (except engine)	11	69.6	12	115.6
35681 00	Plain bearings and bushings, n.s.k.	(NA)	4.6	(NA)	21.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3568– —	**POWER TRANSMISSION EQUIPMENT, N.E.C.**—Con.				
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	(NA)	1 862.7	(NA)	1 555.2
	Clutches and brakes:				
35683 11	Friction-type	25	224.5	14	162.4
35683 13	Hydraulic-type, including hydraulic couplings	13	41.0	9	26.7
35683 19	All other clutches and brakes	20	122.6	21	117.6
	Flexible couplings:				
35683 20	Gear-type	12	63.6	(NA)	153.6
35683 23	Other than gear-type	24	178.5		
35683 26	Nonflexible couplings	7	5.4	5	18.3
35683 25	Universal joints	12	62.5	10	149.0
35683 30	Ball joints	1	(16)	1	(17)
35683 28	Drive shafts, except flexible shafts	8	18.3	11	17.6
	Chains for sprocket drives:				
35683 33	ASA standard roller chain	7	105.4	(NA)	82.6
35683 35	Other chain for sprocket drives	10	166.9	10	121.8
35683 44	Sprockets	27	121.9	(NA)	102.7
35683 51	Pulleys	23	62.7	21	65.3
	Sheaves:				
35683 61	Single drive	10	42.3	10	30.9
35683 65	Multiple drive	7	54.6	7	44.1
35683 94	Inboard marine propulsion gear transmissions, including reversing, speed changing, and turbine driven gear drives	6	37.1	(NA)	94.5
35683 96	Outboard gear drives (inboard prime mover)	(NA)	–		
35683 89	Other mechanical power transmission equipment, n.e.c.	34	16343.4	(NA)	17254.0
35683 91	Mountings for bearings (pillow blocks, flange blocks, etc.)	5	(18)	8	21.6
35683 99	Other parts for mechanical power transmission equipment	35	18168.7	(NA)	61.4
35683 00	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c., n.s.k.	(NA)	43.2	(NA)	31.2
35680	Power transmission equipment, n.e.c., n.s.k.	(NA)	116.7	(NA)	142.0
35680 00	Power transmission equipment, n.e.c., n.s.k.[4]	(NA)	84.1	(NA)	72.5
35680 02	Power transmission equipment, n.e.c., n.s.k.[5]	(NA)	32.7	(NA)	69.6
3569– —	**GENERAL INDUSTRIAL MACHINERY, N.E.C.**				
	Total	**(NA)**	**5 093.3**	**(NA)**	**3 840.5**
35693	Filters and strainers, except fluid power	(NA)	1 810.3	(NA)	1 159.5
	Containment (housing devices):				
35693 04	For water	72	566.4	49	221.8
35693 05	For beverages other than water	13	14.1	14	22.4
35693 06	For other fluids	89	359.4	49	176.5
35693 09	Parts and accessories, sold separately	44	92.1	31	103.8
	Media:				
35693 11	Reusable (cleanable)	46	245.4	26	199.5
35693 12	Nonreusable, including disposable (throwaway) litter cartridges	70	504.4	47	376.0
35693 00	Filters and strainers, except fluid power, n.s.k.	(NA)	28.6	(NA)	59.5
35694	Filters for hydraulic fluid power systems, nonaerospace	(NA)	223.4	(NA)	(19)
35694 00	Hydraulic[3]	37	223.4	(NA)	(19)
35695	Filters for pneumatic fluid power systems, nonaerospace	(NA)	72.0	(NA)	(19)
35695 00	Pneumatic[3]	24	72.0	(NA)	(19)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	(NA)	70.6	(NA)	19274.4
35696 00	Filters for hydraulic and pneumatic fluid power systems, aerospace[3]	8	70.6	(NA)	19274.4
35699	General industrial machinery, n.e.c.	(NA)	2 672.6	(NA)	1 736.0
35699 09	Industrial robots, attachments and parts	62	398.0	65	294.7
35699 01	Gas generating equipment	13	42.8	10	31.2
35699 03	Gas separating equipment	20	133.9	10	48.6
35699 05	Steam and vapor separators	4	9.7	4	(20)
	Compressed air and gas dryers:				
35699 41	Refrigerated dryers	9	54.0		
35699 42	Desiccant dryers	15	38.4	(NA)	58.6
35699 43	Deliquescent dryers	3	(D)		
35699 44	Other compressed air and gas dryers	3	(D)		
35699 11	Mixers for industrial processes, solids or liquids	38	215.5	19	152.2
35699 13	Lubricating systems, industrial, centralized and automatic	23	78.4	8	26.2
35699 15	Sifting and screening machines	10	29.2	8	15.9
35699 17	Presses, metal baling	15	47.1	6	19.6
35699 21	Centrifugals and separators (except cream, grain, and berry)	26	189.7	20	92.0
35699 23	Automatic fire sprinklers	16	132.5	12	55.5
35699 25	Pneumatic jacks	2	(D)	3	(20)
35699 27	Hydraulic jacks	12	46.9	12	50.4
35699 31	Screwjacks (except automotive)	4	31.3	7	46.7
35699 47	Other general industrial machinery, n.e.c.	241	948.8	(NA)	20587.2
35699 51	Parts for general industrial equipment, n.e.c.	113	238.5	(NA)	228.0
35699 00	General industrial machinery, n.e.c., n.s.k.	(NA)	22.0	(NA)	29.2
35690	General industrial machinery, n.e.c., n.s.k.	(NA)	244.4	(NA)	670.6
35690 00	General industrial machinery, n.e.c., n.s.k.[14]	(NA)	181.9	(NA)	535.0
35690 02	General industrial machinery, n.e.c., n.s.k.[15]	(NA)	62.5	(NA)	135.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Typically for establishments with 20 employees or more.
[7]Typically for establishments with less than 20 employees.
[8]In the 1987 publication, product code 35643 21 was combined with another product code (which was not collected separately for 1992) to avoid disclosing data for individual companies. Consequently, for 1987, product code 35643 21 is now combined with product code 35643 39.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]For 1987, product codes 35651 23, 35651 37, and 35651 41 are combined because of changes in product definitions from 19 87 to 1992.
[12]For 1987, product codes 35651 25, 35651 31, 35651 49, 35651 51, 35651 52, 35651 53, and 35651 59 are combined because of changes in product definitions from 1987 to 1992.
[13]For 1992, product codes 35651 52 and 35651 59 are combined to avoid disclosing data for individual companies.
[14]Typically for establishments with 5 employees or more.
[15]Typically for establishments with less than 5 employees.
[16]For 1992, product codes 35683 30 and 35683 89 are combined to avoid disclosing data for individual companies.
[17]For 1987, product codes 35683 30 and 35683 89 are combined to avoid disclosing data for individual companies.
[18]For 1992, product codes 35683 91 and 35683 99 are combined to avoid disclosing data for individual companies.
[19]For 1987, product class codes 35694, 35695, and 35696 were collected and published collectively as product class code 35692, which contained one product code, 35692 00. Because no further detail was collected, product codes 35694 00, 35695 00, and 35696 00 are combined, as are the three product class codes (35694, 35695, and 35696), for 1987.
[20]For 1987, product codes 35699 05, 35699 25, and 35699 47 are combined to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35611, INDUSTRIAL PUMPS, EXCEPT FLUID POWER PUMPS		
United States	**2 390.7**	**1 659.8**
California	325.3	247.6
Florida	29.6	(NA)
Georgia	61.1	(NA)
Illinois	158.4	102.9
Indiana	56.5	40.6
Massachusetts	44.0	59.0
Michigan	68.3	46.0
Minnesota	114.1	(NA)
Missouri	16.0	(NA)
New York	190.0	113.0
North Carolina	41.6	(NA)
Ohio	288.2	207.9
Oklahoma	79.9	74.0
Pennsylvania	191.3	164.3
Texas	70.9	26.0
Wisconsin	145.2	104.5
35613, DOMESTIC WATER SYSTEMS		
United States	**317.6**	**276.9**
California	49.9	21.4
Georgia	5.9	(NA)
35615, PUMPS, N.E.C.		
United States	**697.6**	**446.9**
California	93.9	48.3
Florida	2.3	(NA)
Illinois	76.9	36.9
Kansas	4.0	8.4
Kentucky	24.2	(NA)
New York	18.1	(NA)
Ohio	40.2	61.9
Oklahoma	133.6	61.9
Tennessee	11.8	(NA)
Texas	124.4	59.8
35616, PARTS AND ATTACHMENTS FOR PUMPS AND PUMPING EQUIPMENT (EXCEPT FOR HYDRAULIC FLUID POWER AND AIR AND GAS COMPRESSORS)		
United States	**1 103.8**	**875.3**
California	93.6	124.1
Colorado	39.0	(NA)
Georgia	26.3	(NA)
Illinois	49.0	36.8
Louisiana	14.4	11.2
35616, PARTS AND ATTACHMENTS FOR PUMPS AND PUMPING EQUIPMENT (EXCEPT FOR HYDRAULIC FLUID POWER AND AIR AND GAS COMPRESSORS)—Con.		
Massachusetts	27.1	32.5
Michigan	59.5	66.7
Missouri	12.9	14.5
New Jersey	21.3	13.7
Ohio	117.8	91.0
Oklahoma	99.7	69.1
Pennsylvania	78.9	56.6
Texas	105.3	79.6
35621, BALL BEARINGS, COMPLETE, UNMOUNTED		
United States	**1 555.1**	**1 306.1**
Connecticut	108.8	275.5
Illinois	118.2	37.2
Michigan	121.7	70.6
New York	140.9	88.0
Ohio	288.6	(NA)
South Carolina	79.6	29.0
35622, TAPERED ROLLER BEARINGS (INCLUDING CUPS AND CONES), UNMOUNTED		
United States	**936.1**	**756.2**
South Carolina	207.6	(NA)
35623, ROLLER BEARINGS, EXCEPT TAPERED, UNMOUNTED		
United States	**810.4**	**735.5**
35624, MOUNTED BEARINGS, EXCEPT PLAIN		
United States	**359.4**	**300.4**
35629, PARTS FOR BALL AND ROLLER BEARINGS, EXCEPT CUPS AND CONES		
United States	**429.4**	**425.5**
Connecticut	37.3	35.0
Georgia	67.4	(NA)
Illinois	29.0	(NA)
Indiana	53.9	31.8
New Jersey	4.9	(NA)
South Carolina	45.0	45.3

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35631, AIR AND GAS COMPRESSORS AND VACUUM PUMPS		
United States	**2 054.7**	**1 259.8**
California	29.5	18.2
Florida	7.5	(NA)
Illinois	72.1	73.0
Indiana	136.0	(NA)
Massachusetts	75.6	(NA)
Missouri	61.8	47.8
New York	314.2	142.1
Ohio	216.7	135.7
Oklahoma	68.4	54.0
Pennsylvania	201.5	93.7
Texas	104.9	37.4
Virginia	35.4	(NA)
35632, PARTS AND ATTACHMENTS FOR AIR AND GAS COMPRESSORS, EXCEPT REFRIGERATION COMPRESSORS		
United States	**735.7**	**538.5**
California	10.9	(NA)
Illinois	37.9	(NA)
Indiana	10.7	(NA)
Kentucky	55.8	(NA)
Louisiana	2.5	(NA)
New Jersey	6.9	(NA)
Ohio	63.8	46.7
Oklahoma	9.1	(NA)
Pennsylvania	164.2	67.8
Texas	34.8	7.2
35635, INDUSTRIAL SPRAYING EQUIPMENT		
United States	**705.0**	**669.1**
California	28.2	14.2
Indiana	25.9	(NA)
Ohio	4.5	25.0
Texas	18.8	35.0
Wisconsin	5.3	(NA)
35643, CENTRIFUGAL FANS AND BLOWERS		
United States	**741.8**	**587.6**
Alabama	13.3	5.5
California	47.6	41.5
Illinois	130.2	97.6
Missouri	45.4	40.9
New York	78.0	65.1
Ohio	79.2	75.4
Pennsylvania	27.0	19.2
Wisconsin	16.3	(NA)
35644, PROPELLER FANS AND ACCESSORIES, AXIAL FANS AND POWER ROOF VENTILATORS, AND PARTS		
United States	**621.7**	**464.7**
Colorado	5.0	(NA)
Illinois	38.0	29.4
Indiana	31.5	46.0
Michigan	17.8	16.2
Missouri	29.9	(NA)
New York	78.4	77.6
Ohio	133.6	77.5
Pennsylvania	27.7	(NA)
Texas	20.1	10.2
35645, DUST COLLECTION AND OTHER AIR PURIFICATION EQUIPMENT FOR CLEANING INCOMING AIR		
United States	**959.1**	**574.9**
Alabama	3.0	(NA)
California	73.0	84.5
Florida	31.7	12.7
Illinois	79.7	30.0
Indiana	16.3	(NA)
Kentucky	52.5	29.0
Maryland	53.0	28.0
Michigan	13.6	11.5
Minnesota	8.4	(NA)
New Jersey	43.2	23.2
New York	13.9	24.8
North Carolina	109.8	80.0
Ohio	68.4	40.0
Pennsylvania	33.5	48.3
Texas	40.3	13.7
Virginia	8.0	(NA)
Wisconsin	9.1	19.4
35646, DUST COLLECTION AND OTHER AIR PURIFICATION EQUIPMENT FOR INDUSTRIAL GAS CLEANING SYSTEMS (FOR CLEANING OUTGOING AIR)		
United States	**545.0**	**296.9**
California	50.9	(NA)
Illinois	6.0	(NA)
Kentucky	43.6	(NA)
Michigan	39.1	(NA)
North Carolina	4.5	37.0
Ohio	19.0	(NA)
Pennsylvania	82.5	65.1
Texas	32.4	(NA)
35651, PACKING, PACKAGING, AND BOTTLING MACHINERY, EXCEPT PARTS		
United States	**2 208.0**	**1 690.4**
Alabama	10.3	(NA)
Arkansas	3.8	(NA)
California	244.1	121.9
Colorado	10.2	3.8
Connecticut	27.0	13.0
Florida	100.6	75.7
Georgia	75.7	35.4
Illinois	275.4	258.8
Louisiana	19.1	(NA)
Maryland	56.1	(NA)
Massachusetts	53.6	27.5
Michigan	61.6	31.7
Minnesota	138.0	74.8
Missouri	26.3	11.6
New Jersey	96.2	117.7
New York	69.9	63.9
North Carolina	39.9	17.8
Ohio	294.3	236.9
Oregon	4.2	(NA)
Pennsylvania	66.6	57.3
South Carolina	56.1	56.6
Texas	45.8	33.6
Virginia	16.9	6.6
Washington	45.0	107.3
Wisconsin	205.5	121.5
35652, PARTS FOR PACKING, PACKAGING, AND BOTTLING MACHINERY		
United States	**427.7**	**303.8**
California	51.4	36.4
Florida	9.9	9.0
Illinois	47.8	20.5
Louisiana	2.7	(NA)
Minnesota	14.9	13.4
New Jersey	22.3	17.0
New York	15.1	7.9
North Carolina	4.1	6.6
Ohio	28.4	17.1
Pennsylvania	16.6	9.5
South Carolina	23.4	22.4
Washington	6.2	2.2
Wisconsin	54.0	42.7
35671, ELECTRIC INDUSTRIAL FURNACES, OVENS, AND KILNS		
United States	**406.4**	**367.7**
Illinois	47.3	45.9
Indiana	6.1	(NA)
Massachusetts	41.6	(NA)
Michigan	14.2	8.7
Minnesota	17.3	(NA)
New Jersey	34.8	20.3
Ohio	26.5	36.2
Oregon	8.8	(NA)
Pennsylvania	33.0	44.9
Wisconsin	22.0	18.8
35674, HIGH-FREQUENCY INDUCTION AND DIELECTRIC HEATING EQUIPMENT		
United States	**155.7**	**126.2**
Michigan	24.1	28.0

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35675, ELECTRICAL HEATING EQUIPMENT FOR INDUSTRIAL USE, N.E.C. (EXCEPT SOLDERING IRON), AND PARTS AND ATTACHMENTS		
United States	**645.1**	**321.5**
California	186.3	37.9
Illinois	25.2	23.5
Indiana	14.6	13.4
Massachusetts	12.2	15.3
Michigan	44.9	16.0
New Jersey	9.5	5.9
New York	13.4	14.2
North Carolina	12.2	(NA)
Ohio	25.0	22.4
Pennsylvania	24.2	29.9
Wisconsin	23.6	(NA)
35676, FUEL-FIRED INDUSTRIAL FURNACES, OVENS, AND KILNS		
United States	**355.7**	**263.6**
California	3.4	6.8
Connecticut	3.8	(NA)
Illinois	9.6	9.5
Kansas	6.8	2.3
Michigan	48.5	51.5
New Jersey	3.3	(NA)
New York	2.2	2.5
Ohio	54.9	35.0
Oklahoma	24.4	(NA)
Pennsylvania	90.5	63.7
Texas	10.1	(NA)
Wisconsin	35.9	17.0
35681, PLAIN BEARINGS AND BUSHINGS		
United States	**346.0**	**373.8**
California	41.3	58.3
Illinois	76.9	62.5
Indiana	21.3	18.0
Ohio	24.0	36.7
Wisconsin	32.5	24.8
35683, MECHANICAL POWER TRANSMISSION EQUIPMENT, EXCEPT SPEED CHANGERS, DRIVES, AND GEARS, N.E.C.		
United States	**1 862.7**	**1 555.2**
California	20.5	8.8
Connecticut	27.9	28.0
Illinois	243.1	263.9
Indiana	120.3	145.0
Michigan	88.1	109.9
Minnesota	32.1	34.0
New Jersey	46.5	26.3
New York	104.0	45.9
North Carolina	96.0	39.8
Ohio	210.9	102.6
Oregon	17.2	12.7
Pennsylvania	116.9	75.8
Texas	76.6	69.5
Wisconsin	269.4	215.7
35693, FILTERS AND STRAINERS, EXCEPT FLUID POWER		
United States	**1 810.3**	**1 159.5**
California	116.1	79.2
Connecticut	95.0	69.8
Florida	70.7	36.9
Illinois	107.3	97.6
Indiana	59.0	42.2
Louisiana	15.9	(NA)
Massachusetts	91.3	109.8
Michigan	151.7	106.0
Minnesota	72.5	(NA)
Missouri	7.1	(NA)
New Jersey	69.0	55.1
New York	145.7	92.3
North Carolina	86.7	59.7
Ohio	72.1	56.8
Oklahoma	5.8	22.8
Pennsylvania	53.4	54.4
Texas	23.2	18.5
Virginia	5.2	(NA)
Wisconsin	90.6	37.2
35694, FILTERS FOR HYDRAULIC FLUID POWER SYSTEMS, NONAEROSPACE		
United States	**223.4**	**(NA)**
California	11.0	(NA)
Michigan	5.2	(NA)
35695, FILTERS FOR PNEUMATIC FLUID POWER SYSTEMS, NONAEROSPACE		
United States	**72.0**	**(NA)**
Michigan	2.4	(NA)
35696, FILTERS FOR HYDRAULIC AND PNEUMATIC FLUID POWER SYSTEMS, AEROSPACE		
United States	**70.6**	**(NA)**
California	30.1	(NA)
35699, GENERAL INDUSTRIAL MACHINERY, N.E.C.		
United States	**2 672.6**	**(NA)**
Alabama	22.6	(NA)
California	226.7	(NA)
Colorado	21.9	(NA)
Connecticut	33.3	(NA)
Florida	91.3	(NA)
Georgia	42.2	(NA)
Illinois	134.0	(NA)
Indiana	75.9	(NA)
Iowa	52.9	(NA)
Kansas	18.2	(NA)
Massachusetts	63.4	(NA)
Michigan	373.1	(NA)
Minnesota	90.9	(NA)
Missouri	32.7	(NA)
New Jersey	92.5	(NA)
New York	232.1	(NA)
North Carolina	82.6	(NA)
Ohio	157.6	(NA)
Oklahoma	7.9	(NA)
Oregon	24.0	(NA)
Pennsylvania	247.5	(NA)
Rhode Island	8.4	(NA)
Texas	117.4	(NA)
Virginia	41.7	(NA)
Washington	51.8	(NA)
Wisconsin	72.1	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3561-	**Pumps and pumping equipment**	**4 603.3**	**4 478.7**	**4 220.8**	**3 976.3**	**3 822.8**	**3 447.6**	**(NA)**	**(NA)**
35611	Industrial pumps, except fluid power pumps	2 390.7	2 267.2	2 092.8	2 005.2	1 838.4	1 659.8	1 916.9	1 386.7
35613	Domestic water systems	317.6	313.6	294.7	302.6	322.1	276.9	215.5	223.8
35615	Pumps, n.e.c.	697.6	566.7	528.1	490.9	504.0	446.9	1 050.5	395.7
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	1 103.8	1 158.6	1 119.3	973.2	977.0	875.3	1 298.9	861.6
35610	Pumps and pumping equipment, n.s.k.	93.7	172.5	185.7	204.5	181.2	188.9	(NA)	(NA)
3562-	**Ball and roller bearings**	**4 138.6**	**3 892.7**	**4 241.9**	**4 161.2**	**3 988.8**	**3 563.8**	**2 973.1**	**2 444.5**
35621	Ball bearings, complete, unmounted	1 555.1	1 418.7	1 509.6	1 462.8	1 451.8	1 306.1	1 087.1	749.9
35622	Tapered roller bearings (including cups and cones), unmounted	936.1	884.3	992.5	954.0	731.5	756.2	710.9	748.6
35623	Roller bearings, except tapered, unmounted	810.4	787.7	833.5	834.6	834.6	735.5	614.1	472.9
35624	Mounted bearings, except plain	359.4	321.9	362.6	362.1	385.5	300.4	241.7	213.1
35629	Parts for ball and roller bearings, except cups and cones	429.4	432.7	480.6	483.0	503.0	425.5	298.4	243.1
35620	Ball and roller bearings, n.s.k.	48.2	47.4	63.1	64.7	82.5	40.2	20.9	16.8
3563-	**Air and gas compressors**	**3 541.8**	**3 607.0**	**3 548.4**	**3 245.8**	**3 034.7**	**2 628.9**	**2 799.8**	**1 923.4**
35631	Air and gas compressors and vacuum pumps	2 054.7	1 839.4	1 743.8	1 565.1	1 490.3	1 259.8	[2]1 630.7	1 290.3
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	735.7	826.5	831.9	779.9	665.0	538.5	652.7	384.1
35635	Industrial spraying equipment	705.0	840.3	882.5	813.8	713.7	669.1	442.0	221.6
35630	Air and gas compressors, n.s.k.	46.4	100.7	90.1	87.0	165.7	161.6	74.4	27.4
3564-	**Blowers and fans**	**2 999.9**	**2 762.8**	**2 755.5**	**2 615.1**	**2 435.8**	**2 181.6**	**1 994.5**	**1 422.3**
35643	Centrifugal fans and blowers	741.8	859.2	821.5	743.3	732.0	587.6	556.9	354.1
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	621.7	535.4	563.4	601.1	555.6	464.7	464.8	303.3
35645	Dust collection and other air purification equipment for cleaning incoming air	959.1	717.1	758.9	672.9	632.3	574.9	425.5	260.7
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	545.0	377.7	311.0	341.8	350.6	296.9	425.6	381.7
35640	Blowers and fans, n.s.k.	132.5	273.3	300.6	256.0	165.4	257.4	121.7	122.5
3565-	**Packaging machinery**	**2 836.7**	**2 767.0**	**2 680.3**	**2 342.5**	**2 153.3**	**2 039.9**	**(NA)**	**(NA)**
35651	Packing, packaging, and bottling machinery, except parts	2 208.0	2 162.8	2 125.4	1 894.7	1 755.0	1 690.4	1 343.4	931.5
35652	Parts for packing, packaging, and bottling machinery	427.7	465.2	416.1	359.5	347.9	303.8	301.5	
35650	Packaging machinery, n.s.k.	201.0	139.1	138.8	88.3	50.4	45.7	(NA)	(NA)
3566-	**Speed changers, drives, and gears**	**1 693.5**	**1 829.0**	**2 023.2**	**1 874.8**	**1 773.0**	**1 541.4**	**1 557.4**	**1 199.7**
35660	Speed changers, industrial high-speed drives, and gears	1 693.5	1 829.0	2 023.2	1 874.8	1 773.0	1 541.4	1 557.4	1 199.7
3567-	**Industrial furnaces and ovens**	**1 709.0**	**1 682.7**	**1 738.0**	**1 672.5**	**1 414.3**	**1 235.5**	**1 026.8**	**707.1**
35671	Electric industrial furnaces, ovens, and kilns	406.4	369.8	407.4	482.6	398.6	367.7	295.2	140.3
35674	High-frequency induction and dielectric heating equipment	155.7	173.9	186.0	190.5	140.2	126.2	131.9	133.4
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	645.1	602.2	561.2	511.4	448.7	321.5	289.1	204.1
35676	Fuel-fired industrial furnaces, ovens, and kilns	355.7	394.9	418.1	344.3	249.5	263.6	248.6	144.4
35670	Industrial furnaces and ovens, n.s.k.	146.1	141.8	165.4	143.7	177.4	156.4	62.0	84.9
3568-	**Power transmission equipment, n.e.c.**	**2 325.4**	**2 378.7**	**2 538.5**	**2 539.3**	**2 414.1**	**2 071.0**	**1 985.6**	**1 710.9**
35681	Plain bearings and bushings	346.0	397.3	435.9	443.9	464.8	373.8	385.0	275.1
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	1 862.7	1 837.4	1 958.8	1 952.4	1 822.9	1 555.2	1 556.3	1 419.1
35680	Power transmission equipment, n.e.c., n.s.k.	116.7	144.0	143.8	143.0	126.4	142.0	44.3	16.6
3569-	**General industrial machinery, n.e.c.**	**5 093.3**	**4 882.3**	**4 848.4**	**4 547.0**	**4 168.6**	**3 840.5**	**(NA)**	**(NA)**
35693	Filters and strainers, except fluid power	1 810.3	1 683.4	1 560.9	1 522.0	1 345.0	1 159.5	1 137.4	(NA)
35694	Filters for hydraulic fluid power systems, nonaerospace	223.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35695	Filters for pneumatic fluid power systems, nonaerospace	72.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	70.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35699	General industrial machinery, n.e.c.	2 672.6	2 196.8	2 003.1	1 826.9	2 023.8	1 736.0	(NA)	(NA)
35690	General industrial machinery, n.e.c., n.s.k.	244.4	811.5	1 063.1	974.6	524.7	670.6	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

[2]Data exclude pneumatic air motors and parts which accounted for less than three percent of this product class in 1982.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**2 129.4**	**1 594.3**
190090	Fluid power products	186.0	133.6
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	43.4	22.7
346901	Metal stampings	27.1	15.1
349002	Pipe, valves, and pipe fittings, except plumbers'	25.0	24.9
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	24.8	17.5
340057	All other fabricated metal products	52.4	(1)
	Forgings:		
346200	Iron and steel	28.6	11.1
346300	Nonferrous	5.7	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	298.1	171.7
336005	Aluminum and aluminum-base alloy	39.4	22.9
336003	Other nonferrous	70.8	49.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT—Con.		
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	109.4	
331022	Sheet and strip	16.6	115.8
331034	Other steel shapes and forms	10.4	
335105	Copper and copper-base alloy	11.3	8.3
335001	Aluminum and aluminum-base alloy	4.4	1.5
335099	Other nonferrous shapes and forms	12.9	1.4
351910	Engines (diesel, semidiesel, gasoline, and other carburetor)	56.7	23.4
	Electric motors and generators:		
362115	Fractional horsepower electric motors (less than 1 hp), except timing motors	176.0	141.5
362120	Integral horsepower electric motors and generators (1 hp or more)	169.3	90.1
356200	Ball and roller bearings (mounted or unmounted)	19.9	14.6
265001	Paperboard containers, boxes, and corrugated paperboard	19.5	11.2
306001	Fabricated rubber products, except gaskets	23.0	68.4
308006	Fabricated plastics products, except gaskets	46.7	
305302	Gaskets (all types) and packing and sealing devices	33.4	18.4
360101	Electrical transmission, distribution, and control equipment	55.1	33.7
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	4.9	(1)
970099	All other materials and components, parts, containers, and supplies	293.3	[1]365.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	265.4	232.0
	INDUSTRY 3562, BALL AND ROLLER BEARINGS		
	Materials, ingredients, containers, and supplies	**1 499.0**	**1 312.2**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	27.0	24.4
340098	Other fabricated metal products	18.0	(3)
	Forgings:		
	Iron and steel:		
346201	Cold	26.5	153.8
346209	Other	150.8	
346300	Nonferrous	(4)	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	44.2	30.9
336010	Nonferrous	6.5	.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	184.0	
331022	Sheet and strip	59.2	332.2
331034	Other steel shapes and forms	128.0	
335105	Copper and copper-base alloy	(4)	.6
335090	Other nonferrous shapes and forms	7.7	(3)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(4)	(3)
	Bearings (mounted or unmounted):		
356218	Ball	16.0	12.0
356201	Roller	17.6	16.2
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	376.0	351.4
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	4.5	(3)
362105	Electric motors, generators, and parts	5.7	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	12.6	(3)
970099	All other materials and components, parts, containers, and supplies	[4]363.9	[3]298.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	50.8	91.2
	INDUSTRY 3563, AIR AND GAS COMPRESSORS		
	Materials, ingredients, containers, and supplies	**1 629.9**	**1 345.2**
190090	Fluid power products	63.3	67.7
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	39.4	31.3
346901	Metal stampings	12.6	8.0
349002	Pipe, valves, and pipe fittings, except plumbers'	39.1	32.6
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	64.7	71.2
340057	All other fabricated metal products	84.1	(5)
	Forgings:		
346200	Iron and steel	42.3	15.1
346300	Nonferrous	1.1	(5)
	Castings (rough and semifinished):		
332001	Iron and steel	130.2	98.6
336005	Aluminum and aluminum-base alloy	28.1	16.9
336003	Other nonferrous	5.0	8.2
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	49.3	
331022	Sheet and strip	29.4	112.9
331034	Other steel shapes and forms	10.9	
335105	Copper and copper-base alloy	5.2	11.8
335001	Aluminum and aluminum-base alloy	3.8	(5)
335099	Other nonferrous shapes and forms	8.9	(5)
351910	Engines (diesel, semidiesel, gasoline, and other carburetor)	92.6	54.8
	Electric motors and generators:		
362115	Fractional horsepower electric motors (less than 1 hp), except timing motors	52.9	80.6
362120	Integral horsepower electric motors and generators (1 hp or more)	83.2	60.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3563, AIR AND GAS COMPRESSORS—Con.		
356200	Ball and roller bearings (mounted or unmounted)	19.5	17.5
265001	Paperboard containers, boxes, and corrugated paperboard	14.2	10.4
306001	Fabricated rubber products, except gaskets	6.5	30.2
308006	Fabricated plastics products, except gaskets	27.8	
305302	Gaskets (all types) and packing and sealing devices	28.6	12.7
360101	Electrical transmission, distribution, and control equipment	68.2	13.7
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	7.2	(5)
970099	All other materials and components, parts, containers, and supplies	370.2	5406.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	241.5	184.3
	INDUSTRY 3564, BLOWERS AND FANS		
	Materials, ingredients, containers, and supplies	**1 189.8**	**872.4**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	16.6	10.6
340097	Other fabricated metal products (except electrical enclosures)	66.8	(6)
346000	Forgings	9.7	(6)
	Castings (rough and semifinished):		
332001	Iron and steel	30.1	36.7
336005	Aluminum and aluminum-base alloy	16.3	15.7
336003	Other nonferrous	1.5	1.5
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	44.1	
331022	Sheet and strip	98.2	153.3
331023	Structural shapes and sheet piling	11.9	
331091	All other steel shapes and forms	19.7	
335105	Copper and copper-base alloy	2.1	6.6
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	27.0	36.2
335011	All other (except sheet, plate, foil, and welded tubing)	9.3	5.6
335099	Other nonferrous shapes and forms	4.6	(6)
	Electric motors and generators:		
362111	Fractional horsepower electric motors (less than 1 hp)	48.3	37.6
362120	Integral horsepower motors and generators (1 hp or more)	69.6	37.3
356200	Ball and roller bearings (mounted or unmounted)	20.7	17.7
190091	Electrical enclosures (metal and plastics)	7.5	(6)
356490	Air filtration systems and parts	30.2	(6)
265001	Paperboard containers, boxes, and corrugated paperboard	19.9	(6)
190003	Flexible packaging materials	1.6	(6)
970099	All other materials and components, parts, containers, and supplies	412.1	6340.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	222.0	172.8
	INDUSTRY 3565, PACKAGING MACHINERY		
	Materials, ingredients, containers, and supplies	**1 062.6**	**669.8**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	8.0	3.9
356102	Other pumps	4.8	(7)
190090	Fluid power products, except pumps, motors, hydrostatic transmissions, and hose	22.5	84.4
	Mechanical power transmission equipment:		
356601	Speed changers, gears, and industrial high-speed drives	22.8	11.5
356200	Ball and roller bearings (mounted or unmounted)	17.0	14.0
356820	Other mechanical power transmission equipment	25.4	(7)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	23.7	(7)
340078	Other fabricated metal products, except fluid power products	96.5	(7)
346000	Forgings	1.3	(7)
	Castings (rough and semifinished):		
332001	Iron and steel	20.7	13.2
336005	Aluminum and aluminum-base alloy	12.4	12.7
336003	Other nonferrous	3.9	2.5
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331031	Stainless	29.4	12.2
331025	All other	28.5	44.1
335010	Aluminum and aluminum-base alloy	9.9	7.8
335091	All other nonferrous shapes and forms	4.8	(NA)
362510	Relays and industrial controls for drives, clutches, brakes, motors, etc., including programmable controllers	56.1	940.1
361010	Transformers (except electronic-type) and other electric power transmission and distribution equipment	12.8	
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	16.3	8.5
362120	Integral horsepower motors and generators (1 hp or more)	10.4	8.8
	Purchased devices for incorporation into complete finished products:		
356501	Filler devices (volumetric and others)	5.7	(7)
359601	Weighing machines and scales	3.1	(7)
356502	Coding, code dating, and marking devices, including imprinting and labeling	4.5	(7)
190065	Detection devices, including checkweighing and metal detection	4.5	(7)
356503	Adhesive devices (hot melt and cold glue)	10.4	(7)
353501	Conveyors and conveying equipment	6.4	(7)
356504	Accumulating, collating, feeding, and unscrambling machinery	3.8	(7)
970099	All other materials and components, parts, containers, and supplies	322.6	7252.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	274.5	233.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS		
	Materials, ingredients, containers, and supplies	**539.6**	**456.0**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	17.1	9.6
340098	Other fabricated metal products	18.3	(10)
	Forgings:		
	Iron and steel:		
346201	Cold	16.3	12.1
346209	Other	31.9	32.3
346300	Nonferrous	2.6	(10)
	Castings (rough and semifinished):		
332001	Iron and steel	60.0	58.8
336010	Nonferrous	12.4	6.4
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	46.5	
331022	Sheet and strip	.8	80.1
331034	Other steel shapes and forms	3.6	
335105	Copper and copper-base alloy	5.5	2.4
335090	Other nonferrous shapes and forms	4.3	(10)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(11)	3.3
	Bearings (mounted or unmounted):		
356218	Ball	16.2	12.2
356201	Roller	22.9	13.9
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	1.4	2.7
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	44.6	(10)
362105	Electric motors, generators, and parts	47.4	(10)
265001	Paperboard containers, boxes, and corrugated paperboard	4.0	(10)
970099	All other materials and components, parts, containers, and supplies	11107.4	10166.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	76.4	55.3
	INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS		
	Materials, ingredients, containers, and supplies	**673.4**	**544.7**
190090	Fluid power products	21.6	(12)
	Fabricated metal products, except forgings:		
346901	Metal stampings	4.0	(12)
340058	All other fabricated metal products, except fluid power products	48.6	(12)
346000	Forgings	1.0	(12)
	Castings (rough and semifinished):		
332001	Iron and steel	4.3	136.6
336010	Nonferrous	3.4	(12)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	18.1	
331022	Sheet and strip	24.7	
331023	Structural shapes and sheet piling	8.2	64.3
331091	All other steel shapes and forms	15.6	
335105	Copper and copper-base alloy	5.3	8.7
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	7.0	5.1
335011	All other (except sheet, plate, foil, and welded tubing)	1.9	6.5
335099	Other nonferrous shapes and forms	6.9	(12)
360101	Electrical distribution, transmission, and control equipment	67.3	47.4
356751	Electric heating elements for industrial furnaces, ovens, and kilns	18.5	15.8
970099	All other materials and components, parts, containers, and supplies	266.2	12245.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	150.9	144.4
	INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**740.5**	**646.0**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	28.2	14.4
340098	Other fabricated metal products	33.9	(14)
	Forgings:		
	Iron and steel:		
346201	Cold	15.8	23.2
346209	Other	13.9	17.0
346300	Nonferrous	.2	(14)
	Castings (rough and semifinished):		
332001	Iron and steel	60.4	64.0
336010	Nonferrous	23.5	7.6
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	109.5	
331022	Sheet and strip	43.7	166.4
331034	Other steel shapes and forms	22.7	
335105	Copper and copper-base alloy	8.9	12.9
335090	Other nonferrous shapes and forms	9.3	(14)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(D)	9.0
	Bearings (mounted or unmounted):		
356218	Ball	10.4	6.7
356201	Roller	5.5	9.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.—Con.		
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	(D)	8.2
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	15.8	(14)
362105	Electric motors, generators, and parts	12.4	15.2
265001	Paperboard containers, boxes, and corrugated paperboard	6.9	(14)
970099	All other materials and components, parts, containers, and supplies	148.0	14228.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	154.5	63.6
	INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 951.6**	**1 410.3**
360101	Electrical transmission, distribution, and control equipment	40.9	16.5
	Pumps, complete assemblies:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	21.7	5.4
356101	Other pumps and pump parts, except fluid power	19.0	7.7
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
349271	Valves	14.1	4.8
359301	Cylinders and rotary actuators	12.2	4.7
349261	Hose or tube fittings and assemblies	10.2	(15)
356921	Filters	49.9	(15)
190089	Other fluid power products	5.1	(15)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	28.5	15.2
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	27.5	13.0
349402	Pipe, valves, and pipe fittings	31.1	22.8
340072	Other fabricated metal products, except fluid power	125.8	167.3
346000	Forgings	3.5	(15)
	Castings (rough and semifinished):		
332001	Iron and steel	77.2	56.8
336005	Aluminum and aluminum-base alloy	17.7	12.4
336003	Other nonferrous	17.2	18.2
	Shapes and forms, except castings, forgings and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	65.1	
331022	Sheet and strip	52.0	
331023	Structural shapes and sheet piling	13.6	128.0
331091	All other steel shapes and forms	30.0	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	20.8	7.3
335011	All other (except sheet, plate, foil, and welded tubing)	6.4	6.2
335091	Other nonferrous	21.5	1710.8
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	8.0	20.3
362120	Integral horsepower electric motors and generators (1 hp or more)	25.1	18.9
356200	Ball and roller bearings (mounted or unmounted)	13.0	8.6
356601	Speed changers, gears, and industrial high-speed drives	16.0	19.6
356301	Air and gas compressors except refrigeration compressors	5.4	2.9
262195	Filter paper	97.3	(15)
970099	All other materials and components, parts, containers, and supplies	691.3	15505.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	384.4	497.8

[1]For 1987, material codes 285100, 340057, and 346300 are combined with material code 970099 because they were not collected separately.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes were combined to avoid disclosing data for individual companies.
[4]For 1992, material codes are combined to avoid disclosing data for individual companies.
[5]For 1987, material codes 285100, 340057, and 346300 are combined with material code 970099 because they were not collected separately; for 1987, material codes 335001 and 335099 are combined with material code 970099 to avoid disclosing data for individual companies.
[6]For 1987, material codes 190003, 190091, 265001, 335099, 340097, 346000, and 356490 are combined with material code 970099 because they were not collected separately.
[7]For 1987, material codes 190065, 340078, 345001, 346000, 353501, 356102, 356501, 356502, 356503, 356504, 356820, and 359601 are combined with material code 970099 because they were not collected separately.
[8]For 1987, figure includes hydraulic and pneumatic valves only. Data for other fluid power products were not collected separately for 1987 but included in material code 970099.
[9]For 1987, figure includes electrical transmission, distribution, and control equipment. Other subsets of what became material codes 362510 and 361010 for 1992 were not collected separately for 1987 but were included in material code 970099.
[10]For 1987, material codes 265001, 335090, 340098, 346300, and 356835 are combined with material code 970099 because they were not collected separately; for 1987, material code 362105 is combined with material code 970099 to avoid disclosing data for individual companies.
[11]For 1992, material codes 190060 and 970099 are combined to avoid disclosing data for individual companies.
[12]For 1987, material codes 190090, 335099, 336010, 340058, 346000, and 346901 are combined with material code 970099 because they were not collected separately.
[13]For 1987, figure includes rough and semifinished steel castings only. Data for iron castings were not collected separately for 1987 but were included in material code 970099.
[14]For 1987, material codes 265001, 335090, 340098, 346300, and 356835 are combined with material code 970099 because they were not collected separately.
[15]For 1987, material codes 190089, 262195, 346000, and 349261 are combined with material code 970099 because they were not collected separately; for 1987, material code 356921 is combined with material code 970099 to avoid disclosing data for individual companies.
[16]For 1987, figure includes metal stampings only. Data for other fabricated metal products included in material code 340072 were not collected separately for 1987 but included in material code 970099.
[17]For 1987, figure includes only copper pipe, tube, plate, sheet, rod, bar, mechanical wire, military cups and discs, and extruded and/or drawn shapes. Data for other copper forms were not collected separately for 1987 but included in material code 970099. Data for other nonferrous, nonaluminum shapes and forms are included in material code 970099 for 1987 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
35451 15	35451 16
35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
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35464 21	35461 36
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35465 38	35461 34
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35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
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35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
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35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
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35594 25	35594 21

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TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
35598 53	35599 53
35598 55	35599 55
35598 58	35599 57
35598 58	35599 59
35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
35455 83	35455 79
35455 91	35455 77
35455 92	35455 77
35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
35461 05	35464 09
35461 05	35464 15
35461 05	35465 05
35461 07	35464 09
35461 07	35464 15
35461 07	35465 07
35461 09	35464 09
35461 09	35464 15
35461 09	35465 09
35461 12	35464 19
35461 12	35465 12
35461 15	35464 19
35461 15	35465 15
35461 16	35464 19
35461 16	35465 16
35461 17	35464 19
35461 17	35465 17
35461 18	35464 19
35461 18	35465 11
35461 18	35465 14
35461 19	35464 19
35461 19	35465 13
35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
35461 23	35464 19
35461 23	35465 23
35461 25	35464 19
35461 25	35465 25
35461 26	35464 19
35461 26	35465 24
35461 26	35465 27
35461 28	35464 19
35461 28	35465 28
35461 29	35464 19
35461 29	35465 29
35461 31	35464 19
35461 31	35465 31
35461 32	35464 19
35461 32	35465 41
35461 32	35465 43
35461 33	35464 19
35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
35563 15	35563 19
35592 03	35592 04
35592 05	35592 04
35592 09	35592 15
35593 27	35593 41
35593 28	35593 41
35593 29	35593 41
35594 09	35594 16
35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
35599 22	35598 22
35599 25	35598 25
35599 27	35598 27
35599 29	35598 29
35599 31	35598 31
35599 33	35598 36
35599 35	35598 35
35599 37	35598 36
35599 39	35598 39
35599 41	35598 41
35599 43	35598 43
35599 45	35598 45
35599 47	35598 48
35599 49	35598 48
35599 51	35598 51
35599 53	35598 53
35599 55	35598 55
35599 57	35598 58
35599 59	35598 58
35599 61	35598 61
35599 63	35598 63
35599 65	35598 65
35599 67	35598 67
35599 69	35598 69
35599 71	35598 71
35599 73	35598 74
35599 75	35598 74
35599 77	35598 78
35599 79	35598 78
35599 80	35598 98
35599 81	35598 98
35599 82	35598 84
35599 83	35598 98
35599 85	35598 84
35599 85	35598 98
35599 86	35595 01
35599 86	35595 03
35599 86	35595 05
35599 87	35595 09
35599 88	35598 88
35599 89	35598 89
35599 90	35598 90
35599 92	35598 98
35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
35651 08	35651 28
35651 09	35651 31
35651 11	35651 33
35651 12	35651 35
35651 13	35651 35
35651 14	35651 33

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
35651 15	35651 23
35651 15	35651 37
35651 15	35651 41
35651 16	35651 43
35651 17	35651 45
35651 19	35651 49
35651 19	35651 59
35651 21	35651 25
35651 21	35651 31
35651 21	35651 51
35651 21	35651 52
35651 21	35651 53
35651 21	35651 59
35660 31	35660 34
35660 32	35660 34
35660 33	35660 47
35660 35	35660 37
35660 36	35660 37
35660 38	35660 49
35660 39	35660 49
35660 40	35660 47
35676 03	35676 09
35676 04	35676 09
35676 05	35676 15
35676 06	35676 15
35676 17	35676 21
35676 19	35676 21
35681 11	35681 12
35681 13	35681 12
35683 21	35683 20
35683 22	35683 23
35683 24	35683 20
35683 24	35683 23
35683 27	35683 89
35683 29	35683 89
35683 32	35683 33
35683 34	35683 33
35683 36	35683 99
35683 43	35683 44
35683 45	35683 44
35683 92	35683 89
35683 93	35683 99
35683 95	35683 91
35683 97	35683 89
35683 98	35683 89
35692	35694
35692	35695
35692	35696
35692 00	35694 00
35692 00	35695 00
35692 00	35696 00
35697	35699
35697 00	35699 09
35698	35699
35698 01	35699 01
35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
35698 05	35699 05
35698 06	35699 51
35698 07	35699 41
35698 07	35699 42
35698 07	35699 43
35698 07	35699 44
35698 08	35699 51
35698 11	35699 11
35698 12	35699 51
35698 13	35699 13
35698 14	35699 51
35698 15	35699 15
35698 16	35699 51
35698 17	35699 17
35698 18	35699 51
35698 21	35699 21
35698 22	35699 51
35698 23	35699 23
35698 24	35699 51
35698 25	35699 25
35698 26	35699 51
35698 27	35699 27
35698 28	35699 51
35698 31	35699 31
35698 32	35699 51
35698 35	35699 47
35698 36	35699 51
35698 48	35699 47
35698 49	35699 51
35711	35713
35711	35714
35711	35715
35711	35716
35711	35717
35711	35718
35711 00	35713 00
35711 00	35714 00
35711 00	35715 00
35711 00	35716 00
35711 00	35717 00
35711 00	35718 00
35712	35713
35712	35714
35712	35715
35712	35716
35712	35717
35712	35718
35712 00	35713 00
35712 00	35714 00
35712 00	35715 00
35712 00	35716 00
35712 00	35717 00
35712 00	35718 00
35781	35784
35781 00	35784 00
35782	35784
35782 00	35784 00
35783	35789
35783 00	35789 00
35820 13	35820 12
35820 14	35820 12
35820 21	35820 11
35820 22	35820 29
35820 25	35820 31
35820 26	35820 29
35820 28	35820 29
35820 34	35820 39
35820 35	35820 31
35820 36	35820 31
35820 41	35820 39
35820 43	35820 39
35820 81	35820 39
35853 31	35853 32
35853 33	35853 32
35853 36	35853 37
35853 38	35853 37
35853 73	35853 98
35853 97	35853 98
35859 04	35859 06
35859 05	35859 06
35859 07	35859 06
35892 03	35892 02
35892 04	35892 02
35892 05	35892 01
35892 06	35892 01
35892 07	35892 01
35892 07	35892 02
35892 35	35892 46
35892 44	35892 46
35892 77	35892 84
35892 78	35892 84
35892 79	35892 84
35892 80	35892 97
35892 85	35892 86
35892 87	35892 86
35892 88	35892 86
35892 91	35892 97
35892 98	35892 96
35892 99	35892 97
35893 08	35893 07
35893 09	35893 07
35931	35934
35931	35935
35931 00	35934 00
35931 00	35935 00
35933	35939
35933 00	35939 00
35941	35943
35941	35944
35941	35945
35941	35946
35941 10	35943 00
35941 10	35944 00
35941 10	35945 00
35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
35962 13	35962 14
35962 15	35962 14
35962 17	35962 21
35962 19	35962 21

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 4
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 5
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992
Census of Manufactures

MC92-I-35F

INDUSTRY SERIES

Office and Computing Machines

Industries 3571, 3572, 3575, 3577, 3578, and 3579

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35F

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3571	Electronic Computers
3572	Computer Storage Devices
3575	Computer Terminals
3577	Computer Peripheral Equipment, N.E.C.
3578	Calculating and Accounting Equipment
3579	Office Machines, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3571, ELECTRONIC COMPUTERS

This industry is made up of establishments primarily engaged in manufacturing electronic computers. Electronic computers are machines which: (1) store the processing program or programs and the data immediately necessary for execution of the program; (2) can be freely programmed in accordance with the requirements of the user; (3) perform arithmetical computations specified by the user; and (4) execute, without human intervention, a processing program which requires them to modify their execution by logical decision during the processing run. Included in this industry are digital computers, analog computers, and hybrid digital/ analog computers. Establishments primarily engaged in manufacturing machinery or equipment which incorporate computers or a central processing unit for the purpose of performing functions such as measuring, displaying, or controlling process variables are classified based on the manufactured end products. Establishments primarily engaged in manufacturing computer storage devices are classified in industry 3572. Establishments primarily engaged in manufacturing computer terminals are classified in industry 3575. Establishments primarily engaged in manufacturing computer peripheral equipment, not elsewhere classified, are classified in industry 3571.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3571, Electronic Computers, had employment of 110.8 thousand. The employment figure was 27 percent below the 151.9 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, North Carolina, New York, and Texas. This represents a shift from 1987 when California, Massachusetts, New York, and Minnesota were the leading States.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

The total value of shipments for establishments classified in this industry was $38.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3571 shipped $28.6 billion of electronic computer products considered primary to the industry, $6.1 billion of secondary products, and had $3.5 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 82 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3571, no matter in what industry they were produced, appear in table 6a and aggregate to $30.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic computing industry amounted to $21.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3572, COMPUTER STORAGE DEVICES

This industry is made up of establishments primarily engaged in manufacturing computer storage devices.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3572, Computer Storage Devices, had employment of 40.8 thousand. The employment figure was 6 percent below the 43.3 thousand reported in 1987. Compared with 1991, employment increased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Colorado, Minnesota, and Idaho. This represents a shift from 1987 when California, Colorado, Minnesota, and Oklahoma were the leading States.

The total value of shipments for establishments classified in this industry was $9.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3572 shipped $7.1 billion of computer storage devices products considered primary to the industry, $411.1 million of secondary products, and had $2.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 77 percent.

The products primary to industry 3572, no matter in what industry they were produced, appear in table 6a and aggregate to $8.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the computer storage devices industry amounted to $5.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3575, COMPUTER TERMINALS

This industry is made up of establishments primarily engaged in manufacturing computer terminals. Establishments primarily engaged in point-of-sale funds transfer, and automatic teller machines are classified in industry 3578.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3575, Computer Terminals, had employment of 9.3 thousand. The employment figure was 38 percent below the 15.0 thousand reported in 1987. Compared with 1991, employment decreased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, Georgia, and Arkansas. This represents a shift from 1987 when California, Minnesota, Oregon, and Arkansas were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3575 shipped $1.5 billion of computer terminal products considered primary to the industry, $403.8 million of secondary products, and had $140.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 79 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 67 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 52 percent.

The products primary to industry 3575, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the computer terminals industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing computer peripheral equipment, not elsewhere classified, including printers, plotters, and graphic displays. Establishments primarily engaged in manufacturing modems and other communications interface equipment are classified in industry 3661.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3577, Computer Peripheral Equipment, N.E.C., had employment of 59.3 thousand. The employment figure was 22 percent below the 76.2 thousand reported in 1987. Compared with 1991, employment increased 11 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Kentucky, Washington, and New York. This represents a shift from 1987 when California, Minnesota, North Carolina, and Arizona were the leading States.

The total value of shipments for establishments classified in this industry was $12.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3577 shipped $9.9 billion of computer peripheral equipment, not elsewhere classified, products considered primary to the industry, $1.3 billion of secondary products, and had $1.0 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 80 percent.

Establishments in this industry also accounted for 75 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3577, no matter in what industry they were produced, appear in table 6a and aggregate to $13.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the computer peripheral equipment, not elsewhere classified, industry amounted to $7.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing point-of-sale devices, fund transfer devices, and other calculating and accounting machines, except electronic computers. Included are electronic calculating machines which must be paced by operator intervention, even when augmented by attachments. These machines may include program control or have input/ output capabilities.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3578, Calculating and Accounting Equipment, had employment of 6.5 thousand. The employment figure was 49 percent below the 12.8 thousand reported in 1987. Compared with 1991, employment decreased 14 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, Ohio, Georgia, and California. This represents a shift from 1987 when Ohio, California, Washington, and Oregon were the leading States.

The total value of shipments for establishments classified in this industry was $1.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3578 shipped $1.0 billion of calculating and accounting equipment products considered primary to the industry, $98.6 million of secondary products, and had $64.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 82 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3578, no matter in what industry they were produced, appear in table 6a and aggregate to $1.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the calculating and accounting equipment industry amounted to $443.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3579, OFFICE MACHINES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing office machines and devices, not elsewhere classified, including typewriters and word processing equipment. Establishments primarily engaged in manufacturing photocopy and microfilm equipment are classified in industry 3861.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3579, Office Machines, N.E.C., had employment of 23.8 thousand. The employment figure was 16 percent below the 28.5 thousand reported in 1987. Compared with 1991, employment decreased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, New York, and Texas. This represents a shift from 1987 when Connecticut, Illinois, California, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3579 shipped $2.8 billion of office machines, not elsewhere classified, products considered primary to the industry, $180.7 million of secondary products, and had $599.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 69 percent.

The products primary to industry 3579, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the office machines, not elsewhere classified, industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3571, ELECTRONIC COMPUTERS															
1992 Census	803	834	289	110.8	4 855.9	31.2	65.5	819.4	16 137.4	21 388.9	38 205.9	1 242.4	6 170.2	82	93
1991 ASM	(NA)	(NA)	(NA)	126.0	5 343.7	38.1	78.7	1 007.4	16 877.5	19 078.4	35 572.9	1 153.5	6 433.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	134.1	5 264.5	44.0	90.0	1 120.4	19 666.3	19 355.7	39 293.6	1 222.3	6 327.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	143.1	5 454.8	49.7	100.3	1 208.4	21 052.3	20 307.8	40 550.7	1 304.5	6 879.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	150.6	5 513.9	54.7	109.2	1 211.4	19 702.7	18 090.6	37 683.2	1 304.0	5 590.1	(NA)	(NA)
1987 Census	914	974	394	151.9	4 953.0	54.7	105.7	1 126.2	18 322.2	15 222.9	33 626.5	1 223.3	5 120.0	87	93
INDUSTRY 3572, COMPUTER STORAGE DEVICES															
1992 Census	163	179	96	40.8	1 795.4	15.2	31.3	427.0	4 658.8	4 991.7	9 544.3	455.6	1 243.4	95	83
1991 ASM	(NA)	(NA)	(NA)	36.0	1 444.1	12.2	27.1	352.6	3 600.2	3 674.2	7 188.6	392.8	1 197.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	42.6	1 490.1	15.4	32.1	357.1	4 359.0	4 368.9	8 751.1	426.5	1 245.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	44.4	1 684.3	16.6	34.7	392.4	3 666.7	4 087.8	7 612.5	432.4	1 313.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	56.1	1 975.9	20.2	42.6	444.8	4 208.6	5 470.7	9 543.9	404.4	1 548.0	(NA)	(NA)
1987 Census	98	106	64	43.3	1 442.6	15.0	31.0	328.1	3 268.5	3 252.8	6 394.8	347.0	1 004.4	95	77
INDUSTRY 3575, COMPUTER TERMINALS															
1992 Census	186	190	63	9.3	344.1	4.2	8.0	102.7	800.2	1 288.2	2 070.7	44.4	357.7	79	67
1991 ASM	(NA)	(NA)	(NA)	11.7	386.1	5.2	10.3	123.5	865.0	1 429.5	2 326.5	42.4	357.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.1	412.9	4.8	9.8	117.2	728.5	1 035.5	1 790.0	45.4	352.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.6	450.5	6.3	12.9	148.0	726.1	1 219.2	1 969.2	69.3	393.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.8	451.5	5.9	11.2	122.7	1 210.3	1 159.2	2 332.6	42.7	414.7	(NA)	(NA)
1987 Census	120	121	74	15.0	441.7	5.5	10.7	124.1	1 014.3	742.0	1 799.0	58.0	298.9	89	52
INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.															
1992 Census	748	772	275	59.3	2 175.7	23.5	48.4	532.2	5 034.8	7 166.4	12 156.5	393.0	1 665.3	89	75
1991 ASM	(NA)	(NA)	(NA)	53.5	1 963.9	20.7	42.3	500.3	3 748.4	5 779.9	9 614.7	223.8	1 477.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	59.1	1 857.5	25.4	49.9	536.2	3 923.0	5 239.3	9 146.3	299.1	1 451.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	61.6	1 992.2	24.2	46.8	524.9	4 727.4	4 908.2	9 625.2	341.6	1 769.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	67.8	2 330.6	24.0	46.8	514.7	5 928.0	7 761.3	13 213.3	461.5	2 584.6	(NA)	(NA)
1987 Census	520	549	252	76.2	2 625.4	26.2	58.7	579.5	6 975.0	7 107.3	14 022.2	391.2	2 314.7	80	83
INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT															
1992 Census	91	95	46	6.5	191.2	2.7	5.3	56.5	768.5	443.6	1 206.5	25.5	182.0	91	78
1991 ASM	(NA)	(NA)	(NA)	7.6	211.9	3.6	7.3	68.9	617.5	482.4	1 086.6	15.7	201.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.4	214.1	4.0	8.1	84.6	620.4	544.7	1 170.2	101.3	173.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.0	332.3	3.8	7.7	76.9	798.2	535.6	1 352.1	46.0	200.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.3	348.4	5.2	10.4	96.2	897.7	568.5	1 469.1	50.7	279.5	(NA)	(NA)
1987 Census	92	98	53	12.8	380.7	6.0	12.4	142.7	937.2	560.6	1 486.8	40.2	288.5	82	91
1986 ASM	(NA)	(NA)	(NA)	5.1	199.7	2.2	6.2	77.1	606.3	416.0	1 026.4	19.7	157.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.5	195.5	2.2	6.3	68.5	485.7	403.7	945.9	25.5	185.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.1	250.1	3.9	10.0	68.3	695.5	507.5	1 188.9	64.6	258.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.7	302.4	6.8	13.5	108.0	627.8	686.2	1 302.9	48.3	264.8	(NA)	(NA)
1982 Census	65	70	42	15.4	292.2	7.2	13.9	107.8	815.0	676.5	1 487.3	52.7	320.6	74	77
1981 ASM	(NA)	(NA)	(NA)	15.5	297.9	6.8	12.9	79.7	689.7	670.0	1 384.6	64.2	275.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	19.1	331.5	8.0	16.5	111.0	763.6	793.6	1 518.2	61.0	395.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.7	260.2	9.2	19.1	99.8	710.1	621.1	1 302.2	68.6	325.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	18.6	241.9	10.6	19.2	101.6	485.7	585.6	1 063.5	61.4	247.0	(NA)	(NA)
1977 Census	60	64	31	17.1	220.7	10.4	18.1	92.9	394.8	450.5	850.0	56.3	218.2	84	77
INDUSTRY 3579, OFFICE MACHINES, N.E.C.															
1992 Census	143	157	88	23.8	781.1	11.9	22.3	244.9	1 844.8	1 681.3	3 562.8	115.4	739.0	94	93
1991 ASM	(NA)	(NA)	(NA)	30.3	732.1	10.5	20.6	235.8	1 709.9	1 273.3	2 966.2	110.4	620.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.5	1 029.7	12.7	26.6	312.8	1 986.2	1 732.7	3 922.1	150.3	816.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.5	1 053.2	13.8	27.4	311.5	2 208.6	2 273.9	4 316.0	153.1	1 067.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.2	888.2	12.6	25.0	244.0	1 743.3	1 640.8	3 401.7	121.4	753.9	(NA)	(NA)
1987 Census	191	204	102	28.5	824.8	13.5	26.3	270.8	1 869.8	1 448.4	3 297.2	125.1	829.4	90	69
1986 ASM	(NA)	(NA)	(NA)	35.9	1 018.3	15.8	30.1	322.0	2 652.0	1 906.8	4 630.9	164.9	1 104.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	38.8	1 091.9	16.5	31.7	331.0	3 147.9	2 347.5	5 383.5	256.6	1 226.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	38.7	1 037.7	17.2	34.2	351.2	2 382.5	2 193.7	4 449.5	281.0	1 104.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.9	1 060.0	24.2	46.7	442.3	2 641.6	1 691.9	4 346.3	206.7	1 035.6	(NA)	(NA)
1982 Census	203	232	125	43.7	963.7	21.2	40.1	359.5	2 689.3	1 572.7	4 256.7	198.5	1 089.1	81	87
1981 ASM	(NA)	(NA)	(NA)	44.6	877.2	23.7	45.2	367.0	2 460.8	1 509.8	3 955.5	149.3	957.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	50.5	989.9	24.7	48.5	362.5	2 335.1	1 587.6	3 803.9	221.4	1 054.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	47.1	834.4	25.3	51.1	335.4	2 131.8	1 339.3	3 356.7	177.7	858.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.1	723.6	24.8	47.6	344.5	1 935.3	1 185.9	3 002.8	193.8	696.8	(NA)	(NA)
1977 Census	195	215	98	42.4	638.8	22.9	43.7	266.0	1 691.3	1 077.1	2 719.7	111.5	575.3	76	91

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3571, ELECTRONIC COMPUTERS								
1992 Census	43 826	28	2 099	12.51	56	69	145 644	30	246.37
1991 ASM	42 410	30	2 066	12.80	54	69	133 948	32	214.45
1990 ASM	39 258	33	2 045	12.45	49	63	146 654	27	218.51
1989 ASM	38 119	35	2 018	12.05	50	64	147 116	26	209.89
1988 ASM	36 613	36	1 996	11.09	48	63	130 828	28	180.43
1987 Census	32 607	36	1 932	10.65	45	60	120 620	27	173.34
	INDUSTRY 3572, COMPUTER STORAGE DEVICES								
1992 Census	44 005	37	2 059	13.64	52	71	114 186	39	148.84
1991 ASM	40 114	34	2 221	13.01	51	71	100 006	40	132.85
1990 ASM	34 979	36	2 084	11.12	50	67	102 324	34	135.79
1989 ASM	37 935	37	2 090	11.31	54	76	82 583	46	105.67
1988 ASM	35 221	36	2 109	10.44	57	78	75 020	47	98.79
1987 Census	33 316	35	2 067	10.58	51	73	75 485	44	105.44
	INDUSTRY 3575, COMPUTER TERMINALS								
1992 Census	37 000	45	1 905	12.84	62	79	86 043	43	100.03
1991 ASM	33 000	44	1 981	11.99	61	78	73 932	45	83.98
1990 ASM	34 124	40	2 042	11.96	58	81	60 207	57	74.34
1989 ASM	33 125	46	2 048	11.47	62	85	53 390	62	56.29
1988 ASM	28 576	37	1 898	10.96	50	69	76 601	37	108.06
1987 Census	29 447	37	1 945	11.60	41	66	67 620	44	94.79
	INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.								
1992 Census	36 690	40	2 060	11.00	59	77	84 904	43	104.02
1991 ASM	36 708	39	2 043	11.83	60	81	70 064	52	88.61
1990 ASM	31 430	43	1 965	10.75	57	78	66 379	47	78.62
1989 ASM	32 341	39	1 934	11.22	51	72	76 744	42	101.01
1988 ASM	34 375	35	1 950	11.00	59	76	87 434	39	126.67
1987 Census	34 454	34	2 240	9.87	51	69	91 535	38	118.82
	INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT								
1992 Census	29 415	42	1 963	10.66	37	53	118 231	25	145.00
1991 ASM	27 882	47	2 028	9.44	44	64	81 250	34	84.59
1990 ASM	28 932	54	2 025	10.44	47	65	83 838	35	76.59
1989 ASM	33 230	38	2 026	9.99	40	64	79 820	42	103.66
1988 ASM	28 325	42	2 000	9.25	39	62	72 984	39	86.32
1987 Census	29 742	47	2 067	11.51	38	63	73 219	41	75.58
1986 ASM	39 157	43	2 818	12.44	41	60	118 882	33	97.79
1985 ASM	35 545	40	2 864	10.87	43	63	88 309	40	77.10
1984 ASM	27 484	43	2 564	6.83	43	64	76 429	36	69.55
1983 ASM	22 073	50	1 985	8.00	53	76	45 825	48	46.50
1982 Census	18 974	47	1 931	7.76	45	65	52 922	36	58.63
1981 ASM	19 219	44	1 897	6.18	48	70	44 497	43	53.47
1980 ASM	17 356	42	2 063	6.73	52	74	39 979	43	46.28
1979 ASM	13 914	49	2 076	5.23	48	68	37 973	37	37.18
1978 ASM	13 005	57	1 811	5.29	55	78	26 113	50	25.30
1977 Census	12 906	61	1 740	5.13	53	79	23 088	56	21.81
	INDUSTRY 3579, OFFICE MACHINES, N.E.C.								
1992 Census	32 819	50	1 874	10.98	47	69	77 513	42	82.73
1991 ASM	24 162	35	1 962	11.45	43	68	56 432	43	83.00
1990 ASM	31 683	39	2 094	11.76	44	70	61 114	52	74.67
1989 ASM	32 406	42	1 986	11.37	53	77	67 957	48	80.61
1988 ASM	32 654	46	1 984	9.76	48	74	64 092	51	69.73
1987 Census	28 940	47	1 948	10.30	44	69	65 607	44	71.10
1986 ASM	28 365	44	1 905	10.70	41	63	73 872	38	88.11
1985 ASM	28 142	43	1 921	10.44	44	64	81 131	35	99.30
1984 ASM	26 814	44	1 988	10.27	49	73	61 563	44	69.66
1983 ASM	23 094	53	1 930	9.47	39	63	57 551	40	56.57
1982 Census	22 053	49	1 892	8.97	37	60	61 540	36	67.06
1981 ASM	19 668	53	1 907	8.12	38	60	55 175	36	54.44
1980 ASM	19 602	49	1 964	7.47	42	68	46 240	42	48.15
1979 ASM	17 716	54	2 020	6.56	40	65	45 261	39	41.72
1978 ASM	15 696	54	1 919	7.24	39	64	41 980	37	40.66
1977 Census	15 066	54	1 908	6.09	40	63	39 889	38	38.70

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3571, ELECTRONIC COMPUTERS														
United States	**–**	**834**	**289**	**110.8**	**4 855.9**	**31.2**	**65.5**	**819.4**	**16 137.4**	**21 388.9**	**38 205.9**	**1 242.4**	**151.9**	**18 322.2**
Alabama	–	4	1	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arizona	E6	15	4	.2	5.5	(Z)	.1	.9	10.5	7.9	18.7	.8	(NA)	(D)
California	–	249	106	43.7	1 885.7	11.3	23.8	312.9	8 867.7	6 083.2	14 891.3	670.0	45.6	5 154.3
Colorado	–	21	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Connecticut	E9	20	6	.5	16.1	.2	.4	4.1	30.3	76.5	108.1	(D)	F	(D)
Delaware	E9	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	37	11	2.0	80.3	.6	1.3	15.7	194.8	128.7	307.6	6.5	(NA)	(D)
Georgia	E4	14	6	.6	21.5	.2	.5	5.1	63.3	121.1	183.3	2.6	.8	41.8
Illinois	E4	25	5	.5	11.5	.2	.4	3.7	28.4	32.8	60.5	1.1	E	(D)
Iowa	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	E2	6	3	.5	21.6	.1	.2	2.1	44.2	55.4	98.0	2.4	(NA)	(NA)
Maryland	E4	16	2	.2	5.3	(Z)	.1	1.1	15.9	21.0	36.3	.9	(NA)	(NA)
Massachusetts	–	52	24	6.1	295.9	2.6	5.2	78.4	701.0	1 075.5	1 893.3	43.7	23.5	3 738.9
Michigan	–	24	12	2.6	107.3	.7	1.4	17.6	131.6	472.8	597.2	11.3	(NA)	(D)
Minnesota	–	23	8	5.3	180.2	1.1	2.4	29.6	82.6	614.8	704.7	21.2	(NA)	(D)
New Hampshire	–	15	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	(NA)	(D)
New Jersey	–	21	6	1.0	50.3	.5	1.0	13.1	134.7	141.4	326.4	(D)	2.2	149.6
New Mexico	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	43	13	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.3	(NA)	(D)
North Carolina	–	18	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E7	16	4	.3	7.0	.1	.2	2.0	14.9	15.0	29.9	.8	E	(D)
Oregon	–	20	8	1.6	102.9	.4	.8	14.1	205.3	206.4	410.6	(D)	1.4	76.7
Pennsylvania	E9	19	6	.4	17.7	.2	.4	6.3	46.2	43.2	89.9	2.8	2.8	165.7
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	7	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Dakota	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	55	18	7.7	292.1	3.4	7.6	92.9	2 456.7	2 963.9	5 320.8	109.8	10.0	884.5
Utah	–	18	4	1.2	48.7	.1	.2	1.9	108.2	41.3	147.0	(D)	.2	9.0
Virginia	E2	11	3	.4	12.3	.2	.4	3.8	30.6	60.6	91.1	1.1	(NA)	(D)
Washington	E4	18	4	.7	24.7	.1	.3	2.3	31.0	27.9	58.9	(D)	E	(D)
Wisconsin	–	13	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3572, COMPUTER STORAGE DEVICES														
United States	**–**	**179**	**96**	**40.8**	**1 795.4**	**15.2**	**31.3**	**427.0**	**4 658.8**	**4 991.7**	**9 544.3**	**455.6**	**43.3**	**3 268.5**
Arizona	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
California	–	68	42	14.5	769.6	4.3	9.3	133.0	1 845.7	2 711.7	4 486.5	208.4	20.8	1 395.7
Colorado	–	14	8	9.6	471.3	2.1	4.5	105.0	1 223.5	756.0	1 960.5	138.8	10.3	540.3
Florida	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	(NA)	(NA)
Idaho	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E7	13	7	1.1	46.0	.5	1.3	19.2	114.2	166.5	282.2	(D)	(NA)	(NA)
Minnesota	–	14	11	6.0	186.6	3.2	6.2	61.8	218.0	294.7	512.4	(D)	(NA)	(D)
New York	E2	5	2	.1	4.8	.1	.2	3.0	11.6	4.8	16.0	(D)	(NA)	(NA)
Oklahoma	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Utah	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3575, COMPUTER TERMINALS														
United States	**E1**	**190**	**63**	**9.3**	**344.1**	**4.2**	**8.0**	**102.7**	**800.2**	**1 288.2**	**2 070.7**	**44.4**	**15.0**	**1 014.3**
Arizona	E9	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	61	25	3.1	122.0	1.1	2.1	25.2	261.9	336.6	596.4	10.5	2.4	251.7
Colorado	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	E9	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E6	15	4	.5	23.5	.2	.3	4.3	15.1	38.0	53.0	1.0	G	(D)
Michigan	E9	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	E9	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	G	(D)
Missouri	E4	5	3	.1	4.0	(Z)	.1	.7	7.2	12.3	19.5	.2	(NA)	(D)
New Hampshire	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	11	5	.9	36.1	.4	.7	11.3	87.2	63.3	144.7	(D)	G	(D)
North Carolina	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E1	7	4	.3	9.6	.1	.3	3.9	16.1	15.7	32.3	.5	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.														
United States	–	**772**	**275**	**59.3**	**2 175.7**	**23.5**	**48.4**	**532.2**	**5 034.8**	**7 166.4**	**12 156.5**	**393.0**	**76.2**	**6 975.0**
Alabama	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	–	18	6	.8	23.2	.3	.7	5.0	52.0	52.5	104.8	2.8	(NA)	(D)
California	E1	248	88	13.5	532.6	5.4	10.6	144.1	1 238.3	1 599.3	2 842.5	79.5	17.9	2 323.0
Colorado	E3	24	6	1.1	43.1	.4	.8	10.8	109.7	114.8	221.0	4.3	(NA)	(D)
Connecticut	E2	14	9	1.1	41.0	.4	.8	11.3	128.2	57.7	186.2	6.2	1.8	87.2
Florida	E2	32	15	2.0	60.5	.9	1.8	16.6	83.6	96.6	186.4	3.7	G	(D)
Georgia	E4	13	1	.2	7.1	.1	.3	1.3	13.2	10.3	23.2	1.2	(NA)	(NA)
Idaho	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	26	7	.8	26.9	.3	.6	6.9	81.5	106.2	181.2	4.7	.5	29.7
Indiana	–	7	1	.1	2.4	.1	.2	1.1	4.6	8.7	13.1	.1	(NA)	(NA)
Kentucky	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	E3	12	5	.3	9.9	.1	.2	1.7	23.1	21.4	43.0	.9	.7	47.6
Massachusetts	E3	42	18	2.0	73.9	.8	1.4	18.3	165.7	118.6	286.6	9.8	(NA)	(D)
Michigan	E7	11	6	.5	11.7	.2	.4	3.3	27.3	30.8	57.9	1.9	(NA)	(D)
Minnesota	–	25	8	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.8	1 021.0
Missouri	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	11.2
Nevada	–	4	3	.2	5.3	.1	.1	.9	6.4	7.9	13.6	(D)	E	(D)
New Hampshire	E1	11	4	.2	6.5	.1	.3	2.6	11.2	19.4	30.5	(D)	G	(D)
New Jersey	–	10	4	.4	13.8	.2	.4	4.5	23.3	15.4	39.1	.5	G	(D)
New York	–	42	12	3.3	112.7	1.2	2.7	24.4	334.2	137.6	475.8	18.4	G	(D)
North Carolina	E2	15	4	.8	24.8	.3	.4	7.3	25.7	55.0	82.4	.9	(NA)	(D)
Ohio	E7	16	5	.8	21.3	.4	.8	8.6	72.3	42.4	116.9	1.4	(NA)	(NA)
Oklahoma	E2	4	1	.2	3.0	.1	.2	.9	8.1	11.0	19.1	.5	F	(D)
Oregon	–	11	7	2.5	93.1	1.0	2.1	20.0	179.2	307.5	478.7	22.0	E	(D)
Pennsylvania	E1	29	8	.8	26.1	.3	.7	8.9	43.7	41.2	86.8	1.6	2.1	168.8
Tennessee	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	43	16	3.1	71.5	1.9	4.0	25.5	158.2	423.2	568.2	11.9	3.0	212.7
Utah	E5	14	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	G	(D)
Virginia	–	13	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	33	13	4.5	141.9	2.6	5.6	54.8	364.7	441.2	801.0	23.8	3.2	176.5
Wisconsin	E1	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wyoming	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT														
United States	–	**95**	**46**	**6.5**	**191.2**	**2.7**	**5.3**	**56.5**	**768.5**	**443.6**	**1 206.5**	**25.5**	**12.8**	**937.2**
California	E2	12	7	.6	18.5	.2	.4	3.5	55.1	21.7	78.4	3.0	2.3	213.6
Georgia	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	5	3	.2	8.1	.1	.1	1.9	10.6	11.2	22.6	(D)	F	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E7	5	3	.2	4.6	.1	.3	2.7	10.4	10.2	20.5	.5	.4	17.6
New York	–	6	3	.9	26.3	.3	.5	5.8	52.4	47.8	99.1	3.3	E	(D)
Ohio	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E1	9	6	.5	12.0	.2	.5	3.8	30.2	25.3	56.4	1.1	F	(D)
Rhode Island	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E6	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
INDUSTRY 3579, OFFICE MACHINES, N.E.C.														
United States	–	**157**	**88**	**23.8**	**781.1**	**11.9**	**22.3**	**244.9**	**1 844.8**	**1 681.3**	**3 562.8**	**115.4**	**28.5**	**1 869.8**
California	E3	13	9	2.4	75.5	.8	1.7	17.5	203.8	169.8	375.5	12.5	3.5	88.7
Connecticut	–	10	7	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	5	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	6	3	.3	8.7	.2	.5	5.2	15.1	11.5	26.7	1.0	E	(D)
Illinois	–	20	17	2.7	98.8	1.6	3.5	42.8	287.6	303.2	595.7	12.0	4.8	420.3
Indiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	10	5	.8	33.5	.2	.5	6.6	94.3	49.3	142.5	5.9	G	(D)
Minnesota	–	10	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.1	G	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	10	4	.6	13.2	.1	.3	3.1	27.4	19.8	47.0	1.1	1.3	60.3
New York	–	12	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.4	3.5	210.0
North Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	27.5
Oklahoma	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	7	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Wisconsin	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electronic computers (SIC 3571)	Computer storage devices (SIC 3572)	Computer terminals (SIC 3575)	Computer peripheral equipment, n.e.c. (SIC 3577)	Calculating and accounting equipment (SIC 3578)	Office machines, n.e.c. (SIC 3579)
Companies ---- number	803	163	186	748	91	143
All establishments ---- number	834	179	190	772	95	157
With 1 to 19 employees ---- number	545	83	127	497	49	69
With 20 to 99 employees ---- number	177	52	40	179	29	49
With 100 employees or more ---- number	112	44	23	96	17	39
Employment and labor costs:						
Employees ---- 1,000	110.8	40.8	9.3	59.3	6.5	23.8
Compensation, total ---- mil dol	5 983.7	2 158.2	423.7	2 620.2	229.7	1 056.4
Annual payroll ---- mil dol	4 855.9	1 795.4	344.1	2 175.7	191.2	781.1
Fringe benefits ---- mil dol	1 127.7	362.9	79.5	444.5	38.5	275.3
Social Security and other legally required payments ---- mil dol	407.5	148.7	32.2	180.0	16.7	84.2
Employer voluntary payments ---- mil dol	720.2	214.2	47.3	264.5	21.8	191.1
Production workers:						
Average for year ---- 1,000	31.2	15.2	4.2	23.5	2.7	11.9
March ---- 1,000	32.0	14.8	4.3	23.1	2.6	12.3
May ---- 1,000	31.6	15.0	4.2	23.6	2.7	12.0
August ---- 1,000	30.3	15.5	4.2	24.0	2.8	11.9
November ---- 1,000	30.8	15.5	4.1	23.5	2.9	11.6
Hours ---- millions	65.5	31.3	8.0	48.4	5.3	22.3
Wages ---- mil dol	819.4	427.0	102.7	532.2	56.5	244.9
Cost of materials[1] ---- mil dol	21 388.9	4 991.7	1 288.2	7 166.4	443.6	1 681.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	19 849.3	3 612.3	1 233.3	6 377.5	419.9	1 270.3
Resales ---- mil dol	1 133.3	1 195.9	21.8	455.5	9.3	367.8
Fuels ---- mil dol	15.2	5.7	6.5	8.2	.6	5.5
Purchased electricity ---- mil dol	153.2	60.2	10.9	45.7	4.3	25.9
Contract work ---- mil dol	237.9	117.8	15.7	279.5	9.5	11.9
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	2 631.3	1 065.7	134.3	831.2	62.0	356.1
Generated less sold ---- mil kWh	(D)	–	–	(D)	–	(D)
Total value of shipments ---- mil dol	38 205.9	9 544.3	2 070.7	12 156.5	1 206.5	3 562.8
Value added ---- mil dol	16 137.4	4 658.8	800.2	5 034.8	768.5	1 844.8
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	6 693.0	1 151.0	312.6	1 551.5	193.5	787.0
Finished goods ---- mil dol	1 697.6	228.6	76.1	365.1	38.8	277.3
Work in process ---- mil dol	3 279.5	554.1	92.0	630.4	73.9	266.9
Materials and supplies ---- mil dol	1 716.0	368.3	144.4	556.0	80.7	242.8
End of 1992 ---- mil dol	6 170.2	1 243.4	357.7	1 665.3	182.0	739.0
Finished goods ---- mil dol	1 550.7	342.0	84.0	413.0	38.7	278.0
Work in process ---- mil dol	2 746.7	546.9	101.9	627.3	79.7	229.6
Materials and supplies ---- mil dol	1 872.7	354.5	171.9	625.0	63.6	231.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electronic computers (SIC 3571)	Computer storage devices (SIC 3572)	Computer terminals (SIC 3575)	Computer peripheral equipment, n.e.c. (SIC 3577)	Calculating and accounting equipment (SIC 3578)	Office machines, n.e.c. (SIC 3579)
Gross book value of depreciable assets:						
Total:						
Beginning of year	8 760.2	3 382.7	436.0	3 027.3	196.2	1 229.9
New capital expenditures[1]	1 242.4	455.6	44.4	393.0	25.5	115.4
Used capital expenditures	75.6	18.2	3.3	15.6	(D)	(D)
Retirements	1 050.7	239.5	47.2	224.5	(D)	(D)
End of year	9 027.5	3 616.9	436.6	3 211.3	226.6	1 280.8
Buildings and other structures:						
Beginning of year	2 001.9	891.9	112.9	822.5	55.3	246.6
New capital expenditures	116.5	55.2	10.7	30.2	3.4	15.3
Used capital expenditures	19.6	6.6	2.4	6.9	.1	2.6
Retirements	92.4	13.4	9.9	11.6	.2	.9
End of year	2 045.6	940.3	116.0	848.0	58.6	263.7
Machinery and equipment:						
Beginning of year	6 758.3	2 490.8	323.1	2 204.7	140.9	983.3
New capital expenditures[1]	1 125.9	400.4	33.7	362.8	22.1	100.1
Used capital expenditures	56.0	11.5	1.0	8.7	(D)	(D)
Retirements	958.3	226.2	37.3	212.9	(D)	(D)
End of year	6 982.0	2 676.5	320.6	2 363.3	168.1	1 017.1
Depreciation charges during 1992:						
Total	719.4	299.8	33.6	304.3	18.7	115.4
Buildings and other structures	86.8	34.6	5.0	33.1	2.4	16.9
Machinery and equipment	632.6	265.2	28.5	271.2	16.3	98.5
Rental payments:						
Total	487.0	95.6	20.8	137.8	10.6	32.7
Buildings and other structures	395.8	71.0	12.6	108.5	7.8	22.0
Machinery and equipment	91.1	24.6	8.2	29.3	2.9	10.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electronic computers (SIC 3571)		Computer storage devices (SIC 3572)		Computer terminals (SIC 3575)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	34.1	(X)	27.1	(X)	1.0	(X)
Response coverage ratio (percent)[2]	87.6	(X)	85.2	(X)	54.6	(X)
Machinery	58.3	(X)	29.7	(X)	1.2	(X)
Response coverage ratio (percent)[2]	87.2	(X)	85.2	(X)	60.8	(X)
Other purchased services:						
Communications	95.3	(X)	23.6	(X)	3.3	(X)
Response coverage ratio (percent)[2]	84.5	(X)	85.2	(X)	51.4	(X)
Legal	30.4	(X)	4.0	(X)	.6	(X)
Response coverage ratio (percent)[2]	86.8	(X)	85.2	(X)	59.5	(X)
Accounting and bookkeeping	13.5	(X)	8.7	(X)	.7	(X)
Response coverage ratio (percent)[2]	84.7	(X)	85.2	(X)	59.5	(X)
Advertising	156.1	(X)	19.1	(X)	3.0	(X)
Response coverage ratio (percent)[2]	87.4	(X)	85.2	(X)	60.8	(X)
Software and other data processing	141.0	(X)	26.1	(X)	1.4	(X)
Response coverage ratio (percent)[2]	86.0	(X)	82.8	(X)	59.5	(X)
Refuse removal, including hazardous waste	9.0	(X)	2.5	(X)	.4	(X)
Response coverage ratio (percent)[2]	85.4	(X)	84.6	(X)	59.2	(X)
New machinery and equipment expenditures	1 125.9	(X)	400.4	(X)	33.7	(X)
Automobiles, trucks, etc., for highway use	.6	7	.8	1	–	(X)
Computers and peripheral data processing equipment	490.7	1	88.0	1	(S)	(X)
All other	634.6	1	311.6	1	(S)	(X)
Adjustment ratio[3]	1.2	(X)	1.4	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	19 849.3	(X)	3 612.3	(X)	1 233.3	(X)
Materials purchased or transferred from foreign sources[4]	8 290.6	1	1 349.7	5	(S)	(X)
Materials purchased or transferred from domestic sources	11 558.7	1	2 262.6	3	(S)	(X)
Adjustment ratio[3]	1.8	(X)	1.5	(X)	(S)	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Computer peripheral equipment, n.e.c. (SIC 3577)		Calculating and accounting equipment (SIC 3578)		Office machines, n.e.c. (SIC 3579)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	36.3	(X)	2.7	(X)	5.1	(X)
Response coverage ratio (percent)[2]	83.3	(X)	87.2	(X)	85.0	(X)
Machinery	34.2	(X)	3.0	(X)	16.5	(X)
Response coverage ratio (percent)[2]	86.0	(X)	87.2	(X)	85.8	(X)
Other purchased services:						
Communications	41.9	(X)	4.0	(X)	9.6	(X)
Response coverage ratio (percent)[2]	88.9	(X)	87.2	(X)	75.8	(X)
Legal	17.2	(X)	2.7	(X)	18.0	(X)
Response coverage ratio (percent)[2]	87.2	(X)	83.0	(X)	81.9	(X)
Accounting and bookkeeping	6.3	(X)	1.2	(X)	3.0	(X)
Response coverage ratio (percent)[2]	83.0	(X)	83.0	(X)	53.7	(X)
Advertising	160.9	(X)	5.1	(X)	30.8	(X)
Response coverage ratio (percent)[2]	88.3	(X)	83.0	(X)	82.6	(X)
Software and other data processing	23.3	(X)	.6	(X)	8.4	(X)
Response coverage ratio (percent)[2]	88.3	(X)	83.0	(X)	83.8	(X)
Refuse removal, including hazardous waste	3.6	(X)	.5	(X)	1.6	(X)
Response coverage ratio (percent)[2]	85.1	(X)	83.0	(X)	57.8	(X)
New machinery and equipment expenditures	362.8	(X)	22.1	(X)	100.1	(X)
Automobiles, trucks, etc., for highway use	.5	8	1.3	78	.3	30
Computers and peripheral data processing equipment	98.8	2	5.2	22	21.5	21
All other	263.5	1	15.6	4	78.3	7
Adjustment ratio[3]	1.1	(X)	.8	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	6 377.5	(X)	419.9	(X)	1 270.3	(X)
Materials purchased or transferred from foreign sources[4]	1 751.1	2	70.1	12	441.3	29
Materials purchased or transferred from domestic sources	4 626.4	1	349.8	3	829.0	16
Adjustment ratio[3]	1.9	(X)	1.8	(X)	.9	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3571, ELECTRONIC COMPUTERS												
Total	**–**	**834**	**110.8**	**4 855.9**	**31.2**	**65.5**	**819.4**	**16 137.4**	**21 388.9**	**38 205.9**	**1 242.4**	**6 170.2**
Establishments with an average of–												
1 to 4 employees	E9	300	.5	15.5	.1	.3	3.3	47.9	50.0	97.2	3.0	16.5
5 to 9 employees	E8	135	.9	25.4	.3	.6	5.5	68.5	74.9	143.1	4.4	22.7
10 to 19 employees	E7	110	1.5	46.3	.5	.9	9.5	128.1	137.6	266.0	7.9	42.2
20 to 49 employees	E5	114	3.6	133.3	1.2	2.5	29.7	290.6	312.4	655.1	16.2	109.7
50 to 99 employees	E2	63	4.6	168.8	1.7	3.3	36.8	896.3	612.2	1 562.6	18.4	192.3
100 to 249 employees	E1	51	7.8	309.9	3.0	6.0	73.4	1 008.5	1 527.0	2 603.3	64.2	594.0
250 to 499 employees	–	18	6.5	255.2	2.4	5.9	60.6	752.9	1 323.8	2 067.7	47.2	422.4
500 to 999 employees	–	23	16.0	639.0	4.9	9.6	131.1	4 953.5	3 062.7	8 093.7	110.9	650.1
1,000 to 2,499 employees	–	10	13.0	619.9	4.5	8.9	133.1	1 249.0	3 124.9	4 364.7	126.2	596.6
2,500 employees or more	–	10	56.4	2 642.5	12.7	27.5	336.4	6 742.1	11 163.4	18 352.5	843.9	3 523.5
Covered by administrative records[2]	E9	310	.9	22.6	.2	.5	4.5	51.5	56.9	108.3	3.4	16.9
INDUSTRY 3572, COMPUTER STORAGE DEVICES												
Total	**–**	**179**	**40.8**	**1 795.4**	**15.2**	**31.3**	**427.0**	**4 658.8**	**4 991.7**	**9 544.3**	**455.6**	**1 243.4**
Establishments with an average of–												
1 to 4 employees	E9	37	.1	2.8	(Z)	(Z)	.6	7.7	6.3	14.0	.6	1.7
5 to 9 employees	E8	25	.2	5.9	.1	.1	1.5	15.6	12.7	28.4	1.3	3.3
10 to 19 employees	E6	21	.3	9.4	.1	.2	2.1	26.9	16.4	43.9	1.6	5.5
20 to 49 employees	E3	32	1.1	39.9	.4	.9	9.8	106.4	97.7	203.6	6.8	30.1
50 to 99 employees	E2	20	1.4	53.6	.5	.9	11.4	105.7	158.1	260.3	7.4	31.2
100 to 249 employees	E3	14	2.4	94.4	1.1	2.2	25.0	238.4	197.6	432.0	14.3	69.1
250 to 499 employees	–	11	3.9	157.4	1.5	3.3	47.3	417.1	458.4	861.6	58.6	117.1
500 to 999 employees	E1	12	15.9	630.6	7.3	14.5	159.8	2 101.1	2 601.6	4 616.2	76.5	508.4
1,000 to 2,499 employees	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	288.6	(D)
2,500 employees or more	–	3	15.7	801.5	4.3	9.1	169.5	1 639.9	1 443.0	3 084.3	(D)	476.9
Covered by administrative records[2]	E9	42	.1	4.2	(Z)	.1	.9	9.6	7.8	17.4	.9	2.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3575, COMPUTER TERMINALS												
Total	**E1**	**190**	**9.3**	**344.1**	**4.2**	**8.0**	**102.7**	**800.2**	**1 288.2**	**2 070.7**	**44.4**	**357.7**
Establishments with an average of—												
1 to 4 employees	E9	68	.1	3.7	(Z)	.1	1.2	6.4	8.9	15.4	.3	3.5
5 to 9 employees	E6	32	.2	6.6	.1	.2	1.6	11.4	14.9	26.2	.5	5.4
10 to 19 employees	E5	27	.4	13.2	.2	.3	3.0	24.2	28.5	52.5	.9	10.8
20 to 49 employees	E4	22	.7	21.7	.2	.4	4.2	33.6	48.2	82.4	1.5	17.6
50 to 99 employees	E2	18	1.2	45.2	.4	.9	10.9	87.8	123.3	208.9	3.7	38.8
100 to 249 employees	E2	12	1.8	76.5	.7	1.3	17.6	147.4	192.2	346.2	5.3	73.8
250 to 499 employees	–	7	2.5	94.6	1.2	2.0	27.0	226.6	374.6	587.3	16.2	96.8
500 to 999 employees	E1	4	2.4	82.7	1.4	2.8	37.1	262.7	497.5	751.8	15.9	111.0
Covered by administrative records[2]	E9	80	.2	6.6	.1	.2	1.6	11.4	15.9	27.3	.5	5.5
INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.												
Total	**–**	**772**	**59.3**	**2 175.7**	**23.5**	**48.4**	**532.2**	**5 034.8**	**7 166.4**	**12 156.5**	**393.0**	**1 665.3**
Establishments with an average of—												
1 to 4 employees	E8	234	.4	12.9	.1	.3	3.7	25.0	32.0	56.5	1.3	8.4
5 to 9 employees	E6	136	1.0	31.6	.4	.8	8.7	56.4	72.3	128.9	3.1	18.7
10 to 19 employees	E4	127	1.7	59.1	.7	1.3	14.6	104.0	119.4	223.7	4.9	31.9
20 to 49 employees	E2	104	3.3	113.1	1.3	2.5	26.1	244.8	222.9	462.4	9.1	80.5
50 to 99 employees	E2	75	5.5	186.6	2.2	4.6	44.9	374.0	406.3	784.0	21.4	139.8
100 to 249 employees	E2	54	8.8	288.0	4.1	8.2	88.3	735.7	742.3	1 484.2	29.6	240.1
250 to 499 employees	E1	21	7.7	250.2	4.0	7.3	90.2	754.1	904.9	1 650.3	46.6	197.7
500 to 999 employees	–	11	7.5	276.6	2.8	5.7	52.5	717.5	993.3	1 710.0	45.7	217.3
1,000 to 2,499 employees	–	8	23.3	957.6	7.9	17.7	203.1	2 023.5	3 673.0	5 656.5	231.2	730.9
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	298	1.2	27.4	.4	.9	7.9	41.2	55.5	96.7	2.4	14.1
INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT												
Total	**–**	**95**	**6.5**	**191.2**	**2.7**	**5.3**	**56.5**	**768.5**	**443.6**	**1 206.5**	**25.5**	**182.0**
Establishments with an average of—												
1 to 4 employees	E5	19	(Z)	1.0	(Z)	(Z)	.4	3.5	3.0	6.5	.2	1.1
5 to 9 employees	E6	14	.1	3.2	.1	.1	1.3	6.3	4.8	11.1	.3	1.7
10 to 19 employees	E2	16	.2	6.8	.1	.2	2.2	14.7	12.8	27.5	.9	4.3
20 to 49 employees	E1	13	.4	10.5	.2	.4	4.3	26.1	25.4	50.8	.9	8.1
50 to 99 employees	E5	16	1.1	29.4	.5	1.0	9.5	56.5	53.9	111.7	2.7	24.8
100 to 249 employees	–	9	1.5	41.3	.7	1.5	14.2	97.0	70.9	170.3	7.0	32.0
250 to 499 employees	–	6	3.1	98.9	1.1	2.0	24.5	564.6	272.7	828.5	13.3	110.1
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	29	.1	3.3	.1	.1	1.1	6.1	5.3	11.3	.4	1.9
INDUSTRY 3579, OFFICE MACHINES, N.E.C.												
Total	**–**	**157**	**23.8**	**781.1**	**11.9**	**22.3**	**244.9**	**1 844.8**	**1 681.3**	**3 562.8**	**115.4**	**739.0**
Establishments with an average of—												
1 to 4 employees	E9	32	.1	1.5	(Z)	(Z)	.5	3.2	2.7	6.0	.3	1.3
5 to 9 employees	E3	19	.1	3.4	(Z)	.1	1.1	7.8	6.6	14.4	.6	2.7
10 to 19 employees	E7	18	.3	10.4	.1	.2	3.3	19.9	16.3	35.8	1.8	9.8
20 to 49 employees	E1	20	.7	18.8	.4	.8	8.9	48.5	30.1	79.2	.8	14.7
50 to 99 employees	–	29	2.1	57.9	1.1	2.3	22.7	121.7	135.0	252.5	7.8	56.0
100 to 249 employees	–	19	2.8	75.8	1.4	2.7	29.3	199.1	156.7	359.5	7.9	100.5
250 to 499 employees	–	10	3.6	126.8	2.0	4.1	49.5	348.5	250.9	603.3	16.2	108.8
500 to 999 employees	–	5	3.2	55.6	2.5	5.3	37.0	212.0	393.8	616.2	14.9	99.0
1,000 to 2,499 employees	E1	4	10.9	431.0	4.5	6.8	92.5	884.0	689.3	1 596.0	65.1	346.2
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	42	.1	2.7	(Z)	.1	.8	5.6	4.8	10.4	.6	2.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3571	**Electronic computers:**										
	All establishments in industry	834	110.8	4 855.9	31.2	65.5	819.4	16 137.4	21 388.9	38 205.9	1 242.4
	Establishments with this product class primary:										
35713	General purpose large-scale processing equipment (64 megabytes or more in MINIMUM main memory configuration)	21	28.4	1 433.7	7.5	15.0	251.5	2 762.9	3 834.9	7 092.8	497.5
35714	General purpose medium- and small-scale processing equipment (less than 64 megabytes MINIMUM main memory configuration)	29	9.0	383.9	2.5	5.3	63.7	1 965.5	1 458.0	3 468.1	70.2
35715	General purpose personal computers and workstations, excluding portables	56	51.5	2 173.9	13.9	30.2	316.2	9 179.7	13 564.3	22 839.7	559.9
35716	General purpose portable computers (machines with attached display)	11	1.5	56.0	.9	2.4	31.0	250.0	670.3	921.2	4.5
35717	Other general purpose digital processing units	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8
35718	Special purpose, hybrid, or analog computers, including array, database, image processors, etc.	38	6.9	337.7	1.6	3.0	45.1	473.8	342.4	807.8	48.2
3572	**Computer storage devices:**										
	All establishments in industry	179	40.8	1 795.4	15.2	31.3	427.0	4 658.8	4 991.7	9 544.3	455.6
	Establishments with this product class primary:										
35721	Computer storage devices	61	29.9	1 459.2	9.4	19.2	296.4	4 018.1	4 518.8	8 425.0	354.4
35722	Parts, attachments, and subassemblies for computer storage devices	19	7.9	231.3	4.8	10.2	98.7	377.7	267.4	652.7	78.0
3575	**Computer terminals:**										
	All establishments in industry	190	9.3	344.1	4.2	8.0	102.7	800.2	1 288.2	2 070.7	44.4
	Establishments with this product class primary:										
35751	Computer terminals	43	6.4	246.5	3.1	5.8	78.9	613.4	1 050.6	1 646.2	35.5
35752	Parts, attachments, and subassemblies for computer terminals	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3577	**Computer peripheral equipment, n.e.c.:**										
	All establishments in industry	772	59.3	2 175.7	23.5	48.4	532.2	5 034.8	7 166.4	12 156.5	393.0
	Establishments with this product class primary:										
35771	Computer peripheral equipment, n.e.c.	193	39.6	1 474.0	16.2	33.4	372.6	3 805.9	5 065.4	8 770.0	268.6
35772	Parts, attachments, and subassemblies for computer peripheral equipment, n.e.c.	40	10.6	422.9	3.1	6.9	73.2	749.4	1 498.6	2 302.2	(D)
3578	**Calculating and accounting equipment:**										
	All establishments in industry	95	6.5	191.2	2.7	5.3	56.5	768.5	443.6	1 206.5	25.5
	Establishments with this product class primary:										
35784	Accounting machines and cash registers	30	4.7	141.3	1.9	3.6	39.3	638.2	345.6	977.9	17.8
35789	Parts and attachments for calculators, accounting machines, cash registers, funds-transfer and point-of-sale terminals	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3579	**Office machines, n.e.c.:**										
	All establishments in industry	157	23.8	781.1	11.9	22.3	244.9	1 844.8	1 681.3	3 562.8	115.4
	Establishments with this product class primary:										
35792	Automatic typing and word processing machines	4	2.4	59.3	1.7	3.5	33.6	212.7	383.7	593.1	14.1
35793	Duplicating machines	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35795	Mailing, letter handling, and addressing machines	28	10.9	419.6	4.4	6.4	91.3	871.3	577.6	1 469.1	66.3
35799	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c.	27	4.8	122.7	3.1	6.3	58.3	331.8	299.5	646.8	14.5
3579A	Parts and attachments for standard typewriters, dictating, duplicating, and other office machines, n.e.c.	10	1.1	20.7	.8	1.8	11.5	46.9	46.2	88.9	2.8

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3571, ELECTRONIC COMPUTERS			
Total value of shipments	38 205.9	33 626.5	(NA)
Primary products value of shipments	28 587.3	24 780.3	(NA)
Secondary products value of shipments	6 094.1	3 858.3	(NA)
Total miscellaneous receipts	3 524.5	4 987.9	(NA)
Value of resales	1 515.3	3 359.0	(NA)
Contract receipts	18.6	41.3	(NA)
Other miscellaneous receipts	1 990.6	1 587.6	(NA)
Custom computer programming services	9.3	233.3	(NA)
Packaged computer software	267.9	49.0	(NA)
Computer maintenance and repair	846.1	624.2	(NA)
Computer related services, not elsewhere classified	249.4	261.0	(NA)
Sales of scrap and refuse	3.3	5.4	(NA)
Receipts for research and development	40.8	6.5	(NA)
Other miscellaneous receipts	542.2	270.4	(NA)
Other miscellaneous receipts, n.s.k.	31.6	137.8	(NA)
Primary products specialization ratio	82	87	(NA)
Value of primary products shipments made in all industries	30 615.6	26 624.2	(NA)
Value of primary products shipments made in this industry	28 587.3	24 780.3	(NA)
Value of primary products shipments made in other industries	2 028.3	1 843.9	(NA)
Coverage ratio	93	93	(NA)
INDUSTRY 3572, COMPUTER STORAGE DEVICES			
Total value of shipments	9 544.3	6 394.8	(NA)
Primary products value of shipments	7 081.4	5 335.7	(NA)
Secondary products value of shipments	411.1	277.3	(NA)
Total miscellaneous receipts	2 051.8	781.8	(NA)
Value of resales	(D)	541.9	(NA)
Contract receipts	13.4	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	95	95	(NA)
Value of primary products shipments made in all industries	8 581.8	6 904.9	(NA)
Value of primary products shipments made in this industry	7 081.4	5 335.7	(NA)
Value of primary products shipments made in other industries	1 500.4	1 569.2	(NA)
Coverage ratio	83	77	(NA)
INDUSTRY 3575, COMPUTER TERMINALS			
Total value of shipments	2 070.7	1 799.0	(NA)
Primary products value of shipments	1 526.7	1 429.8	(NA)
Secondary products value of shipments	403.8	170.4	(NA)
Total miscellaneous receipts	140.1	198.9	(NA)
Value of resales	(D)	90.8	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	98.0	(D)	(NA)
Primary products specialization ratio	79	89	(NA)
Value of primary products shipments made in all industries	2 290.8	2 729.7	(NA)
Value of primary products shipments made in this industry	1 526.7	1 429.8	(NA)
Value of primary products shipments made in other industries	764.1	1 299.9	(NA)
Coverage ratio	67	52	(NA)
INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.			
Total value of shipments	12 156.5	14 022.2	(NA)
Primary products value of shipments	9 892.0	10 363.2	(NA)
Secondary products value of shipments	1 268.5	2 615.2	(NA)
Total miscellaneous receipts	996.0	1 043.8	(NA)
Value of resales	626.2	406.1	(NA)
Contract receipts	50.0	75.4	(NA)
Other miscellaneous receipts	319.8	562.3	(NA)
Packaged computer software	(D)	29.5	(NA)
Computer maintenance and repair	79.8	382.6	(NA)
Computer related services, not elsewhere classified	(D)	91.7	(NA)
Receipts for research and development	2.8	9.0	(NA)
Other miscellaneous receipts	172.9	35.5	(NA)
Other miscellaneous receipts, n.s.k.	11.6	14.0	(NA)
Primary products specialization ratio	89	80	(NA)
Value of primary products shipments made in all industries	13 239.4	12 542.3	(NA)
Value of primary products shipments made in this industry	9 892.0	10 363.2	(NA)
Value of primary products shipments made in other industries	3 347.4	2 179.1	(NA)
Coverage ratio	75	83	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT			
Total value of shipments	1 206.5	1 486.8	1 487.3
Primary products value of shipments	1 043.7	1 105.7	1 078.3
Secondary products value of shipments	98.6	248.1	371.9
Total miscellaneous receipts	64.1	133.0	37.1
Value of resales	(D)	59.0	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	48.4	(D)	(D)
Primary products specialization ratio	91	82	74
Value of primary products shipments made in all industries	1 336.0	1 208.5	1 397.5
Value of primary products shipments made in this industry	1 043.7	1 105.7	1 078.3
Value of primary products shipments made in other industries	292.3	102.8	319.2
Coverage ratio	78	91	77
INDUSTRY 3579, OFFICE MACHINES, N.E.C.			
Total value of shipments	3 562.8	3 297.2	4 256.7
Primary products value of shipments	2 783.1	2 240.1	3 062.9
Secondary products value of shipments	180.7	245.4	724.4
Total miscellaneous receipts	599.0	811.7	469.4
Value of resales	495.7	558.3	300.1
Contract receipts	2.9	11.9	(D)
Other miscellaneous receipts	100.4	241.5	(D)
Primary products specialization ratio	94	90	81
Value of primary products shipments made in all industries	2 978.4	3 252.7	3 512.3
Value of primary products shipments made in this industry	2 783.1	2 240.1	3 062.9
Value of primary products shipments made in other industries	195.3	1 012.6	449.4
Coverage ratio	93	69	87

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3571– —	**ELECTRONIC COMPUTERS**				
	Total	**(NA)**	**30 615.6**	**(NA)**	**[2]26 624.2**
35713	General purpose large-scale processing equipment (64 megabytes or more in MINIMUM main memory configuration)	(NA)	5 453.9	(NA)	(NA)
35713 00	General purpose large-scale processing equipment (64 megabytes or more in MINIMUM main memory configuration)[3 4]	31	5 453.9	(NA)	(NA)
35714	General purpose medium- and small-scale processing equipment (less than 64 megabytes MINIMUM main memory configuration)	(NA)	3 182.7	(NA)	(NA)
35714 00	General purpose medium- and small-scale processing equipment (less than 64 megabytes MINIMUM main memory configuration)[3 4]	36	3 182.7	(NA)	(NA)
35715	General purpose personal computers and workstations, excluding portables	(NA)	16 927.8	(NA)	(NA)
35715 00	General purpose personal computers and workstations, excluding portables[3 4]	79	16 927.8	(NA)	(NA)
35716	General purpose portable computers (machines with attached display)	(NA)	1 751.6	(NA)	(NA)
35716 00	General purpose portable computers (machines with attached display)[3 4]	29	1 751.6	(NA)	(NA)
35717	Other general purpose digital processing units	(NA)	472.8	(NA)	(NA)
35717 00	Other general purpose digital processing units[3 4]	18	472.8	(NA)	(NA)
35718	Special purpose, hybrid, or analog computers, including array, database, image processors, etc.	(NA)	847.2	(NA)	(NA)
35718 00	Special purpose, hybrid, or analog computers, including array, database, image processors, etc.[3 4]	60	847.2	(NA)	(NA)
35710	Electronic computers, n.s.k.	(NA)	1 979.5	(NA)	715.5
35710 00	Electronic computers, n.s.k.[5]	(NA)	1 871.2	(NA)	443.6
35710 02	Electronic computers, n.s.k.[6]	(NA)	108.3	(NA)	271.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3572– —	**COMPUTER STORAGE DEVICES**				
	Total	**(NA)**	**8 581.8**	**(NA)**	**6 904.9**
35721	Computer storage devices	(NA)	6 729.5	(NA)	6 311.8
35721 00	Computer storage devices[4]	102	6 729.5	76	6 311.8
35722	Parts, attachments, and subassemblies for computer storage devices	(NA)	1 398.3	(NA)	559.6
35722 00	Parts, attachments, and subassemblies for computer storage devices[4]	46	1 398.3	38	559.6
35720	Computer storage devices, n.s.k.	(NA)	454.0	(NA)	33.6
35720 00	Computer storage devices, n.s.k.[5]	(NA)	436.6	(NA)	.8
35720 02	Computer storage devices, n.s.k.[6]	(NA)	17.4	(NA)	32.7
3575– —	**COMPUTER TERMINALS**				
	Total	**(NA)**	**2 290.8**	**(NA)**	**2 729.7**
35751	Computer terminals	(NA)	1 791.9	(NA)	2 554.7
35751 00	Computer terminals (excluding point-of-sale and funds-transfer devices)[4]	65	1 791.9	111	2 554.7
35752	Parts, attachments, and subassemblies for computer terminals	(NA)	194.7	(NA)	139.0
35752 00	Parts, attachments, and subassemblies for computer terminals (excluding point-of-sale and funds-transfer devices)[4]	25	194.7	23	139.0
35750	Computer terminals, n.s.k.	(NA)	304.2	(NA)	36.0
35750 00	Computer terminals, n.s.k.[7]	(NA)	276.9	(NA)	–
35750 02	Computer terminals, n.s.k.[8]	(NA)	27.3	(NA)	36.0
3577– —	**COMPUTER PERIPHERAL EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**13 239.4**	**(NA)**	**12 542.3**
35771	Computer peripheral equipment, n.e.c.	(NA)	8 993.3	(NA)	7 955.3
35771 00	Computer peripheral equipment, n.e.c., including input/output equipment[4]	277	8 993.3	246	7 955.3
35772	Parts, attachments, and subassemblies for computer peripheral equipment, n.e.c.	(NA)	3 244.7	(NA)	4 236.1
35772 00	Parts, attachments, and subassemblies for computer peripheral equipment, n.e.c., including input/output equipment[4]	92	3 244.7	104	4 236.1
35770	Computer peripheral equipment, n.e.c., n.s.k.	(NA)	1 001.5	(NA)	350.9
35770 00	Computer peripheral equipment, n.e.c., n.s.k.[5]	(NA)	904.8	(NA)	149.0
35770 02	Computer peripheral equipment, n.e.c., n.s.k.[6]	(NA)	96.7	(NA)	201.9
3578– —	**CALCULATING AND ACCOUNTING EQUIPMENT**				
	Total	**(NA)**	**1 336.0**	**(NA)**	**1 208.5**
35784	Accounting machines and cash registers	(NA)	1 121.8	(NA)	1 029.7
35784 00	Accounting machines and cash registers, including calculator, funds-transfer terminals and point-of-sale terminals[3 4]	40	1 121.8	(NA)	1 029.7
35789	Parts and attachments for calculators, accounting machines, cash registers, funds-transfer and point-of-sale terminals	(NA)	72.9	(NA)	101.3
35789 00	Parts and attachments for calculators, accounting machines, cash registers, funds-transfer and point-of-sale terminals[3 4]	19	72.9	20	101.3
35780	Calculating and accounting equipment, n.s.k.	(NA)	141.3	(NA)	77.4
35780 00	Calculating and accounting equipment, n.s.k.[9]	(NA)	130.0	(NA)	56.9
35780 02	Calculating and accounting equipment, n.s.k.[10]	(NA)	11.3	(NA)	20.6
3579– —	**OFFICE MACHINES, N.E.C.**				
	Total	**(NA)**	**2 978.4**	**(NA)**	**3 252.7**
35792	Automatic typing and word processing machines	(NA)	480.9	(NA)	1 210.0
35792 00	Automatic typing and word processing machines, including parts and attachments	6	480.9	18	1 210.0
35793	Duplicating machines	(NA)	(D)	(NA)	127.2
35793 00	Duplicating machines, except parts and attachments	8	(D)	6	127.2
35795	Mailing, letter handling, and addressing machines	(NA)	1 171.8	(NA)	811.4
35795 00	Mailing, letter handling, and addressing machines, except parts and attachments	35	1 171.8	33	811.4
35799	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c.	(NA)	(D)	(NA)	618.0
35799 00	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c.	39	(D)	54	618.0
3579A	Parts and attachments for standard typewriters, dictating, duplicating, and other office machines, n.e.c.	(NA)	274.3	(NA)	317.9
3579A 00	Parts and attachments for office machines, n.e.c.	33	274.3	49	317.9
35790	Office machines, n.e.c., n.s.k.	(NA)	403.6	(NA)	168.2
35790 00	Office machines, n.e.c., n.s.k.[11]	(NA)	393.2	(NA)	109.2
35790 02	Office machines, n.e.c., n.s.k.[12]	(NA)	10.4	(NA)	59.0

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For 1987, parts for computers should have been classified as electronic components. The value of computer parts reported in the 1987 census of manufactures was $4,288.4 million, thus the values shown for electronic computers were not directly comparable between 1987 and 1992.
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[5]Typically for establishments with 15 employees or more.
[6]Typically for establishments with less than 15 employees.
[7]Typically for establishments with 20 employees or more.
[8]Typically for establishments with less than 20 employees.
[9]Typically for establishments with 25 employees or more.
[10]Typically for establishments with less than 25 employees.
[11]Typically for establishments with 10 employees or more.
[12]Typically for establishments with less than 10 employees.

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35713, GENERAL PURPOSE LARGE-SCALE PROCESSING EQUIPMENT (64 MEGABYTES OR MORE IN MINIMUM MAIN MEMORY CONFIGURATION)		
United States	**5 453.9**	**(NA)**
California	1 610.6	(NA)
Massachusetts	561.7	(NA)
35714, GENERAL PURPOSE MEDIUM- AND SMALL-SCALE PROCESSING EQUIPMENT (LESS THAN 64 MEGABYTES MINIMUM MAIN MEMORY CONFIGURATION)		
United States	**3 182.7**	**(NA)**
California	940.8	(NA)
Florida	51.8	(NA)
Massachusetts	369.1	(NA)
35715, GENERAL PURPOSE PERSONAL COMPUTERS AND WORKSTATIONS, EXCLUDING PORTABLES		
United States	**16 927.8**	**(NA)**
California	6 803.5	(NA)
Massachusetts	287.6	(NA)
Oregon	13.1	(NA)
Texas	3 178.7	(NA)
35716, GENERAL PURPOSE PORTABLE COMPUTERS (MACHINES WITH ATTACHED DISPLAY)		
United States	**1 751.6**	**(NA)**
Texas	805.9	(NA)
35717, OTHER GENERAL PURPOSE DIGITAL PROCESSING UNITS		
United States	**472.8**	**(NA)**
35718, SPECIAL PURPOSE, HYBRID, OR ANALOG COMPUTERS, INCLUDING ARRAY, DATABASE, IMAGE PROCESSORS, ETC.		
United States	**847.2**	**(NA)**
California	277.3	(NA)
Massachusetts	119.8	(NA)
New York	5.7	(NA)
Ohio	4.3	(NA)
35721, COMPUTER STORAGE DEVICES		
United States	**6 729.5**	**6 311.8**
California	2 402.0	2 148.4
Colorado	1 547.1	957.0
Massachusetts	190.6	(NA)
New Jersey	11.3	(NA)
Pennsylvania	14.5	(NA)
Texas	36.8	(NA)
35722, PARTS, ATTACHMENTS, AND SUBASSEMBLIES FOR COMPUTER STORAGE DEVICES		
United States	**1 398.3**	**559.6**
California	754.2	400.0
Minnesota	329.1	92.1
New York	11.0	(NA)
Texas	4.3	(NA)
35751, COMPUTER TERMINALS		
United States	**1 791.9**	**2 554.7**
California	258.6	431.7
Florida	7.9	42.1
Massachusetts	33.5	204.8
Oregon	112.3	(NA)
35752, PARTS, ATTACHMENTS, AND SUBASSEMBLIES FOR COMPUTER TERMINALS		
United States	**194.7**	**139.0**
35771, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.		
United States	**8 993.3**	**7 955.3**
Arizona	89.2	97.8
California	2 506.9	3 152.0
Connecticut	119.0	123.8
Florida	71.7	137.8
Illinois	130.9	29.6
Maryland	26.0	(NA)
Massachusetts	253.8	670.3
Michigan	26.7	21.8
Minnesota	82.3	265.1
New Jersey	26.6	(NA)
New York	1 337.6	472.7
Oregon	530.1	103.8
Pennsylvania	44.2	167.7
Texas	240.3	283.1
Virginia	389.7	(NA)
Washington	628.0	124.2
35772, PARTS, ATTACHMENTS, AND SUBASSEMBLIES FOR COMPUTER PERIPHERAL EQUIPMENT, N.E.C.		
United States	**3 244.7**	**4 236.1**
Arizona	8.6	(NA)
California	172.7	314.1
Connecticut	2.6	(NA)
Florida	27.5	(NA)
Illinois	29.7	(NA)
Massachusetts	28.5	107.6
Nevada	8.0	(NA)
Oregon	56.8	(NA)
Texas	98.2	(NA)
Washington	33.0	128.7

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35784, ACCOUNTING MACHINES AND CASH REGISTERS			**35795, MAILING, LETTER HANDLING, AND ADDRESSING MACHINES**		
United States	**1 121.8**	**1 029.8**	**United States**	**1 171.8**	**811.4**
Pennsylvania	36.1	(NA)	Florida	3.7	(NA)
			Illinois	40.3	37.9
35789, PARTS AND ATTACHMENTS FOR CALCULATORS, ACCOUNTING MACHINES, CASH REGISTERS, FUNDS-TRANSFER AND POINT-OF-SALE TERMINALS			**35799, STANDARD TYPEWRITERS, DICTATING, TRANSCRIBING, RECORDING MACHINES, AND ALL OTHER OFFICE MACHINES, N.E.C.**		
United States	**72.9**	**101.3**			
Pennsylvania	2.7	(NA)	**United States**	**(D)**	**618.0**
35792, AUTOMATIC TYPING AND WORD PROCESSING MACHINES			**3579A, PARTS AND ATTACHMENTS FOR STANDARD TYPEWRITERS, DICTATING, DUPLICATING, AND OTHER OFFICE MACHINES, N.E.C.**		
United States	**480.9**	**1 210.0**			
35793, DUPLICATING MACHINES			**United States**	**274.3**	**317.9**
United States	**(D)**	**127.2**	Illinois	24.3	75.9

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3571-	**Electronic computers**	**30 615.6**	**28 158.0**	**29 284.5**	**30 397.7**	**29 685.6**	**26 624.2**	**(NA)**	**(NA)**
35713	General purpose large-scale processing equipment (64 megabytes or more in MINIMUM main memory configuration)	5 453.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35714	General purpose medium- and small-scale processing equipment (less than 64 megabytes MINIMUM main memory configuration)	3 182.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35715	General purpose personal computers and workstations, excluding portables	16 927.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35716	General purpose portable computers (machines with attached display)	1 751.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35717	Other general purpose digital processing units	472.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35718	Special purpose, hybrid, or analog computers, including array, database, image processors, etc.	847.2	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35710	Electronic computers, n.s.k.	1 979.5	771.2	861.5	645.4	744.5	715.5	(NA)	(NA)
3572-	**Computer storage devices**	**8 581.8**	**6 622.6**	**8 353.8**	**8 532.2**	**8 323.7**	**6 904.9**	**(NA)**	**(NA)**
35721	Computer storage devices	6 729.5	5 599.8	7 403.9	7 858.5	7 387.7	6 311.8	(NA)	(NA)
35722	Parts, attachments, and subassemblies for computer storage devices	1 398.3	946.5	890.0	627.1	896.9	559.6	(NA)	(NA)
35720	Computer storage devices, n.s.k.	454.0	76.3	59.9	46.6	39.1	33.6	(NA)	(NA)
3575-	**Computer terminals**	**2 290.8**	**2 326.6**	**2 571.9**	**2 559.7**	**2 565.5**	**2 729.7**	**(NA)**	**(NA)**
35751	Computer terminals	1 791.9	1 929.8	2 101.3	2 086.5	2 315.3	2 554.7	(NA)	(NA)
35752	Parts, attachments, and subassemblies for computer terminals	194.7	338.6	412.2	331.6	212.2	139.0	(NA)	(NA)
35750	Computer terminals, n.s.k.	304.2	58.2	58.4	141.6	37.9	36.0	(NA)	(NA)
3577-	**Computer peripheral equipment, n.e.c.**	**13 239.4**	**12 036.4**	**12 417.7**	**13 401.1**	**12 654.8**	**12 542.3**	**(NA)**	**(NA)**
35771	Computer peripheral equipment, n.e.c.	8 993.3	7 448.1	8 089.9	8 139.9	7 646.4	7 955.3	(NA)	(NA)
35772	Parts, attachments, and subassemblies for computer peripheral equipment, n.e.c.	3 244.7	4 141.9	3 814.6	4 545.7	4 745.4	4 236.1	(NA)	(NA)
35770	Computer peripheral equipment, n.e.c., n.s.k.	1 001.5	446.4	513.3	715.5	263.0	351.0	(NA)	(NA)
3578-	**Calculating and accounting equipment**	**1 336.0**	**1 165.8**	**1 391.3**	**1 366.4**	**1 061.5**	**1 208.5**	**1 397.6**	**836.2**
35784	Accounting machines and cash registers	1 121.8	1 003.3	1 191.1	1 205.0	902.8	1 029.8	1 203.6	772.4
35789	Parts and attachments for calculators, accounting machines, cash registers, funds-transfer and point-of-sale terminals	72.9	114.7	150.3	111.5	86.8	101.3	182.0	59.0
35780	Calculating and accounting equipment, n.s.k.	141.3	47.8	49.9	49.9	71.9	77.4	12.6	4.8
3579-	**Office machines, n.e.c.**	**2 978.4**	**2 384.6**	**2 464.7**	**2 853.7**	**2 946.0**	**3 252.7**	**3 512.3**	**2 020.3**
35792	Automatic typing and word processing machines	480.9	431.4	363.4	639.9	926.7	1 210.0	1 491.5	(NA)
35793	Duplicating machines	(D)	(D)	190.5	177.1	147.9	127.2	158.8	199.7
35795	Mailing, letter handling, and addressing machines	1 171.8	1 023.9	727.8	717.1	833.5	811.4	387.8	235.3
35799	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c.	(D)	(D)	546.6	635.1	707.2	618.0	1 122.6	(NA)
3579A	Parts and attachments for standard typewriters, dictating, duplicating, and other office machines, n.e.c.	274.3	213.0	506.5	562.5	235.6	317.9	306.7	(NA)
35790	Office machines, n.e.c., n.s.k.	403.6	103.7	129.8	122.1	95.1	168.2	44.9	38.0

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3571, ELECTRONIC COMPUTERS		
	Materials, ingredients, containers, and supplies	**19 849.3**	**12 204.6**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	70.2	(D)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	327.9	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards	2 013.8	(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)	456.9	(NA)
367984	Computer processors (system boards, array processors, etc.)	1 411.3	(NA)
	Communication boards (LAN boards, D/ A and A/ D converters, etc.):		
367985	Boards with fax capability	(D)	(NA)
367986	Other communication boards	(D)	(NA)
367987	Other boards	178.5	(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	789.1	1 600.0
367501	Capacitors for electronic circuitry	42.8	(NA)
367601	Resistors for electronic circuitry	35.6	(NA)
367800	Connectors for electronic circuitry	59.4	(NA)
	Power supply units:		
367988	Battery packs	462.8	(NA)
367989	Other	168.2	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	388.2	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	28.8	144.3
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	204.4	(NA)
308902	Plastics	114.0	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	88.5	(NA)
340055	All other fabricated metal products	32.0	(NA)
346000	Forgings	(D)	(NA)
330091	Castings (rough and semifinished)	3.4	(D)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	1.3	(NA)
335799	Insulated copper wire and cable (including magnet wire)	149.4	(D)
308020	Fabricated plastics products, except enclosures	9.3	(NA)
737202	Purchased software	194.4	(NA)
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	30.4	21.4
362101	Electric motors and generators (all types)	5.0	(D)
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	60.2	58.5
	Purchased electronic computing and peripheral equipment:		
357102	Computers	4 671.2	(NA)
357202	Storage devices	1 387.0	(NA)
357502	Terminals	774.9	(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	430.0	(NA)
357704	Printers	76.3	(NA)
357602	Other	121.3	(NA)
970099	All other materials and components, parts, containers, and supplies	1 059.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	3 904.2	1 276.1
	INDUSTRY 3572, COMPUTER STORAGE DEVICES		
	Materials, ingredients, containers, and supplies	**3 612.3**	**2 778.0**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	([2])	–
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	29.6	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards		(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)		(NA)
367984	Computer processors (system boards, array processors, etc.)		(NA)
	Communication boards (LAN boards, D/ A and A/ D converters, etc.):	281.2	
367985	Boards with fax capability		(NA)
367986	Other communication boards		(NA)
367987	Other boards		(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	120.0	49.9
367501	Capacitors for electronic circuitry	10.6	(NA)
367601	Resistors for electronic circuitry	5.1	(NA)
367800	Connectors for electronic circuitry	15.9	(NA)
	Power supply units:		
367988	Battery packs	(D)	(NA)
367989	Other	([2])	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	[2]36.2	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	(D)	2.4
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	16.0	(NA)
308902	Plastics	(D)	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	31.2	(NA)
340055	All other fabricated metal products	35.7	(NA)
346000	Forgings	(D)	(NA)
330091	Castings (rough and semifinished)	29.6	(D)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	27.5	(D)
335799	Insulated copper wire and cable (including magnet wire)	23.4	(D)
308020	Fabricated plastics products, except enclosures	15.1	(NA)
737202	Purchased software	(D)	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3572, COMPUTER STORAGE DEVICES—Con.		
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	(D)	.2
362101	Electric motors and generators (all types)	85.6	(D)
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	12.4	8.3
	Purchased electronic computing and peripheral equipment:		
357102	Computers		(NA)
357202	Storage devices		(NA)
357502	Terminals		(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	1 303.5	(NA)
357704	Printers		(NA)
357602	Other		(NA)
970099	All other materials and components, parts, containers, and supplies	805.7	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	667.8	183.5
	INDUSTRY 3575, COMPUTER TERMINALS		
	Materials, ingredients, containers, and supplies	**1 233.3**	**652.9**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	(3)	15.7
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	22.2	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards	(3)	(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)	3.3	(NA)
367984	Computer processors (system boards, array processors, etc.)	(3)	(NA)
	Communication boards (LAN boards, D/ A and A/ D converters, etc.):		
367985	Boards with fax capability	(3)	(NA)
367986	Other communication boards	(3)	(NA)
367987	Other boards	(3)	(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	(3)	52.5
367501	Capacitors for electronic circuitry	5.7	(NA)
367601	Resistors for electronic circuitry	4.2	(NA)
367800	Connectors for electronic circuitry	(3)	(NA)
	Power supply units:		
367988	Battery packs	(D)	(NA)
367989	Other	(3)	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	[3]337.2	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	(D)	7.0
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	6.7	(NA)
308902	Plastics	26.4	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	(D)	(NA)
340055	All other fabricated metal products	(D)	(NA)
346000	Forgings	–	(NA)
330091	Castings (rough and semifinished)	(D)	(D)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	(D)	(D)
335799	Insulated copper wire and cable (including magnet wire)	2.1	1.9
308020	Fabricated plastics products, except enclosures	2.0	(NA)
737202	Purchased software	(D)	(NA)
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	(D)	(D)
362101	Electric motors and generators (all types)	(D)	(D)
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	(D)	1.4
	Purchased electronic computing and peripheral equipment:		
357102	Computers		(NA)
357202	Storage devices		(NA)
357502	Terminals		(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	133.0	(NA)
357704	Printers		(NA)
357602	Other		(NA)
970099	All other materials and components, parts, containers, and supplies	222.8	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	410.9	153.0
	INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**6 377.5**	**6 290.9**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	14.9	8.4
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	137.7	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards	(4)	(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)	67.5	(NA)
367984	Computer processors (system boards, array processors, etc.)	144.8	(NA)
	Communication boards (LAN boards, D/ A and A/ D converters, etc.):		
367985	Boards with fax capability	39.5	(NA)
367986	Other communication boards		(NA)
367987	Other boards	[4]300.9	(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	526.1	182.6
367501	Capacitors for electronic circuitry	36.2	(NA)
367601	Resistors for electronic circuitry	17.4	(NA)
367800	Connectors for electronic circuitry	65.2	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.—Con.		
	Components for electronic circuitry, except tubes—Con.		
	Power supply units:		
367988	Battery packs	37.8	(NA)
367989	Other	87.3	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	244.4	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	52.1	67.2
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	33.2	(NA)
308902	Plastics	128.4	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	(D)	(NA)
340055	All other fabricated metal products	100.9	(NA)
346000	Forgings	(D)	(NA)
330091	Castings (rough and semifinished)	22.9	(NA)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	47.7	(NA)
335799	Insulated copper wire and cable (including magnet wire)	32.3	(D)
308020	Fabricated plastics products, except enclosures	152.0	(NA)
737202	Purchased software	29.8	(NA)
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	18.5	(D)
362101	Electric motors and generators (all types)	(D)	(NA)
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	47.3	36.8
	Purchased electronic computing and peripheral equipment:		
357102	Computers	9.7	(NA)
357202	Storage devices	(5)	(NA)
357502	Terminals	(5)	(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	171.0	(NA)
357704	Printers	253.2	(NA)
357602	Other	5415.4	(NA)
970099	All other materials and components, parts, containers, and supplies	1 264.3	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	945.1	750.9
	INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**419.9**	**516.1**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	4.4	2.3
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	13.2	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards	(6)	(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)	5.9	(NA)
367984	Computer processors (system boards, array processors, etc.)	8.1	(NA)
	Communication boards (LAN boards, D/A and A/D converters, etc.):		
367985	Boards with fax capability	–	(NA)
367986	Other communication boards	(6)	(NA)
367987	Other boards	611.9	(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	26.3	53.8
367501	Capacitors for electronic circuitry	2.0	(NA)
367601	Resistors for electronic circuitry	1.9	(NA)
367800	Connectors for electronic circuitry	6.5	(NA)
	Power supply units:		
367988	Battery packs	(D)	(NA)
367989	Other	11.9	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	4.2	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	(D)	4.8
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	13.7	(NA)
308902	Plastics	9.5	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	29.4	(NA)
340055	All other fabricated metal products	14.7	(NA)
346000	Forgings	–	(NA)
330091	Castings (rough and semifinished)	(D)	(D)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	2.5	(D)
335799	Insulated copper wire and cable (including magnet wire)	(D)	(D)
308020	Fabricated plastics products, except enclosures	9.7	(NA)
737202	Purchased software	(D)	(NA)
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	(D)	.4
362101	Electric motors and generators (all types)	7.0	(D)
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	3.8	(D)
	Purchased electronic computing and peripheral equipment:		
357102	Computers	(7)	(NA)
357202	Storage devices	(7)	(NA)
357502	Terminals	(7)	(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	19.4	(NA)
357704	Printers	15.7	(NA)
357602	Other	718.9	(NA)
970099	All other materials and components, parts, containers, and supplies	54.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	101.0	156.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3579, OFFICE MACHINES, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 270.3**	**1 072.0**
367102	Cathode ray tubes (CRT's) and all other transmittal, industrial, and special purpose electron tubes (except x-ray)	(D)	(D)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards (without inserted components)	13.1	(NA)
	Printed circuit assembly (loaded boards, subassemblies, and modules):		
367980	Memory boards	([8])	(NA)
367983	Peripheral controllers (graphic boards, drive controller, etc.)	([8])	(NA)
367984	Computer processors (system boards, array processors, etc.)	5.3	(NA)
	Communication boards (LAN boards, D/ A and A/ D converters, etc.):		
367985	Boards with fax capability	–	(NA)
367986	Other communication boards	[8]7.7	(NA)
367987	Other boards	3.4	(NA)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	63.5	32.9
367501	Capacitors for electronic circuitry	3.6	(NA)
367601	Resistors for electronic circuitry	2.7	(NA)
367800	Connectors for electronic circuitry	7.8	(NA)
	Power supply units:		
367988	Battery packs	(D)	(NA)
367989	Other	2.8	(NA)
367006	Other components and accessories, n.e.c., including coils, transformers, transducers, switches, etc., excluding tubes	4.4	(NA)
360101	Electrical transmission, distribution, and control equipment, including switchgear, fuses, transformers, relays, etc.	4.0	49.9
	Electronic enclosures:		
344402	Steel, aluminum, and other metals	(D)	(NA)
308902	Plastics	11.1	(NA)
	Fabricated metal products, except forgings:		
340002	Sheet metal products (including stampings), except enclosures	23.0	(NA)
340055	All other fabricated metal products	60.8	(NA)
346000	Forgings	(D)	(NA)
330091	Castings (rough and semifinished)	.9	(D)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	3.6	(D)
335799	Insulated copper wire and cable (including magnet wire)	5.0	(D)
308020	Fabricated plastics products, except enclosures	21.6	(NA)
737202	Purchased software	2.2	(NA)
364301	Appliance outlets, switches, lampholders, and other current carrying wiring devices	1.0	5.1
362101	Electric motors and generators (all types)	20.8	15.8
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	17.6	16.3
	Purchased electronic computing and peripheral equipment:		
357102	Computers	24.9	(NA)
357202	Storage devices	37.5	(NA)
357502	Terminals	([9])	(NA)
357702	Input devices, including keyboards, mouse devices, trackballs, etc.	([9])	(NA)
357704	Printers	2.9	(NA)
357602	Other	[9]16.8	(NA)
970099	All other materials and components, parts, containers, and supplies	326.7	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	503.3	227.5

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[2]For 1992, material codes 367102, 367989, and 367006 are combined to avoid disclosing data for individual companies.
[3]For 1992, material codes 367102, 367980, 367984, 367985, 367986, 367987, 367408, 367800, 367989, and 367006 are combined to avoid disclosing data for individual companies.
[4]For 1992, material codes 367980 and 367987 are combined to avoid disclosing data for individual companies.
[5]For 1992, material codes 357202, 357502, and 357602 are combined to avoid disclosing data for individual companies.
[6]For 1992, material codes 367980, 367986, and 367987 are combined to avoid disclosing data for individual companies.
[7]For 1992, material codes 357102, 357202, 357502, and 357602 are combined to avoid disclosing data for individual companies.
[8]For 1992, material codes 367980, 367983, and 367986 are combined to avoid disclosing data for individual companies.
[9]For 1992, material codes 357502, 357702, and 357602 are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
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3531P 22	3531K 22
3531P 24	3531K 24
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3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
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35329 42	35329 43
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35329 72	35329 75
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35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
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35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
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35424 11	35424 02
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35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
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35442 25	35442 19
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35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
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35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
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35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
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35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
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35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
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35465 38	35461 34
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35465 43	35461 32
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35473 49	35473 48
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35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
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35482 09	35482 02
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35482 18	35482 15
35482 18	35482 16
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35521 67	35521 69
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35534 12	35534 02
35534 12	35534 03
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Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
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35595 03	35599 86
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35598 03	35599 03
35598 05	35599 05
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35718	35711
35718	35712
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35820 39	35820 81
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35853 98	35853 97
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35892 86	35892 87
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35939	35933
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35945 00	35941 10
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35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
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35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
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35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
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35461 25	35464 19
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35461 26	35464 19
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35461 26	35465 27
35461 28	35464 19
35461 28	35465 28
35461 29	35464 19
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35461 31	35464 19
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35461 32	35464 19
35461 32	35465 41
35461 32	35465 43
35461 33	35464 19
35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
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35592 09	35592 15
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35593 28	35593 41
35593 29	35593 41
35594 09	35594 16
35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
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35599 61	35598 61
35599 63	35598 63
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35599 80	35598 98
35599 81	35598 98
35599 82	35598 84
35599 83	35598 98
35599 85	35598 84
35599 85	35598 98
35599 86	35595 01
35599 86	35595 03
35599 86	35595 05
35599 87	35595 09
35599 88	35598 88
35599 89	35598 89
35599 90	35598 90
35599 92	35598 98
35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
35651 08	35651 28
35651 09	35651 31
35651 11	35651 33
35651 12	35651 35
35651 13	35651 35
35651 14	35651 33

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
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35651 15	35651 41
35651 16	35651 43
35651 17	35651 45
35651 19	35651 49
35651 19	35651 59
35651 21	35651 25
35651 21	35651 31
35651 21	35651 51
35651 21	35651 52
35651 21	35651 53
35651 21	35651 59
35660 31	35660 34
35660 32	35660 34
35660 33	35660 47
35660 35	35660 37
35660 36	35660 37
35660 38	35660 49
35660 39	35660 49
35660 40	35660 47
35676 03	35676 09
35676 04	35676 09
35676 05	35676 15
35676 06	35676 15
35676 17	35676 21
35676 19	35676 21
35681 11	35681 12
35681 13	35681 12
35683 21	35683 20
35683 22	35683 23
35683 24	35683 20
35683 24	35683 23
35683 27	35683 89
35683 29	35683 89
35683 32	35683 33
35683 34	35683 33
35683 36	35683 99
35683 43	35683 44
35683 45	35683 44
35683 92	35683 89
35683 93	35683 99
35683 95	35683 91
35683 97	35683 89
35683 98	35683 89
35692	35694
35692	35695
35692	35696
35692 00	35694 00
35692 00	35695 00
35692 00	35696 00
35697	35699
35697 00	35699 09
35698	35699
35698 01	35699 01
35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
35698 05	35699 05
35698 06	35699 51
35698 07	35699 41
35698 07	35699 42
35698 07	35699 43
35698 07	35699 44
35698 08	35699 51
35698 11	35699 11
35698 12	35699 51
35698 13	35699 13
35698 14	35699 51
35698 15	35699 15
35698 16	35699 51
35698 17	35699 17
35698 18	35699 51
35698 21	35699 21
35698 22	35699 51
35698 23	35699 23
35698 24	35699 51
35698 25	35699 25
35698 26	35699 51
35698 27	35699 27
35698 28	35699 51
35698 31	35699 31
35698 32	35699 51
35698 35	35699 47
35698 36	35699 51
35698 48	35699 47
35698 49	35699 51
35711	35713
35711	35714
35711	35715
35711	35716
35711	35717
35711	35718
35711 00	35713 00
35711 00	35714 00
35711 00	35715 00
35711 00	35716 00
35711 00	35717 00
35711 00	35718 00
35712	35713
35712	35714
35712	35715
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35712	35718
35712 00	35713 00
35712 00	35714 00
35712 00	35715 00
35712 00	35716 00
35712 00	35717 00
35712 00	35718 00
35781	35784
35781 00	35784 00
35782	35784
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35783	35789
35783 00	35789 00
35820 13	35820 12
35820 14	35820 12
35820 21	35820 11
35820 22	35820 29
35820 25	35820 31
35820 26	35820 29
35820 28	35820 29
35820 34	35820 39
35820 35	35820 31
35820 36	35820 31
35820 41	35820 39
35820 43	35820 39
35820 81	35820 39
35853 31	35853 32
35853 33	35853 32
35853 36	35853 37
35853 38	35853 37
35853 73	35853 98
35853 97	35853 98
35859 04	35859 06
35859 05	35859 06
35859 07	35859 06
35892 03	35892 02
35892 04	35892 02
35892 05	35892 01
35892 06	35892 01
35892 07	35892 01
35892 07	35892 02
35892 35	35892 46
35892 44	35892 46
35892 77	35892 84
35892 78	35892 84
35892 79	35892 84
35892 80	35892 97
35892 85	35892 86
35892 87	35892 86
35892 88	35892 86
35892 91	35892 97
35892 98	35892 96
35892 99	35892 97
35893 08	35893 07
35893 09	35893 07
35931	35934
35931	35935
35931 00	35934 00
35931 00	35935 00
35933	35939
35933 00	35939 00
35941	35943
35941	35944
35941	35945
35941	35946
35941 10	35943 00
35941 10	35944 00
35941 10	35945 00
35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
35962 13	35962 14
35962 15	35962 14
35962 17	35962 21
35962 19	35962 21

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 5
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-35G

INDUSTRY SERIES

Service Industry Machines

Industries 3581, 3582, 3585, 3586, and 3589

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3581	Automatic Vending Machines
3582	Commercial Laundry Equipment
3585	Refrigeration and Heating Equipment
3586	Measuring and Dispensing Pumps
3589	Service Industry Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3581, AUTOMATIC VENDING MACHINES

This industry is made up of establishments primarily engaged in manufacturing automatic vending machines and coin-operated mechanisms for such machines. Establishments primarily engaged in manufacturing money changing machinery are classified in industry 3578. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35U, Vending Machines (Coin-Operated). For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3581, Automatic Vending Machines, had employment of 7.2 thousand. The employment figure was 9 percent below the 7.9 thousand reported in 1987. Compared with 1991, employment increased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Missouri, South Carolina, and Texas, accounting for approximately 50 percent of the industry's employment. This represents a shift from 1987 when Missouri, West Virginia, California, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $815.7 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3581 shipped $748.6 million of automatic vending machines considered primary to the industry, $17.8 million of secondary products, and had $49.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3581, no matter in what industry they were produced, appear in table 6a and aggregate to $757.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the automatic vending machines industry amounted to $422.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing laundry and drycleaning equipment and pressing machines for commercial and industrial use. Establishments primarily engaged in manufacturing household laundry equipment, including coin-operated washers and dryers are classified in industry 3633.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3582, Commercial Laundry Equipment, had employment of 4.7 thousand. The employment figure was 2 percent above the 4.6 thousand reported in 1987.

The leading States in employment in 1992 were Louisiana, Florida, Kentucky, and Ohio, accounting for approximately 50 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $570.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3582 shipped $508.6 million of commercial laundry equipment considered primary to the industry, $35.8 million of secondary products, and had $25.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3582, no matter in what industry they were produced, appear in table 6a and aggregate to $546.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the commercial laundry equipment industry amounted to $281.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing refrigeration equipment and systems and similar equipment for commercial and industrial use; complete air-conditioning units for domestic, commercial, and industrial use; and warm air furnaces. Establishments primarily engaged in manufacturing soda fountains and beer dispensing equipment and humidifiers and dehumidifiers, except portable, are also classified in this industry. Establishments primarily engaged in manufacturing household refrigerators and home and farm freezers are classified in industry 3632, and those manufacturing electric air space heaters and portable humidifiers and dehumidifiers are classified in industry 3634. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35M, Air-Conditioning and Refrigeration Equipment. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3585, Refrigeration and Heating Equipment, had employment of 120.5 thousand. The employment figure was 10 percent below the 133.3 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Texas, New York, and Tennessee, accounting for approximately 37 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $19.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3585 shipped $17.7 billion of refrigeration and heating equipment considered primary to the industry, $1.0 billion of secondary products, and had $948.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3585, no matter in what industry they were produced, appear in table 6a and aggregate to $18.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the refrigeration and heating equipment industry amounted to $10.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3586, MEASURING AND DISPENSING PUMPS

This industry is made up of establishments primarily engaged in manufacturing measuring and dispensing pumps commonly used in service stations for dispensing gasoline, oil, and grease, including grease guns. Establishments primarily engaged in manufacturing pumps and pumping equipment for general industrial use are classified in industry 3561. Pumps used specifically in hydraulic fluid power systems are classified in industry 3594.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3586, Measuring and Dispensing Pumps, had employment of 6.5 thousand. The employment figure was 31 percent below the 9.4 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Indiana, Maryland, and Iowa, accounting for approximately 54 percent of the industry's employment. This represents a shift from 1987 when Indiana, North Carolina, Missouri, and Maryland were the leading States.

The total value of shipments for establishments classified in this industry was $896.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3586 shipped $732.7 million of measuring and dispensing pumps considered primary to the industry, $60.2 million of secondary products, and had $103.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3586, no matter in what industry they were produced, appear in table 6a and aggregate to $776.9 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the measuring and dispensing pumps industry amounted to $451.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing machines and equipment, not elsewhere classified, for use in service industries, such as floor sanding machines, industrial vacuum cleaners, scrubbing machines, commercial cooking and food warming equipment, and commercial dishwashing machines. Establishments primarily engaged in manufacturing household electrical appliances are classified in industry group 363.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3589, Service Industry Machinery, N.E.C., had employment of 38.5 thousand. The employment figure was 9 percent above the 35.2 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, Ohio, and Michigan, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when Illinois, California, Minnesota, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3589 shipped $4.6 billion of service industry machinery, not elsewhere classified, considered primary to the industry, $318.6 million of secondary products, and had $404.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3589, no matter in what industry they were produced, appear in table 6a and aggregate to $5.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the service industry machinery, not elsewhere classified, industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3581, AUTOMATIC VENDING MACHINES															
1992 Census	105	107	38	7.2	181.2	5.1	10.1	89.3	384.7	422.7	815.7	13.4	167.9	98	99
1991 ASM	(NA)	(NA)	(NA)	6.9	164.9	4.8	9.2	82.7	339.2	385.4	733.7	10.4	177.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.4	181.5	5.2	10.1	97.2	338.1	399.8	741.7	80.2	176.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.9	188.9	5.7	11.0	107.1	381.0	462.7	828.6	21.6	170.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.9	179.0	5.5	10.6	97.9	366.8	406.0	776.1	21.9	151.3	(NA)	(NA)
1987 Census	97	98	33	7.9	185.6	5.7	11.1	108.7	344.0	372.7	714.6	25.9	158.6	97	99
1986 ASM	(NA)	(NA)	(NA)	8.0	176.6	5.6	10.7	98.7	306.3	363.1	668.6	27.0	157.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.1	163.4	5.9	11.4	103.6	306.2	372.5	664.8	13.4	158.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.3	156.8	6.0	11.6	103.4	279.3	349.8	611.3	23.5	156.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.5	132.9	5.1	9.8	72.4	257.1	345.0	596.0	25.3	136.7	(NA)	(NA)
1982 Census	88	92	36	7.4	123.3	5.1	9.8	72.3	215.0	267.1	479.4	13.1	118.2	93	98
1981 ASM	(NA)	(NA)	(NA)	8.7	137.5	6.0	11.8	83.9	253.6	315.6	576.4	12.7	120.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.9	127.3	6.3	12.0	77.4	211.2	294.8	501.3	16.8	127.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.2	123.0	6.8	13.2	78.4	226.6	281.3	504.7	13.1	120.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	116.0	6.9	13.4	73.0	222.3	258.6	482.6	8.8	114.6	(NA)	(NA)
1977 Census	106	113	35	8.8	103.2	6.4	12.4	65.1	211.7	214.5	410.1	7.9	109.6	94	93
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT															
1992 Census	74	77	33	4.7	129.3	3.2	6.7	71.1	286.7	281.5	570.3	10.8	88.6	93	93
1991 ASM	(NA)	(NA)	(NA)	4.9	125.9	3.3	7.3	69.6	247.0	287.6	542.3	11.1	108.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.2	120.3	3.5	7.1	67.4	240.4	277.6	526.6	13.2	107.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.0	111.8	3.5	7.2	64.5	181.2	283.7	478.9	13.4	104.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.3	138.3	4.3	9.0	79.8	294.1	308.2	586.6	9.2	116.2	(NA)	(NA)
1987 Census	80	81	40	4.6	106.9	3.4	7.0	66.3	246.5	212.7	455.8	6.6	84.8	96	94
1986 ASM	(NA)	(NA)	(NA)	4.5	100.2	3.1	6.6	59.8	196.0	184.5	381.6	6.9	76.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.5	92.9	3.1	6.5	55.8	193.3	186.1	373.5	6.8	72.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.4	89.5	3.1	6.5	55.4	191.5	159.1	346.0	9.3	72.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.5	85.6	3.1	6.5	52.8	177.5	160.0	338.5	6.0	69.2	(NA)	(NA)
1982 Census	86	87	45	4.7	83.0	3.2	6.4	49.6	170.0	147.8	321.0	4.9	64.1	96	87
1981 ASM	(NA)	(NA)	(NA)	4.8	76.3	3.6	7.3	50.6	154.7	159.3	308.5	3.0	57.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	72.8	3.9	7.5	46.0	134.5	163.1	295.2	8.3	56.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.6	74.9	4.2	8.4	49.2	126.3	173.5	293.6	10.7	53.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.2	66.3	3.9	7.4	41.7	126.5	128.1	247.9	3.8	61.6	(NA)	(NA)
1977 Census	90	94	38	4.6	54.4	3.3	6.4	35.6	117.3	104.9	220.3	2.2	53.5	90	81
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT															
1992 Census	769	913	512	120.5	3 590.2	88.9	179.8	2 385.5	9 413.3	10 341.2	19 697.0	556.1	2 473.9	95	98
1991 ASM	(NA)	(NA)	(NA)	119.0	3 377.1	87.1	173.4	2 201.6	8 186.2	9 867.4	18 223.8	443.2	2 455.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	126.9	3 507.2	92.4	183.9	2 261.5	8 339.5	10 425.0	19 043.2	472.4	2 674.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	135.8	3 683.1	101.5	204.3	2 453.7	9 340.7	11 161.7	20 249.1	534.2	2 995.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	135.2	3 456.7	99.5	200.2	2 272.0	8 822.6	10 373.1	18 963.6	452.4	2 806.4	(NA)	(NA)
1987 Census	746	894	513	133.3	3 355.8	96.4	192.8	2 170.3	8 051.1	9 138.5	17 035.4	433.3	2 579.9	93	97
1986 ASM	(NA)	(NA)	(NA)	128.9	3 194.5	91.8	181.3	2 067.2	7 212.6	8 484.8	15 826.2	493.1	2 204.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	130.4	3 102.3	94.2	183.3	2 021.0	7 249.5	8 608.2	15 836.4	436.5	2 359.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	134.2	3 021.0	97.7	189.6	1 982.6	7 409.1	8 576.8	15 775.5	418.9	2 434.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	122.1	2 565.0	88.5	167.3	1 679.5	6 373.1	6 966.7	13 375.2	225.6	2 209.6	(NA)	(NA)
1982 Census	730	865	496	120.5	2 393.2	85.0	159.3	1 532.6	6 049.4	6 190.6	12 390.3	329.3	2 141.9	92	95
1981 ASM	(NA)	(NA)	(NA)	137.0	2 532.2	98.7	192.7	1 639.4	6 210.4	7 012.0	13 125.7	400.6	2 038.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	130.0	2 240.6	93.6	182.9	1 442.5	5 383.9	6 023.9	11 587.4	367.0	1 860.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	148.8	2 323.8	111.5	216.8	1 575.4	5 857.7	6 596.2	12 273.1	297.4	2 101.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	148.5	2 154.4	112.9	214.3	1 476.7	5 323.6	6 051.0	11 217.0	292.9	1 882.2	(NA)	(NA)
1977 Census	725	860	457	138.6	1 849.7	104.4	205.4	1 270.2	4 469.2	5 235.7	9 638.1	233.0	1 632.7	89	95
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS															
1992 Census	71	77	41	6.5	196.6	4.1	8.2	98.6	422.0	451.4	896.3	27.1	151.1	92	94
1991 ASM	(NA)	(NA)	(NA)	7.0	192.8	4.5	8.1	96.6	493.5	426.4	927.7	22.2	170.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.0	221.1	4.9	9.5	121.0	519.1	492.9	1 029.5	21.1	203.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.2	229.5	5.2	10.0	123.5	544.3	505.1	1 071.0	29.7	214.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.8	230.4	5.7	11.2	133.4	641.7	490.3	1 135.7	26.8	206.3	(NA)	(NA)
1987 Census	70	83	44	9.4	249.0	5.8	12.0	132.8	617.8	470.3	1 068.7	24.4	213.9	86	96
1986 ASM	(NA)	(NA)	(NA)	7.3	172.8	4.7	9.1	91.1	392.8	413.5	813.1	16.4	154.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.2	185.1	5.3	10.2	97.0	417.9	423.7	840.3	21.3	181.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.4	182.3	5.6	11.0	103.4	465.7	396.2	858.8	13.1	197.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.4	157.6	4.7	8.7	80.1	364.3	292.1	668.2	13.1	154.5	(NA)	(NA)
1982 Census	58	61	35	8.1	160.0	5.2	9.9	86.9	365.1	299.7	676.2	12.8	157.2	86	93
1981 ASM	(NA)	(NA)	(NA)	6.4	114.6	4.5	8.6	69.1	324.3	223.7	549.0	11.5	121.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	122.2	5.1	9.7	74.2	338.3	227.6	539.5	16.6	123.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.9	106.7	4.8	9.2	64.3	259.2	198.6	448.6	9.9	105.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.7	95.6	4.7	8.8	57.4	222.3	174.2	392.1	9.0	91.8	(NA)	(NA)
1977 Census	57	59	30	7.4	97.3	5.1	9.7	57.9	218.0	158.2	375.7	6.2	97.9	61	82
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.															
1992 Census	1 046	1 113	391	38.5	1 136.7	22.4	45.4	503.5	2 965.1	2 388.3	5 344.6	109.6	898.5	94	91
1991 ASM	(NA)	(NA)	(NA)	35.9	971.2	21.2	42.6	453.2	2 483.7	2 130.2	4 636.2	60.0	896.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	38.6	1 018.1	23.0	46.3	481.2	2 721.4	2 170.4	4 877.2	82.5	969.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	35.4	932.5	22.4	45.2	455.9	2 592.9	1 993.8	4 428.1	104.0	901.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	35.9	874.2	22.2	43.0	420.5	2 169.6	1 977.6	4 116.6	100.3	768.8	(NA)	(NA)
1987 Census	897	949	333	35.2	854.8	21.5	43.3	399.0	2 200.5	1 765.5	3 960.4	88.9	717.4	95	90
1986 ASM	(NA)	(NA)	(NA)	31.7	736.4	19.1	36.5	345.5	1 815.4	1 611.7	3 428.3	58.0	630.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.6	694.5	19.5	37.9	337.4	1 669.2	1 568.6	3 214.7	65.0	613.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	31.5	676.9	19.4	38.1	335.9	1 587.5	1 429.2	2 991.3	80.2	564.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	30.5	589.5	17.9	33.6	287.4	1 306.6	1 245.5	2 570.1	50.0	501.1	(NA)	(NA)
1982 Census	791	832	287	31.0	584.0	17.8	33.5	283.0	1 321.3	1 235.4	2 583.0	54.6	516.6	93	88
1981 ASM	(NA)	(NA)	(NA)	34.7	605.7	21.8	41.0	309.1	1 347.9	1 254.7	2 571.4	63.7	499.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	35.1	552.2	22.2	42.6	282.9	1 242.2	1 172.9	2 416.3	72.4	459.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.4	499.4	22.1	42.9	257.0	1 123.1	1 035.9	2 125.7	58.2	444.0	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	32.7	445.6	19.6	38.0	222.0	1 008.5	946.4	1 949.8	43.4	389.8	(NA)	(NA)
1977 Census	959	988	277	32.1	411.8	19.2	36.9	208.6	946.4	849.3	1 771.8	38.5	365.9	91	90

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3581, AUTOMATIC VENDING MACHINES								
1992 Census	25 167	71	1 980	8.84	52	74	53 431	47	38.09
1991 ASM	23 899	70	1 917	8.99	53	75	49 159	49	36.87
1990 ASM	24 527	70	1 942	9.62	54	78	45 689	54	33.48
1989 ASM	23 911	72	1 930	9.74	56	79	48 228	50	34.64
1988 ASM	22 658	70	1 927	9.24	52	75	46 430	49	34.60
1987 Census	23 494	72	1 947	9.79	52	78	43 544	54	30.99
1986 ASM	22 075	70	1 911	9.22	54	81	38 288	58	28.63
1985 ASM	20 173	73	1 932	9.09	56	81	37 802	53	26.86
1984 ASM	18 892	72	1 933	8.91	57	83	33 651	56	24.08
1983 ASM	17 720	68	1 922	7.39	58	80	34 280	52	26.23
1982 Census	16 662	69	1 922	7.38	56	81	29 054	57	21.94
1981 ASM	15 805	69	1 967	7.11	55	79	29 149	54	21.49
1980 ASM	14 303	71	1 905	6.45	59	84	23 730	60	17.60
1979 ASM	13 370	74	1 941	5.94	56	80	24 630	54	17.17
1978 ASM	12 340	73	1 942	5.45	54	78	23 649	52	16.59
1977 Census	11 727	73	1 937	5.25	52	77	24 057	49	17.07
	INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT								
1992 Census	27 511	68	2 094	10.61	49	72	61 000	45	42.79
1991 ASM	25 694	67	2 212	9.53	53	76	50 408	51	33.84
1990 ASM	23 135	67	2 029	9.49	53	76	46 231	50	33.86
1989 ASM	22 360	70	2 057	8.96	59	83	36 240	62	25.17
1988 ASM	21 952	68	2 093	8.87	53	76	46 683	47	32.68
1987 Census	23 239	74	2 059	9.47	47	70	53 587	43	35.21
1986 ASM	22 267	69	2 129	9.06	48	75	43 556	51	29.70
1985 ASM	20 644	69	2 097	8.58	50	75	42 956	48	29.74
1984 ASM	20 341	70	2 097	8.52	46	72	43 523	47	29.46
1983 ASM	19 022	69	2 097	8.12	47	73	39 444	48	27.31
1982 Census	17 660	68	2 000	7.75	46	72	36 170	49	26.56
1981 ASM	15 896	75	2 028	6.93	52	76	32 229	49	21.19
1980 ASM	14 275	76	1 923	6.13	55	80	26 373	54	17.93
1979 ASM	13 375	75	2 000	5.86	59	85	22 554	59	15.04
1978 ASM	12 750	75	1 897	5.64	52	78	24 327	52	17.09
1977 Census	11 826	72	1 939	5.56	48	72	25 500	46	18.33
	INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT								
1992 Census	29 794	74	2 022	13.27	53	71	78 119	38	52.35
1991 ASM	28 379	73	1 991	12.70	54	73	68 792	41	47.21
1990 ASM	27 638	73	1 990	12.30	55	73	65 717	42	45.35
1989 ASM	27 122	75	2 013	12.01	55	73	68 783	39	45.72
1988 ASM	25 567	74	2 012	11.35	55	73	65 256	39	44.07
1987 Census	25 175	72	2 000	11.26	54	73	60 398	42	41.76
1986 ASM	24 783	71	1 975	11.40	54	74	55 955	44	39.78
1985 ASM	23 791	72	1 946	11.03	54	74	55 594	43	39.55
1984 ASM	22 511	73	1 941	10.46	54	74	55 209	41	39.08
1983 ASM	21 007	72	1 890	10.04	52	71	52 196	40	38.09
1982 Census	19 861	71	1 874	9.62	50	69	50 202	40	37.97
1981 ASM	18 483	72	1 952	8.51	53	73	45 331	41	32.23
1980 ASM	17 235	72	1 954	7.89	52	71	41 415	42	29.44
1979 ASM	15 617	75	1 944	7.27	54	73	39 366	40	27.02
1978 ASM	14 508	76	1 898	6.89	54	73	35 849	40	24.84
1977 Census	13 346	75	1 967	6.18	54	74	32 245	41	21.76

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3586, MEASURING AND DISPENSING PUMPS								
1992 Census	30 246	63	2 000	12.02	50	72	64 923	47	51.46
1991 ASM	27 543	64	1 800	11.93	46	67	70 500	39	60.93
1990 ASM	27 638	61	1 939	12.74	48	69	64 887	43	54.64
1989 ASM	27 988	63	1 923	12.35	47	69	66 378	42	54.43
1988 ASM	26 182	65	1 965	11.91	43	63	72 920	36	57.29
1987 Census	26 489	62	2 069	11.07	44	67	65 723	40	51.48
1986 ASM	23 671	64	1 936	10.01	51	72	53 808	44	43.16
1985 ASM	22 573	65	1 925	9.51	50	72	50 963	44	40.97
1984 ASM	21 702	67	1 964	9.40	46	67	55 440	39	42.34
1983 ASM	21 297	64	1 851	9.21	44	67	49 230	43	41.87
1982 Census	19 753	64	1 904	8.78	44	68	45 074	44	36.88
1981 ASM	17 906	70	1 911	8.03	41	62	50 672	35	37.71
1980 ASM	16 972	71	1 902	7.65	42	65	46 986	36	34.88
1979 ASM	15 464	70	1 917	6.99	44	68	37 565	41	28.17
1978 ASM	14 269	70	1 872	6.52	44	69	33 179	43	25.26
1977 Census	13 149	69	1 902	5.97	42	68	29 459	45	22.47
	INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.								
1992 Census	29 525	58	2 027	11.09	45	66	77 016	38	65.31
1991 ASM	27 053	59	2 009	10.64	46	67	69 184	39	58.30
1990 ASM	26 376	60	2 013	10.39	45	65	70 503	37	58.78
1989 ASM	26 342	63	2 018	10.09	45	66	73 246	36	57.37
1988 ASM	24 351	62	1 937	9.78	48	69	60 435	40	50.46
1987 Census	24 284	61	2 014	9.21	45	66	62 514	39	50.82
1986 ASM	23 230	60	1 911	9.47	47	68	57 268	41	49.74
1985 ASM	21 978	62	1 944	8.90	49	70	52 823	42	44.04
1984 ASM	21 489	62	1 964	8.82	48	70	50 397	43	41.67
1983 ASM	19 328	59	1 877	8.55	48	71	42 839	45	38.89
1982 Census	18 839	57	1 882	8.45	48	70	42 623	44	39.44
1981 ASM	17 455	63	1 881	7.54	49	72	38 844	45	32.88
1980 ASM	15 732	63	1 919	6.64	49	71	35 390	44	29.16
1979 ASM	14 107	62	1 941	5.99	49	72	31 726	44	26.18
1978 ASM	13 627	60	1 939	5.84	49	71	30 841	44	26.54
1977 Census	12 829	60	1 922	5.65	48	71	29 483	44	25.65

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3581, AUTOMATIC VENDING MACHINES														
United States	**–**	**107**	**38**	**7.2**	**181.2**	**5.1**	**10.1**	**89.3**	**384.7**	**422.7**	**815.7**	**13.4**	**7.9**	**344.0**
Arkansas	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	20	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	F	(D)
Illinois	–	11	5	.3	9.2	.2	.5	4.0	19.6	19.5	39.0	(D)	E	(D)
Iowa	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	8	3	.3	7.1	.2	.4	3.8	13.2	10.8	22.5	.2	E	(D)
Pennsylvania	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E1	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT														
United States	–	**77**	**33**	**4.7**	**129.3**	**3.2**	**6.7**	**71.1**	**286.7**	**281.5**	**570.3**	**10.8**	**4.6**	**246.5**
California	E2	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Florida	–	7	4	.6	16.4	.4	.8	6.7	38.7	55.4	93.8	(D)	.5	39.0
Illinois	–	12	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT														
United States	–	**913**	**512**	**120.5**	**3 590.2**	**88.9**	**179.8**	**2 385.5**	**9 413.3**	**10 341.2**	**19 697.0**	**556.1**	**133.3**	**8 051.1**
Alabama	–	11	9	2.4	67.7	2.0	4.3	52.9	198.8	300.5	492.7	16.9	2.0	132.4
Arizona	–	17	6	1.1	25.7	.8	1.7	14.5	65.6	68.4	129.7	2.5	1.6	63.5
Arkansas	–	15	11	3.7	106.4	2.9	5.7	69.5	300.7	316.1	626.9	12.1	3.6	230.0
California	–	99	46	3.8	104.3	2.8	5.8	65.3	267.2	363.2	633.4	9.8	5.3	241.7
Colorado	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	E2	12	5	.7	22.7	.5	1.0	11.8	52.4	51.0	104.3	1.5	G	(D)
Delaware	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E3	49	17	1.3	27.0	.9	1.7	14.8	57.9	68.0	125.1	1.4	1.4	72.8
Georgia	–	27	20	4.7	126.3	3.6	8.0	86.4	315.7	444.4	753.6	26.0	(NA)	(D)
Illinois	–	39	26	4.4	122.9	3.1	6.3	69.7	395.5	306.1	721.1	20.7	5.5	346.2
Indiana	–	29	22	6.8	222.4	5.4	10.9	167.9	759.1	661.7	1 420.9	31.4	5.6	401.1
Iowa	–	11	9	1.4	37.2	1.1	2.0	26.2	174.3	102.1	295.8	4.2	G	(D)
Kansas	–	8	6	1.1	33.1	.7	1.3	18.5	76.3	122.2	202.2	1.9	(NA)	(D)
Kentucky	–	14	11	3.3	83.9	2.5	5.0	57.3	242.8	256.8	494.2	7.3	(NA)	(D)
Louisiana	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	16	9	1.4	45.8	.8	1.3	20.1	64.8	55.6	127.5	2.9	G	(D)
Massachusetts	E2	15	6	.7	20.3	.5	.9	10.8	45.0	40.6	85.6	2.2	F	(D)
Michigan	–	30	19	3.7	109.0	2.5	4.7	61.4	180.0	347.8	522.9	(D)	5.4	261.8
Minnesota	–	24	14	3.0	101.0	1.7	3.2	45.0	203.6	268.4	464.8	6.8	3.3	207.6
Mississippi	–	8	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	19	13	4.2	107.0	3.1	6.5	67.6	245.7	263.8	504.7	11.0	4.7	187.1
Nebraska	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	E2	10	2	.2	4.4	.1	.3	2.8	10.6	12.1	22.4	.5	(NA)	(NA)
New Jersey	–	20	10	3.7	99.2	2.8	5.6	67.7	240.4	286.4	582.2	12.4	5.4	210.5
New York	–	64	31	11.3	469.6	8.7	17.9	361.7	895.7	776.7	1 673.3	53.4	(NA)	(D)
North Carolina	–	18	11	1.9	51.2	1.3	3.0	30.1	149.4	145.9	291.3	28.2	1.6	94.7
Ohio	–	44	29	12.2	475.8	9.2	19.4	345.0	1 034.7	1 170.9	2 220.5	91.6	12.6	1 016.4
Oklahoma	–	15	10	1.9	50.5	1.5	3.3	34.7	144.4	176.3	320.5	6.2	1.5	83.7
Oregon	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.2
Pennsylvania	–	51	30	5.2	148.5	3.4	7.0	90.1	522.4	364.7	885.0	14.7	6.3	338.6
South Carolina	–	8	5	1.6	36.2	1.2	2.5	23.2	106.8	114.4	224.9	4.4	1.3	74.1
South Dakota	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	–	25	19	9.9	245.8	8.1	16.3	187.0	1 069.5	1 183.9	2 170.2	56.6	11.4	841.7
Texas	–	118	68	11.7	293.9	8.2	16.4	168.8	730.4	1 082.1	1 759.8	45.6	12.8	685.0
Utah	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	12	7	3.8	80.8	3.1	4.5	57.4	217.7	300.6	510.9	(D)	2.6	126.4
Washington	–	11	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	.4	22.5
Wisconsin	–	24	14	4.0	130.7	2.2	4.5	63.6	259.3	278.3	535.0	11.6	5.7	262.5
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS														
United States	–	**77**	**41**	**6.5**	**196.6**	**4.1**	**8.2**	**98.6**	**422.0**	**451.4**	**896.3**	**27.1**	**9.4**	**617.8**
California	E3	11	6	.4	14.8	.3	.6	6.9	33.3	26.0	58.6	1.2	E	(D)
Illinois	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	7	4	1.1	32.7	.8	1.5	14.6	42.1	82.5	137.9	3.0	G	(D)
Iowa	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E6	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	6	4	.4	12.6	.2	.5	6.6	39.3	26.4	65.5	1.9	E	(D)
Pennsylvania	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E4	11	6	.4	8.9	.2	.5	4.8	22.7	18.3	42.6	.5	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.														
United States	–	**1 113**	**391**	**38.5**	**1 136.7**	**22.4**	**45.4**	**503.5**	**2 965.1**	**2 388.3**	**5 344.6**	**109.6**	**35.2**	**2 200.5**
Alabama	E3	9	4	.7	18.3	.4	.8	7.9	47.2	34.3	83.4	(D)	.6	42.1
Arizona	E1	18	7	.4	8.7	.2	.4	3.7	21.3	25.4	46.3	.5	.3	19.3
Arkansas	–	15	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	E	(D)
California	–	189	56	4.4	133.6	2.7	5.4	60.2	323.7	256.4	575.7	10.2	(NA)	(D)
Colorado	–	19	3	.3	10.1	.2	.3	3.0	33.4	28.4	61.8	.8	.2	24.5
Connecticut	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E1	73	17	1.3	36.2	.8	1.6	17.5	89.6	63.4	152.0	2.0	1.4	81.9
Georgia	E1	21	7	.6	12.4	.3	.6	5.8	18.7	23.6	39.0	1.4	(NA)	(D)
Illinois	–	77	42	4.8	153.3	2.8	5.9	69.8	349.2	328.0	666.4	10.3	5.1	311.9
Indiana	–	20	5	.8	23.0	.6	1.2	12.7	50.8	54.7	105.2	2.0	F	(D)
Iowa	–	17	9	.9	27.3	.4	.8	10.2	62.4	54.7	116.9	1.4	.5	31.3
Kansas	–	15	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Kentucky	E2	9	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	17	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	25	8	.7	25.0	.3	.6	9.7	52.6	45.5	100.2	(D)	F	(D)
Michigan	–	41	15	2.4	64.1	1.6	3.2	33.3	237.6	190.0	421.4	14.6	G	(D)
Minnesota	–	40	12	2.4	98.9	1.2	2.3	33.3	181.1	138.4	325.0	(D)	2.2	199.8
Mississippi	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	26	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	1.1	53.9
Nevada	–	10	3	.3	9.2	.2	.4	4.5	24.0	17.5	41.3	.2	E	(D)
New Hampshire	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	34	14	1.4	43.2	.8	1.5	20.5	79.0	59.8	139.9	1.0	.9	41.4
New York	–	35	11	1.0	25.5	.7	1.4	12.9	47.1	56.8	104.0	1.4	G	(D)
North Carolina	–	23	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	65	30	3.7	99.5	2.1	4.4	47.8	374.8	267.3	646.5	9.0	2.1	114.1
Oklahoma	E6	14	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	13	6	.5	12.1	.3	.6	5.1	29.2	24.6	53.7	.9	.5	23.6
Pennsylvania	–	46	17	1.3	38.5	.8	1.5	16.0	87.0	76.1	163.1	(D)	1.9	105.0
South Carolina	–	13	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	19	10	.7	19.2	.4	.7	6.8	47.9	37.5	86.0	2.2	.5	29.0
Texas	–	58	17	1.2	32.4	.6	1.3	13.1	99.2	65.3	164.1	2.8	F	(D)
Utah	E1	16	1	.2	4.2	.1	.1	.9	13.0	15.1	28.2	.3	(NA)	(NA)
Vermont	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	10	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	17.7
Washington	–	20	7	.6	21.4	.4	.8	10.1	50.1	24.9	71.3	(D)	.3	18.0
Wisconsin	–	46	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wyoming	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Companies	number	105	74	769	71	1 046
All establishments	number	107	77	913	77	1 113
With 1 to 19 employees	number	69	44	401	36	722
With 20 to 99 employees	number	20	22	260	25	295
With 100 employees or more	number	18	11	252	16	96
Employment and labor costs:						
Employees	1,000	7.2	4.7	120.5	6.5	38.5
Compensation, total	mil dol	236.0	159.6	4 715.2	254.6	1 423.9
Annual payroll	mil dol	181.2	129.3	3 590.2	196.6	1 136.7
Fringe benefits	mil dol	54.9	30.3	1 125.0	58.0	287.2
Social Security and other legally required payments	mil dol	19.3	13.8	392.5	21.3	114.9
Employer voluntary payments	mil dol	35.6	16.5	732.5	36.7	172.3
Production workers:						
Average for year	1,000	5.1	3.2	88.9	4.1	22.4
March	1,000	5.0	3.2	89.6	4.3	22.6
May	1,000	5.2	3.2	93.1	4.1	22.5
August	1,000	5.2	3.3	87.1	4.0	22.6
November	1,000	5.1	3.2	86.2	4.0	22.1
Hours	millions	10.1	6.7	179.8	8.2	45.4
Wages	mil dol	89.3	71.1	2 385.5	98.6	503.5

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Cost of materials[1] ---- mil dol	422.7	281.5	10 341.2	451.4	2 388.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	384.1	255.7	9 607.0	424.1	2 053.3
Resales ---- mil dol	28.0	18.4	483.1	7.9	246.0
Fuels ---- mil dol	1.9	1.9	48.7	1.2	9.5
Purchased electricity ---- mil dol	6.5	3.3	142.9	7.3	31.0
Contract work ---- mil dol	2.1	2.2	59.4	10.9	48.6
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	94.4	60.3	2 684.8	123.7	463.1
Generated less sold ---- mil kWh	–	–	–	–	–
Total value of shipments ---- mil dol	815.7	570.3	19 697.0	896.3	5 344.6
Value added ---- mil dol	384.7	286.7	9 413.3	422.0	2 965.1
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	180.4	92.2	2 424.7	176.4	869.0
Finished goods ---- mil dol	78.0	15.2	1 036.4	46.8	268.2
Work in process ---- mil dol	36.2	29.6	588.9	62.7	218.3
Materials and supplies ---- mil dol	66.3	47.4	799.4	66.9	382.5
End of 1992 ---- mil dol	167.9	88.6	2 473.9	151.1	898.5
Finished goods ---- mil dol	69.8	15.6	1 064.7	37.5	269.3
Work in process ---- mil dol	36.2	27.1	618.1	49.0	226.1
Materials and supplies ---- mil dol	62.0	45.8	791.1	64.5	403.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)	Commercial laundry equipment (SIC 3582)	Refrigeration and heating equipment (SIC 3585)	Measuring and dispensing pumps (SIC 3586)	Service industry machinery, n.e.c. (SIC 3589)
Gross book value of depreciable assets:					
Total:					
Beginning of year	233.9	105.8	5 694.8	250.2	1 043.6
New capital expenditures[1]	13.4	10.8	556.1	27.1	109.6
Used capital expenditures	3.2	.5	44.6	.3	18.9
Retirements	1.8	1.2	167.8	5.5	41.1
End of year	248.7	115.9	6 127.7	272.2	1 131.1
Buildings and other structures:					
Beginning of year	53.7	24.6	1 372.8	56.7	291.0
New capital expenditures	1.8	2.9	65.9	5.0	16.9
Used capital expenditures	(D)	(Z)	6.6	(Z)	9.8
Retirements	(D)	.1	27.0	.8	7.6
End of year	55.7	27.5	1 418.3	60.9	310.0
Machinery and equipment:					
Beginning of year	180.2	81.2	4 322.0	193.5	752.6
New capital expenditures[1]	11.6	7.8	490.2	22.1	92.7
Used capital expenditures	(D)	.5	38.0	.3	9.1
Retirements	(D)	1.2	140.8	4.7	33.5
End of year	193.0	88.4	4 709.4	211.2	821.0
Depreciation charges during 1992:					
Total	16.6	10.0	417.7	13.7	103.3
Buildings and other structures	2.2	1.3	55.4	2.0	17.7
Machinery and equipment	14.4	8.7	362.3	11.7	85.7
Rental payments:					
Total	5.6	8.2	90.1	7.0	65.1
Buildings and other structures	3.5	6.5	51.6	4.9	41.3
Machinery and equipment	2.0	1.6	38.4	2.1	23.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Automatic vending machines (SIC 3581)		Commercial laundry equipment (SIC 3582)		Refrigeration and heating equipment (SIC 3585)		Measuring and dispensing pumps (SIC 3586)		Service industry machinery, n.e.c. (SIC 3589)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	.7	(X)	1.0	(X)	89.6	(X)	.9	(X)	10.5	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	88.2	(X)	98.4	(X)	84.7	(X)
Machinery	3.7	(X)	2.6	(X)	(S)	(X)	4.6	(X)	13.7	(X)
Response coverage ratio (percent)[2]	90.4	(X)	70.8	(X)	(S)	(X)	99.3	(X)	83.0	(X)
Other purchased services:										
Communications	2.2	(X)	1.3	(X)	26.6	(X)	2.9	(X)	20.1	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	86.7	(X)	99.3	(X)	79.8	(X)
Legal	3.4	(X)	.9	(X)	24.0	(X)	6.4	(X)	18.2	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	86.7	(X)	99.3	(X)	81.2	(X)
Accounting and bookkeeping	.6	(X)	.7	(X)	8.4	(X)	1.8	(X)	9.6	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	84.6	(X)	98.4	(X)	80.3	(X)
Advertising	1.4	(X)	4.4	(X)	49.8	(X)	4.5	(X)	59.1	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	85.9	(X)	99.3	(X)	84.0	(X)
Software and other data processing	.3	(X)	1.1	(X)	57.5	(X)	1.9	(X)	6.0	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	85.0	(X)	99.3	(X)	78.1	(X)
Refuse removal, including hazardous waste	.7	(X)	.3	(X)	69.4	(X)	.7	(X)	3.4	(X)
Response coverage ratio (percent)[2]	90.4	(X)	82.8	(X)	89.4	(X)	98.4	(X)	83.4	(X)
New machinery and equipment expenditures	11.6	(X)	7.8	(X)	490.2	(X)	22.1	(X)	92.7	(X)
Automobiles, trucks, etc., for highway use	.1	1	.1	51	4.0	23	.5	65	7.0	9
Computers and peripheral data processing equipment	2.4	1	.5	24	24.3	4	1.9	16	13.2	10
All other	9.1	1	7.2	3	461.9	1	19.8	3	72.5	3
Adjustment ratio[3]	1.4	(X)	.5	(X)	1.1	(X)	1.3	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	384.1	(X)	255.7	(X)	9 607.0	(X)	424.1	(X)	2 053.3	(X)
Materials purchased or transferred from foreign sources[4]	20.4	1	26.9	20	550.9	3	9.2	15	69.3	14
Materials purchased or transferred from domestic sources	363.8	1	228.8	3	9 056.2	1	414.9	1	1 984.0	1
Adjustment ratio[3]	1.8	(X)	1.4	(X)	1.4	(X)	1.2	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3581, AUTOMATIC VENDING MACHINES												
Total	**–**	**107**	**7.2**	**181.2**	**5.1**	**10.1**	**89.3**	**384.7**	**422.7**	**815.7**	**13.4**	**167.9**
Establishments with an average of–												
1 to 4 employees	E9	36	.1	1.4	(Z)	.1	.8	2.6	3.1	5.6	.1	1.5
5 to 9 employees	E6	17	.1	2.4	.1	.1	1.5	4.8	6.2	11.1	.3	2.7
10 to 19 employees	E2	16	.2	5.0	.2	.3	2.7	8.3	10.9	19.2	.3	5.0
20 to 49 employees	E3	16	.5	12.4	.3	.6	6.1	20.7	18.5	38.8	.5	7.2
50 to 99 employees	–	4	.2	4.5	.2	.3	2.4	10.1	12.1	22.0	(Z)	4.3
100 to 249 employees	–	8	1.2	29.9	.9	1.7	17.8	54.6	75.5	129.0	3.9	32.7
250 to 499 employees	–	6	2.1	60.7	1.3	3.0	23.2	94.5	126.5	219.4	4.4	54.0
500 to 999 employees	–	4	2.8	64.9	2.1	3.9	34.8	189.1	169.9	370.5	3.7	60.4
Covered by administrative records[2]	E9	45	.1	2.4	.1	.2	1.4	4.2	5.2	9.3	.3	2.5
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT												
Total	**–**	**77**	**4.7**	**129.3**	**3.2**	**6.7**	**71.1**	**286.7**	**281.5**	**570.3**	**10.8**	**88.6**
Establishments with an average of–												
1 to 4 employees	E9	17	(Z)	.5	(Z)	(Z)	.3	.8	.9	1.8	(Z)	1.2
5 to 9 employees	E5	15	.1	2.3	.1	.1	1.4	3.4	5.8	9.9	.2	3.0
10 to 19 employees	E3	12	.2	4.1	.1	.2	2.3	7.0	6.9	13.8	.2	2.3
20 to 49 employees	E1	11	.3	9.7	.3	.5	5.7	22.1	15.3	37.4	.6	5.5
50 to 99 employees	–	11	.8	23.7	.5	1.1	10.5	49.9	43.5	93.0	.9	12.8
100 to 249 employees	–	5	.8	24.5	.6	1.4	14.0	69.9	80.3	150.6	1.8	19.8
250 to 499 employees	–	5	2.4	64.4	1.7	3.3	37.0	133.6	128.7	263.8	7.1	44.0
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	30	.2	2.7	.1	.2	1.7	4.6	4.9	9.6	.2	1.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT												
Total	**–**	**913**	**120.5**	**3 590.2**	**88.9**	**179.8**	**2 385.5**	**9 413.3**	**10 341.2**	**19 697.0**	**556.1**	**2 473.9**
Establishments with an average of—												
1 to 4 employees	E8	162	.3	7.4	.2	.4	4.8	23.4	20.8	44.3	.8	5.2
5 to 9 employees	E6	132	.9	20.5	.6	1.2	12.3	46.5	48.4	92.7	2.6	16.2
10 to 19 employees	E3	107	1.5	36.8	1.0	2.0	21.8	85.6	94.0	179.6	3.1	26.4
20 to 49 employees	E1	158	4.9	120.8	3.4	6.7	66.4	252.3	293.0	543.1	9.1	89.6
50 to 99 employees	–	102	7.3	190.0	5.1	10.5	108.6	448.2	457.2	907.8	20.5	129.4
100 to 249 employees	–	140	21.7	561.7	15.2	32.1	329.1	1 427.7	1 559.1	2 992.1	89.9	458.4
250 to 499 employees	–	55	18.6	504.1	13.4	26.9	303.9	1 320.7	1 598.8	2 964.9	92.5	455.4
500 to 999 employees	–	34	23.1	657.7	16.9	34.3	428.8	2 117.9	2 382.9	4 491.0	97.6	491.2
1,000 to 2,499 employees	–	20	42.2	1 491.2	33.0	65.7	1 109.8	3 691.0	3 886.9	7 481.4	240.0	802.1
2,500 employees or more	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	255	1.2	22.5	.9	1.7	14.7	43.4	51.7	95.2	2.3	13.2
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS												
Total	**–**	**77**	**6.5**	**196.6**	**4.1**	**8.2**	**98.6**	**422.0**	**451.4**	**896.3**	**27.1**	**151.1**
Establishments with an average of—												
1 to 4 employees	E8	15	(Z)	.9	(Z)	.1	.6	1.6	1.5	3.2	.1	.7
5 to 9 employees	E6	9	.1	1.7	(Z)	.1	1.0	3.3	3.6	7.0	.2	1.6
10 to 19 employees	E3	12	.2	5.9	.1	.2	2.9	10.3	9.0	19.7	.4	4.5
20 to 49 employees	E1	16	.5	15.7	.3	.7	7.6	40.5	34.0	77.6	1.4	15.8
50 to 99 employees	–	9	.6	19.9	.4	.9	8.0	45.9	39.4	83.9	2.7	23.5
100 to 249 employees	E2	10	1.5	41.0	1.1	2.3	26.1	115.4	120.2	237.5	8.1	42.0
250 to 499 employees	–	3	.9	26.0	.5	1.1	13.9	66.4	51.3	119.6	3.1	15.2
500 to 999 employees	–	2	2.6	85.6	1.5	3.0	38.5	138.6	192.4	348.0	11.1	47.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	20	.1	2.4	.1	.1	1.5	3.8	4.2	8.0	.2	1.8
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.												
Total	**–**	**1 113**	**38.5**	**1 136.7**	**22.4**	**45.4**	**503.5**	**2 965.1**	**2 388.3**	**5 344.6**	**109.6**	**898.5**
Establishments with an average of—												
1 to 4 employees	E6	344	.6	16.2	.4	.8	7.6	43.2	36.5	80.7	1.1	19.0
5 to 9 employees	E4	197	1.3	31.6	.8	1.5	14.7	73.2	65.5	138.0	4.4	24.0
10 to 19 employees	E1	181	2.5	65.8	1.4	2.9	28.6	156.5	135.2	293.5	4.3	45.4
20 to 49 employees	E1	205	6.3	177.0	3.5	7.0	74.5	434.1	377.7	814.3	10.8	133.0
50 to 99 employees	–	90	6.2	185.9	3.5	7.2	75.3	472.6	383.3	854.5	17.9	159.4
100 to 249 employees	–	75	11.7	349.8	7.1	14.5	162.7	940.8	805.8	1 749.9	27.2	301.6
250 to 499 employees	–	15	5.3	153.5	3.2	6.5	74.2	461.3	339.7	796.5	18.6	111.6
500 to 999 employees	–	6	4.4	157.0	2.6	5.1	65.9	383.3	244.7	617.4	25.3	104.6
Covered by administrative records[2]	E9	411	1.3	23.8	.8	1.5	11.1	57.2	46.5	103.7	1.8	18.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3581	**Automatic vending machines:**										
	All establishments in industry	107	7.2	181.2	5.1	10.1	89.3	384.7	422.7	815.7	13.4
	Establishments with this product class primary:										
35811	Automatic merchandising machines, coin-operated (vending)	39	5.6	138.1	4.1	8.4	73.2	298.8	342.3	653.7	10.4
35812	Coin-operated mechanisms and parts for automatic merchandising machines	10	1.2	34.3	.7	1.2	10.8	69.0	61.5	126.6	(D)
3582	**Commercial laundry equipment:**										
	All establishments in industry	77	4.7	129.3	3.2	6.7	71.1	286.7	281.5	570.3	10.8

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3585	**Refrigeration and heating equipment:**										
	All establishments in industry	913	120.5	3 590.2	88.9	179.8	2 385.5	9 413.3	10 341.2	19 697.0	556.1
	Establishments with this product class primary:										
35851	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained	152	34.1	1 157.0	24.3	50.4	770.2	2 773.5	2 664.3	5 422.1	119.1
35852	Unitary air-conditioners	56	22.2	632.3	16.6	34.0	420.4	2 184.1	2 503.1	4 596.6	116.1
35853	Commercial refrigerators and related equipment	115	16.1	436.3	11.6	23.9	262.1	1 033.6	954.7	1 987.1	36.6
35854	Compressors and compressor units, all refrigerants	43	21.6	717.7	17.2	33.5	528.9	1 574.4	2 250.1	3 810.6	208.1
35855	Refrigeration condensing units (complete)	9	.6	16.5	.3	.7	6.6	50.2	57.8	109.7	2.6
35856	Room air-conditioners and dehumidifiers	12	4.8	111.4	3.5	7.1	69.3	441.2	507.0	990.3	18.3
35859	Refrigeration and air-conditioning equipment, n.e.c.	63	6.1	157.7	4.2	8.4	85.5	378.3	345.4	726.9	17.6
3585C	Warm air furnaces, including duct furnaces and humidifiers, and electric comfort heating equipment	39	5.2	136.2	4.1	7.4	102.4	496.1	466.2	984.0	14.6
3585D	Parts and accessories for air-conditioning and heat transfer equipment	62	5.7	134.5	4.3	8.6	83.9	288.9	378.1	664.7	14.1
3586	**Measuring and dispensing pumps:**										
	All establishments in industry	77	6.5	196.6	4.1	8.2	98.6	422.0	451.4	896.3	27.1
3589	**Service industry machinery, n.e.c.:**										
	All establishments in industry	1 113	38.5	1 136.7	22.4	45.4	503.5	2 965.1	2 388.3	5 344.6	109.6
	Establishments with this product class primary:										
35891	Commercial cooking and food-warming equipment	115	11.1	313.0	7.1	14.3	159.3	820.1	606.7	1 408.8	23.4
35892	Service industry machines and parts	399	20.8	633.5	11.6	23.7	267.0	1 711.4	1 459.4	3 177.3	60.8
35893	Commercial and industrial vacuum cleaners, including parts and attachments	23	2.4	90.3	1.3	2.6	30.5	191.7	138.6	333.5	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3581, AUTOMATIC VENDING MACHINES			
Total value of shipments	815.7	714.6	479.4
Primary products value of shipments	748.6	685.6	436.4
Secondary products value of shipments	17.8	18.2	30.8
Total miscellaneous receipts	49.3	10.8	12.3
Value of resales	37.9	9.5	11.5
Contract receipts	9.7	(D)	–
Other miscellaneous receipts	1.7	(D)	.8
Primary products specialization ratio	98	97	93
Value of primary products shipments made in all industries	757.8	695.2	445.7
Value of primary products shipments made in this industry	748.6	685.6	436.4
Value of primary products shipments made in other industries	9.3	9.6	9.4
Coverage ratio	99	99	98
INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT			
Total value of shipments	570.3	455.8	321.0
Primary products value of shipments	508.6	409.1	293.6
Secondary products value of shipments	35.8	15.8	11.7
Total miscellaneous receipts	25.9	30.9	15.6
Value of resales	23.6	27.6	13.2
Contract receipts	(D)	1.4	–
Other miscellaneous receipts	(D)	1.9	2.4
Primary products specialization ratio	93	96	96
Value of primary products shipments made in all industries	546.0	433.2	338.7
Value of primary products shipments made in this industry	508.6	409.1	293.6
Value of primary products shipments made in other industries	37.3	24.1	45.1
Coverage ratio	93	94	87

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT			
Total value of shipments	19 697.0	17 035.4	12 390.3
Primary products value of shipments	17 735.7	14 949.3	10 587.3
Secondary products value of shipments	1 012.9	1 109.9	914.3
Total miscellaneous receipts	948.4	976.2	888.7
Value of resales	609.3	780.6	604.8
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Sales of scrap and refuse	36.2	36.1	21.4
Receipts for installation (or construction) of products of this establishment	23.7	9.7	17.1
Receipts for research and development	(D)	(D)	(D)
Receipts for repair work	11.4	5.1	(D)
Other miscellaneous receipts	79.7	(D)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	45.0	(D)
Primary products specialization ratio	95	93	92
Value of primary products shipments made in all industries	18 072.2	15 337.5	11 150.7
Value of primary products shipments made in this industry	17 735.7	14 949.3	10 587.3
Value of primary products shipments made in other industries	336.5	388.2	563.4
Coverage ratio	98	97	95
INDUSTRY 3586, MEASURING AND DISPENSING PUMPS			
Total value of shipments	896.3	1 068.7	676.2
Primary products value of shipments	732.7	881.2	547.3
Secondary products value of shipments	60.2	145.3	87.6
Total miscellaneous receipts	103.4	42.2	41.3
Value of resales	(D)	(D)	39.2
Contract receipts	–	(D)	–
Other miscellaneous receipts	(D)	(D)	2.1
Primary products specialization ratio	92	86	86
Value of primary products shipments made in all industries	776.9	916.7	590.7
Value of primary products shipments made in this industry	732.7	881.2	547.3
Value of primary products shipments made in other industries	44.2	35.4	43.4
Coverage ratio	94	96	93
INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.			
Total value of shipments	5 344.6	3 960.4	2 583.0
Primary products value of shipments	4 622.0	3 514.7	2 253.6
Secondary products value of shipments	318.6	203.9	173.5
Total miscellaneous receipts	404.1	241.9	155.8
Value of resales	343.1	200.9	121.2
Contract receipts	21.4	7.0	12.5
Other miscellaneous receipts	39.6	34.0	22.1
Primary products specialization ratio	94	95	93
Value of primary products shipments made in all industries	5 057.2	3 926.3	2 550.4
Value of primary products shipments made in this industry	4 622.0	3 514.7	2 253.6
Value of primary products shipments made in other industries	435.3	411.6	296.8
Coverage ratio	91	90	88

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3581– —	**AUTOMATIC MERCHANDISING MACHINES**				
	Total	**(NA)**	**757.8**	**(NA)**	**695.2**
35811	Automatic merchandising machines, coin-operated (vending)	(NA)	559.5	(NA)	502.1
35811 00	Automatic merchandising machines, coin-operated (vending), excluding money changing machines[3]	42	559.5	32	502.1
35812	Coin-operated mechanisms and parts for automatic merchandising machines	(NA)	164.0	(NA)	161.9
35812 51	Coin-operated mechanisms for vending machines (for sale separately)	12	115.6	19	103.8
35812 69	Parts for automatic merchandising machines, except coin-operated mechanisms	19	48.1	17	57.1
35812 00	Coin-operated mechanisms and parts for automatic merchandising machines, n.s.k.	(NA)	.4	(NA)	1.0
35810	Automatic merchandising machines, n.s.k.	(NA)	34.3	(NA)	31.2
35810 00	Automatic merchandising machines, n.s.k.[4]	(NA)	25.8	(NA)	6.7
35810 02	Automatic merchandising machines, n.s.k.[5]	(NA)	8.6	(NA)	24.6
3582– —	**COMMERCIAL LAUNDRY EQUIPMENT**				
	Total	**(NA)**	**546.0**	**(NA)**	**433.2**
35820	Commercial laundry, dry cleaning, and pressing machinery and equipment	(NA)	546.0	(NA)	433.2
	Commercial laundry equipment and presses, capacity exceeding 10 kg (22 lb):				
35820 11	Washers only	4	3.4	(NA)	(6)
35820 12	Washer-extractor combinations	10	144.1	(NA)	83.1
	Drying tumblers:				
35820 17	Coin-operated, more than 22 lb load	7	71.2	6	38.3
35820 18	Other than coin-operated	8	37.3	6	31.3
35820 27	Presses, laundry	6	42.8	5	42.5
35820 29	Other commercial laundry equipment, including extractors only, flatwork ironers, etc.	14	84.2	(NA)	[6]117.0
35820 31	Parts, attachments, and accessories	20	63.1	(NA)	34.6
	Dry-cleaning equipment and clothing presses:				
35820 39	Dry-cleaning units, presses including garment manufacturers' (needle trades) presses, reclaiming units, etc.	11	40.4	(NA)	36.1
35820 91	Parts, attachments, and accessories	10	17.1	11	14.0
35820 00	Commercial laundry equipment, n.s.k.[4]	(NA)	33.0	(NA)	22.5
35820 02	Commercial laundry equipment, n.s.k.[5]	(NA)	9.4	(NA)	13.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3585– —	**REFRIGERATION AND HEATING EQUIPMENT**						
	Total	**(NA)**	**(X)**	**18 072.2**	**(NA)**	**(X)**	**r15 337.5**
35851	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained	(NA)	(X)	4 413.0	(NA)	(X)	3 692.5
35851 00	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained[3]	158	(X)	4 413.0	157	(X)	3 692.5
35852	Unitary air-conditioners	(NA)	(X)	3 801.2	(NA)	(X)	r3 454.0
35852 00	Unitary air-conditioners[3]	65	(X)	3 801.2	53	(X)	r3 454.0
35853	Commercial refrigerators and related equipment	(NA)	(X)	1 821.8	(NA)	(X)	1 768.9
	Refrigerated enclosures, including self-contained units and remote units:						
35853 12	Sectional coolers or cooling rooms of the prefrabricated (factory produced) type thousands	46	(S)	307.3	47	(S)	293.2
	Reach-in refrigerators and reach-in type vertical display cabinets:						
35853 15	For normal temperature application; i.e., not intended for frozen foods, ice cream, etc. thousands	31	*165.8	224.0	30	*120.2	149.8
35853 18	For low temperature application thousands	24	*59.5	219.5	29	*104.0	186.8
	Display cases operated at normal temperatures:						
35853 22	Closed thousands	14	(S)	43.6	17	**30.9	41.6
	Open self-service:						
35853 23	One level thousands	12	(S)	142.3	9	**48.6	119.4
35853 28	Multilevel thousands	9	42.6	151.8	10	27.9	82.2
	Display cases operated at low temperatures:						
35853 32	Frozen food display cases, open, self-service thousands	8	28.3	61.8	(NA)	(S)	98.5
35853 35	Frozen food cabinets, closed, other than reach-in type thousands	6	14.6	38.2	9	(S)	64.6
35853 37	Other thousands	9	**9.6	39.6	(NA)	22.7	48.3
35853 43	Mechanical drinking water coolers[3]	6	(X)	206.2	8	(X)	152.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3585– —	**REFRIGERATION AND HEATING EQUIPMENT —Con.**						
35853	Commercial refrigerators and related equipment—Con.						
	Mechanical beverage cooling and dispensing equipment, except coin-operated:						
35853 52	Bottled beverage coolers, dry and wet types	7	(X)	22.4	7	(X)	40.9
35853 57	Bulk beverage dispensers, including malt dispensers and precooler cabinets	11	(X)	144.0	14	(X)	187.2
35853 98	Other commercial refrigerators	27	(X)	207.7	(NA)	(X)	257.3
35853 00	Commercial refrigerators and related equipment, n.s.k.	(NA)	(X)	13.6	(NA)	(X)	46.8
35854	Compressors and compressor units, all refrigerants	(NA)	(X)	3 078.6	(NA)	(X)	2 317.4
35854 00	Compressors and compressor units, all refrigerants[3]	53	(X)	3 078.6	45	(X)	2 317.4
35855	Refrigeration condensing units (complete)	(NA)	(X)	209.6	(NA)	(X)	241.1
35855 00	Condensing units, all refrigerants, except ammonia (complete)[3]	27	(X)	209.6	30	(X)	241.1
35856	Room air-conditioners and dehumidifiers	(NA)	(X)	878.8	(NA)	(X)	909.7
35856 00	Room air-conditioners and dehumidifiers, except portable dehumidifiers[3]	20	(X)	878.8	26	(X)	909.7
35859	Refrigeration and air-conditioning equipment, n.e.c.	(NA)	(X)	694.2	(NA)	(X)	r447.2
35859 01	Soda fountain equipment (cooler box, fountainette, and similar equipment)	15	(X)	168.4	9	(X)	97.7
35859 02	Beer dispensing equipment	9	(X)	23.9	7	(X)	12.6
35859 03	Evaporative air coolers	20	(X)	161.5	11	(X)	61.3
35859 06	Other refrigeration machinery and air-conditioning equipment	55	(X)	321.7	(NA)	(X)	255.1
35859 00	Refrigeration and air-conditioning equipment, n.e.c., n.s.k.	(NA)	(X)	18.8	(NA)	(X)	r20.5
3585C	Warm air furnaces, including duct furnaces and humidifiers, and electric comfort heating equipment	(NA)	(X)	1 307.3	(NA)	(X)	883.5
3585C 00	Warm air furnaces, including duct furnaces and humidifiers, and electric comfort heating equipment[3]	61	(X)	1 307.3	61	(X)	883.5
3585D	Parts and accessories for air-conditioning and heat transfer equipment	(NA)	(X)	1 467.0	(NA)	(X)	1 153.9
3585D 10	Parts for heat transfer equipment, including parts for air-conditioning condensing units	51	(X)	628.9	50	(X)	456.5
3585D 20	Parts for unitary air-conditioners	29	(X)	285.1	25	(X)	147.2
3585D 30	Parts for commercial refrigeration and related equipment	35	(X)	139.6	38	(X)	92.4
3585D 40	Parts for compressors and compressor units	25	(X)	199.4	19	(X)	107.6
3585D 50	Parts for condensing units, excluding air-conditioning condensing units	7	(X)	6.8	6	(X)	4.7
3585D 60	Parts for dehumidifiers and room air-conditioners	7	(X)	80.4	12	(X)	60.2
3585D 70	Parts for refrigeration and air-conditioning equipment, n.e.c.	14			28	(X)	137.2
3585D 80	Parts for warm air furnaces, including duct furnaces (excluding complete humidifiers)	25	(X)	74.3	24	(X)	78.6
3585D 00	Parts and accessories for air-conditioning and heat transfer equipment, n.s.k.	(NA)	(X)	52.6	(NA)	(X)	69.3
35850	Refrigeration and heating equipment, n.s.k.	(NA)	(X)	400.6	(NA)	(X)	469.3
35850 00	Refrigeration and heating equipment, n.s.k.[4]	(NA)	(X)	307.0	(NA)	(X)	237.0
35850 02	Refrigeration and heating equipment, n.s.k.[5]	(NA)	(X)	93.7	(NA)	(X)	232.4
3586– —	**MEASURING AND DISPENSING PUMPS**						
	Total	**(NA)**	**(X)**	**776.9**	**(NA)**	**(X)**	**916.7**
35860	Measuring and dispensing pumps	(NA)	(X)	776.9	(NA)	(X)	916.7
	Gasoline dispensing pumps, computing type (filling station type):						
	Single units:						
35860 13	With suction pumping unit thousands	7	(S)	61.2			
35860 14	Without suction pumping unit thousands	5	(S)	16.4	(NA)	35.3	173.4
	Multiple units:						
35860 15	With suction pumping unit thousands	5	*7.4	31.4			
35860 16	Without suction pumping unit thousands	6	(S)	206.9	(NA)	(S)	206.5
35860 31	Lubricating oil pumps, including barrel pumps thousands	4	(S)	13.4	7	*323.3	36.3
35860 51	Grease guns thousands	4			7	**5 302.2	31.0
35860 89	Other measuring and dispensing pumps (noncomputing gasoline dispensing, grease, and lubrication oil outfits, etc.)	33	(X)	254.1	22	(X)	115.4
35860 91	Parts and attachments for measuring and dispensing pumps	28	(X)	170.7	24	(X)	275.5
35860 00	Measuring and dispensing pumps, n.s.k.[7]	(NA)	(X)	14.8	(NA)	(X)	49.5
35860 02	Measuring and dispensing pumps, n.s.k.[8]	(NA)	(X)	8.0	(NA)	(X)	29.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3589– —	**SERVICE INDUSTRY MACHINERY, N.E.C.**				
	Total	**(NA)**	**5 057.2**	**(NA)**	**3 926.3**
35891	Commercial cooking and food-warming equipment	(NA)	1 304.8	(NA)	1 092.1
	Nonelectric:				
35891 11	Commercial ranges, ovens, and broilers (except electric)	36	288.8	29	257.9
35891 13	Deep-fat fryers (except electric)	22	121.6	16	91.4
35891 30	Other commercial cooking equipment (griddles, toasters, coffee urns, steam pressure cookers, etc.), except electric	21	76.6	15	47.0
35891 31	Commercial food-warming equipment, including steam tables (except electric)	11	23.8	6	25.0
	Electric:				
35891 61	Commercial ranges, ovens, and broilers	35	158.0	(NA)	135.6
35891 63	Commercial microwave stoves and ovens	3			
35891 67	Deep-fat fryers	21	76.2	18	55.5
35891 70	Other commercial cooking equipment, including griddles, toasters, coffee makers, coffee urns, etc.	36	230.5	29	213.5
35891 81	Commercial food-warming equipment, including hot-food server units and steam tables	35	184.0	29	159.1
35891 85	Parts and accessories for commercial cooking and food-warming equipment	46	141.7	36	89.5
35891 00	Commercial cooking and food-warming equipment, n.s.k.	(NA)	3.6	(NA)	17.6
35892	Service industry machines and parts	(NA)	3 012.3	(NA)	2 138.1
	Water heaters, including parts (excluding household and boilers):				
35892 01	Instantaneous	5	31.6	(NA)	89.4
35892 02	All others with more than 120 gallons (454.2 liters capacity)	7	85.8		
	Water softeners:				
35892 22	Industrial	35	51.6	19	109.8
35892 26	Farm, household and commerical	39	219.1	22	109.0
35892 27	Parts for water softeners (excluding tanks)	27	42.5	12	19.0
	Commercial and industrial floor and carpet cleaning equipment:				
35892 42	Sanding and scrubbing machines	14	74.6	9	69.5
35892 43	Carpet cleaning equipment, including sweepers (except vacuum cleaners)	29	209.5	28	152.9
35892 46	Other machines, including waxing and polishing machines, except vacuum cleaners	22	161.9	(NA)	181.3
35892 45	Parts and attachments	30	62.9	24	51.9
	Dishwashing machines, commercial type:				
35892 73	Conveyor type	8	61.4	7	50.9
35892 75	All other	11	80.5	16	55.9
35892 76	Parts for dishwashing machines	11	39.6	7	14.4
35892 84	Sewer pipe and drain cleaning equipment	13	73.7	(NA)	47.8
35892 86	High-pressure (more than 1,000 p.s.i.) cleaning and blasting machinery and equipment (except foundry)	33	147.8	(NA)	52.6
	Other service industry machines and parts:				
35892 82	Commercial car, truck, and bus washing machinery and equipment	25	119.3	16	90.4
35892 83	Trash and garbage compactors	24	82.9	20	78.3
35892 81	Sewage treatment equipment	101	544.3	62	389.2
35892 96	Other equipment	156	729.5	81	351.4
35892 97	Parts for other service industry machines	42	144.0	(NA)	99.3
35892 00	Service industry machines and parts, n.s.k.	(NA)	49.8	(NA)	125.1
35893	Commercial and industrial vacuum cleaners, including parts and attachments	(NA)	347.9	(NA)	271.6
	Portable:				
35893 01	Complete machine	30	190.1	29	208.8
35893 02	Parts and attachments	23	115.4	(NA)	44.5
35893 07	Central system, including parts and attachments	11	34.5	(NA)	12.1
35893 00	Commercial and industrial vacuum cleaners, including parts and attachments, n.s.k.	(NA)	7.9	(NA)	6.1
35890	Service industry machinery, n.e.c., n.s.k.	(NA)	392.1	(NA)	424.4
35890 00	Service industry machinery, n.e.c., n.s.k.[9]	(NA)	287.1	(NA)	284.3
35890 02	Service industry machinery, n.e.c., n.s.k.[10]	(NA)	105.1	(NA)	140.1

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 10 employees or more.
[5]Typically for establishments with less than 10 employees.
[6]For 1987, product codes were combined to avoid disclosing data for individual companies.
[7]Typically for establishments with 15 employees or more.
[8]Typically for establishments with less than 15 employees.
[9]Typically for establishments with 5 employees or more.
[10]Typically for establishments with less than 5 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35811, AUTOMATIC MERCHANDISING MACHINES, COIN-OPERATED (VENDING)		
United States	**559.5**	**502.1**
Illinois	17.4	13.7
Minnesota	44.7	(NA)
35812, COIN-OPERATED MECHANISMS AND PARTS FOR AUTOMATIC MERCHANDISING MACHINES		
United States	**164.0**	**161.9**
Illinois	9.8	(NA)
35851, HEAT TRANSFER EQUIPMENT (EXCEPT ELECTRICALLY OPERATED DEHUMIDIFIERS), MECHANICALLY REFRIGERATED, SELF-CONTAINED		
United States	**4 413.0**	**3 692.5**
Alabama	82.9	26.3
California	230.4	255.3
Florida	2.6	(NA)
Georgia	189.0	(NA)
Illinois	238.8	219.7
Indiana	30.4	51.7
Kentucky	215.5	208.2
Maryland	30.1	29.4
Michigan	20.9	39.6
Minnesota	158.2	152.6
Missouri	83.9	27.5
New Jersey	17.7	35.6
North Carolina	27.3	31.3
Ohio	202.6	(NA)
Pennsylvania	290.5	162.2
Tennessee	287.3	90.9
Texas	325.9	394.3
Virginia	83.5	62.8
Washington	40.7	(NA)
35852, UNITARY AIR-CONDITIONERS		
United States	**3 801.2**	**3 454.0**
Florida	34.9	(NA)
Georgia	203.8	(NA)
Minnesota	77.7	82.3
New York	31.2	(NA)
Ohio	712.6	481.6
Oklahoma	190.7	(NA)
Tennessee	1 039.3	929.3
Texas	677.6	541.8
Virginia	54.9	22.6
35853, COMMERCIAL REFRIGERATORS AND RELATED EQUIPMENT		
United States	**1 821.8**	**1 768.9**
California	112.5	113.5
Florida	5.7	37.0
Indiana	40.0	46.7
Iowa	25.9	(NA)
Michigan	113.5	88.0
Minnesota	48.8	97.6
Mississippi	65.7	54.3
New Jersey	84.0	92.8
New York	65.5	93.7
Pennsylvania	117.2	162.1
Texas	117.0	120.4
Virginia	8.2	10.0
Washington	11.5	(NA)
Wisconsin	78.9	171.4
35854, COMPRESSORS AND COMPRESSOR UNITS, ALL REFRIGERANTS		
United States	**3 078.6**	**2 317.4**
Florida	10.1	(NA)
Illinois	25.1	(NA)
Wisconsin	36.3	(NA)
35855, REFRIGERATION CONDENSING UNITS (COMPLETE)		
United States	**209.6**	**241.1**
Florida	4.1	(NA)
35856, ROOM AIR-CONDITIONERS AND DEHUMIDIFIERS		
United States	**878.8**	**909.7**
35859, REFRIGERATION AND AIR-CONDITIONING EQUIPMENT, N.E.C.		
United States	**694.2**	**447.2**
Arizona	71.6	45.2
California	66.9	23.8
Illinois	37.9	(NA)
Indiana	55.7	(NA)
Michigan	9.7	(NA)
New York	24.8	(NA)
Ohio	5.9	13.2
Pennsylvania	59.6	16.6
Texas	74.9	43.1
Wisconsin	54.4	11.9
3585C, WARM AIR FURNACES, INCLUDING DUCT FURNACES AND HUMIDIFIERS, AND ELECTRIC COMFORT HEATING EQUIPMENT		
United States	**1 307.3**	**883.5**
Illinois	8.2	(NA)
Massachusetts	4.4	(NA)
Michigan	7.5	10.4
Minnesota	15.9	15.0
Pennsylvania	10.4	(NA)
3585D, PARTS AND ACCESSORIES FOR AIR-CONDITIONING AND HEAT TRANSFER EQUIPMENT		
United States	**1 467.0**	**1 153.9**
Alabama	29.9	22.2
Arkansas	81.6	41.7
California	14.1	25.9
Florida	16.9	10.7
Georgia	14.2	(NA)
Illinois	29.2	24.6
Kentucky	17.7	(NA)
Massachusetts	14.1	11.0
Michigan	21.4	45.7
Minnesota	78.0	12.8
Missouri	102.6	54.3
New York	76.9	106.9
Ohio	126.5	106.3
Tennessee	161.7	68.8
Texas	151.8	112.5
Wisconsin	92.5	67.4
35891, COMMERCIAL COOKING AND FOOD-WARMING EQUIPMENT		
United States	**1 304.8**	**1 092.1**
California	165.4	124.6
Florida	27.4	(NA)
Illinois	230.3	216.2
Michigan	15.9	(NA)
Missouri	20.6	43.2
New York	23.8	34.7
Ohio	122.1	81.4
Tennessee	36.6	32.2
Washington	45.5	(NA)
Wisconsin	65.8	58.3
35892, SERVICE INDUSTRY MACHINES AND PARTS		
United States	**3 012.3**	**2 138.1**
Alabama	41.1	53.6
Arizona	31.7	24.3
Arkansas	70.5	(NA)
California	266.3	217.0
Colorado	37.1	17.1
Florida	69.2	82.6
Georgia	15.1	(NA)
Illinois	337.6	268.8
Indiana	43.6	21.7
Iowa	100.3	39.3
Kansas	22.5	(NA)
Kentucky	11.9	(NA)
Louisiana	7.7	(NA)
Massachusetts	62.1	19.4
Michigan	283.2	142.1
Minnesota	201.2	273.8
Missouri	23.5	14.2
Nevada	12.7	(NA)
New Jersey	123.0	69.9
New York	50.9	61.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35892, SERVICE INDUSTRY MACHINES AND PARTS—Con.			**35892, SERVICE INDUSTRY MACHINES AND PARTS**—Con.		
			Wisconsin	151.9	153.3
North Carolina	65.0	49.4			
Ohio	421.5	153.7	**35893, COMMERCIAL AND INDUSTRIAL VACUUM CLEANERS, INCLUDING PARTS AND ATTACHMENTS**		
Oregon	44.1	38.4			
Pennsylvania	112.3	97.8	**United States**	**347.9**	**271.6**
South Carolina	59.2	39.7			
Tennessee	102.7	40.2	Illinois	19.6	49.0
Texas	99.0	91.2	Ohio	33.5	29.2
Virginia	36.1	(NA)	Wisconsin	2.7	(NA)
Washington	3.4	2.2			

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3581-	**Automatic merchandising machines**	**757.8**	**698.7**	**707.5**	**792.9**	**745.2**	**695.2**	**445.7**	**396.2**
35811	Automatic merchandising machines, coin-operated (vending)	559.5	478.5	507.0	581.7	558.6	502.1	334.1	294.9
35812	Coin-operated mechanisms and parts for automatic merchandising machines	164.0	186.1	165.3	176.2	157.9	161.9	96.2	84.3
35810	Automatic merchandising machines, n.s.k.	34.3	34.1	35.2	35.0	28.6	31.2	15.5	17.0
3582-	**Commercial laundry equipment**	**546.0**	**589.0**	**550.4**	**506.9**	**605.5**	**433.2**	**338.7**	**233.6**
35820	Commercial laundry, dry cleaning, and pressing machinery and equipment	546.0	589.0	550.4	506.9	605.5	433.2	338.7	233.6
3585-	**Refrigeration and heating equipment**	**18 072.2**	**16 830.5**	**17 544.7**	**18 561.1**	**17 164.0**	**15 337.5**	**11 150.7**	**(NA)**
35851	Heat transfer equipment (except electrically operated dehumidifiers), mechanically refrigerated, self-contained	4 413.0	4 196.6	4 754.4	4 951.2	4 429.2	3 692.5	2 908.0	2 251.2
35852	Unitary air-conditioners	3 801.2	3 628.4	3 642.7	3 995.5	3 799.5	3 454.0	1 972.1	1 673.0
35853	Commercial refrigerators and related equipment	1 821.8	1 996.7	2 027.8	2 082.2	1 891.0	1 768.9	1 070.8	759.4
35854	Compressors and compressor units, all refrigerants	3 078.6	2 488.2	2 346.3	2 706.7	2 492.7	2 317.4	1 734.7	1 580.3
35855	Refrigeration condensing units (complete)	209.6	232.9	210.7	244.2	261.7	241.1	196.9	175.6
35856	Room air-conditioners and dehumidifiers	878.8	848.1	1 123.5	1 241.6	1 142.6	909.7	897.5	720.4
35859	Refrigeration and air-conditioning equipment, n.e.c.	694.2	558.7	529.3	467.8	448.8	447.2	428.9	(NA)
3585C	Warm air furnaces, including duct furnaces and humidifiers, and electric comfort heating equipment	1 307.3	1 039.3	944.1	1 038.0	1 048.9	883.5	520.3	(NA)
3585D	Parts and accessories for air-conditioning and heat transfer equipment	1 467.0	1 360.3	1 440.0	1 412.9	1 295.5	1 153.9	893.0	(NA)
35850	Refrigeration and heating equipment, n.s.k.	400.6	481.4	525.8	421.0	354.0	469.3	528.5	251.3
3586-	**Measuring and dispensing pumps**	**776.9**	**897.7**	**915.7**	**949.2**	**998.7**	**916.7**	**590.7**	**265.6**
35860	Measuring and dispensing pumps	776.9	897.7	915.7	949.2	998.7	916.7	590.7	265.6
3589-	**Service industry machinery, n.e.c.**	**5 057.2**	**4 525.0**	**4 699.0**	**4 457.4**	**3 900.2**	**3 926.3**	**2 550.4**	**1 687.6**
35891	Commercial cooking and food-warming equipment	1 304.8	1 250.6	1 241.2	1 195.1	1 076.6	1 092.1	609.0	386.0
35892	Service industry machines and parts	3 012.3	2 465.2	2 573.9	2 554.8	2 093.2	2 138.1	1 568.4	1 059.2
35893	Commercial and industrial vacuum cleaners, including parts and attachments	347.9	388.6	323.8	330.1	331.5	271.6	192.9	109.4
35890	Service industry machinery, n.e.c., n.s.k.	392.1	420.5	560.1	377.5	398.9	424.4	180.1	132.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3581, AUTOMATIC VENDING MACHINES		
	Materials, ingredients, containers, and supplies	**384.1**	**355.8**
362125	Fractional horsepower electric motors and generators (less than 1 hp)	21.3	25.9
358501	Compressors, compressor units, condensing units, fin coils, and other heat transfer equipment	18.3	16.7
364300	Current-carrying wiring devices	22.0	11.6
190091	Electrical enclosures (metal and plastics)	1.0	(1)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	8.6	24.5
346901	Metal stampings	6.5	6.5
340084	Other fabricated metal products, except electrical enclosures	7.7	(1)
346000	Forgings	(2)	(1)
330091	Castings (rough and semifinished)	4.1	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	39.1	(1)
336002	Nonferrous shapes and forms	1.3	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	23.4	19.3
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	7.9	(1)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	6.7	3.0
970099	All other materials and components, parts, containers, and supplies	2140.3	1205.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	75.7	42.6
	INDUSTRY 3582, COMMERCIAL LAUNDRY EQUIPMENT		
	Materials, ingredients, containers, and supplies	**255.7**	**r187.2**
	Fabricated metal products, except forgings:		
346901	Metal stampings	10.8	4.4
349002	Pipe, valves, and pipe fittings, except plumbers'	7.9	6.6
340081	Other fabricated metal products	19.8	(1)
346000	Forgings	.2	(1)
330091	Castings (rough and semifinished)	6.6	3.6
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331022	Sheet and strip	40.7	36.7
331085	All other steel shapes and forms	8.2	
336002	Nonferrous shapes and forms	8.4	(1)
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	18.4	5.3
362120	Integral horsepower motors and generators (1 hp or more)	10.1	6.7
305201	Rubber and plastics hose and belting	4.3	5.4
356810	Plain bearings and bushings	15.0	4.4
356601	Speed changers, gears, and industrial high-speed drives	8.9	4.1
364300	Current-carrying wiring devices	7.9	7.9
360101	Electrical transmission, distribution, and control equipment	20.5	14.3
244021	Wooden boxes, skids, pallets, and containers, including combinations of wood and paperboard	2.2	2.7
970099	All other materials and components, parts, containers, and supplies	46.6	137.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	19.1	r47.5
	INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**9 607.0**	**r8 308.0**
358501	Refrigeration compressors, compressor units, fin coils, and other heat transfer equipment	1 497.5	1 144.4
	Electric motors and generators:		
	Fractional horsepower electric motors (less than 1 hp):		
362110	Timing motors, synchronous and subsynchronous	210.0	52.8
362114	Other (excluding timing motors)	316.7	458.3
362120	Integral horsepower motors and generators (1 hp or more)	507.5	298.0
356401	Fans and blowers	136.5	122.2
360101	Electrical transmission, distribution, and control equipment	341.8	255.9
364300	Current-carrying wiring devices	114.5	103.9
382201	Automatic temperature controls, thermostats, regulators, etc.	386.6	261.5
356200	Ball and roller bearings (mounted or unmounted)	46.0	65.8
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	178.7	151.9
346901	Metal stampings	231.1	215.7
342903	Metal hardware including hinges, handles, locks, casters, etc.	55.8	35.1
349402	Pipe, valves, and pipe fittings	162.0	157.8
340073	All other fabricated metal products	236.5	(1)
346000	Forgings	22.1	27.0
	Castings (rough and semifinished):		
332001	Iron and steel	300.9	138.9
336005	Aluminum and aluminum-base alloy	182.2	149.2
336003	Other nonferrous	5.7	10.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3585, REFRIGERATION AND HEATING EQUIPMENT—Con.		
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	101.1	
331022	Sheet and strip	549.8	
331027	Wire and wire products	45.7	714.1
331035	All other steel shapes and forms	111.7	
	Copper and copper-base alloy:		
335152	Pipe and tube	384.6	242.3
335191	All other copper and copper-base alloy (except pipe and tube)	115.5	100.3
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	410.8	352.1
335011	All other (except sheet, plate, foil, and welded tubing)	93.4	118.3
335099	Other nonferrous shapes and forms	28.0	(1)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	128.0	96.5
244022	Wooden containers, complete (including combination wood and paperboard)	29.9	44.5
285101	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	55.0	52.3
286903	Refrigerant gases and other synthetic organic chemicals	55.8	48.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	52.5	46.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	53.1	48.1
308004	Fabricated plastics products, except gaskets, hose, and belting	226.4	144.2
305201	Rubber and plastics hose and belting	104.3	62.8
329300	Gaskets (all types) and asbestos packing	66.2	52.9
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	62.6	45.9
970099	All other materials and components, parts, containers, and supplies	1 317.1	[1]1 588.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	683.9	r900.7
	INDUSTRY 3586, MEASURING AND DISPENSING PUMPS		
	Materials, ingredients, containers, and supplies	**424.1**	**426.5**
190090	Fluid power products	10.9	(4)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	16.6	8.5
346901	Metal stampings	6.9	(4)
349002	Pipe, valves, and pipe fittings, except plumbers'	5.6	(4)
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steelplate and weldments	1.2	(4)
340057	All other fabricated metal products	(5)	(4)
	Forgings:		
346200	Iron and steel	(5)	(4)
346300	Nonferrous	(5)	(4)
	Castings (rough and semifinished):		
332001	Iron and steel	10.0	(4)
336005	Aluminum and aluminum-base alloy	16.6	13.4
336003	Other nonferrous	3.4	4.9
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	(6)	(7)
331022	Sheet and strip	16.7	(7)
331034	Other steel shapes and forms	[6]4.7	[7]24.6
335105	Copper and copper-base alloy	(8)	3.4
335001	Aluminum and aluminum-base alloy	4.9	5.0
335099	Other nonferrous shapes and forms	[8]2.4	(Z)
351910	Engines (diesel, semidiesel, gasoline, and other carburetor)	–	(4)
	Electric motors and generators:		
362115	Fractional horsepower electric motors (less than 1 hp), except timing motors	13.1	5.9
362120	Integral horsepower electric motors and generators (1 hp or more)	2.5	2.5
356200	Ball and roller bearings (mounted or unmounted)	2.1	1.8
265001	Paperboard containers, boxes, and corrugated paperboard	5.1	3.4
306001	Fabricated rubber products, except gaskets	5.8	18.3
308006	Fabricated plastics products, except gaskets	31.8	
305302	Gaskets (all types) and packing and sealing devices	7.5	(4)
360101	Electrical transmission, distribution, and control equipment	8.5	5.0
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	1.4	(4)
970099	All other materials and components, parts, containers, and supplies	[5]214.8	[4]237.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	31.7	92.7
	INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**2 053.3**	**1 538.6**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	41.1	(1)
356102	Other pumps, except hydraulic	24.8	25.6
	Fluid power products, except pumps, motors, and hydrostatic transmission:		
349271	Valves	35.2	(1)
359301	Cylinders and rotary actuators	11.9	(1)
349261	Hose or tube fittings and assemblies	23.5	(1)
356921	Filters	15.7	(1)
190089	Other fluid power products	11.1	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3589, SERVICE INDUSTRY MACHINERY, N.E.C.—Con.		
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	49.0	32.3
349002	Pipe, valves, and pipe fittings, except plumbers'	44.4	38.5
340088	Other fabricated metal products, except electrical enclosures	90.0	(1)
346000	Forgings	3.5	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	33.3	19.5
336010	Nonferrous (aluminum, copper, etc.)	22.8	15.4
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	49.0	
331022	Sheet and strip	148.7	
331023	Structural shapes and sheet piling	15.0	207.3
331091	All other steel shapes and forms	33.9	
335001	Aluminum and aluminum-base alloy	24.6	27.2
335091	Other nonferrous shapes and forms	8.6	(1)
	Electric motors and generators:		
362125	Fractional horsepower electric motors (less than 1 hp)	43.3	29.0
362120	Integral horsepower motors and generators (1 hp or more)	55.9	30.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	52.3	33.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	70.6	25.2
356601	Speed changers, gears, and industrial high-speed drives	18.1	16.8
190091	Electrical enclosures (metal and plastics)	19.3	(1)
364300	Current-carrying wiring devices	31.3	16.8
360101	Electrical transmission, distribution, and control equipment	79.2	43.8
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	35.6	17.9
970099	All other materials and components, parts, containers, and supplies	606.7	[1]505.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	354.9	453.6

[1]For 1987, data were not collected separately but were included with material code 970099.
[2]For 1992, material codes are combined to avoid disclosing data for individual companies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, material codes 190090, 346901, 349002, 340057, 346300, 305302, and 285100 are combined with material code 970099 because data were not collected separately; for 1987, material codes 344301, 346200, 332001, and 351910 are combined with material code 970099 to avoid disclosing data for individual companies.
[5]For 1992, material codes 340057, 346200, and 346300 are combined with material code 970099 to avoid disclosing data for individual companies.
[6]For 1992, material code 331007 is combined with material code 331034 to avoid disclosing data for individual companies.
[7]For 1987, material codes 331007 and 331022 are combined with material code 331034 to maintain data comparability.
[8]For 1992, material code 335105 is combined with material code 335099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
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35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
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35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
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35451 62	35451 61
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35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
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35455 79	35455 98
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35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
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35464 15	35461 07
35464 15	35461 09
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35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
35465 25	35461 25
35465 27	35461 26
35465 28	35461 28
35465 29	35461 29
35465 31	35461 31
35465 33	35461 33
35465 36	35461 36
35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
35563 19	35563 09
35563 19	35563 14
35563 19	35563 15
35592 04	35592 03
35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
35594 16	35594 09
35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
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TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
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35598 22	35599 22
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35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
35598 53	35599 53
35598 55	35599 55
35598 58	35599 57
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35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
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35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
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35962 21	35962 19

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
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35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
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35419 26	35419 41
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35424 03	35424 75
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35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
35455 83	35455 79
35455 91	35455 77
35455 92	35455 77
35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
35461 05	35464 09
35461 05	35464 15
35461 05	35465 05
35461 07	35464 09
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35461 07	35465 07
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35461 18	35465 11
35461 18	35465 14
35461 19	35464 19
35461 19	35465 13
35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
35461 23	35464 19
35461 23	35465 23
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35461 26	35464 19
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35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
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35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
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35592 03	35592 04
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35592 09	35592 15
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35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
35599 22	35598 22
35599 25	35598 25
35599 27	35598 27
35599 29	35598 29
35599 31	35598 31
35599 33	35598 36
35599 35	35598 35
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35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
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35651 09	35651 31
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35651 14	35651 33

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
35651 15	35651 23
35651 15	35651 37
35651 15	35651 41
35651 16	35651 43
35651 17	35651 45
35651 19	35651 49
35651 19	35651 59
35651 21	35651 25
35651 21	35651 31
35651 21	35651 51
35651 21	35651 52
35651 21	35651 53
35651 21	35651 59
35660 31	35660 34
35660 32	35660 34
35660 33	35660 47
35660 35	35660 37
35660 36	35660 37
35660 38	35660 49
35660 39	35660 49
35660 40	35660 47
35676 03	35676 09
35676 04	35676 09
35676 05	35676 15
35676 06	35676 15
35676 17	35676 21
35676 19	35676 21
35681 11	35681 12
35681 13	35681 12
35683 21	35683 20
35683 22	35683 23
35683 24	35683 20
35683 24	35683 23
35683 27	35683 89
35683 29	35683 89
35683 32	35683 33
35683 34	35683 33
35683 36	35683 99
35683 43	35683 44
35683 45	35683 44
35683 92	35683 89
35683 93	35683 99
35683 95	35683 91
35683 97	35683 89
35683 98	35683 89
35692	35694
35692	35695
35692	35696
35692 00	35694 00
35692 00	35695 00
35692 00	35696 00
35697	35699
35697 00	35699 09
35698	35699
35698 01	35699 01
35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
35698 05	35699 05
35698 06	35699 51
35698 07	35699 41
35698 07	35699 42
35698 07	35699 43
35698 07	35699 44
35698 08	35699 51
35698 11	35699 11
35698 12	35699 51
35698 13	35699 13
35698 14	35699 51
35698 15	35699 15
35698 16	35699 51
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35698 18	35699 51
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35853 73	35853 98
35853 97	35853 98
35859 04	35859 06
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35892 07	35892 01
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35892 80	35892 97
35892 85	35892 86
35892 87	35892 86
35892 88	35892 86
35892 91	35892 97
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35893 09	35893 07
35931	35934
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35941 10	35945 00
35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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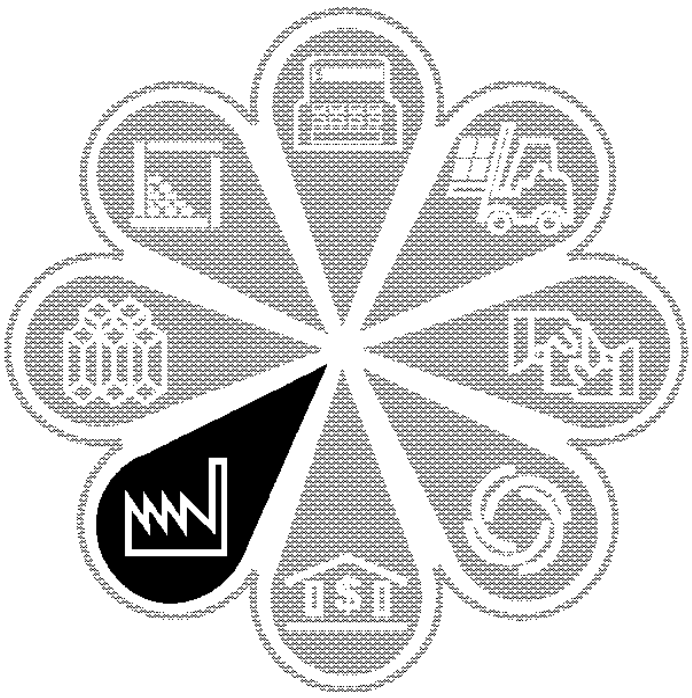
1992 Census of Manufactures

MC92-I-35H

INDUSTRY SERIES

Miscellaneous Machinery, Except Electrical

Industries 3592, 3593, 3594, 3596, and 3599



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-35H

INDUSTRY SERIES

Miscellaneous Machinery, Except Electrical

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **Mendel D. Gayle**, Section Chief, with primary staff assistance by **Jerome Roth.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4755.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3592	Carburetors, Pistons, Rings, and Valves
3593	Fluid Power Cylinders and Actuators
3594	Fluid Power Pumps and Motors
3596	Scales and Balances, Except Laboratory
3599	Industrial Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES

This industry is made up of establishments primarily engaged in manufacturing carburetors, pistons, piston rings, and engine intake and exhaust valves. Establishments primarily engaged in manufacturing metallic packing are classified in industry 3053, and those primarily engaged in manufacturing machine repair and equipment parts (except electric), on a job or order basis for others, are classified in industry 3599.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3592, Carburetors, Pistons, Rings, and Valves, had employment of 18.4 thousand. The employment figure was 15 percent below the 21.7 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Indiana, Wisconsin, and Tennessee, accounting for approximately 46 percent of the industry's employment. This represents a shift from 1987 when Michigan, Indiana, Kentucky, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3592 shipped $1.6 billion of products considered primary to the industry, $529.5 million of secondary products, and had $21.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 75 percent (specialization ratio). In 1987, the specialization ratio was 76 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 84 percent.

The products primary to industry 3592, no matter in what industry they were produced, appear in table 6a and

aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the carburetors, pistons, rings, and valves industry amounted to $981.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS

This industry is made up of establishments primarily engaged in manufacturing hydraulic and pneumatic cylinders and actuators for use in fluid power systems. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35N, Fluid Power Products, Including Aerospace. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3593, Fluid Power Cylinders and Actuators, had employment of 16.5 thousand. The employment figure was 18 percent below the 20.2 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, Illinois, and Ohio, accounting for approximately 58 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3593 shipped $1.4 billion of products considered primary to the industry, $254.1 million of secondary products, and had $138.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3593, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fluid power cylinders and actuators industry amounted to $664.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS

This industry is made up of establishments primarily engaged in manufacturing hydraulic and pneumatic fluid power pumps and motors, including hydrostatic transmissions. Establishments primarily engaged in manufacturing pumps for motor vehicles are classified in industry 3714. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35N, Fluid Power Products, Including Aerospace. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3594, Fluid Power Pumps and Motors, had employment of 12.4 thousand. The employment figure was 16 percent below the 14.8 thousand reported in 1987. Compared with 1991, employment decreased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Nebraska, Minnesota, Illinois, and Mississippi, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Mississippi, and Kansas were the leading States.

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3594 shipped $1.2 billion of products considered primary to the industry, $213.0 million of secondary products, and had $91.6 million of miscellaneous receipts, resales, and

contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 3594, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fluid power pumps and motors industry amounted to $590.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY

This industry is made up of establishments primarily engaged in manufacturing weighing and force-measuring machines and devices of all types, except those regarded as scientific apparatus for laboratory work which are classified in industry 3821.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3596, Scales and Balances, Except Laboratory, had employment of 5.6 thousand. The employment figure was 16 percent below the 6.7 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Ohio, and Minnesota, accounting for approximately 45 percent of the industry's employment. This represents a shift from 1987 when California, Illinois, Ohio, and Missouri were the leading States.

The total value of shipments for establishments classified in this industry was $641.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3596 shipped $600.7 million of products considered primary to the industry, $3.0 million of secondary products, and had $37.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3596, no matter in what industry they were produced, appear in table 6a and aggregate to $652.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the scales and balances, except laboratory, industry amounted to $296.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing machinery and equipment and parts, not elsewhere classified, such as amusement park equipment and flexible metal hose and tubing. This industry also includes establishments primarily engaged in producing or repairing machinery and equipment parts, not elsewhere classified, on a job or order basis for others. Establishments primarily engaged in manufacturing motor vehicle engine filters are classified in industry 3417, and those manufacturing coin-operated amusement machines are classified in industry 3999.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3599, Industrial Machinery, N.E.C., had employment of 248.2 thousand. The employment figure was 9 percent above the 228.5 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Michigan, and Pennsylvania, accounting for approximately 34 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 36 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $19.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3599 shipped $17.2 billion of products considered primary to the industry, $804.0 million of secondary products, and had $1.0 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3599, no matter in what industry they were produced, appear in table 6a and aggregate to $18.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial machinery, not elsewhere classified, industry amounted to $6.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES															
1992 Census	117	138	68	18.4	586.6	14.6	29.6	438.7	1 146.5	981.6	2 155.4	76.8	249.2	75	85
1991 ASM	(NA)	(NA)	(NA)	18.4	558.6	14.7	28.9	411.8	997.0	916.9	1 920.6	79.3	261.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.6	601.1	16.5	31.6	451.9	1 045.8	980.7	2 042.4	87.9	267.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.8	652.4	17.5	35.6	492.5	1 160.1	1 094.3	2 265.5	71.8	299.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	22.0	653.1	17.8	37.1	498.9	1 200.2	1 221.3	2 408.6	128.9	299.7	(NA)	(NA)
1987 Census	132	155	86	21.7	648.2	17.3	36.7	485.3	1 198.0	1 088.7	2 287.4	104.9	279.3	76	84
1986 ASM	(NA)	(NA)	(NA)	28.8	838.4	22.3	46.3	614.6	1 585.6	1 243.7	2 818.2	244.4	318.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.6	870.9	24.9	49.8	643.8	1 774.5	1 286.8	3 091.9	188.0	348.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.4	892.9	26.6	54.3	672.1	1 888.4	1 234.7	3 096.4	96.9	389.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	29.8	745.5	23.2	46.7	543.9	1 542.5	928.4	2 485.0	71.1	326.9	(NA)	(NA)
1982 Census	149	171	94	31.2	691.9	24.0	46.0	492.4	1 385.1	795.6	2 224.5	106.0	353.5	81	94
1981 ASM	(NA)	(NA)	(NA)	32.9	692.8	26.4	50.8	514.8	1 363.9	765.7	2 130.9	137.8	369.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.5	628.8	25.6	49.3	463.5	1 178.7	673.9	1 838.8	113.9	358.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	36.2	661.6	29.4	58.9	504.4	1 295.7	666.7	1 904.1	116.2	343.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.3	556.5	26.8	53.3	423.5	1 069.4	564.2	1 608.5	120.2	260.5	(NA)	(NA)
1977 Census	132	151	84	32.2	508.5	26.0	52.5	388.5	924.9	503.8	1 400.6	79.9	240.0	82	87
INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS															
1992 Census	308	348	141	16.5	531.1	10.2	21.0	280.1	1 130.7	664.8	1 804.2	54.2	413.9	85	85
1991 ASM	(NA)	(NA)	(NA)	19.9	572.8	11.9	24.2	294.6	1 093.2	836.1	1 931.7	69.4	486.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	20.7	603.8	13.0	27.0	331.0	1 195.3	781.4	1 981.9	56.9	469.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.2	686.7	14.9	29.9	372.0	1 447.3	819.1	2 238.6	57.9	488.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	22.5	660.8	15.1	29.4	370.8	1 340.6	706.6	2 061.7	73.2	397.6	(NA)	(NA)
1987 Census	331	362	168	20.2	602.0	13.2	26.1	333.9	1 254.5	637.5	1 896.6	81.1	399.5	83	89
INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS															
1992 Census	158	176	68	12.4	430.3	8.1	17.2	243.2	915.1	590.6	1 506.2	48.5	301.0	85	85
1991 ASM	(NA)	(NA)	(NA)	14.3	457.8	8.6	17.5	239.1	1 002.9	693.4	1 732.6	53.3	355.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.9	464.2	9.4	18.6	256.0	1 004.1	784.7	1 798.6	70.9	378.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.2	452.3	9.6	19.2	256.4	1 050.2	734.9	1 788.2	64.3	375.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.2	484.6	10.0	20.8	273.4	1 110.4	679.9	1 752.7	48.7	402.1	(NA)	(NA)
1987 Census	133	150	67	14.8	428.9	9.0	18.9	240.2	830.6	559.6	1 404.4	58.5	351.9	84	78
INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY															
1992 Census	114	128	54	5.6	154.8	3.0	6.6	61.7	349.1	296.4	641.1	17.2	117.8	99	92
1991 ASM	(NA)	(NA)	(NA)	6.4	161.2	3.3	7.1	65.6	322.2	375.4	697.0	15.9	154.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.3	152.7	3.3	6.9	61.7	336.4	348.0	680.0	13.3	153.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.2	149.2	3.5	7.7	64.3	327.8	322.0	648.4	8.3	134.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.3	162.2	4.1	8.9	77.2	397.2	334.7	726.0	6.5	161.9	(NA)	(NA)
1987 Census	118	134	57	6.7	146.1	3.8	8.0	65.7	355.6	273.8	633.0	11.5	134.0	98	94
1986 ASM	(NA)	(NA)	(NA)	6.9	145.7	4.4	9.1	69.9	356.1	252.3	604.2	9.4	121.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.9	134.4	4.3	9.1	66.4	332.6	231.8	577.3	9.9	118.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.9	132.2	4.2	8.4	64.2	324.2	231.2	552.3	11.6	135.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.7	128.7	4.1	8.1	62.5	319.2	228.1	547.2	12.6	129.2	(NA)	(NA)
1982 Census	113	128	63	7.0	128.3	4.2	8.0	62.2	284.0	222.7	516.4	15.9	122.6	98	86
1981 ASM	(NA)	(NA)	(NA)	6.6	109.6	4.1	8.4	60.8	277.1	189.0	467.0	11.9	112.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	109.9	4.6	9.4	63.6	337.4	184.6	514.1	11.4	112.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.8	106.9	5.1	10.5	61.9	318.8	177.9	487.2	11.2	105.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.3	95.1	4.9	9.8	53.0	267.6	155.9	417.1	13.0	95.5	(NA)	(NA)
1977 Census	92	103	46	7.1	84.5	4.7	9.1	46.9	214.9	138.8	348.1	6.8	85.7	96	99
INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.															
1992 Census	22 591	22 756	3 356	248.2	7 020.8	188.7	396.2	4 640.6	12 845.9	6 207.0	19 057.7	683.9	2 427.2	96	95
1991 ASM	(NA)	(NA)	(NA)	233.0	6 226.7	178.7	380.9	4 226.8	11 205.2	5 729.9	16 924.8	610.6	2 499.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	247.2	6 311.6	190.3	401.8	4 263.3	11 741.2	5 629.6	17 184.1	690.2	2 594.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	248.2	6 067.7	192.1	405.7	4 130.7	11 521.6	5 150.6	16 287.8	643.5	2 447.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	231.8	5 449.8	181.8	380.1	3 740.7	10 295.9	4 696.7	14 926.0	267.3	1 931.1	(NA)	(NA)
1987 Census	21 414	21 547	2 987	228.5	5 120.9	177.6	366.4	3 482.0	9 521.5	4 173.4	13 700.0	539.9	1 857.0	96	96

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES								
1992 Census	31 880	79	2 027	14.82	46	73	62 310	51	38.73
1991 ASM	30 359	80	1 966	14.25	48	77	54 185	56	34.50
1990 ASM	29 180	80	1 915	14.30	48	77	50 767	57	33.09
1989 ASM	29 927	80	2 034	13.83	48	77	53 216	56	32.59
1988 ASM	29 686	81	2 084	13.45	51	78	54 555	54	32.35
1987 Census	29 871	80	2 121	13.22	48	76	55 207	54	32.64
1986 ASM	29 111	77	2 076	13.27	44	74	55 056	53	34.25
1985 ASM	27 560	79	2 000	12.93	42	70	56 155	49	35.63
1984 ASM	26 734	80	2 041	12.38	40	69	56 539	47	34.78
1983 ASM	25 017	78	2 013	11.65	37	67	51 762	48	33.03
1982 Census	22 176	77	1 917	10.70	36	67	44 394	50	30.11
1981 ASM	21 058	80	1 924	10.13	36	68	41 456	51	26.85
1980 ASM	19 348	79	1 926	9.40	37	71	36 268	53	23.91
1979 ASM	18 276	81	2 003	8.56	35	70	35 793	51	22.00
1978 ASM	16 712	80	1 989	7.95	35	70	32 114	52	20.06
1977 Census	15 792	81	2 019	7.40	36	72	28 724	55	17.62
	INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS								
1992 Census	32 188	62	2 049	13.40	37	66	68 527	47	54.10
1991 ASM	28 784	60	2 034	12.17	43	73	54 935	52	45.17
1990 ASM	29 169	63	2 077	12.26	39	70	57 744	51	44.27
1989 ASM	29 599	64	2 007	12.44	37	67	62 384	47	48.40
1988 ASM	29 369	67	1 947	12.61	34	66	59 582	49	45.60
1987 Census	29 802	65	1 977	12.79	34	65	62 104	48	48.07
	INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS								
1992 Census	34 702	65	2 123	14.14	39	68	73 798	47	53.20
1991 ASM	32 014	60	2 035	13.66	40	66	70 133	46	57.31
1990 ASM	31 154	63	1 979	13.76	44	69	67 389	46	53.98
1989 ASM	29 757	63	2 000	13.35	41	66	69 092	43	54.70
1988 ASM	29 914	62	2 080	13.14	39	66	68 543	44	53.38
1987 Census	28 980	61	2 100	12.71	40	70	56 122	52	43.95
	INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY								
1992 Census	27 643	54	2 200	9.35	46	70	62 339	44	52.89
1991 ASM	25 188	52	2 152	9.24	54	77	50 344	50	45.38
1990 ASM	24 238	52	2 091	8.94	51	74	53 397	45	48.75
1989 ASM	24 065	56	2 200	8.35	50	73	52 871	46	42.57
1988 ASM	22 219	56	2 171	8.67	46	68	54 411	41	44.63
1987 Census	21 806	57	2 105	8.21	43	66	53 075	41	44.45
1986 ASM	21 116	64	2 068	7.68	42	66	51 609	41	39.13
1985 ASM	19 478	62	2 116	7.30	40	63	48 203	40	36.55
1984 ASM	19 159	61	2 000	7.64	42	66	46 986	41	38.60
1983 ASM	19 209	61	1 976	7.72	42	65	47 642	40	39.41
1982 Census	18 329	60	1 905	7.78	43	68	40 571	45	35.50
1981 ASM	16 606	62	2 049	7.24	40	64	41 985	40	32.99
1980 ASM	15 264	64	2 043	6.77	36	57	46 861	33	35.89
1979 ASM	13 705	65	2 059	5.90	37	58	40 872	34	30.36
1978 ASM	13 027	67	2 000	5.41	37	60	36 658	36	27.31
1977 Census	11 901	66	1 936	5.15	40	64	30 268	39	23.62
	INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.								
1992 Census	28 287	76	2 100	11.71	33	69	51 756	55	32.42
1991 ASM	26 724	77	2 132	11.10	34	71	48 091	56	29.42
1990 ASM	25 532	77	2 111	10.61	33	69	47 497	54	29.22
1989 ASM	24 447	77	2 112	10.18	32	69	46 421	53	28.40
1988 ASM	23 511	78	2 091	9.84	31	68	44 417	53	27.09
1987 Census	22 411	78	2 063	9.50	30	68	41 670	54	25.99

Note: For qualifications of data, see footnotes on table 1a.

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TSF:35H_92.DAT;1 6/ 8/ 95 14:11:27 UTF:35H_93.DAT;2 6/ 8/ 95 15:14:03 META:TIPS96-15191091.DAT;1 6/ 8/ 95 15:19:47

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES														
United States	–	**138**	**68**	**18.4**	**586.6**	**14.6**	**29.6**	**438.7**	**1 146.5**	**981.6**	**2 155.4**	**76.8**	**21.7**	**1 198.0**
California	E1	27	11	.9	21.1	.8	1.6	13.8	37.3	24.3	61.6	2.0	G	(D)
Colorado	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	7	6	2.0	63.0	1.7	3.4	48.4	114.5	58.9	175.4	7.6	2.3	101.7
Iowa	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	13	8	4.0	168.1	3.2	6.8	142.0	346.5	456.6	815.2	(D)	5.8	353.4
Minnesota	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nebraska	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nevada	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
New York	–	6	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	108.2
Pennsylvania	E1	7	5	.9	22.2	.8	1.7	16.4	46.4	18.9	64.5	1.1	.5	28.7
South Carolina	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	E2	14	6	.4	9.7	.3	.6	5.8	15.9	7.4	23.0	.5	.7	17.2
Virginia	E8	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS														
United States	–	**348**	**141**	**16.5**	**531.1**	**10.2**	**21.0**	**280.1**	**1 130.7**	**664.8**	**1 804.2**	**54.2**	**20.2**	**1 254.5**
Alabama	–	7	6	.3	7.0	.2	.5	4.5	15.5	13.0	28.5	.8	E	(D)
California	–	53	15	3.3	126.2	1.8	3.4	59.6	237.8	111.9	363.0	5.2	6.9	521.8
Florida	E2	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	37	16	1.7	52.0	1.0	2.1	23.9	106.8	61.2	165.7	10.2	1.7	84.2
Indiana	–	12	10	.6	19.8	.5	1.0	12.9	58.5	31.0	86.5	3.6	F	(D)
Iowa	–	10	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	23	8	1.0	30.2	.6	1.3	16.2	67.9	74.0	137.5	2.1	G	(D)
Minnesota	–	7	4	.3	10.6	.2	.4	5.5	17.5	15.1	33.9	.5	.4	14.1
Nebraska	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	7	3	.2	5.7	.1	.3	2.8	9.3	5.1	14.7	.4	.2	11.8
New York	–	20	12	3.2	126.9	1.7	3.3	59.3	247.4	93.3	341.2	16.1	3.1	224.8
North Carolina	E1	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	33	16	1.4	38.5	1.0	2.0	24.3	92.6	49.9	141.0	4.0	G	(D)
Oregon	–	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	10	3	.1	3.7	.1	.2	2.2	4.8	6.2	11.0	.1	.2	8.0
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	12	3	.3	9.5	.2	.5	5.5	27.5	19.7	46.6	1.0	.4	17.6
Utah	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E2	8	2	.1	2.9	.1	.2	1.6	6.1	2.1	8.2	.7	(NA)	(NA)
West Virginia	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	19	9	.7	19.5	.5	1.0	11.9	62.8	56.3	121.6	(D)	.8	36.8
INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS														
United States	–	**176**	**68**	**12.4**	**430.3**	**8.1**	**17.2**	**243.2**	**915.1**	**590.6**	**1 506.2**	**48.5**	**14.8**	**830.6**
California	E1	21	6	.9	42.2	.5	1.1	23.4	77.9	47.8	124.9	3.1	2.1	119.3
Florida	E2	6	4	.4	13.5	.3	.6	9.3	28.9	19.4	46.5	.9	E	(D)
Illinois	E2	14	10	1.1	34.0	.8	1.6	20.4	64.2	55.0	117.0	4.1	.9	47.4
Indiana	E7	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
Iowa	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E1	11	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	–	8	4	1.2	38.0	.6	1.3	15.9	81.9	36.6	119.3	4.2	F	(D)
Mississippi	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nebraska	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E2	7	1	.1	3.5	.1	.3	2.7	7.2	3.1	9.9	(D)	(NA)	(NA)
North Carolina	E2	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	12	4	1.0	40.3	.8	1.7	22.3	81.2	53.0	130.7	4.7	1.4	92.3
Oklahoma	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	6	4	.5	15.2	.3	.6	7.4	32.0	48.0	77.6	2.2	(NA)	(NA)
Tennessee	–	6	3	.4	11.1	.2	.5	6.6	27.7	18.8	45.0	.8	E	(D)
Wisconsin	–	9	5	.6	21.4	.4	.7	9.6	33.3	26.9	62.9	2.3	1.0	30.9

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 6/ 8/ 95 15:20:00 EPCV23 TLP:35H.BTI;35 6/ 8/ 95 14:11:16 DATA:NONE UPF:92MFFI_PUBS:35HDAT.UPF PAGE: 3
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY														
United States	**–**	**128**	**54**	**5.6**	**154.8**	**3.0**	**6.6**	**61.7**	**349.1**	**296.4**	**641.1**	**17.2**	**6.7**	**355.6**
California	–	21	11	.8	23.4	.4	.7	8.5	40.8	39.3	76.8	2.1	G	(D)
Illinois	–	8	4	.7	19.5	.5	1.3	9.7	42.6	39.7	83.5	(D)	.9	48.6
Michigan	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Missouri	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(D)
New York	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	6	4	.2	6.8	.1	.2	1.8	16.6	6.5	22.7	.1	.2	12.2
INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.														
United States	**E1**	**22 756**	**3 356**	**248.2**	**7 020.8**	**188.7**	**396.2**	**4 640.6**	**12 845.9**	**6 207.0**	**19 057.7**	**683.9**	**228.5**	**9 521.5**
Alabama	E1	363	55	3.9	92.5	3.0	6.4	61.6	184.2	104.5	289.2	10.8	(NA)	(D)
Arizona	E1	305	56	3.4	100.8	2.6	5.4	66.1	166.3	79.0	247.2	8.5	3.4	144.0
Arkansas	E1	161	16	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	3 391	374	29.6	907.6	22.3	47.4	598.9	1 697.6	699.2	2 404.4	67.9	33.4	1 544.1
Colorado	E1	302	33	2.6	71.6	2.0	4.2	47.5	126.3	68.7	195.8	7.7	2.7	112.2
Connecticut	–	537	79	6.5	219.8	4.8	10.6	132.6	358.3	197.4	557.5	15.3	6.7	296.6
Delaware	E1	41	7	.5	17.0	.4	.8	9.8	28.6	11.6	39.7	1.4	.4	17.1
Florida	E1	599	69	5.2	128.5	4.0	8.2	85.9	237.9	116.5	353.6	13.3	4.5	167.4
Georgia	E2	374	54	4.1	101.3	3.2	6.4	66.5	189.5	106.9	294.8	16.8	3.5	133.8
Hawaii	E2	19	2	.1	3.1	.1	.2	2.1	6.8	1.7	8.5	.2	(NA)	(NA)
Idaho	E2	70	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	E	(D)
Illinois	E1	1 235	229	16.5	465.5	12.6	26.5	312.7	889.0	445.2	1 331.6	44.9	14.9	653.2
Indiana	E1	600	118	7.6	207.7	5.9	12.5	138.6	372.9	184.4	554.8	22.6	6.2	254.0
Iowa	E1	213	32	2.1	52.1	1.6	3.4	33.9	93.7	44.8	143.2	6.1	G	(D)
Kansas	E1	235	33	3.1	80.3	2.2	4.5	50.0	151.4	82.7	238.1	15.1	2.7	116.2
Kentucky	E2	227	36	2.6	64.6	2.0	4.3	45.0	119.1	54.2	172.6	7.8	G	(D)
Louisiana	E1	276	49	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	E1	95	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	E1	198	38	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	118.7
Massachusetts	E1	698	102	8.1	262.0	6.0	12.8	171.6	484.9	199.0	686.1	20.9	(NA)	(D)
Michigan	E1	1 395	241	17.1	519.7	13.1	27.7	342.4	951.9	552.8	1 504.2	59.8	15.5	699.5
Minnesota	E1	545	114	8.4	256.1	6.4	13.4	166.1	469.9	233.8	700.0	36.1	6.2	299.9
Mississippi	E1	129	12	1.0	24.2	.8	1.6	16.3	42.9	22.7	65.5	1.8	1.0	35.1
Missouri	E1	388	50	3.9	105.4	3.0	6.1	71.5	184.4	88.7	274.6	9.4	3.9	156.2
Montana	E4	50	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	E1	117	15	1.0	21.4	.8	1.6	15.0	35.5	20.7	56.3	1.4	F	(D)
Nevada	E2	53	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	E2	183	24	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E2	700	80	6.3	201.4	4.6	9.8	124.0	344.3	156.1	501.1	14.9	6.9	311.9
New Mexico	E1	99	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	956	132	10.2	293.2	7.6	15.9	190.3	538.2	250.2	772.9	28.0	10.7	424.8
North Carolina	E1	551	67	4.7	124.5	3.7	7.7	79.7	206.0	99.8	308.9	17.4	(NA)	(D)
North Dakota	E3	28	3	.3	5.3	.2	.4	3.7	10.3	5.7	15.9	(D)	(NA)	(D)
Ohio	E1	1 597	284	20.5	567.2	15.9	33.2	384.4	1 050.8	502.2	1 555.5	51.9	17.9	654.4
Oklahoma	E2	339	36	3.2	69.9	2.5	4.8	47.3	141.2	62.9	201.3	(D)	2.1	80.4
Oregon	E1	327	38	2.7	73.4	2.0	4.3	49.9	136.7	61.2	195.8	6.3	2.2	87.6
Pennsylvania	E1	1 197	248	17.0	467.7	12.9	26.7	311.2	876.0	371.7	1 256.1	42.1	15.1	611.3
Rhode Island	E1	117	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	39.6
South Carolina	E3	264	30	2.5	62.4	1.9	3.9	41.5	105.1	50.1	155.2	4.7	2.0	72.7
South Dakota	E1	40	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	E1	361	53	4.4	121.4	3.4	7.3	80.9	210.1	103.1	315.4	12.5	3.4	130.1
Texas	E1	1 566	188	14.3	392.6	10.9	23.3	262.5	690.0	357.1	1 047.6	29.3	11.7	478.2
Utah	E2	143	23	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.1	1.3	45.5
Vermont	E1	44	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	E2	319	57	4.0	116.1	3.1	6.4	78.5	199.7	81.8	280.0	11.5	(NA)	(D)
Washington	E1	444	60	4.4	124.0	3.3	6.6	85.6	226.5	109.6	335.8	13.9	3.8	171.9
West Virginia	E1	143	22	1.8	43.8	1.4	2.9	31.0	79.3	53.2	134.5	4.1	1.2	47.0
Wisconsin	E1	666	131	9.5	253.6	7.2	15.0	165.2	508.3	288.9	789.4	37.1	7.5	303.3
Wyoming	E1	40	4	.3	8.6	.3	.5	5.8	13.6	10.6	24.0	.5	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Carburetors, pistons, rings, and valves (SIC 3592)	Fluid power cylinders and actuators (SIC 3593)	Fluid power pumps and motors (SIC 3594)	Scales and balances, except laboratory (SIC 3596)	Industrial machinery, n.e.c. (SIC 3599)
Companies ---- number	117	308	158	114	22 591
All establishments ---- number	138	348	176	128	22 756
With 1 to 19 employees ---- number	70	207	108	74	19 400
With 20 to 99 employees ---- number	30	104	37	38	3 162
With 100 employees or more ---- number	38	37	31	16	194
Employment and labor costs:					
Employees ---- 1,000	18.4	16.5	12.4	5.6	248.2
Compensation, total ---- mil dol	770.4	673.6	552.4	193.8	8 413.4
Annual payroll ---- mil dol	586.6	531.1	430.3	154.8	7 020.8
Fringe benefits ---- mil dol	183.7	142.5	122.2	39.0	1 392.6
Social Security and other legally required payments ---- mil dol	56.3	52.9	44.9	16.2	667.8
Employer voluntary payments ---- mil dol	127.5	89.6	77.2	22.8	724.8
Production workers:					
Average for year ---- 1,000	14.6	10.2	8.1	3.0	188.7
March ---- 1,000	14.5	10.4	8.2	2.9	189.7
May ---- 1,000	14.7	10.2	8.1	3.0	189.7
August ---- 1,000	14.7	10.3	8.1	3.0	190.0
November ---- 1,000	14.5	10.0	7.9	3.0	186.4
Hours ---- millions	29.6	21.0	17.2	6.6	396.2
Wages ---- mil dol	438.7	280.1	243.2	61.7	4 640.6
Cost of materials[1] ---- mil dol	981.6	664.8	590.6	296.4	6 207.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	907.6	526.7	501.5	269.9	4 802.4
Resales ---- mil dol	15.9	67.6	49.2	15.2	196.7
Fuels ---- mil dol	11.8	2.7	2.1	1.0	66.8
Purchased electricity ---- mil dol	33.0	19.6	19.2	4.2	219.1
Contract work ---- mil dol	13.3	48.2	18.7	6.1	922.0
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	596.7	325.2	354.4	64.7	3 258.1
Generated less sold ---- mil kWh	(D)	(D)	–	–	(D)
Total value of shipments ---- mil dol	2 155.4	1 804.2	1 506.2	641.1	19 057.7
Value added ---- mil dol	1 146.5	1 130.7	915.1	349.1	12 845.9
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	272.9	420.8	308.3	115.7	2 421.9
Finished goods ---- mil dol	101.6	100.9	84.0	30.6	443.1
Work in process ---- mil dol	92.8	182.8	147.7	42.8	1 427.5
Materials and supplies ---- mil dol	78.6	137.1	76.7	42.4	551.3
End of 1992 ---- mil dol	249.2	413.9	301.0	117.8	2 427.2
Finished goods ---- mil dol	86.9	92.2	84.0	31.2	447.9
Work in process ---- mil dol	80.1	182.8	147.1	46.6	1 418.0
Materials and supplies ---- mil dol	82.2	138.9	69.8	40.0	561.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Carburetors, pistons, rings, and valves (SIC 3592)	Fluid power cylinders and actuators (SIC 3593)	Fluid power pumps and motors (SIC 3594)	Scales and balances, except laboratory (SIC 3596)	Industrial machinery, n.e.c. (SIC 3599)
Gross book value of depreciable assets:					
Total:					
Beginning of year	1 192.7	792.3	792.3	174.2	8 774.8
New capital expenditures[1]	76.8	54.2	48.5	17.2	683.9
Used capital expenditures	(D)	4.2	5.5	(D)	172.9
Retirements	(D)	47.3	34.7	(D)	424.6
End of year	1 203.2	803.5	811.6	185.5	9 206.9
Buildings and other structures:					
Beginning of year	215.9	182.7	178.7	40.3	1 267.4
New capital expenditures	6.6	6.8	2.9	1.8	82.5
Used capital expenditures	(D)	.8	.2	(D)	21.9
Retirements	(D)	2.2	1.8	(D)	16.5
End of year	211.0	188.0	180.0	42.0	1 355.4
Machinery and equipment:					
Beginning of year	976.8	609.7	613.7	133.9	7 507.3
New capital expenditures[1]	70.2	47.5	45.6	15.4	601.4
Used capital expenditures	(D)	3.5	5.3	(D)	151.1
Retirements	(D)	45.1	32.9	(D)	408.2
End of year	992.2	615.5	631.5	143.5	7 851.6
Depreciation charges during 1992:					
Total	80.3	63.0	86.0	15.0	784.6
Buildings and other structures	9.0	9.6	31.6	2.0	75.9
Machinery and equipment	71.3	53.5	54.3	13.0	708.8
Rental payments:					
Total	21.0	15.3	12.3	6.8	451.9
Buildings and other structures	6.4	10.1	6.3	3.6	249.6
Machinery and equipment	14.6	5.2	6.0	3.2	202.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Carburetors, pistons, rings, and valves (SIC 3592)		Fluid power cylinders and actuators (SIC 3593)		Fluid power pumps and motors (SIC 3594)		Scales and balances, except laboratory (SIC 3596)		Industrial machinery, n.e.c. (SIC 3599)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	2.5	(X)	3.0	(X)	2.8	(X)	.7	(X)	48.0	(X)
Response coverage ratio (percent)[2]	66.0	(X)	85.9	(X)	96.4	(X)	98.5	(X)	70.8	(X)
Machinery	13.1	(X)	7.3	(X)	14.7	(X)	1.8	(X)	106.0	(X)
Response coverage ratio (percent)[2]	71.8	(X)	89.3	(X)	95.9	(X)	98.5	(X)	72.7	(X)
Other purchased services:										
Communications	1.7	(X)	5.0	(X)	4.8	(X)	2.0	(X)	43.7	(X)
Response coverage ratio (percent)[2]	71.7	(X)	85.9	(X)	95.7	(X)	93.1	(X)	68.4	(X)
Legal	3.6	(X)	3.4	(X)	2.0	(X)	1.4	(X)	28.1	(X)
Response coverage ratio (percent)[2]	68.2	(X)	89.4	(X)	95.7	(X)	90.4	(X)	71.3	(X)
Accounting and bookkeeping	1.1	(X)	1.7	(X)	1.6	(X)	.9	(X)	72.5	(X)
Response coverage ratio (percent)[2]	68.2	(X)	87.0	(X)	95.7	(X)	90.4	(X)	73.4	(X)
Advertising	1.5	(X)	4.8	(X)	3.5	(X)	14.6	(X)	96.2	(X)
Response coverage ratio (percent)[2]	68.2	(X)	86.2	(X)	96.4	(X)	93.1	(X)	73.3	(X)
Software and other data processing	1.6	(X)	1.9	(X)	2.0	(X)	1.0	(X)	14.0	(X)
Response coverage ratio (percent)[2]	66.0	(X)	87.9	(X)	96.4	(X)	65.9	(X)	69.4	(X)
Refuse removal, including hazardous waste	2.2	(X)	1.1	(X)	1.5	(X)	.4	(X)	17.0	(X)
Response coverage ratio (percent)[2]	69.6	(X)	87.3	(X)	95.7	(X)	98.5	(X)	70.2	(X)
New machinery and equipment expenditures	70.2	(X)	47.5	(X)	45.6	(X)	15.4	(X)	601.4	(X)
Automobiles, trucks, etc., for highway use	6.8	3	.7	41	.2	53	.3	44	41.3	13
Computers and peripheral data processing equipment	4.2	1	9.4	8	4.8	4	2.0	38	42.5	9
All other	59.1	1	37.4	3	40.6	1	13.2	7	517.6	2
Adjustment ratio[3]	1.6	(X)	1.3	(X)	1.2	(X)	1.2	(X)	1.9	(X)
Cost of materials, components, parts, etc., used	907.6	(X)	526.7	(X)	501.5	(X)	269.9	(X)	4 802.4	(X)
Materials purchased or transferred from foreign sources[4]	249.8	2	53.7	8	49.8	13	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	657.8	1	473.0	1	451.6	2	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.6	(X)	1.8	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES												
Total	**–**	**138**	**18.4**	**586.6**	**14.6**	**29.6**	**438.7**	**1 146.5**	**981.6**	**2 155.4**	**76.8**	**249.2**
Establishments with an average of–												
1 to 4 employees	E7	24	(Z)	1.2	(Z)	.1	.9	2.0	2.5	4.6	.2	.8
5 to 9 employees	E9	21	.1	3.4	.1	.2	2.6	4.5	5.1	9.7	.5	1.1
10 to 19 employees	E3	25	.4	9.7	.3	.6	6.9	16.0	17.8	33.4	8.5	6.1
20 to 49 employees	–	14	.4	11.0	.3	.6	7.3	18.1	14.1	32.3	.8	6.9
50 to 99 employees	E3	16	1.2	34.5	.8	1.7	19.0	46.4	32.4	85.3	4.3	12.8
100 to 249 employees	–	15	2.5	70.6	2.0	4.0	51.8	124.3	129.4	257.7	7.6	46.2
250 to 499 employees	–	12	4.0	101.9	3.2	6.7	73.5	262.5	160.0	426.9	8.2	72.5
500 to 999 employees	–	8	5.2	147.7	4.0	8.0	101.4	297.9	171.1	478.3	22.5	62.4
1,000 to 2,499 employees	–	2	4.6	206.7	3.8	7.6	175.4	374.7	449.2	827.2	24.2	40.4
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	48	.3	6.2	.2	.5	4.7	8.4	9.5	17.9	.8	2.1
INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS												
Total	**–**	**348**	**16.5**	**531.1**	**10.2**	**21.0**	**280.1**	**1 130.7**	**664.8**	**1 804.2**	**54.2**	**413.9**
Establishments with an average of–												
1 to 4 employees	E9	67	.1	3.9	.1	.2	2.1	7.8	4.6	12.3	.3	2.6
5 to 9 employees	E7	72	.5	13.7	.3	.7	6.9	25.2	17.5	42.8	1.0	9.5
10 to 19 employees	E3	68	.9	24.4	.6	1.2	13.0	48.0	32.3	80.1	1.9	14.5
20 to 49 employees	–	65	2.0	56.1	1.4	3.0	33.4	141.7	98.1	236.8	9.0	40.0
50 to 99 employees	–	39	2.9	79.8	2.0	4.2	47.0	180.0	113.9	294.9	15.7	61.8
100 to 249 employees	–	27	4.0	116.9	2.8	5.8	72.1	244.2	205.1	444.7	9.0	98.8
250 to 499 employees	–	7	2.3	80.9	1.3	2.5	37.5	198.0	80.3	281.6	17.3	88.5
500 to 999 employees	–	2	3.8	155.5	1.7	3.2	68.1	285.9	113.1	410.9	(D)	98.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	151	.9	22.8	.6	1.2	12.0	39.6	23.2	62.8	1.5	13.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS												
Total	**–**	**176**	**12.4**	**430.3**	**8.1**	**17.2**	**243.2**	**915.1**	**590.6**	**1 506.2**	**48.5**	**301.0**
Establishments with an average of—												
1 to 4 employees	E6	49	.1	2.3	.1	.1	1.3	5.8	4.3	10.0	.3	2.1
5 to 9 employees	E6	34	.2	6.9	.2	.3	4.0	14.1	9.9	23.9	.8	4.9
10 to 19 employees	E3	25	.3	9.7	.2	.5	5.3	18.2	13.0	32.5	1.1	4.8
20 to 49 employees	E2	23	.8	23.2	.5	1.0	10.8	52.5	47.5	100.0	2.2	21.8
50 to 99 employees	E1	14	.9	25.0	.6	1.2	13.8	71.6	61.4	127.6	2.3	33.4
100 to 249 employees	E1	15	2.3	74.3	1.5	3.2	41.1	141.5	99.2	241.4	8.2	60.5
250 to 499 employees	–	10	3.2	107.5	2.1	4.4	62.1	282.2	152.4	439.0	16.4	66.4
500 to 999 employees	–	5	4.5	181.2	3.0	6.4	105.0	329.0	202.8	531.9	17.2	107.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	71	.3	8.0	.2	.4	4.6	14.6	9.9	24.6	.9	5.0
INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY												
Total	**–**	**128**	**5.6**	**154.8**	**3.0**	**6.6**	**61.7**	**349.1**	**296.4**	**641.1**	**17.2**	**117.8**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	2.1	.1	.1	1.0	5.1	4.8	9.8	.2	1.9
5 to 9 employees	E3	21	.1	3.5	.1	.2	1.5	8.3	7.5	16.2	.4	2.8
10 to 19 employees	E1	15	.2	5.9	.1	.3	2.5	11.7	8.3	20.1	.5	2.9
20 to 49 employees	E1	26	.9	23.8	.5	1.0	9.6	52.4	37.8	89.7	1.9	16.8
50 to 99 employees	–	12	.9	24.6	.4	.9	8.3	65.1	41.2	106.9	3.3	17.1
100 to 249 employees	–	12	1.9	53.5	.9	1.8	19.0	127.5	126.3	247.2	6.6	49.3
250 to 499 employees	–	4	1.4	41.5	.9	2.3	19.8	79.1	70.5	151.3	4.3	27.0
Covered by administrative records[2]	E9	42	.1	2.9	.1	.1	1.3	6.6	6.3	13.0	.3	2.5
INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.												
Total	**E1**	**22 756**	**248.2**	**7 020.8**	**188.7**	**396.2**	**4 640.6**	**12 845.9**	**6 207.0**	**19 057.7**	**683.9**	**2 427.2**
Establishments with an average of—												
1 to 4 employees	E7	10 612	17.2	431.2	13.9	28.8	297.6	830.5	397.1	1 226.3	48.7	146.3
5 to 9 employees	E2	4 957	32.9	813.1	25.1	52.8	565.3	1 497.9	655.9	2 149.6	72.3	245.5
10 to 19 employees	–	3 831	52.0	1 405.5	39.3	82.1	931.6	2 551.3	1 123.8	3 665.7	123.1	419.6
20 to 49 employees	–	2 581	76.2	2 248.9	57.8	121.7	1 457.5	4 028.4	1 778.2	5 826.7	212.0	719.1
50 to 99 employees	–	581	39.4	1 194.0	29.6	62.9	785.2	2 177.8	1 110.7	3 293.8	124.5	468.6
100 to 249 employees	E1	179	25.4	793.9	18.9	39.5	509.2	1 470.6	975.3	2 438.1	91.7	356.9
250 to 499 employees	–	14	5.1	134.2	4.2	8.4	94.2	289.5	166.0	457.4	11.6	71.2
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	10 548	24.0	505.7	19.1	39.4	341.4	927.4	465.6	1 393.0	59.3	169.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3592	**Carburetors, pistons, rings, and valves:**										
	All establishments in industry	138	18.4	586.6	14.6	29.6	438.7	1 146.5	981.6	2 155.4	76.8
	Establishments with this product class primary:										
35921	Carburetors, new and rebuilt (all types)	17	6.1	207.3	4.9	9.8	163.5	418.4	538.2	971.0	22.9
35922	Pistons, piston rings, and piston pins (engine)	40	7.5	217.3	6.0	12.4	158.5	441.0	252.9	700.3	40.7
35923	Valves (engine intake and exhaust)	15	4.0	143.6	3.0	6.1	103.4	261.9	163.7	432.2	11.2

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3593	**Fluid power cylinders and actuators:**										
	All establishments in industry	348	16.5	531.1	10.2	21.0	280.1	1 130.7	664.8	1 804.2	54.2
	Establishments with this product class primary:										
35932	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic	16	5.3	214.5	2.6	4.8	95.5	428.9	172.7	619.4	15.9
35934	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary	84	5.7	159.5	3.9	8.2	94.0	376.8	256.4	629.0	22.1
35935	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary	39	2.4	68.0	1.7	3.6	40.1	159.6	110.0	267.3	5.6
35939	Parts for hydraulic and pneumatic fluid power cylinders and actuators	26	1.3	39.2	.8	1.7	22.5	77.3	71.7	146.7	7.2
3594	**Fluid power pumps and motors:**										
	All establishments in industry	176	12.4	430.3	8.1	17.2	243.2	915.1	590.6	1 506.2	48.5
	Establishments with this product class primary:										
35943	Nonaerospace-type reciprocating pumps	16	2.3	69.8	1.5	2.9	39.2	187.6	117.3	308.7	8.7
35944	Nonaerospace-type rotary and other fluid power pumps	29	4.7	170.6	3.3	7.0	101.9	356.2	235.6	587.0	21.4
35945	Nonaeropsace-type fluid power motors	10	1.4	44.0	.8	1.6	21.0	96.9	58.6	153.0	3.7
35946	Aerospace-type fluid power pumps and motors	7	1.7	76.5	.9	2.1	37.9	128.3	81.2	211.7	5.3
35949	Parts for fluid power pumps, motors, and hydrostatic transmissions	16	1.3	44.6	1.0	2.3	28.9	93.3	59.7	153.9	6.6
3596	**Scales and balances, except laboratory:**										
	All establishments in industry	128	5.6	154.8	3.0	6.6	61.7	349.1	296.4	641.1	17.2
	Establishments with this product class primary:										
35961	Vehicle and industrial scales	45	2.9	82.8	1.4	2.9	28.3	171.0	135.1	302.0	3.8
35962	Retail, commercial, household, and mailing scales	13	1.6	42.9	1.0	2.5	21.2	98.8	81.9	182.5	6.1
35963	Parts, attachments, and accessories for scales and balances	11	.8	20.8	.4	.7	8.4	60.1	63.6	121.7	6.6
3599	**Industrial machinery, n.e.c.:**										
	All establishments in industry	22 756	248.2	7 020.8	188.7	396.2	4 640.6	12 845.9	6 207.0	19 057.7	683.9
	Establishments with this product class primary:										
35994	Miscellaneous machinery products (including flexible metal hose and tubing, metal bellows, etc.)	572	20.4	599.7	14.9	30.6	365.4	1 169.4	726.2	1 898.8	54.0
35995	Receipts for machine shop job work and job order repairs	8 362	162.7	4 837.4	123.7	261.3	3 219.6	8 747.6	4 080.8	12 848.4	459.2

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES			
Total value of shipments	2 155.4	2 287.4	2 224.5
Primary products value of shipments	1 604.0	1 708.1	1 790.9
Secondary products value of shipments	529.5	551.9	407.0
Total miscellaneous receipts	21.9	27.5	26.6
Value of resales	16.3	14.5	20.8
Contract receipts	.7	2.8	(D)
Other miscellaneous receipts	4.8	10.1	(D)
Primary products specialization ratio	75	76	81
Value of primary products shipments made in all industries	1 876.5	2 038.3	1 908.1
Value of primary products shipments made in this industry	1 604.0	1 708.1	1 790.9
Value of primary products shipments made in other industries	272.5	330.2	117.2
Coverage ratio	85	84	94

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS			
Total value of shipments	1 804.2	1 896.6	(NA)
Primary products value of shipments	1 411.2	1 521.3	(NA)
Secondary products value of shipments	254.1	305.7	(NA)
Total miscellaneous receipts	138.9	69.6	(NA)
Value of resales	86.8	39.9	(NA)
Contract receipts	3.7	11.6	(NA)
Other miscellaneous receipts	48.4	18.1	(NA)
Primary products specialization ratio	85	83	(NA)
Value of primary products shipments made in all industries	1 666.7	1 706.4	(NA)
Value of primary products shipments made in this industry	1 411.2	1 521.3	(NA)
Value of primary products shipments made in other industries	255.5	185.1	(NA)
Coverage ratio	85	89	(NA)
INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS			
Total value of shipments	1 506.2	1 404.4	(NA)
Primary products value of shipments	1 201.6	1 141.0	(NA)
Secondary products value of shipments	213.0	218.8	(NA)
Total miscellaneous receipts	91.6	44.6	(NA)
Value of resales	69.0	25.9	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	85	84	(NA)
Value of primary products shipments made in all industries	1 419.0	1 458.7	(NA)
Value of primary products shipments made in this industry	1 201.6	1 141.0	(NA)
Value of primary products shipments made in other industries	217.4	317.7	(NA)
Coverage ratio	85	78	(NA)
INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY			
Total value of shipments	641.1	633.0	516.4
Primary products value of shipments	600.7	558.9	466.6
Secondary products value of shipments	3.0	10.0	8.3
Total miscellaneous receipts	37.4	64.1	41.5
Value of resales	22.9	38.3	29.2
Contract receipts	(D)	2.3	3.1
Other miscellaneous receipts	(D)	2.0	9.2
Primary products specialization ratio	99	98	98
Value of primary products shipments made in all industries	652.6	592.5	545.2
Value of primary products shipments made in this industry	600.7	558.9	466.6
Value of primary products shipments made in other industries	52.0	33.7	78.6
Coverage ratio	92	94	86
INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.			
Total value of shipments	19 057.7	13 700.0	(NA)
Primary products value of shipments	17 214.1	12 225.0	(NA)
Secondary products value of shipments	804.0	476.1	(NA)
Total miscellaneous receipts	1 039.5	998.9	(NA)
Value of resales	332.0	158.7	(NA)
Contract receipts	438.6	631.2	(NA)
Other miscellaneous receipts	269.0	209.0	(NA)
Steel service centers (including steel slitting on a customer basis)	5.0	(NA)	(NA)
Sales of scrap and refuse	17.3	11.1	(NA)
Receipts for installation (or construction) of products of this establishment	22.9	20.8	(NA)
Receipts for research and development	4.6	11.7	(NA)
Receipts for repair work	56.1	50.5	(NA)
Other miscellaneous receipts	45.7	35.2	(NA)
Steel slitting on a contract basis	1.3	(NA)	(NA)
Welding repair shop (welding service)	81.5	(NA)	(NA)
Sharpening services	14.3	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	20.2	79.7	(NA)
Primary products specialization ratio	96	96	(NA)
Value of primary products shipments made in all industries	18 143.4	12 788.1	(NA)
Value of primary products shipments made in this industry	17 214.1	12 225.0	(NA)
Value of primary products shipments made in other industries	929.2	563.1	(NA)
Coverage ratio	95	96	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3592– —	**CARBURETORS, PISTONS, RINGS, AND VALVES**				
	Total	**(NA)**	**1 876.5**	**(NA)**	**2 038.3**
35921	Carburetors, new and rebuilt (all types)	(NA)	748.1	(NA)	926.7
	Carburetors (new), all types:				
35921 01	For motor vehicle engines (passenger car, truck, and bus)	5	467.4	6	544.6
35921 02	All other carburetors	7		7	90.8
35921 03	Carburetors, rebuilt, all types	15	71.8	21	107.2
35921 05	Parts for carburetors (excluding gaskets and screw machine products)	8	194.4	6	183.3
35921 00	Carburetors, new and rebuilt (all types), n.s.k.	(NA)	14.6	(NA)	.8
35922	Pistons, piston rings, and piston pins (engine)	(NA)	714.5	(NA)	650.8
	Pistons, all types (machined), excluding rough castings:				
35922 01	For motor vehicle engines (passenger car, truck, and bus)	11	232.9	18	315.2
35922 02	All other pistons	19	69.5	16	55.5
	Piston rings, all types, and piston pins:				
	Oil-type:				
35922 03	For motor vehicle engines (passenger car, truck, and bus)	8	84.5	9	92.2
35922 04	All other oil-type piston rings	8	50.9	10	8.2
	Compression-type:				
35922 05	For motor vehicle engines (passenger car, truck, and bus)	5	161.2	6	121.4
35922 06	All other compression-type piston rings	12	39.5	12	32.4
35922 09	Piston pins	4	76.0	(NA)	25.9
35922 00	Pistons, piston rings, and piston pins (engine), n.s.k.	(NA)			
35923	Valves (engine intake and exhaust)	(NA)	362.4	(NA)	403.1
35923 01	For motor vehicle engines (passenger car, truck, and bus)	8	292.4	9	377.6
35923 02	For other engines	13	70.0	7	21.4
35923 00	Valves (engine intake and exhaust), n.s.k.	(NA)	–	(NA)	4.2
35920	Carburetors, pistons, rings, and valves, n.s.k.	(NA)	51.5	(NA)	57.7
35920 00	Carburetors, pistons, rings, and valves, n.s.k.[2]	(NA)	29.3	(NA)	27.3
35920 02	Carburetors, pistons, rings, and valves, n.s.k.[3]	(NA)	22.2	(NA)	30.4
3593– —	**FLUID POWER CYLINDERS AND ACTUATORS**				
	Total	**(NA)**	**1 655.6**	**(NA)**	**1 706.4**
35934	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary	(NA)	561.5		
35934 00	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary [4]	105	561.5	(NA)	726.5
35935	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary	(NA)	309.8		
35935 00	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary [4]	74	309.8		
35932	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic	(NA)	437.4	(NA)	669.5
35932 00	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic	35	437.4	87	669.5
35939	Parts for hydraulic and pneumatic fluid power cylinders and actuators	(NA)	214.1	(NA)	293.6
35939 00	Parts for hydraulic and pneumatic fluid power cylinders and actuators [4]	85	214.1	144	293.6
35930	Fluid power cylinders and actuators, n.s.k.	(NA)	132.9	(NA)	16.8
35930 00	Fluid power cylinders and actuators, n.s.k.[5]	(NA)	70.1	(NA)	2.3
35930 02	Fluid power cylinders and actuators, n.s.k.[6]	(NA)	62.8	(NA)	14.5
3594– —	**FLUID POWER PUMPS, MOTORS, AND HYDROSTATIC TRANSMISSION COMPONENTS**				
	Total	**(NA)**	**1 419.0**	**(NA)**	**1 458.7**
35943	Nonaerospace-type reciprocating pumps	(NA)	244.0	(NA)	(NA)
35943 00	Nonaerospace-type reciprocating pumps [4]	40	244.0	(NA)	(NA)
35944	Nonaerospace-type rotary and other fluid power pumps	(NA)	398.3	(NA)	(NA)
35944 00	Nonaerospace-type rotary and other fluid power pumps [4]	47	398.3	(NA)	(NA)
35945	Nonaeropsace-type fluid power motors	(NA)	191.3	(NA)	(NA)
35945 00	Nonaerospace-type fluid power motors [4]	31	191.3	(NA)	(NA)
35946	Aerospace-type fluid power pumps and motors	(NA)	150.8	(NA)	(NA)
35946 00	Aerospace-type fluid power pumps and motors [4]	22	150.8	(NA)	(NA)
35949	Parts for fluid power pumps, motors, and hydrostatic transmissions	(NA)	331.3	(NA)	316.4
35949 00	Parts for fluid power pumps, motors, and hydrostatic transmissions [4]	65	331.3	(NA)	316.4
35940	Fluid power pumps, motors, and hydrostatic transmission components, n.s.k.	(NA)	103.5	(NA)	59.7
35940 00	Fluid power pumps, motors, and hydrostatic transmission components, n.s.k.[7]	(NA)	78.9	(NA)	15.3
35940 02	Fluid power pumps, motors, and hydrostatic transmission components, n.s.k.[8]	(NA)	24.6	(NA)	44.4

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3596– —	**SCALES AND BALANCES, EXCEPT LABORATORY**				
	Total	**(NA)**	**652.6**	**(NA)**	**592.5**
35961	Vehicle and industrial scales	(NA)	273.5	(NA)	250.3
35961 01	Motor truck scales	15	52.8	12	34.4
35961 03	Railroad track scales	5	3.4	5	4.3
	Industrial scales:				
35961 05	Bench and portable	11	27.1	10	40.2
35961 07	Floor scales, dormant, pitless	12	26.9	11	18.0
35961 09	Automatic checkweigher	5	34.0	(NA)	33.2
35961 11	Bulkweigher	6			
35961 13	Over-under (predetermined weight)	4	4.8	7	13.0
35961 15	Miscellaneous industrial scales (crane, suspension, tank, hopper, force measuring devices, bulk conveyor, etc.)	26	112.9	21	96.1
35961 17	Counting scales	8	9.9	6	9.7
35961 00	Vehicle and industrial scales, n.s.k.	(NA)	1.8	(NA)	1.4
35962	Retail, commercial, household, and mailing scales	(NA)	199.6	(NA)	192.9
	Retail and commercial scales:				
35962 01	Delicatessen	5	8.6	5	15.6
35962 03	Checkstand	2	(D)	4	7.9
35962 05	Automatic prepack	2	(D)	3	6.5
35962 07	Other	2	(D)	(NA)	(9)
35962 12	Household and person-weighing scales (including bathroom, coin-operated, free weighing, kitchen, and baby scales)[4]	9	97.4	(NA)	80.6
35962 14	Mailing and parcel post scales (including handheld scales)[4]	7	44.9	(NA)	56.6
35962 21	Balances with or without weights (of all sensitivities), except laboratory[4]	6	19.9	(NA)	925.7
35962 00	Retail, commercial, household, and mailing scales, n.s.k.	(NA)	–	(NA)	–
35963	Parts, attachments, and accessories for scales and balances	(NA)	144.3	(NA)	95.7
	Accessories and attachments (sold separately):				
35963 01	Printers	4	71.7	9	10.7
35963 03	Digital indicators	13		9	27.0
35963 05	Other	12	29.6	10	20.9
35963 09	Parts for scales and balances (sold for assembly elsewhere, repair, service, etc.)	19	42.9	19	36.7
35963 00	Parts, attachments, and accessories for scales and balances, n.s.k.	(NA)	.1	(NA)	.4
35960	Scales and balances, except laboratory, n.s.k.	(NA)	35.3	(NA)	53.6
35960 00	Scales and balances, except laboratory, n.s.k.[10]	(NA)	22.3	(NA)	24.8
35960 02	Scales and balances, except laboratory, n.s.k.[11]	(NA)	13.0	(NA)	28.8
3599– —	**MACHINERY, EXCEPT ELECTRICAL, N.E.C.**				
	Total	**(NA)**	**18 143.4**	**(NA)**	**12 788.1**
35994	Miscellaneous machinery products (including flexible metal hose and tubing, metal bellows, etc.)	(NA)	1 813.0	(NA)	1 803.7
	Flexible metal hose and tubing:				
35994 11	Copper and copper-base alloy	24	40.3	29	42.4
35994 13	Aluminum and aluminum-base alloy	28	32.9	77	54.7
35994 15	Stainless steel	61	111.2	85	103.7
35994 16	Other	31	37.7	80	76.5
35994 25	Metal bellows	31	98.2	30	92.8
35994 31	Carnival and amusement park equipment (ferris wheels, merry-go-rounds, etc.), excluding coin-operated amusement machines	14	49.0	13	32.7
35994 98	All other miscellaneous machinery products	571	1 272.0	1277	1 346.6
35994 00	Miscellaneous machinery products (including flexible metal hose and tubing, metal bellows, etc.), n.s.k.	(NA)	171.6	(NA)	r54.3
35995	Receipts for machine shop job work and job order repairs	(NA)	12 412.0	(NA)	6 704.5
35995 00	Receipts for machine shop job work and job order repairs	9 341	12 412.0	5146	6 704.5
35990	Machinery, except electrical, n.e.c., n.s.k.	(NA)	3 918.4	(NA)	4 279.8
35990 00	Machinery, except electrical, n.e.c., n.s.k.[10]	(NA)	2 533.4	(NA)	2 855.7
35990 02	Machinery, except electrical, n.e.c., n.s.k.[11]	(NA)	1 384.9	(NA)	1 424.1

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Typically for establishments with 20 employees or more.
[3]Typically for establishments with less than 20 employees.
[4]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[5]Typically for establishments with 15 employees or more.
[6]Typically for establishments with less than 15 employees.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]For 1987, products were combined to avoid disclosing data for individual companies.
[10]Typically for establishments with 5 employees or more.
[11]Typically for establishments with less than 5 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35921, CARBURETORS, NEW AND REBUILT (ALL TYPES)		
United States	**748.1**	**926.7**
California	33.3	50.3
Texas	3.4	(NA)
35922, PISTONS, PISTON RINGS, AND PISTON PINS (ENGINE)		
United States	**714.5**	**650.8**
California	10.4	5.4
Indiana	160.8	144.1
Michigan	78.4	107.0
Ohio	31.9	45.7
Texas	9.3	7.4
Wisconsin	136.3	(NA)
35923, VALVES (ENGINE INTAKE AND EXHAUST)		
United States	**362.4**	**403.1**
California	18.8	(NA)
Texas	5.6	(NA)
Wisconsin	15.6	(NA)
35932, AEROSPACE-TYPE FLUID POWER CYLINDERS AND ACTUATORS, HYDRAULIC AND PNEUMATIC		
United States	**437.4**	**669.5**
California	243.4	402.4
New York	146.7	239.9
35934, NONAEROSPACE-TYPE HYDRAULIC FLUID POWER CYLINDERS AND ACTUATORS, LINEAR AND ROTARY		
United States	**567.6**	**(NA)**
Alabama	17.7	(NA)
California	16.9	(NA)
Georgia	6.9	(NA)
Illinois	86.8	(NA)
Indiana	27.5	(NA)
Iowa	53.5	(NA)
Kansas	30.8	(NA)
Michigan	36.7	(NA)
Nebraska	17.1	(NA)
Ohio	90.2	(NA)
Oregon	14.7	(NA)
Pennsylvania	3.7	(NA)
Texas	38.9	(NA)
Wisconsin	49.5	(NA)
35935, NONAEROSPACE-TYPE PNEUMATIC FLUID POWER CYLINDERS AND ACTUATORS, LINEAR AND ROTARY		
United States	**309.8**	**(NA)**
Alabama	5.5	(NA)
Illinois	73.4	(NA)
Indiana	36.7	(NA)
Michigan	57.6	(NA)
New Jersey	11.7	(NA)
New York	19.3	(NA)
Ohio	30.0	(NA)
35939, PARTS FOR HYDRAULIC AND PNEUMATIC FLUID POWER CYLINDERS AND ACTUATORS		
United States	**208.2**	**293.6**
Alabama	2.2	(NA)
California	13.3	101.0
Connecticut	3.3	(NA)
Illinois	21.2	33.8
Indiana	25.2	15.8
Michigan	23.4	24.6
Minnesota	5.1	3.7
New York	33.7	32.3
Ohio	29.9	18.5
Oregon	5.0	(NA)
Texas	5.4	4.3
Wisconsin	16.4	23.0
35943, NONAEROSPACE-TYPE RECIPROCATING PUMPS		
United States	**244.0**	**(NA)**
Illinois	7.2	(NA)
35944, NONAEROSPACE-TYPE ROTARY AND OTHER FLUID POWER PUMPS		
United States	**398.3**	**(NA)**
Illinois	43.4	(NA)
Michigan	36.3	(NA)
North Carolina	29.1	(NA)
South Carolina	16.7	(NA)
Wisconsin	26.1	(NA)
35945, NONAEROPSACE-TYPE FLUID POWER MOTORS		
United States	**191.3**	**(NA)**
Wisconsin	2.6	(NA)
35946, AEROSPACE-TYPE FLUID POWER PUMPS AND MOTORS		
United States	**150.8**	**(NA)**
Ohio	6.1	(NA)
35949, PARTS FOR FLUID POWER PUMPS, MOTORS, AND HYDROSTATIC TRANSMISSIONS		
United States	**331.3**	**316.4**
California	32.9	36.6
Illinois	47.1	47.5
Iowa	35.0	(NA)
Michigan	5.9	6.9
Minnesota	3.7	(NA)
South Carolina	14.0	(NA)
Wisconsin	7.2	11.6
35961, VEHICLE AND INDUSTRIAL SCALES		
United States	**273.5**	**250.3**
Alabama	2.8	(NA)
California	25.9	37.5
New Jersey	49.4	(NA)
Washington	19.1	15.7
35962, RETAIL, COMMERCIAL, HOUSEHOLD, AND MAILING SCALES		
United States	**199.6**	**192.9**
California	27.6	45.6
35963, PARTS, ATTACHMENTS, AND ACCESSORIES FOR SCALES AND BALANCES		
United States	**144.3**	**95.7**
California	24.9	20.0
Washington	2.0	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3592-	**Carburetors, pistons, rings, and valves**	**1 876.5**	**1 702.2**	**1 838.9**	**1 994.4**	**2 104.5**	**2 038.3**	**1 908.1**	**1 298.5**
35921	Carburetors, new and rebuilt (all types)	748.1	614.9	706.1	763.2	856.3	926.7	1 028.7	642.0
35922	Pistons, piston rings, and piston pins (engine)	714.5	642.3	654.3	711.6	716.6	650.8	494.2	372.2
35923	Valves (engine intake and exhaust)	362.4	404.5	437.9	465.6	479.7	403.1	325.1	257.5
35920	Carburetors, pistons, rings, and valves, n.s.k.	51.5	40.6	40.6	54.0	51.8	57.7	60.1	26.9
3593-	**Fluid power cylinders and actuators**	**1 655.6**	**1 683.6**	**1 902.7**	**1 921.4**	**1 896.4**	**1 706.4**	**(NA)**	**(NA)**
35932	Aerospace-type fluid power cylinders and actuators, hydraulic and pneumatic	437.4	515.6	567.9	580.6	592.7	669.5	310.1	456.1
35934	Nonaerospace-type hydraulic fluid power cylinders and actuators, linear and rotary	561.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35935	Nonaerospace-type pneumatic fluid power cylinders and actuators, linear and rotary	309.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35939	Parts for hydraulic and pneumatic fluid power cylinders and actuators	214.1	208.9	267.7	310.8	286.4	293.6	144.9	456.1
35930	Fluid power cylinders and actuators, n.s.k.	132.9	36.2	36.3	30.1	(S)	16.8	(NA)	(NA)
3594-	**Fluid power pumps, motors, and hydrostatic transmission components**	**1 419.0**	**1 754.3**	**1 815.1**	**1 792.7**	**1 724.7**	**1 458.7**	**(NA)**	**(NA)**
35943	Nonaerospace-type reciprocating pumps	244.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35944	Nonaerospace-type rotary and other fluid power pumps	398.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35945	Nonaeropsace-type fluid power motors	191.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35946	Aerospace-type fluid power pumps and motors	150.8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35949	Parts for fluid power pumps, motors, and hydrostatic transmissions	331.3	313.9	339.8	377.7	382.0	316.4	(NA)	(NA)
35940	Fluid power pumps, motors, and hydrostatic transmission components, n.s.k.	103.5	88.6	89.7	77.2	64.5	59.7	(NA)	(NA)
3596-	**Scales and balances, except laboratory**	**652.6**	**648.9**	**638.4**	**611.5**	**663.2**	**592.5**	**545.2**	**328.9**
35961	Vehicle and industrial scales	273.5	243.8	262.7	248.9	286.3	250.3	207.2	159.1
35962	Retail, commercial, household, and mailing scales	199.6	221.6	194.9	190.8	218.5	192.9	223.3	108.9
35963	Parts, attachments, and accessories for scales and balances	144.3	113.0	111.8	107.3	101.7	95.7	84.9	44.4
35960	Scales and balances, except laboratory, n.s.k.	35.3	70.4	68.9	64.6	56.7	53.6	29.8	16.5
3599-	**Machinery, except electrical, n.e.c.**	**18 143.4**	**15 646.3**	**15 833.3**	**15 189.1**	**14 245.9**	**12 788.1**	**[2]10 602.0**	**[2]15 984.9**
35994	Miscellaneous machinery products (including flexible metal hose and tubing, metal bellows, etc.)	1 813.0	2 297.4	2 442.9	2 217.4	1 939.9	1 803.7	1 582.4	676.9
35995	Receipts for machine shop job work and job order repairs	12 412.0	8 246.8	8 174.7	7 911.4	7 581.3	6 704.5	5 594.5	3 338.1
35990	Machinery, except electrical, n.e.c., n.s.k.	3 918.4	5 102.1	5 215.7	5 060.3	4 724.7	4 279.8	[2]3 425.1	[2]1 969.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

[2]Data include an insignificant amount of fluid power cylinders and actuators (3593) and may not be directly comparable to1987 data.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3592, CARBURETORS, PISTONS, RINGS, AND VALVES		
	Materials, ingredients, containers, and supplies	**907.6**	**1 023.7**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and other screw machine products	38.0	64.6
340098	Other fabricated metal products	49.1	(NA)
346000	Forgings	(D)	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	68.2	39.7
336005	Aluminum and aluminum-base alloy	157.6	202.7
336003	Other nonferrous	4.3	(D)
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	65.6	(NA)
331022	Sheet and strip	41.1	(NA)
331034	Other steel shapes and forms	(D)	(NA)
335004	Copper and copper-base alloy	(D)	(D)
335010	Aluminum and aluminum-base alloy	45.7	29.6
335099	Other nonferrous shapes and forms	4.1	2.9
265001	Paperboard containers, boxes, and corrugated paperboard	36.6	(NA)
190003	Flexible packaging materials	.4	(NA)
308004	Fabricated plastics products, except gaskets, hoses, and belting	(D)	(NA)
305302	Gaskets (all types), and packing and sealing devices	8.5	11.3
970099	All other materials and components, parts, containers, and supplies	294.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	36.4	70.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3593, FLUID POWER CYLINDERS AND ACTUATORS		
	Materials, ingredients, containers, and supplies	**526.7**	**492.5**
359429	Fluid power pumps purchased for incorporation into products of this establishment	22.7	(NA)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	34.1	26.8
349402	Pipe, valves, and pipe fittings	9.4	(NA)
340086	Other fabricated metal products	37.4	(NA)
346000	Forgings	3.0	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	27.9	20.3
336005	Aluminum and aluminum-base alloy	22.7	8.1
336003	Other nonferrous	5.6	.7
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	83.2	(NA)
331022	Sheet and strip	3.1	11.8
331068	Tubing	45.5	(NA)
331067	All other steel shapes and forms	44.6	(NA)
	Aluminum and aluminum-base alloy:		
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	11.8	11.8
335007	Other aluminum and aluminum-base alloy shapes and forms	10.8	7.3
335091	Other nonferrous	3.2	(NA)
339915	Metal powders	.3	(NA)
290003	Lubricating and cutting oils	3.1	(NA)
285101	Paint, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	1.5	(NA)
362112	Electric motors and generators	4.0	(NA)
	Bearings, including mounted or unmounted:		
356218	Ball bearings	1.1	(NA)
356201	Roller bearings	.8	(NA)
356810	Plain bearings and bushings	2.2	(NA)
356601	Speed changers, gears, and industrial high-speed drives	.2	(NA)
305302	Gaskets (all types), and packing and sealing devices	12.3	(NA)
354501	Cutting tools for machine tools	10.9	(NA)
970099	All other materials and components, parts, containers, and supplies	76.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	49.1	54.0
	INDUSTRY 3594, FLUID POWER PUMPS AND MOTORS		
	Materials, ingredients, containers, and supplies	**501.5**	**500.7**
359429	Fluid power pumps purchased for incorporation into products of this establishment	9.7	28.2
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	38.0	18.2
349402	Pipe, valves, and pipe fittings	6.5	7.4
340086	Other fabricated metal products	46.6	(NA)
346000	Forgings	9.7	6.1
	Castings (rough and semifinished):		
332001	Iron and steel	51.6	40.2
336005	Aluminum and aluminum-base alloy	14.1	17.3
336003	Other nonferrous	1.8	(D)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	19.1	(NA)
331022	Sheet and strip	6.6	(NA)
331068	Tubing		(NA)
331067	All other steel shapes and forms	8.2	(NA)
	Aluminum and aluminum-base alloy:		
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	1.2	6.2
335007	Other aluminum and aluminum-base alloy shapes and forms	3.4	.3
335091	Other nonferrous	7.2	1.3
339915	Metal powders	8.4	6.7
290003	Lubricating and cutting oils	4.7	(NA)
285101	Paint, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	1.3	(NA)
362112	Electric motors and generators	25.1	(D)
	Bearings, including mounted or unmounted:		
356218	Ball bearings	5.3	7.2
356201	Roller bearings	13.0	14.4
356810	Plain bearings and bushings	3.4	4.7
356601	Speed changers, gears, and industrial high-speed drives	12.2	5.3
305302	Gaskets (all types), and packing and sealing devices	8.3	1.7
354501	Cutting tools for machine tools	11.0	14.9
970099	All other materials and components, parts, containers, and supplies	120.4	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	64.5	103.5
	INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY		
	Materials, ingredients, containers, and supplies	**269.9**	**241.1**
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	12.9	3.3
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	6.3	2.3
340094	All other fabricated metal products	19.7	(NA)
346000	Forgings	.1	(NA)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3596, SCALES AND BALANCES, EXCEPT LABORATORY—Con.		
	Castings (rough and semifinished):		
332001	Iron and steel	7.6	1.7
336010	Nonferrous	3.9	2.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	13.4	(NA)
331023	Structural shapes and sheet piling	4.4	(NA)
331089	All other	4.6	(NA)
336002	Nonferrous shapes and forms		(D)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	27.6	8.8
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components	31.4	17.7
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	5.8	4.9
360101	Electrical transmission, distribution, and control equipment	7.9	5.1
265001	Paperboard containers, boxes, and corrugated paperboard	4.9	1.8
308006	Fabricated plastics products, except gaskets, hose, and belting	3.8	3.7
970099	All other materials and components, parts, containers, and supplies	97.4	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	18.3	77.0
	INDUSTRY 3599, INDUSTRIAL MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**4 802.4**	**3 338.9**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	79.2	29.0
340099	Other fabricated metal products	159.3	(NA)
346000	Forgings	66.3	(NA)
	Castings (rough and semifinished):		
332001	Iron and steel	312.6	130.8
336005	Aluminum and aluminum-base alloy	180.5	158.2
336003	Other nonferrous	51.9	39.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	394.2	(NA)
331022	Sheet and strip	127.4	(NA)
331023	Structural shapes and sheet piling	27.5	(NA)
331091	All other steel shapes and forms	55.2	(NA)
	Copper and copper-base alloy:		
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	24.0	14.6
335160	All other copper and copper-based alloy, except rod, bar, and mechanical wire		20.2
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	80.5	44.4
335011	All other (except sheet, plate, foil, and welded tubing)	81.1	45.7
335099	Other nonferrous shapes and forms	40.1	4.9
354501	Cutting tools for machine tools	91.4	(NA)
190090	Fluid power products	76.5	(NA)
970099	All other materials and components, parts, containers, and supplies	714.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[1]	2 239.8	2 105.4

[1]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
35451 15	35451 16
35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
35464 15	35461 05
35464 15	35461 07
35464 15	35461 09
35464 19	35461 12
35464 19	35461 15
35464 19	35461 16
35464 19	35461 17
35464 19	35461 18
35464 19	35461 19
35464 19	35461 21
35464 19	35461 22
35464 19	35461 23
35464 19	35461 25
35464 19	35461 26
35464 19	35461 28
35464 19	35461 29
35464 19	35461 31
35464 19	35461 32
35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
35465 25	35461 25
35465 27	35461 26
35465 28	35461 28
35465 29	35461 29
35465 31	35461 31
35465 33	35461 33
35465 36	35461 36
35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
35562 89	35562 91
35563 19	35563 01
35563 19	35563 02
35563 19	35563 03
35563 19	35563 06
35563 19	35563 07
35563 19	35563 08
35563 19	35563 09
35563 19	35563 14
35563 19	35563 15
35592 04	35592 03
35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
35594 16	35594 09
35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
35594 25	35594 19
35594 25	35594 21

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
35598 53	35599 53
35598 55	35599 55
35598 58	35599 57
35598 58	35599 59
35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
35455 83	35455 79
35455 91	35455 77
35455 92	35455 77
35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
35461 05	35464 09
35461 05	35464 15
35461 05	35465 05
35461 07	35464 09
35461 07	35464 15
35461 07	35465 07
35461 09	35464 09
35461 09	35464 15
35461 09	35465 09
35461 12	35464 19
35461 12	35465 12
35461 15	35464 19
35461 15	35465 15
35461 16	35464 19
35461 16	35465 16
35461 17	35464 19
35461 17	35465 17
35461 18	35464 19
35461 18	35465 11
35461 18	35465 14
35461 19	35464 19
35461 19	35465 13
35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
35461 23	35464 19
35461 23	35465 23
35461 25	35464 19
35461 25	35465 25
35461 26	35464 19
35461 26	35465 24
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35461 28	35464 19
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35461 29	35464 19
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35461 31	35464 19
35461 31	35465 31
35461 32	35464 19
35461 32	35465 41
35461 32	35465 43
35461 33	35464 19
35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
35563 15	35563 19
35592 03	35592 04
35592 05	35592 04
35592 09	35592 15
35593 27	35593 41
35593 28	35593 41
35593 29	35593 41
35594 09	35594 16
35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
35599 22	35598 22
35599 25	35598 25
35599 27	35598 27
35599 29	35598 29
35599 31	35598 31
35599 33	35598 36
35599 35	35598 35
35599 37	35598 36
35599 39	35598 39
35599 41	35598 41
35599 43	35598 43
35599 45	35598 45
35599 47	35598 48
35599 49	35598 48
35599 51	35598 51
35599 53	35598 53
35599 55	35598 55
35599 57	35598 58
35599 59	35598 58
35599 61	35598 61
35599 63	35598 63
35599 65	35598 65
35599 67	35598 67
35599 69	35598 69
35599 71	35598 71
35599 73	35598 74
35599 75	35598 74
35599 77	35598 78
35599 79	35598 78
35599 80	35598 98
35599 81	35598 98
35599 82	35598 84
35599 83	35598 98
35599 85	35598 84
35599 85	35598 98
35599 86	35595 01
35599 86	35595 03
35599 86	35595 05
35599 87	35595 09
35599 88	35598 88
35599 89	35598 89
35599 90	35598 90
35599 92	35598 98
35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
35651 08	35651 28
35651 09	35651 31
35651 11	35651 33
35651 12	35651 35
35651 13	35651 35
35651 14	35651 33

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
35651 15	35651 23
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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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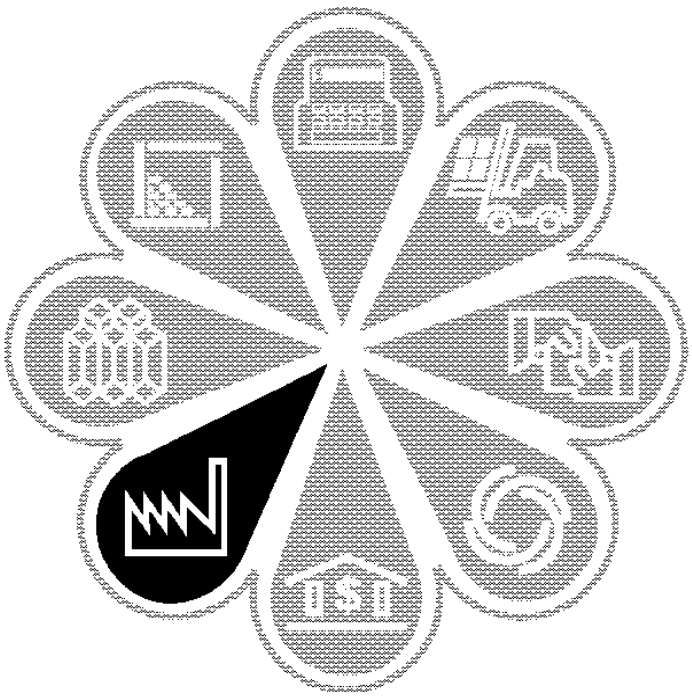
1992 Census of Manufactures

MC92-I-36A

INDUSTRY SERIES

Electrical Transmission and Distribution Equipment and Electrical Industrial Apparatus

Industries 3612, 3613, 3621, 3624, 3625, and 3629



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-36A

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	title
3612	Transformers, Except Electronic
3613	Switchgear and Switchboard Apparatus
3621	Motors and Generators
3624	Carbon and Graphite Products
3625	Relays and Industrial Controls
3629	Electrical Industrial Apparatus, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC

This industry is made up of establishments primarily engaged in manufacturing power, distribution, instrument, and specialty transformers. Establishments primarily engaged in manufacturing radio frequency or voice frequency electronic transformers, coils, or chokes are classified in industry 3677, and those manufacturing resistance welder transformers are classified in industry 3548. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-36C, Fluorescent Lamp Ballasts. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3612, Transformers, Except Electronic, had employment of 28.9 thousand. The employment figure was 10 percent below the 32.2 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Mississippi, North Carolina, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3613 shipped $3.9 billion of transformers, except electronic products considered primary to the industry, $75.1 million of secondary products, and had $105.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

The products primary to industry 3612, no matter in what industry they were produced, appear in table 6a and aggregate to $4.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the transformers, except electronic, industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS

This industry is made up of establishments primarily engaged in manufacturing switchgear and switchboard apparatus. Important products of this industry include power switches, circuit breakers, power switching equipment, and similar switchgear for general industrial applications; switchboards and cubicles, control and metering panels, fuses and fuse mountings, and similar switchboard apparatus and supplies. Establishments primarily engaged in manufacturing relays are classified in industry 3625. Establishments manufacturing switches other than switchgear type are classified in industry 3625 if the switches are of the type used as industrial controls, in industry 3679 if the switches are of the type used in electronic devices, and in industry 3643 if the switches are of other types used in wiring circuits. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36A, Switchgear, Switchboard Apparatus, Relays, and Industrial Controls. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3613, Switchgear and Switchboard Apparatus, had employment of 39.5 thousand. The employment figure was 12 percent below the 44.8 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Ohio, North Carolina, and Pennsylvania, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Illinois, California, Pennsylvania, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $5.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3613 shipped $4.9 billion of switchgear and switchboard apparatus considered primary to the industry, $317.3 million of secondary products, and had $276.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3613, no matter in what industry they were produced, appear in table 6a and aggregate to $5.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the switchgear and switchboard apparatus industry amounted to $2.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3621, MOTORS AND GENERATORS

This industry is made up of establishments primarily engaged in manufacturing electric motors (except engine starting motors) and power generators; motor generator sets; railway motors and control equipment; and motors, generators, and control equipment for gasoline, electric, and oil-electric buses and trucks. Establishments primarily engaged in manufacturing turbogenerators are classified in industry 3511; those manufacturing starting motors and battery charging generators for internal combustion engines are classified in industry 3694; and those manufacturing generators for welding equipment are classified in industry 3548. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36H, Motors and Generators. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3621, Motors and Generators, had employment of 67.9 thousand. The employment figure was 9 percent below the 74.6 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, Missouri, Arkansas, and Ohio, accounting for approximately 34 percent of the industry's employment. This represents a shift from 1987 when Ohio, Arkansas, Wisconsin, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $8.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3621 shipped $7.5 billion of motors and generators considered primary to the industry, $331.6 million of secondary products, and had $240.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3621, no matter in what industry they were produced, appear in table 6a and aggregate to $8.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the motors and generators industry amounted to $3.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing carbon, graphite, and metal-graphite brushes and brush stock; carbon or graphite electrodes for thermal and electrolytic uses; carbon and graphite fibers; and other carbon, graphite, and metal-graphite products.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3624, Carbon and Graphite Products, had employment of 9.6 thousand. The employment figure was 2 percent below the 9.8 thousand reported in 1987.

The leading States in employment in 1992 were North Carolina, Pennsylvania, South Carolina, and Ohio. This represents a shift from 1987 when New York, North Carolina, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3624 shipped $1.2 billion of carbon and graphite products considered primary to the industry, $59.6 million of secondary products, and had $48.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3624, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the carbon and graphite products industry amounted to $561.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS

This industry is made up of establishments primarily engaged in manufacturing relays; motor starters and controllers; and other industrial controls and control accessories. Establishments primarily engaged in manufacturing automatic temperature controls are classified in industry 3822, and those manufacturing industrial process control instruments are classified in industry 3823. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36A, Switchgear, Switchboard Apparatus, Relays, and Industrial Controls. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3625, Relays and Industrial Controls, had employment of 61.6 thousand. The employment figure was 8 percent below the 66.6 thousand reported in 1987.

The leading States in employment in 1992 were Wisconsin, California, Ohio, and North Carolina, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when Wisconsin, California, Ohio, and Pennsylvania accounted for approximately 36 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $7.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3625 shipped $6.4 billion of relays and industrial controls products considered primary to the industry, $410.5 million of secondary products, and had $731.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 90 percent.

The products primary to industry 3625, no matter in what industry they were produced, appear in table 6a and aggregate to $7.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the relays and industrial controls products industry amounted to $3.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing industrial and commercial electric apparatus and equipment, not elsewhere classified, such as fixed and variable capacitors and rectifiers for industrial applications. Establishments primarily engaged in manufacturing electronic capacitors and rectifiers are classified in industry group 367.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3629, Electrical Industrial Apparatus, N.E.C., had employment of 17.6 thousand. The employment figure was 21 percent above the 14.5 thousand reported in 1987. Compared with 1991, employment increased 28 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Ohio, and Massachusetts, accounting for approximately 41 percent of the industry's employment. This represents a shift from 1987 when California, Indiana, New York, and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3629 shipped $1.7 billion of electrical industrial apparatus, not elsewhere classified, considered primary to the industry, $178.4 million of secondary products, and had $133.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3629, no matter in what industry they were produced, appear in table 6a and aggregate to $1.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electrical industrial apparatus, not elsewhere classified, industry amounted to $951.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC															
1992 Census	223	276	146	28.9	777.1	21.9	43.7	508.8	2 010.1	2 052.7	4 096.3	85.1	515.4	98	97
1991 ASM	(NA)	(NA)	(NA)	30.6	772.8	23.2	45.6	509.4	1 855.0	2 124.1	3 995.2	114.6	525.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	32.8	816.9	24.8	49.2	535.8	1 892.3	2 239.4	4 177.8	109.0	575.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	33.5	774.8	25.8	50.3	510.9	1 844.0	2 094.4	3 933.5	78.0	601.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	32.9	753.3	25.1	49.6	501.7	1 798.9	1 928.9	3 669.9	66.8	580.4	(NA)	(NA)
1987 Census	239	286	154	32.2	720.4	24.4	46.7	470.5	1 615.4	1 656.4	3 289.5	66.0	479.2	95	98
1986 ASM	(NA)	(NA)	(NA)	34.3	746.7	25.9	49.4	494.6	1 591.8	1 674.8	3 298.4	66.2	519.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	35.3	752.1	26.6	49.5	492.5	1 558.4	1 721.4	3 288.5	79.1	541.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	37.1	761.4	28.3	52.7	501.8	1 534.1	1 686.1	3 170.3	82.8	571.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	36.6	708.0	27.1	49.8	456.6	1 397.3	1 425.3	2 867.0	63.2	500.8	(NA)	(NA)
1982 Census	240	293	162	39.0	732.1	28.5	51.3	461.0	1 439.1	1 421.8	2 916.0	76.5	537.2	94	96
1981 ASM	(NA)	(NA)	(NA)	45.9	771.7	34.4	65.5	502.1	1 578.1	1 665.7	3 208.8	80.5	513.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	44.9	705.2	33.7	65.7	468.4	1 440.6	1 500.5	2 957.4	83.6	456.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.6	649.1	35.9	68.0	437.8	1 414.6	1 351.3	2 728.7	72.6	470.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	44.6	596.0	34.0	63.9	395.6	1 280.7	1 193.7	2 451.6	63.0	419.6	(NA)	(NA)
1977 Census	229	279	143	43.3	529.6	32.8	62.5	349.8	1 162.7	1 061.8	2 201.8	67.2	385.8	95	97
INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS															
1992 Census	441	533	241	39.5	1 167.0	26.3	52.8	641.3	3 277.7	2 240.6	5 527.7	118.4	737.3	94	93
1991 ASM	(NA)	(NA)	(NA)	39.4	1 100.4	26.2	51.3	590.9	3 084.2	2 137.7	5 280.6	114.5	668.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	42.3	1 128.8	28.2	55.2	613.5	3 314.4	2 224.7	5 550.8	110.9	761.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	43.6	1 162.4	29.7	57.6	651.9	3 315.9	2 147.0	5 466.8	118.9	792.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	44.3	1 114.9	29.3	57.4	634.3	3 232.1	2 268.5	5 427.3	119.2	873.6	(NA)	(NA)
1987 Census	371	474	256	44.8	1 070.5	29.8	58.1	605.8	2 888.7	1 969.0	4 907.3	120.5	755.1	92	93
INDUSTRY 3621, MOTORS AND GENERATORS															
1992 Census	370	470	274	67.9	1 764.6	52.0	104.1	1 169.0	4 244.3	3 812.9	8 039.7	242.0	1 152.1	96	88
1991 ASM	(NA)	(NA)	(NA)	69.7	1 741.8	51.9	103.5	1 135.8	4 037.2	3 683.6	7 673.8	238.1	1 221.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	72.6	1 751.1	55.1	108.5	1 152.5	4 005.3	3 634.5	7 672.2	238.8	1 231.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	76.3	1 815.3	58.5	116.8	1 209.1	4 271.8	3 802.5	8 072.8	215.5	1 243.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	75.7	1 785.8	58.0	115.0	1 191.1	4 182.5	3 504.1	7 601.4	205.2	1 256.4	(NA)	(NA)
1987 Census	349	462	302	74.6	1 663.5	56.5	110.2	1 099.7	3 815.2	2 962.9	6 753.1	201.6	1 130.7	95	89
1986 ASM	(NA)	(NA)	(NA)	75.6	1 681.7	55.5	108.1	1 081.9	3 623.4	2 921.1	6 608.1	232.7	1 138.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	77.6	1 648.9	57.8	112.1	1 098.4	3 668.1	2 888.7	6 583.6	262.5	1 183.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	84.2	1 743.5	63.3	124.5	1 148.0	3 929.3	2 915.7	6 760.5	244.9	1 254.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	80.4	1 555.0	60.1	114.4	1 003.8	3 372.5	2 647.7	6 002.0	204.6	1 145.6	(NA)	(NA)
1982 Census	349	472	325	84.2	1 546.4	61.0	114.4	984.2	3 435.8	2 526.4	6 060.1	275.4	1 087.9	94	81
1981 ASM	(NA)	(NA)	(NA)	93.4	1 608.5	70.3	137.0	1 089.3	3 634.7	2 747.4	6 316.4	235.8	1 049.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	94.1	1 478.9	69.6	136.6	987.9	3 119.1	2 503.3	5 648.2	183.2	984.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	107.1	1 512.1	81.7	161.1	1 036.8	3 279.7	2 552.4	5 728.3	176.9	1 035.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	106.1	1 370.3	82.0	160.2	941.5	2 963.4	2 281.6	5 185.5	176.7	896.6	(NA)	(NA)
1977 Census	340	446	298	96.9	1 176.7	74.1	149.7	802.1	2 609.9	1 915.9	4 458.7	160.9	770.3	92	80
INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS															
1992 Census	86	110	67	9.6	286.6	7.0	14.4	185.0	724.2	561.2	1 276.4	43.6	351.2	95	99
1991 ASM	(NA)	(NA)	(NA)	8.4	279.9	6.0	13.0	177.8	684.8	585.9	1 266.9	66.0	343.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.6	271.9	6.3	13.5	180.1	586.8	559.3	1 166.9	110.9	335.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.0	278.5	7.1	15.0	185.3	579.5	657.4	1 253.5	82.8	365.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.3	278.8	7.4	16.1	183.8	618.7	662.2	1 303.2	62.4	354.8	(NA)	(NA)
1987 Census	77	95	64	9.8	262.7	7.0	14.8	165.9	604.4	613.1	1 224.5	47.3	383.3	96	91
1986 ASM	(NA)	(NA)	(NA)	9.3	240.3	6.6	13.5	152.0	508.9	587.7	1 136.3	38.5	360.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.2	260.8	7.3	15.2	168.5	379.4	633.8	1 120.6	52.3	406.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.4	276.5	8.3	17.2	182.0	584.6	655.9	1 222.8	68.9	520.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.8	246.1	7.5	15.2	151.4	476.9	446.9	994.6	125.0	504.4	(NA)	(NA)
1982 Census	70	90	59	12.0	258.2	8.4	16.6	164.8	550.1	463.3	971.4	151.8	600.1	95	93
1981 ASM	(NA)	(NA)	(NA)	13.0	256.8	9.6	19.2	171.2	799.3	717.1	1 360.6	144.8	484.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.3	241.9	9.7	19.4	166.0	661.0	544.5	1 183.3	86.4	291.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.3	223.8	10.0	20.2	157.8	644.2	524.5	1 145.2	43.1	259.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.5	183.3	9.5	18.8	128.7	499.1	393.7	890.6	33.5	222.5	(NA)	(NA)
1977 Census	58	74	48	12.1	164.1	9.0	17.7	110.9	408.4	337.5	735.2	35.4	215.9	94	93
INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS															
1992 Census	1 168	1 242	448	61.6	1 846.1	35.2	66.7	730.7	4 548.6	3 025.8	7 573.1	218.5	1 363.3	94	90
1991 ASM	(NA)	(NA)	(NA)	61.2	1 798.7	35.3	72.3	749.7	4 289.2	3 072.8	7 378.6	196.4	1 406.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	66.0	1 818.6	38.9	76.5	769.6	4 688.4	3 149.5	7 854.2	221.2	1 487.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	65.1	1 694.5	39.4	73.7	738.1	4 322.1	2 931.8	7 222.2	213.9	1 421.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	65.8	1 656.7	38.4	73.2	715.5	4 173.5	2 499.3	6 652.1	167.9	1 320.9	(NA)	(NA)
1987 Census	1 101	1 168	439	66.6	1 630.7	37.6	72.7	697.3	3 781.2	2 292.7	6 100.5	165.5	1 277.6	94	90
INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.															
1992 Census	342	355	151	17.6	473.5	11.7	22.9	218.8	1 096.9	951.5	2 039.3	65.3	371.3	91	91
1991 ASM	(NA)	(NA)	(NA)	13.8	345.7	8.7	17.6	165.8	812.4	619.1	1 434.8	25.0	265.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.6	365.6	8.9	18.2	169.9	846.3	622.6	1 465.4	19.7	276.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.5	351.8	9.1	17.5	162.5	831.2	570.4	1 406.5	22.1	281.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.3	327.4	9.1	18.0	164.7	749.4	533.8	1 262.2	24.2	279.6	(NA)	(NA)
1987 Census	472	481	106	14.5	325.1	8.9	17.7	159.8	698.4	483.8	1 188.2	31.9	261.6	88	87
1986 ASM	(NA)	(NA)	(NA)	16.0	355.2	10.6	20.0	185.0	762.5	564.8	1 327.6	29.4	273.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.7	362.3	11.3	21.9	189.8	767.1	585.9	1 353.4	31.5	277.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	17.2	342.6	11.3	21.8	189.4	765.1	573.3	1 318.0	33.0	244.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.9	257.6	9.7	18.8	142.8	641.0	465.8	1 112.8	35.2	189.6	(NA)	(NA)
1982 Census	309	323	120	16.3	280.4	11.3	21.5	154.5	644.7	456.3	1 111.3	29.3	230.9	87	92
1981 ASM	(NA)	(NA)	(NA)	16.8	282.6	12.1	24.6	157.4	653.6	536.5	1 179.9	38.3	234.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.1	265.0	12.8	25.3	154.4	621.9	470.1	1 083.0	43.1	210.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.6	253.9	14.5	27.7	156.7	580.8	418.7	982.7	30.4	201.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.7	232.7	14.8	28.2	145.1	496.9	367.3	851.5	24.4	167.9	(NA)	(NA)

See footnotes at end of table.

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TSF:36A_92.DAT;1 6/ 5/ 95 19:44:11 UTF:36A_93.DAT;1 6/ 5/ 95 19:44:11 META:TIPS96-19440585.DAT;1 6/ 5/ 95 19:45:07

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.—Con.														
1977 Census	214	223	102	16.5	188.6	12.2	23.4	113.4	411.0	294.0	692.4	16.8	140.0	87	81

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC								
1992 Census	26 889	76	1 995	11.64	50	69	69 554	39	46.00
1991 ASM	25 255	76	1 966	11.17	53	73	60 621	42	40.68
1990 ASM	24 905	76	1 984	10.89	54	73	57 692	43	38.46
1989 ASM	23 128	77	1 950	10.16	53	73	55 045	42	36.66
1988 ASM	22 897	76	1 976	10.11	53	73	54 678	42	36.27
1987 Census	22 373	76	1 914	10.07	50	72	50 168	45	34.59
1986 ASM	21 770	76	1 907	10.01	51	73	46 408	47	32.22
1985 ASM	21 306	75	1 861	9.95	52	75	44 147	48	31.48
1984 ASM	20 523	76	1 862	9.52	53	77	41 350	50	29.11
1983 ASM	19 344	74	1 838	9.17	50	74	38 178	51	28.06
1982 Census	18 772	73	1 800	8.99	49	74	36 900	51	28.05
1981 ASM	16 813	75	1 904	7.67	52	76	34 381	49	24.09
1980 ASM	15 706	75	1 950	7.13	51	75	32 085	49	21.93
1979 ASM	13 929	77	1 894	6.44	50	73	30 356	46	20.80
1978 ASM	13 363	76	1 879	6.19	49	73	28 715	47	20.04
1977 Census	12 231	76	1 905	5.60	48	72	26 852	46	18.60
	INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS								
1992 Census	29 544	67	2 008	12.15	41	62	82 980	36	62.08
1991 ASM	27 929	66	1 958	11.52	40	61	78 279	36	60.12
1990 ASM	26 686	67	1 957	11.11	40	60	78 355	34	60.04
1989 ASM	26 661	68	1 939	11.32	39	61	76 053	35	57.57
1988 ASM	25 167	66	1 959	11.05	42	62	72 959	34	56.31
1987 Census	23 895	67	1 950	10.43	40	62	64 480	37	49.72
	INDUSTRY 3621, MOTORS AND GENERATORS								
1992 Census	25 988	77	2 002	11.23	47	69	62 508	42	40.77
1991 ASM	24 990	74	1 994	10.97	48	71	57 923	43	39.01
1990 ASM	24 120	76	1 969	10.62	47	70	55 169	44	36.92
1989 ASM	23 792	77	1 997	10.35	47	70	55 987	42	36.57
1988 ASM	23 590	77	1 983	10.36	46	70	55 251	43	36.37
1987 Census	22 299	76	1 950	9.98	44	69	51 142	44	34.62
1986 ASM	22 245	73	1 948	10.01	44	70	47 929	46	33.52
1985 ASM	21 249	74	1 939	9.80	44	69	47 269	45	32.72
1984 ASM	20 707	75	1 967	9.22	43	69	46 666	44	31.56
1983 ASM	19 341	75	1 903	8.77	44	70	41 947	46	29.48
1982 Census	18 366	72	1 875	8.60	42	67	40 805	45	30.03
1981 ASM	17 222	75	1 949	7.95	43	69	38 915	44	26.53
1980 ASM	15 716	74	1 963	7.23	44	71	33 147	47	22.83
1979 ASM	14 119	76	1 972	6.44	45	71	30 623	46	20.36
1978 ASM	12 915	77	1 954	5.88	44	70	27 930	46	18.50
1977 Census	12 143	76	2 020	5.36	43	69	26 934	45	17.43

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS								
1992 Census	29 854	73	2 057	12.85	44	66	75 438	40	50.29
1991 ASM	33 321	71	2 167	13.68	46	68	81 524	41	52.68
1990 ASM	31 616	73	2 143	13.34	48	71	68 233	46	43.47
1989 ASM	27 850	71	2 113	12.35	52	75	57 950	48	38.63
1988 ASM	27 068	72	2 176	11.42	51	72	60 068	45	38.43
1987 Census	26 806	71	2 114	11.21	50	72	61 673	43	40.84
1986 ASM	25 839	71	2 045	11.26	52	73	54 720	47	37.70
1985 ASM	25 569	72	2 082	11.09	57	80	37 196	69	24.96
1984 ASM	24 254	73	2 072	10.58	54	76	51 281	47	33.99
1983 ASM	22 787	69	2 027	9.96	45	70	44 157	52	31.38
1982 Census	21 517	70	1 976	9.93	48	74	45 842	47	33.14
1981 ASM	19 754	74	2 000	8.92	53	72	61 485	32	41.63
1980 ASM	18 188	73	2 000	8.56	46	66	49 699	37	34.07
1979 ASM	16 827	75	2 020	7.81	46	65	48 436	35	31.89
1978 ASM	14 664	76	1 979	6.85	44	65	39 928	37	26.55
1977 Census	13 562	74	1 967	6.27	46	68	33 752	40	23.07
	INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS								
1992 Census	29 969	57	1 895	10.96	40	64	73 841	41	68.19
1991 ASM	29 391	58	2 048	10.37	42	66	70 085	42	59.33
1990 ASM	27 555	59	1 967	10.06	40	63	71 036	39	61.29
1989 ASM	26 029	61	1 871	10.01	41	64	66 392	39	58.64
1988 ASM	25 178	58	1 906	9.77	38	62	63 427	40	57.02
1987 Census	24 485	56	1 934	9.59	38	64	56 775	43	52.01
	INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.								
1992 Census	26 903	66	1 957	9.55	47	70	62 324	43	47.90
1991 ASM	25 051	63	2 023	9.42	43	67	58 870	43	46.16
1990 ASM	25 041	61	2 045	9.34	42	67	57 966	43	46.50
1989 ASM	24 262	63	1 923	9.29	41	66	57 324	42	47.50
1988 ASM	22 895	64	1 978	9.15	42	68	52 406	44	41.63
1987 Census	22 421	61	1 989	9.03	41	68	48 166	47	39.46
1986 ASM	22 200	66	1 887	9.25	43	69	47 656	47	38.13
1985 ASM	20 469	64	1 938	8.67	43	70	43 339	47	35.03
1984 ASM	19 919	66	1 929	8.69	43	69	44 483	45	35.10
1983 ASM	18 532	70	1 938	7.60	42	65	46 115	40	34.10
1982 Census	17 202	69	1 903	7.19	41	66	39 552	43	29.99
1981 ASM	16 821	72	2 033	6.40	45	69	38 905	43	26.57
1980 ASM	14 641	71	1 977	6.10	43	68	34 359	43	24.58
1979 ASM	12 954	74	1 910	5.66	43	68	29 633	44	20.97
1978 ASM	11 812	75	1 905	5.15	43	70	25 223	47	17.62
1977 Census	11 430	74	1 918	4.85	42	70	24 909	46	17.56

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC														
United States	**–**	**276**	**146**	**28.9**	**777.1**	**21.9**	**43.7**	**508.8**	**2 010.1**	**2 052.7**	**4 096.3**	**85.1**	**32.2**	**1 615.4**
Alabama	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	E3	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	28	10	1.0	31.5	.8	1.5	20.5	90.6	71.3	160.5	1.6	1.5	70.2
Florida	–	13	6	.8	17.3	.6	1.3	9.9	49.4	20.1	68.3	.8	.8	35.6
Georgia	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.9	G	(D)
Illinois	–	24	14	1.8	46.9	1.3	2.6	27.2	111.0	159.4	275.4	1.8	G	(D)
Indiana	–	9	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E3	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
Louisiana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E6	6	2	.1	2.5	.1	.2	1.4	3.6	4.4	8.4	.1	G	(D)
Michigan	–	6	3	.2	7.0	.2	.4	2.6	11.2	17.3	28.6	1.1	(NA)	(D)
Minnesota	E5	8	3	.1	2.3	.1	.2	1.5	5.1	4.2	9.4	(D)	E	(D)
Mississippi	E4	7	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E[1]	1992											1987	
		All establishments		All employees		Production workers								
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC—Con.														
Missouri	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	19	8	.6	15.7	.5	.9	10.2	58.7	57.4	115.6	2.1	1.7	50.7
New York	E4	13	9	.8	19.5	.6	1.1	11.9	42.5	57.6	99.6	1.3	F	(D)
North Carolina	–	11	8	2.1	69.8	1.4	2.8	40.4	130.6	128.9	262.4	10.6	G	(D)
Ohio	E2	9	6	.5	13.4	.4	.9	8.3	22.1	20.8	50.1	(D)	1.1	46.4
Pennsylvania	E1	13	6	1.3	28.4	1.1	2.2	21.0	77.5	56.2	136.2	.6	1.9	59.7
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	8	7	.8	19.8	.5	1.2	10.6	54.9	53.4	108.9	1.5	.6	26.7
Texas	E1	20	3	.5	11.1	.4	.7	7.6	31.1	35.5	62.3	.2	F	(D)
Virginia	–	10	5	1.2	35.1	.8	1.4	19.6	82.0	75.9	157.8	(D)	G	(D)
Wisconsin	–	13	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.7	(NA)	(D)
INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS														
United States	**–**	**533**	**241**	**39.5**	**1 167.0**	**26.3**	**52.8**	**641.3**	**3 277.7**	**2 240.6**	**5 527.7**	**118.4**	**44.8**	**2 888.7**
Alabama	–	8	3	.3	6.8	.2	.4	3.8	12.7	13.1	26.1	.3	E	(D)
Arizona	E2	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E1	53	24	1.9	58.3	1.2	2.3	28.5	129.7	95.3	226.1	2.5	3.3	184.8
Connecticut	–	17	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Florida	–	14	5	.5	14.8	.3	.6	6.9	10.4	50.5	62.8	1.7	.5	31.9
Georgia	–	12	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	G	(D)
Illinois	–	47	31	5.8	181.0	3.9	7.5	96.7	415.2	243.6	657.1	19.3	(NA)	(D)
Indiana	–	8	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	8	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.7	G	(D)
Maryland	–	10	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E1	12	6	1.2	34.2	.7	1.5	15.5	104.5	39.8	141.5	2.1	G	(D)
Michigan	E1	29	13	.9	29.4	.6	1.3	13.6	50.3	48.3	95.9	1.1	F	(D)
Minnesota	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	14	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Nebraska	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	24	9	1.1	34.0	.7	1.3	15.8	64.4	39.2	103.7	2.1	1.4	79.6
New Mexico	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E3	24	9	.4	13.1	.3	1.3	6.5	28.6	19.9	47.4	.4	F	(D)
North Carolina	–	18	9	2.1	51.0	1.5	2.9	29.2	231.2	176.4	410.5	6.5	G	(D)
Ohio	–	40	18	2.8	82.6	1.9	3.8	49.9	213.6	146.6	358.1	8.4	2.5	160.4
Oklahoma	E1	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	E	(D)
Oregon	E2	14	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	29	15	2.1	71.2	1.3	2.9	39.0	182.9	150.6	331.3	7.5	2.8	124.3
South Carolina	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	105.3
Tennessee	–	9	5	1.1	30.9	.9	1.6	21.4	111.0	92.6	204.8	4.0	1.0	88.0
Texas	–	36	14	1.7	51.3	1.2	2.3	30.1	67.8	144.9	214.9	2.7	G	(D)
Virginia	–	10	5	1.1	29.1	.7	1.5	13.3	40.0	45.1	82.0	(D)	G	(D)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	10	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	F	(D)
INDUSTRY 3621, MOTORS AND GENERATORS														
United States	**–**	**470**	**274**	**67.9**	**1 764.6**	**52.0**	**104.1**	**1 169.0**	**4 244.3**	**3 812.9**	**8 039.7**	**242.0**	**74.6**	**3 815.2**
Alabama	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	12	10	5.6	127.2	4.4	8.4	87.1	373.9	304.0	683.8	21.6	6.0	395.3
California	E1	50	19	1.8	56.5	1.2	2.5	31.4	108.1	56.0	162.5	5.8	2.2	99.8
Connecticut	–	14	9	1.8	48.4	1.1	2.3	24.2	102.5	70.7	176.5	4.3	2.4	88.7
Florida	E2	14	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	40	24	3.1	71.9	2.4	4.9	43.4	165.2	181.7	350.0	5.2	4.7	195.9
Indiana	–	24	17	4.2	108.4	3.4	6.8	76.0	173.9	135.1	313.2	10.1	(NA)	(D)
Iowa	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	8	5	2.5	55.8	2.3	5.3	48.8	161.4	193.9	357.4	15.5	G	(D)
Maryland	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	E1	14	8	1.2	28.1	.9	1.7	19.8	41.7	60.6	102.4	3.4	1.8	80.2
Minnesota	–	15	9	3.0	109.6	1.7	2.8	51.5	306.8	235.7	534.2	13.0	3.4	198.5
Mississippi	–	6	6	3.1	74.0	2.5	5.1	52.4	175.0	171.5	341.5	(D)	(NA)	(D)
Missouri	–	19	14	6.1	130.1	5.1	10.3	101.7	394.4	253.9	638.2	21.6	5.2	233.4
Nebraska	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	16	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	1.2	60.7
New York	–	22	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.6	422.4
North Carolina	–	15	14	2.9	66.5	2.1	4.2	40.5	138.3	141.3	272.3	17.7	(NA)	(D)
Ohio	E1	34	23	5.4	152.9	3.9	8.4	93.8	353.2	251.8	608.0	18.7	(NA)	(D)
Oklahoma	–	7	4	.9	17.1	.6	1.1	9.8	65.6	50.5	111.3	(D)	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3621, MOTORS AND GENERATORS—Con.														
Pennsylvania	E1	27	17	3.5	104.2	2.7	6.0	71.3	233.5	144.9	378.0	12.6	3.5	164.4
South Carolina	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	16	14	5.2	108.9	4.5	8.8	86.9	285.9	305.1	591.5	17.8	4.7	224.5
Texas	–	16	8	1.2	39.8	.7	1.6	21.5	78.1	101.9	176.1	6.7	F	(D)
Virginia	–	9	6	1.3	33.3	.8	1.6	14.7	74.8	37.9	114.1	(D)	G	(D)
Wisconsin	–	32	23	6.2	153.4	4.5	8.8	93.5	372.2	405.5	776.7	26.8	5.6	256.3
INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS														
United States	–	**110**	**67**	**9.6**	**286.6**	**7.0**	**14.4**	**185.0**	**724.2**	**561.2**	**1 276.4**	**43.6**	**9.8**	**604.4**
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	11	8	.5	14.0	.3	.7	7.1	34.8	33.0	66.2	2.7	.4	19.3
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	5	2	.2	6.9	.1	.3	4.1	10.9	4.8	16.2	.2	.4	15.1
Mississippi	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
New York	–	7	4	.7	22.2	.5	1.0	15.6	73.6	70.6	138.8	1.5	F	(D)
North Carolina	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	14	8	.7	21.2	.5	1.1	14.2	44.6	40.0	86.3	2.5	.9	43.5
Pennsylvania	–	12	9	1.9	60.8	1.3	2.9	38.4	101.9	81.4	181.2	7.1	2.4	113.7
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	5	5	1.1	36.4	.7	1.5	19.9	107.1	86.9	202.5	(D)	.7	64.4
Tennessee	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E1	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
West Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS														
United States	–	**1 242**	**448**	**61.6**	**1 846.1**	**35.2**	**66.7**	**730.7**	**4 548.6**	**3 025.8**	**7 573.1**	**218.5**	**66.6**	**3 781.2**
Alabama	–	14	4	.4	7.0	.1	.2	2.0	12.9	8.8	22.6	.5	(NA)	(D)
Arizona	E2	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arkansas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	153	48	5.3	168.0	2.8	5.4	57.2	389.1	223.4	609.9	14.0	6.0	326.2
Colorado	E3	13	5	.3	9.4	.2	.4	3.2	19.7	12.6	32.3	.6	(NA)	(D)
Connecticut	E1	40	15	1.2	35.2	.8	1.6	16.0	72.9	49.7	124.4	2.1	2.3	82.2
Florida	–	48	19	2.0	63.7	1.0	2.2	21.3	178.8	91.9	273.0	7.0	(NA)	(D)
Georgia	–	24	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.1	G	(D)
Idaho	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	89	32	4.1	104.7	2.6	4.7	46.7	245.5	224.0	477.7	12.5	4.5	204.5
Indiana	–	35	17	1.5	35.1	1.1	2.1	21.8	67.3	53.1	125.0	(D)	G	(D)
Iowa	–	12	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E5	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	8	5	1.3	38.7	1.1	1.6	29.5	110.1	68.6	166.1	(D)	G	(D)
Maryland	E7	9	3	.7	16.1	.5	1.0	9.2	47.5	27.5	74.5	(D)	F	(D)
Massachusetts	–	45	18	2.6	100.2	1.0	1.7	23.8	182.6	121.0	303.8	9.7	(NA)	(D)
Michigan	E1	68	20	1.5	49.0	.9	1.8	18.6	90.7	63.1	154.2	2.9	G	(D)
Minnesota	–	39	17	1.7	46.8	.9	1.7	16.4	103.7	73.4	178.1	(D)	G	(D)
Missouri	E5	18	3	.4	10.2	.2	.4	3.8	22.6	11.7	34.1	(D)	.3	18.6
New Hampshire	–	12	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E2	49	14	1.6	36.4	1.0	1.9	18.6	68.1	39.4	110.9	2.5	1.7	90.9
New York	E2	71	26	3.3	88.3	2.1	3.9	38.5	171.8	119.0	291.4	8.7	3.8	165.5
North Carolina	–	31	14	4.5	134.7	2.9	5.7	70.5	399.2	310.9	712.6	17.7	4.4	319.0
Ohio	–	76	33	4.9	169.2	2.0	3.9	42.2	499.4	197.5	688.2	23.4	4.8	367.0
Oklahoma	E1	15	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Oregon	E2	17	2	.1	3.3	.1	.1	1.1	6.6	7.1	13.7	.2	.3	14.3
Pennsylvania	E1	76	27	3.1	96.8	1.7	3.3	42.9	210.9	192.0	402.7	(D)	4.7	237.6
Rhode Island	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
South Carolina	–	15	7	1.6	40.3	1.0	2.0	20.1	62.1	75.9	138.6	4.7	F	(D)
South Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E1	14	5	.4	11.6	.2	.5	4.0	28.6	22.9	51.4	(D)	E	(D)
Texas	E1	60	18	2.0	55.0	1.1	2.2	19.9	109.5	126.6	240.9	3.4	1.8	83.1
Utah	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	20	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	E2	32	11	.6	18.3	.3	.6	6.4	34.6	24.8	59.8	3.4	.5	22.8
West Virginia	E6	7	3	.2	4.3	.1	.1	1.7	7.6	4.8	11.9	(D)	E	(D)
Wisconsin	–	62	28	8.0	243.9	5.0	9.1	97.7	706.9	400.5	1 099.5	39.0	8.5	506.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992											1987	
		All establishments		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.														
United States	**E1**	**355**	**151**	**17.6**	**473.5**	**11.7**	**22.9**	**218.8**	**1 096.9**	**951.5**	**2 039.3**	**65.3**	**14.5**	**698.4**
Alabama	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	–	12	3	.4	9.3	.3	.4	5.0	24.7	9.0	32.3	1.4	.3	9.6
California	E2	72	33	3.0	92.9	1.9	3.8	40.9	170.4	124.5	297.8	5.4	3.2	149.3
Colorado	E3	4	3	.2	4.6	.1	.2	2.2	8.6	5.5	14.4	(D)	(NA)	(NA)
Connecticut	E3	13	6	.6	17.0	.4	.8	9.0	35.9	29.8	65.6	1.9	.3	19.5
Florida	–	11	6	.5	11.6	.3	.6	5.1	23.6	21.0	43.9	1.4	(NA)	(NA)
Illinois	E2	22	12	1.6	37.5	1.2	2.4	19.6	67.3	65.0	133.7	2.7	G	(D)
Indiana	–	17	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Louisiana	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	12	7	1.2	27.6	1.0	1.8	14.6	51.0	49.9	99.5	(D)	(NA)	(D)
Michigan	E3	11	2	.2	4.6	.1	.2	1.7	9.4	8.0	17.5	.4	E	(D)
Minnesota	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Montana	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	14	7	.8	18.9	.5	1.3	9.2	37.0	28.0	64.1	1.0	E	(D)
New York	E3	20	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	16	7	1.4	41.9	.9	1.8	16.1	109.8	65.6	166.7	10.1	G	(D)
Pennsylvania	–	13	4	.5	19.0	.3	.6	8.0	47.7	30.2	78.3	(D)	.3	14.3
Rhode Island	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E3	20	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	31.4
Virginia	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.6
Wisconsin	–	11	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Transformers, except electronic (SIC 3612)	Switchgear and switchboard apparatus (SIC 3613)	Motors and generators (SIC 3621)	Carbon and graphite products (SIC 3624)	Relays and industrial controls (SIC 3625)	Electrical industrial apparatus, n.e.c. (SIC 3629)
Companies ---- number	223	441	370	86	1 168	342
All establishments ---- number	276	533	470	110	1 242	355
With 1 to 19 employees ---- number	130	292	196	43	794	204
With 20 to 99 employees ---- number	80	145	111	36	317	110
With 100 employees or more ---- number	66	96	163	31	131	41
Employment and labor costs:						
Employees ---- 1,000	28.9	39.5	67.9	9.6	61.6	17.6
Compensation, total ---- mil dol	1 013.4	1 508.9	2 295.1	363.7	2 345.6	589.7
Annual payroll ---- mil dol	777.1	1 167.0	1 764.6	286.6	1 846.1	473.5
Fringe benefits ---- mil dol	236.3	342.0	530.5	77.1	499.5	116.2
Social Security and other legally required payments ---- mil dol	77.2	119.0	195.9	29.8	182.2	42.6
Employer voluntary payments ---- mil dol	159.0	223.0	334.7	47.3	317.2	73.6
Production workers:						
Average for year ---- 1,000	21.9	26.3	52.0	7.0	35.2	11.7
March ---- 1,000	22.0	26.4	51.9	7.0	35.5	11.7
May ---- 1,000	22.3	26.4	52.6	7.0	35.4	11.9
August ---- 1,000	22.0	26.5	52.2	7.0	35.3	11.6
November ---- 1,000	21.5	25.9	51.2	6.9	34.6	11.4
Hours ---- millions	43.7	52.8	104.1	14.4	66.7	22.9
Wages ---- mil dol	508.8	641.3	1 169.0	185.0	730.7	218.8
Cost of materials[1] ---- mil dol	2 052.7	2 240.6	3 812.9	561.2	3 025.8	951.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 885.4	1 955.3	3 502.8	434.7	2 427.4	830.0
Resales ---- mil dol	71.7	200.7	157.2	34.0	457.6	86.4
Fuels ---- mil dol	14.9	9.0	19.8	29.4	8.2	3.4
Purchased electricity ---- mil dol	34.1	38.5	77.2	50.2	47.6	15.6
Contract work ---- mil dol	46.7	37.1	56.0	12.9	85.0	16.2
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	648.7	611.4	1 441.4	1 447.9	761.8	213.4
Generated less sold ---- mil kWh	–	–	(D)	(D)	–	–
Total value of shipments ---- mil dol	4 096.3	5 527.7	8 039.7	1 276.4	7 573.1	2 039.3
Value added ---- mil dol	2 010.1	3 277.7	4 244.3	724.2	4 548.6	1 096.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Transformers, except electronic (SIC 3612)	Switchgear and switchboard apparatus (SIC 3613)	Motors and generators (SIC 3621)	Carbon and graphite products (SIC 3624)	Relays and industrial controls (SIC 3625)	Electrical industrial apparatus, n.e.c. (SIC 3629)
Inventories by stage of fabrication:						
Beginning of 1992—mil dol	538.0	734.9	1 154.1	335.8	1 368.0	332.5
Finished goods—mil dol	121.5	180.8	356.4	98.4	335.7	93.3
Work in process—mil dol	208.4	241.4	389.8	148.3	483.5	103.4
Materials and supplies—mil dol	208.1	312.7	407.9	89.1	548.8	135.8
End of 1992—mil dol	515.4	737.3	1 152.1	351.2	1 363.3	371.3
Finished goods—mil dol	117.4	181.1	375.2	108.1	318.9	91.1
Work in process—mil dol	178.9	231.8	388.5	147.6	501.7	114.7
Materials and supplies—mil dol	219.0	324.4	388.5	95.5	542.7	165.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Transformers, except electronic (SIC 3612)	Switchgear and switchboard apparatus (SIC 3613)	Motors and generators (SIC 3621)	Carbon and graphite products (SIC 3624)	Relays and industrial controls (SIC 3625)	Electrical industrial apparatus, n.e.c. (SIC 3629)
Gross book value of depreciable assets:						
Total:						
Beginning of year	908.8	1 475.6	2 750.1	1 169.5	2 082.8	406.7
New capital expenditures[1]	85.1	118.4	242.0	43.6	218.5	65.3
Used capital expenditures	6.1	8.0	13.5	3.1	8.0	13.6
Retirements	29.9	71.3	87.8	28.5	104.3	17.0
End of year	970.1	1 530.7	2 917.8	1 187.7	2 205.0	468.6
Buildings and other structures:						
Beginning of year	183.0	368.0	452.2	240.9	479.3	94.5
New capital expenditures	10.9	10.7	21.4	7.1	28.1	9.5
Used capital expenditures	2.2	.3	3.4	.5	1.3	3.9
Retirements	1.4	14.2	2.6	.6	11.6	.9
End of year	194.7	364.8	474.5	248.0	497.2	107.0
Machinery and equipment:						
Beginning of year	725.8	1 107.6	2 297.9	928.6	1 603.5	312.2
New capital expenditures[1]	74.2	107.7	220.6	36.6	190.3	55.9
Used capital expenditures	3.9	7.6	10.0	2.5	6.7	9.7
Retirements	28.5	57.1	85.2	27.9	92.7	16.1
End of year	775.4	1 165.8	2 443.3	939.8	1 707.8	361.7
Depreciation charges during 1992:						
Total	64.6	110.5	198.8	50.0	226.0	141.4
Buildings and other structures	8.6	14.2	20.6	7.2	27.8	109.4
Machinery and equipment	56.0	96.3	178.2	42.9	198.2	32.1
Rental payments:						
Total	30.2	35.2	60.0	5.7	107.8	26.1
Buildings and other structures	15.7	23.3	35.8	2.5	61.5	16.1
Machinery and equipment	14.5	11.9	24.2	3.2	46.4	10.0

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Transformers, except electronic (SIC 3612)		Switchgear and switchboard apparatus (SIC 3613)		Motors and generators (SIC 3621)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	5.0	(X)	15.3	(X)	7.4	(X)
Response coverage ratio (percent)[2]	84.3	(X)	83.6	(X)	84.4	(X)
Machinery	18.8	(X)	22.3	(X)	60.0	(X)
Response coverage ratio (percent)[2]	85.1	(X)	86.6	(X)	85.3	(X)
Other purchased services:						
Communications	5.6	(X)	10.5	(X)	10.0	(X)
Response coverage ratio (percent)[2]	84.4	(X)	87.1	(X)	80.0	(X)
Legal	5.2	(X)	7.8	(X)	5.6	(X)
Response coverage ratio (percent)[2]	83.8	(X)	86.3	(X)	82.4	(X)
Accounting and bookkeeping	2.6	(X)	2.7	(X)	1.9	(X)
Response coverage ratio (percent)[2]	79.2	(X)	85.3	(X)	81.1	(X)
Advertising	4.0	(X)	14.9	(X)	9.5	(X)
Response coverage ratio (percent)[2]	82.4	(X)	83.3	(X)	82.4	(X)
Software and other data processing	4.1	(X)	5.8	(X)	3.8	(X)
Response coverage ratio (percent)[2]	80.9	(X)	86.6	(X)	83.3	(X)
Refuse removal, including hazardous waste	7.0	(X)	4.2	(X)	7.1	(X)
Response coverage ratio (percent)[2]	85.1	(X)	83.5	(X)	85.3	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Transformers, except electronic (SIC 3612)		Switchgear and switchboard apparatus (SIC 3613)		Motors and generators (SIC 3621)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	74.2	(X)	107.7	(X)	220.6	(X)
Automobiles, trucks, etc., for highway use	.4	6	2.8	36	.7	3
Computers and peripheral data processing equipment	13.1	20	18.5	11	24.1	2
All other	60.7	5	86.4	3	195.8	1
Adjustment ratio[3]	1.1	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 885.4	(X)	1 955.3	(X)	3 502.8	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	56.8	11	290.8	6
Materials purchased or transferred from domestic sources	(S)	(X)	1 898.4	1	3 212.0	1
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.7	(X)

Item	Carbon and graphite products (SIC 3624)		Relays and industrial controls (SIC 3625)		Electrical industrial apparatus, n.e.c. (SIC 3629)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	4.1	(X)	19.9	(X)	3.6	(X)
Response coverage ratio (percent)[2]	85.4	(X)	86.7	(X)	77.8	(X)
Machinery	20.3	(X)	28.9	(X)	5.3	(X)
Response coverage ratio (percent)[2]	89.4	(X)	86.2	(X)	75.5	(X)
Other purchased services:						
Communications	3.0	(X)	26.0	(X)	4.9	(X)
Response coverage ratio (percent)[2]	92.7	(X)	86.6	(X)	72.0	(X)
Legal	3.0	(X)	9.1	(X)	6.4	(X)
Response coverage ratio (percent)[2]	88.8	(X)	84.3	(X)	78.1	(X)
Accounting and bookkeeping	.6	(X)	6.9	(X)	2.7	(X)
Response coverage ratio (percent)[2]	82.7	(X)	76.4	(X)	75.0	(X)
Advertising	1.4	(X)	41.5	(X)	26.2	(X)
Response coverage ratio (percent)[2]	89.2	(X)	85.1	(X)	75.3	(X)
Software and other data processing	.7	(X)	15.2	(X)	1.6	(X)
Response coverage ratio (percent)[2]	89.2	(X)	82.8	(X)	75.6	(X)
Refuse removal, including hazardous waste	3.3	(X)	4.9	(X)	.9	(X)
Response coverage ratio (percent)[2]	92.7	(X)	86.4	(X)	76.0	(X)
New machinery and equipment expenditures	36.6	(X)	190.3	(X)	55.9	(X)
Automobiles, trucks, etc., for highway use	.7	30	1.0	32	5.6	28
Computers and peripheral data processing equipment	3.6	10	53.9	9	16.9	10
All other	32.2	1	135.5	4	33.3	9
Adjustment ratio[3]	1.1	(X)	1.2	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	434.7	(X)	2 427.4	(X)	830.0	(X)
Materials purchased or transferred from foreign sources[4]	45.9	22	427.4	21	(S)	(X)
Materials purchased or transferred from domestic sources	388.8	3	2 000.0	5	(S)	(X)
Adjustment ratio[3]	1.5	(X)	1.6	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC												
Total	**–**	**276**	**28.9**	**777.1**	**21.9**	**43.7**	**508.8**	**2 010.1**	**2 052.7**	**4 096.3**	**85.1**	**515.4**
Establishments with an average of–												
1 to 4 employees	E9	50	.1	2.1	.1	.1	1.4	4.7	5.6	10.3	.2	1.4
5 to 9 employees	E8	31	.2	4.9	.2	.3	3.1	9.4	10.8	20.2	.4	2.6
10 to 19 employees	E4	49	.7	14.6	.5	1.0	8.5	23.7	27.0	50.8	1.2	7.5
20 to 49 employees	E2	48	1.7	38.4	1.2	2.5	22.9	83.1	73.4	164.3	3.5	21.9
50 to 99 employees	E1	32	2.5	52.1	1.9	3.7	33.2	132.2	161.5	293.3	4.5	34.8
100 to 249 employees	–	35	5.7	143.4	4.1	8.1	87.6	393.5	409.1	799.3	13.2	123.1
250 to 499 employees	–	14	5.0	141.6	3.7	7.6	89.4	352.8	339.7	691.7	19.1	100.1
500 to 999 employees	–	15	13.0	380.1	10.3	20.6	262.8	1 010.6	1 025.6	2 066.4	42.8	224.1
1,000 to 2,499 employees	E5	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	77	.3	6.8	.3	.5	4.5	12.7	15.0	27.7	.6	3.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS												
Total	**–**	**533**	**39.5**	**1 167.0**	**26.3**	**52.8**	**641.3**	**3 277.7**	**2 240.6**	**5 527.7**	**118.4**	**737.3**
Establishments with an average of—												
1 to 4 employees	E8	122	.2	5.2	.1	.3	2.8	14.4	10.8	25.5	.5	3.5
5 to 9 employees	E4	86	.6	15.9	.4	.7	8.6	49.9	36.8	86.7	1.0	9.4
10 to 19 employees	E3	84	1.2	34.5	.7	1.5	16.6	75.6	66.6	142.9	3.4	22.2
20 to 49 employees	E1	85	2.7	81.0	1.7	3.5	40.5	180.0	142.5	317.3	3.0	53.7
50 to 99 employees	–	60	4.1	125.2	2.6	6.2	62.8	308.5	260.5	566.4	6.6	78.9
100 to 249 employees	–	51	8.3	219.3	5.7	11.4	117.9	654.7	543.9	1 212.0	21.5	167.1
250 to 499 employees	–	31	11.4	325.2	8.0	15.9	195.0	899.3	697.1	1 592.2	29.7	197.1
500 to 999 employees	–	12	10.9	360.6	7.0	13.3	197.3	1 095.3	482.4	1 584.7	52.7	205.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	166	.6	13.6	.4	.8	7.3	33.6	23.3	56.9	1.1	7.3
INDUSTRY 3621, MOTORS AND GENERATORS												
Total	**–**	**470**	**67.9**	**1 764.6**	**52.0**	**104.1**	**1 169.0**	**4 244.3**	**3 812.9**	**8 039.7**	**242.0**	**1 152.1**
Establishments with an average of—												
1 to 4 employees	E9	78	.1	3.4	.1	.2	2.3	10.9	7.2	16.4	.4	4.2
5 to 9 employees	E5	65	.4	11.3	.3	.7	7.7	26.4	23.2	50.0	1.4	8.1
10 to 19 employees	E4	53	.8	18.4	.5	1.0	10.6	39.4	30.4	70.9	1.7	12.4
20 to 49 employees	E2	70	2.3	58.2	1.6	3.1	30.4	115.3	95.0	211.3	4.4	39.7
50 to 99 employees	–	41	3.0	79.8	2.1	4.2	41.5	192.7	183.0	371.6	8.8	65.0
100 to 249 employees	–	74	12.1	295.3	8.5	17.3	167.3	600.9	578.2	1 184.9	37.1	224.4
250 to 499 employees	–	53	19.2	485.6	15.1	30.6	333.4	1 179.1	953.1	2 119.7	62.2	354.9
500 to 999 employees	–	31	20.9	511.5	17.1	34.9	369.5	1 288.4	1 120.8	2 395.6	90.2	307.2
1,000 to 2,499 employees	–	4	9.0	301.0	6.7	12.1	206.4	791.2	822.0	1 619.3	35.7	136.3
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	127	.6	11.4	.5	.9	7.6	23.3	21.1	44.3	1.4	7.0
INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS												
Total	**–**	**110**	**9.6**	**286.6**	**7.0**	**14.4**	**185.0**	**724.2**	**561.2**	**1 276.4**	**43.6**	**351.2**
Establishments with an average of—												
1 to 4 employees	E7	14	(Z)	.7	(Z)	(Z)	.5	1.5	1.4	2.9	.1	.8
5 to 9 employees	E5	13	.1	2.1	.1	.1	1.4	4.5	4.5	9.0	.3	2.2
10 to 19 employees	E4	16	.2	6.3	.2	.3	3.6	21.8	7.8	21.4	.8	18.4
20 to 49 employees	E1	22	.6	18.1	.4	.9	10.1	38.6	44.4	82.2	1.8	18.8
50 to 99 employees	–	14	1.0	22.6	.7	1.4	14.1	58.5	45.3	103.2	1.9	25.9
100 to 249 employees	–	22	3.6	107.1	2.5	5.4	65.5	273.6	203.8	485.1	16.8	117.4
250 to 499 employees	–	5	1.6	46.7	1.2	2.1	32.0	137.2	84.3	211.3	4.4	81.0
500 to 999 employees	–	4	2.4	82.9	1.8	4.2	57.9	188.6	169.8	361.4	17.4	86.8
Covered by administrative records[2]	E9	21	.1	2.1	.1	.2	1.4	4.0	3.7	7.7	.4	2.0
INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS												
Total	**–**	**1 242**	**61.6**	**1 846.1**	**35.2**	**66.7**	**730.7**	**4 548.6**	**3 025.8**	**7 573.1**	**218.5**	**1 363.3**
Establishments with an average of—												
1 to 4 employees	E8	363	.7	19.1	.4	.8	7.8	47.9	33.1	81.0	2.2	15.0
5 to 9 employees	E6	236	1.6	43.8	.9	1.9	17.6	98.1	68.7	166.6	4.3	30.4
10 to 19 employees	E1	195	2.7	79.2	1.4	2.7	28.2	163.6	119.8	283.1	5.5	61.7
20 to 49 employees	E1	197	6.2	190.0	3.2	6.1	66.9	382.7	258.1	639.3	13.1	116.8
50 to 99 employees	E1	120	8.8	247.1	5.0	10.0	91.3	578.2	404.3	977.6	20.4	175.4
100 to 249 employees	–	73	11.6	321.0	6.5	12.5	130.9	744.0	535.2	1 280.4	37.9	235.5
250 to 499 employees	–	41	14.1	386.6	9.3	17.8	191.8	1 038.4	699.4	1 745.6	38.9	335.7
500 to 999 employees	–	13	8.5	290.5	4.6	8.0	114.4	625.6	466.9	1 100.4	38.8	138.3
1,000 to 2,499 employees	–	3	7.3	268.7	3.8	6.8	81.6	870.1	440.3	1 299.0	57.4	254.6
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	517	1.9	46.5	1.2	2.3	18.9	102.4	70.3	172.7	5.1	33.0
INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.												
Total	**E1**	**355**	**17.6**	**473.5**	**11.7**	**22.9**	**218.8**	**1 096.9**	**951.5**	**2 039.3**	**65.3**	**371.3**
Establishments with an average of—												
1 to 4 employees	E8	111	.2	4.2	.1	.2	1.8	10.5	8.0	18.6	.4	3.2
5 to 9 employees	E2	57	.4	9.6	.2	.4	4.3	21.2	16.5	37.8	.8	7.5
10 to 19 employees	E1	36	.5	14.4	.3	.6	6.4	33.9	32.7	65.1	1.1	14.8
20 to 49 employees	E2	56	1.8	49.1	1.0	2.1	22.0	94.5	92.6	179.7	10.6	47.7
50 to 99 employees	E1	54	4.0	103.9	2.6	5.1	47.0	216.5	155.0	373.1	7.6	79.6
100 to 249 employees	E1	29	4.6	112.0	3.3	6.6	56.7	273.6	222.6	501.1	11.3	79.6
250 to 499 employees	E1	6	2.1	57.3	1.5	3.1	30.5	136.0	110.2	241.7	5.9	40.9
500 to 999 employees	–	5	4.1	122.9	2.6	4.8	50.1	310.6	313.8	622.2	27.7	98.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	114	.2	4.8	.1	.3	2.0	10.9	8.2	19.2	.5	3.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3612	**Transformers, except electronic:**										
	All establishments in industry	276	28.9	777.1	21.9	43.7	508.8	2 010.1	2 052.7	4 096.3	85.1
	Establishments with this product class primary:										
36122	Power and distribution transformers, except parts	63	14.6	478.0	10.5	20.9	305.4	1 132.2	1 131.8	2 285.4	56.4
36123	Specialty transformers, except fluorescent lamp ballast	32	4.0	80.4	3.2	6.4	54.3	258.2	236.2	491.4	10.7
36124	Fluorescent lamp ballasts	14	5.2	101.7	4.5	9.3	79.5	322.0	381.6	710.3	10.1
36126	Commercial, institutional, and industrial general-purpose transformers, all voltages	32	2.5	53.1	1.9	3.5	32.7	140.8	129.1	269.9	3.3
36127	Power regulators, boosters, and other transformers and parts for all transformers	16	1.5	40.3	1.0	2.0	21.7	116.1	122.5	247.3	2.8
3613	**Switchgear and switchboard apparatus:**										
	All establishments in industry	533	39.5	1 167.0	26.3	52.8	641.3	3 277.7	2 240.6	5 527.7	118.4
	Establishments with this product class primary:										
36132	Power circuit breakers, all voltages	14	1.8	65.8	1.1	2.6	32.9	186.1	203.0	391.9	5.0
36133	Low voltage panelboards and distribution boards	135	11.4	343.2	7.7	15.2	189.0	898.8	715.2	1 613.4	32.1
36134	Fuses and fuse equipment, less than 2.3 kV, except power distribution cut-outs	16	4.1	106.3	2.4	5.5	46.3	331.0	107.8	438.6	9.7
36135	Molded case circuit breakers, 1000 volts or less	14	5.4	152.2	4.0	7.6	99.8	686.9	206.9	900.2	32.2
36136	Duct, including plug-in units and accessories, 1000 volts or less	6	1.4	39.4	1.1	2.2	26.5	120.4	76.3	197.5	4.3
36139	Switchgear, except ducts and relays	98	13.3	406.7	8.6	16.9	218.3	922.4	845.2	1 767.2	29.9
3621	**Motors and generators:**										
	All establishments in industry	470	67.9	1 764.6	52.0	104.1	1 169.0	4 244.3	3 812.9	8 039.7	242.0
	Establishments with this product class primary:										
36211	Fractional horsepower motors	126	34.9	840.6	28.5	55.4	611.6	1 960.4	1 955.2	3 918.3	129.3
36212	Integral horsepower motors and generators	54	15.8	455.7	11.2	23.5	273.8	1 109.1	733.1	1 840.9	49.2
36213	Land transportation motors and generators	7	1.0	29.5	.8	1.8	22.1	46.2	45.6	96.7	2.3
36214	Prime mover generator sets, except steam or hydraulic turbine	15	4.1	137.6	2.2	3.8	61.5	440.9	439.8	871.5	16.2
36217	Fractional motor generator sets and other rotating equipment, including hermetics	10	2.9	66.8	2.2	5.5	48.4	174.0	167.0	343.9	8.7
36218	Integral motor generator sets and other rotating equipment, including hermetics	14	2.9	65.5	2.2	4.3	45.8	173.8	179.9	348.9	16.9
36219	Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs	48	4.6	124.4	3.4	7.1	78.7	247.1	211.8	447.5	14.5
3624	**Carbon and graphite products:**										
	All establishments in industry	110	9.6	286.6	7.0	14.4	185.0	724.2	561.2	1 276.4	43.6
	Establishments with this product class primary:										
36241	Electrodes	14	3.1	102.3	2.4	4.6	74.7	286.3	285.5	566.0	10.0
36249	All other carbon and graphite products	62	6.1	176.0	4.3	9.3	105.2	421.3	261.2	679.3	32.4
3625	**Relays and industrial controls:**										
	All establishments in industry	1 242	61.6	1 846.1	35.2	66.7	730.7	4 548.6	3 025.8	7 573.1	218.5
	Establishments with this product class primary:										
36251	Relays for electronic circuitry, industrial control, overload, and switchgear type	84	8.4	213.3	5.9	11.3	110.9	504.1	316.7	825.4	23.2
36252	Specific-purpose industrial controls	228	18.6	641.2	8.6	16.2	188.7	1 490.1	952.1	2 447.7	72.7
36253	General-purpose industrial controls	178	24.4	725.7	14.7	27.9	314.9	2 010.4	1 380.3	3 381.5	92.7
36254	Parts for industrial controls and motor-control accessories	42	2.6	61.3	1.7	2.9	27.7	123.2	90.8	213.6	7.0
3629	**Electrical industrial apparatus, n.e.c.:**										
	All establishments in industry	355	17.6	473.5	11.7	22.9	218.8	1 096.9	951.5	2 039.3	65.3
	Establishments with this product class primary:										
36291	Capacitors for industrial use (except for electronic circuitry)	19	2.5	66.2	1.9	3.2	36.0	145.5	133.8	274.1	23.2
36292	Rectifying apparatus	101	10.5	278.1	6.9	13.8	124.9	625.1	568.6	1 194.8	24.1
36293	Other electrical equipment for industrial use, except for electronic circuitry	46	2.7	80.4	1.8	3.7	37.0	231.2	166.9	393.3	12.2

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC			
Total value of shipments	4 096.3	3 289.5	2 916.0
Primary products value of shipments	3 915.6	3 065.0	2 669.3
Secondary products value of shipments	75.1	150.4	178.5
Total miscellaneous receipts	105.6	74.1	68.2
Value of resales	82.8	53.0	41.5
Contract receipts	2.0	1.5	6.4
Other miscellaneous receipts	20.9	19.6	20.3
Primary products specialization ratio	98	95	94
Value of primary products shipments made in all industries	4 028.4	3 136.9	2 772.6
Value of primary products shipments made in this industry	3 915.6	3 065.0	2 669.3
Value of primary products shipments made in other industries	112.8	71.9	103.3
Coverage ratio	97	98	96
INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS			
Total value of shipments	5 527.7	4 907.3	(NA)
Primary products value of shipments	4 933.9	4 271.4	(NA)
Secondary products value of shipments	317.3	360.9	(NA)
Total miscellaneous receipts	276.5	275.0	(NA)
Value of resales	239.5	243.8	(NA)
Contract receipts	10.2	9.3	(NA)
Other miscellaneous receipts	26.8	21.9	(NA)
Primary products specialization ratio	94	92	(NA)
Value of primary products shipments made in all industries	5 324.5	4 597.6	4 760.6
Value of primary products shipments made in this industry	4 933.9	4 271.4	(NA)
Value of primary products shipments made in other industries	390.6	326.2	(NA)
Coverage ratio	93	93	(NA)
INDUSTRY 3621, MOTORS AND GENERATORS			
Total value of shipments	8 039.7	6 753.1	6 060.1
Primary products value of shipments	7 468.0	6 232.0	5 456.5
Secondary products value of shipments	331.6	350.6	338.4
Total miscellaneous receipts	240.1	170.5	265.2
Value of resales	180.8	97.1	96.4
Contract receipts	31.5	32.3	100.3
Other miscellaneous receipts	27.8	41.2	68.5
Primary products specialization ratio	96	95	94
Value of primary products shipments made in all industries	8 495.3	6 982.9	6 724.6
Value of primary products shipments made in this industry	7 468.0	6 232.0	5 456.5
Value of primary products shipments made in other industries	1 027.3	751.0	1 268.2
Coverage ratio	88	89	81
INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS			
Total value of shipments	1 276.4	1 224.5	971.4
Primary products value of shipments	1 168.6	1 094.4	840.1
Secondary products value of shipments	59.6	40.6	45.5
Total miscellaneous receipts	48.2	89.4	85.8
Value of resales	41.9	83.4	(D)
Contract receipts	1.9	4.6	3.9
Other miscellaneous receipts	4.5	1.5	(D)
Primary products specialization ratio	95	96	95
Value of primary products shipments made in all industries	1 177.0	1 196.2	900.9
Value of primary products shipments made in this industry	1 168.6	1 094.4	840.1
Value of primary products shipments made in other industries	8.4	101.7	60.8
Coverage ratio	99	91	93
INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS			
Total value of shipments	7 573.1	6 100.5	(NA)
Primary products value of shipments	6 431.6	5 452.1	(NA)
Secondary products value of shipments	410.5	317.6	(NA)
Total miscellaneous receipts	731.1	330.7	(NA)
Value of resales	651.2	247.6	(NA)
Contract receipts	20.3	18.8	(NA)
Other miscellaneous receipts	59.7	64.4	(NA)
Primary products specialization ratio	94	94	(NA)
Value of primary products shipments made in all industries	7 109.4	6 040.3	(NA)
Value of primary products shipments made in this industry	6 431.6	5 452.1	(NA)
Value of primary products shipments made in other industries	677.8	588.2	(NA)
Coverage ratio	90	90	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.			
Total value of shipments	2 039.3	1 188.2	1 111.3
Primary products value of shipments	1 727.5	1 012.9	919.5
Secondary products value of shipments	178.4	133.5	142.0
Total miscellaneous receipts	133.4	41.8	49.7
Value of resales	93.2	23.3	33.2
Contract receipts	14.9	(D)	3.3
Other miscellaneous receipts	25.3	(D)	13.2
Primary products specialization ratio	91	88	87
Value of primary products shipments made in all industries	1 906.3	1 163.7	1 003.1
Value of primary products shipments made in this industry	1 727.5	1 012.9	919.5
Value of primary products shipments made in other industries	178.7	150.8	83.5
Coverage ratio	91	87	92

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3612– —	**TRANSFORMERS, EXCEPT ELECTRONIC**				
	Total	**(NA)**	**4 028.4**	**(NA)**	**3 136.9**
36122	Power and distribution transformers, except parts	(NA)	2 153.1	(NA)	1 694.8
	Distribution transformers, excluding general-purpose:				
36122 02	Overhead-type, single-phase, liquid-immersed; 500 kVA and smaller	18	465.8	14	435.0
36122 04	Compartmentalized pad-mounted, single-phase, liquid-immersed; 500 kVA and smaller	16	216.1	12	238.8
36122 06	Subsurface and subway types, single-phase, liquid-immersed; 500 kVA and smaller	6	15.5	6	30.9
36122 14	Three-phase transformers 500 kVA and smaller, liquid-immersed (all voltages)	17	137.3	13	211.8
36122 16	Network transformers, all ratings, excluding network protectors	6	39.9	7	58.5
36122 19	Single-phase and three-phase, pad-mounted (dry); 500 kVA and smaller	10	(D)	4	1.1
	Small power transformers, single- and three-phase, all voltages:				
	Liquid-immersed, 501 kVA through 2500 kVA:				
36122 21	Compartmentalized pad-mounted and subsurface underground and conventional subway-type transformers	16	76.0	13	102.4
36122 23	Conventional transformers and autotransformers, primary unit substation transformers and single circuit unit substations	14	(D)	12	[3]44.8
36122 28	Liquid-immersed conventionals, primary unit and single circuit unit substations, 2501 kVA through 10,000 kVA	15	107.5	13	65.1
36122 29	Dry-type small power transformers, conventional, primary unit substation, and core and coil units	20	95.9	2	([3])
36122 32	Secondary unit substation transformers, liquid-immersed, all kVA ratings	6	(D)	9	63.2
36122 33	Secondary unit substation transformers, dry-type, all kVA ratings	7	55.8	8	35.4
	Large power transformers, liquid-immersed:				
	10,001 kVA, OA to 30,000 kVA, OA (50,000 kVA, top FOA):				
36122 37	With load-tap-changing	11	189.6	10	105.8
36122 39	Without load-tap-changing	9	84.6	9	56.2
	30,001 kVA, OA (50,001 kVA, top FOA) to 100,000 kVA, OA (167,000 kVA, top FOA):				
36122 41	With load-tap-changing	7	65.7	7	39.7
36122 42	Without load-tap-changing	5	66.6	7	38.5
	100,001 kVA, OA (167,001 kVA, top FOA) and larger:				
36122 43	With load-tap-changing	4	56.9	4	23.1
36122 44	Without load-tap-changing	5	153.3	4	50.7
36122 00	Power and distribution transformers, except parts, n.s.k.	(NA)	12.1	(NA)	93.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3612– —	**TRANSFORMERS, EXCEPT ELECTRONIC**—Con.				
36123	Specialty transformers, except fluorescent lamp ballast	(NA)	435.0	(NA)	273.8
36123 01	Open core and coil units, excluding machine tool control transformers and all units end-bell enclosed (250 VA and under)	14	29.5	8	25.6
36123 02	Machine tool control transformers	13	27.1	6	13.5
36123 08	High intensity discharge lamp transformers, also known as ballasts[4]	6	([5])	(NA)	([6])
	Instrument transformers:				
36123 06	Indoor and outdoor current transformers	10	51.3	6	34.6
36123 07	Indoor and outdoor voltage transformers	10	34.8	5	17.4
36123 11	All other specialty transformers, excluding internal combustion engine ignition	18	[5]270.6	11	[6]171.7
36123 00	Specialty transformers, except fluorescent lamp ballast, n.s.k.	(NA)	21.8	(NA)	10.9
36124	Fluorescent lamp ballasts	(NA)	794.9	(NA)	414.5
36124 00	Fluorescent lamp ballasts[7]	15	794.9	9	414.5
36126	Commercial, institutional, and industrial general-purpose transformers, all voltages	(NA)	272.6	(NA)	232.7
36126 01	Single- and three-phase, 3 kVA and below, all voltages	21	58.8	8	31.8
36126 02	Single- and three-phase, 3.01 kVA through 15 kVA, all voltages	14	25.8	12	29.8
36126 03	Single- and three-phase, 15.01 kVA through 100 kVA, all voltages	16	43.4	12	77.5
36126 04	Single- and three-phase, 100.01 kVA and above, all voltages	18	24.6	13	55.4
36126 05	Voltage regulating transformers, except transmission and distribution voltage regulators	7	103.5	6	27.9
36126 09	Other general-purpose transformers, including saturable core reactors	14		8	9.3
36126 00	Commercial, institutional, and industrial general-purpose transformers, all voltages, n.s.k.	(NA)	16.5	(NA)	.9
36127	Power regulators, boosters, and other transformers and parts for all transformers	(NA)	267.8	(NA)	277.8
36127 01	Power regulators, boosters, and other transformers[4]	15	141.5	(NA)	55.3
36127 78	Parts, including renewal and repair parts, subassemblies, and accessories for all transformers	14	100.1	15	219.8
36127 00	Power regulators, boosters, and other transformers and parts for all transformers, n.s.k.	(NA)	26.2	(NA)	2.8
36120	Transformers, except electronic, n.s.k.	(NA)	104.9	(NA)	243.3
36120 00	Transformers, except electronic, n.s.k.[8]	(NA)	77.2	(NA)	163.6
36120 02	Transformers, except electronic, n.s.k.[9]	(NA)	27.7	(NA)	79.7
3613– —	**SWITCHGEAR AND SWITCHBOARD APPARATUS**				
	Total	**(NA)**	**5 324.5**	**(NA)**	**4 597.6**
36132	Power circuit breakers, all voltages	(NA)	440.6	(NA)	390.3
36132 00	Power circuit breakers, all voltages[7]	39	440.6	29	390.3
36133	Low voltage panelboards and distribution boards	(NA)	1 566.8	(NA)	1 536.4
36133 00	Low voltage panelboards and distribution boards and other switching and interrupting devices, 1000 volts or less[7]	150	1 566.8	113	1 536.4
36134	Fuses and fuse equipment, less than 2.3 kV, except power distribution cut-outs	(NA)	425.1	(NA)	359.2
36134 00	Fuses and fuse equipment, less than 2300 volts, except power distribution cut-outs[7]	26	425.1	22	359.2
36135	Molded case circuit breakers, 1000 volts or less	(NA)	906.0	(NA)	900.1
36135 00	Molded case circuit breakers, 1000 volts or less[7]	19	906.0	25	900.1
36136	Duct, including plug-in units and accessories, 1000 volts or less	(NA)	183.0	(NA)	131.6
36136 00	Duct, including plug-in units and accessories, 1000 volts or less[7]	15	183.0	17	131.6
36139	Switchgear, except ducts and relays	(NA)	1 594.5	(NA)	1 030.1
36139 00	Switchgear, except ducts and relays[7]	121	1 594.5	111	1 030.1
36130	Switchgear and switchboard apparatus, n.s.k.	(NA)	208.5	(NA)	249.9
36130 00	Switchgear and switchboard apparatus, n.s.k.[8]	(NA)	151.6	(NA)	136.3
36130 02	Switchgear and switchboard apparatus, n.s.k.[9]	(NA)	56.9	(NA)	113.7
3621– —	**MOTORS AND GENERATORS**				
	Total	**(NA)**	**8 495.3**	**(NA)**	**6 982.9**
36211	Fractional horsepower motors	(NA)	3 856.4	(NA)	3 479.0
36211 00	Fractional horsepower motors (rated at less than 746 watts) (excluding hermetics)[7]	109	3 856.4	113	3 479.0
36212	Integral horsepower motors and generators	(NA)	1 763.9	(NA)	1 293.5
36212 00	Integral horsepower motors and generators other than for land transportation equipment (rated at 746 watts or more)[7]	57	1 763.9	52	1 293.5
36213	Land transportation motors and generators	(NA)	188.3	(NA)	233.1
36213 00	Land transportation motors, generators, and control equipment, excluding parts[7]	13	188.3	14	233.1
36214	Prime mover generator sets, except steam or hydraulic turbine	(NA)	1 155.7	(NA)	787.7
36214 00	Prime mover generator sets, except steam or hydraulic turbine[7]	28	1 155.7	42	787.7
36217	Fractional motor generator sets and other rotating equipment, including hermetics	(NA)	329.5	(NA)	237.9
36217 00	Fractional motor generator sets and other rotating equipment, including hermetics[7]	22	329.5	22	237.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3621– —	**MOTORS AND GENERATORS**—Con.				
36218	Integral motor generator sets and other rotating equipment, including hermetics	(NA)	440.5	(NA)	296.8
36218 00	Integral motor generator sets and other rotating equipment, including hermetics[7]	26	440.5	24	296.8
36219	Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs	(NA)	594.2	(NA)	535.0
36219 00	Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs[7]	98	594.2	107	535.0
36210	Motors and generators, n.s.k.	(NA)	166.8	(NA)	119.9
36210 00	Motors and generators, n.s.k.[10]	(NA)	122.5	(NA)	27.9
36210 02	Motors and generators, n.s.k.[11]	(NA)	44.3	(NA)	92.0

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3624– —	**CARBON AND GRAPHITE PRODUCTS**						
	Total	**(NA)**	**(X)**	**1 177.0**	**(NA)**	**(X)**	**1 196.2**
36241	Electrodes	(NA)	(X)	497.9	(NA)	(X)	551.5
	Electrodes for electric furnaces and electrolytic cell use:						
36241 52	Carbon mil lb	7	422.3	123.0	5	330.6	122.2
36241 56	Graphite mil lb	6	(S)	372.6	10	(S)	428.5
36241 00	Electrodes, n.s.k.	(NA)	(X)	2.3	(NA)	(X)	.9
36249	All other carbon and graphite products	(NA)	(X)	649.9	(NA)	(X)	587.7
	Brushes, contacts, and brush plates:						
36249 11	Automotive brushes, including replacement brushes and those that are coded, except automobile accessory brushes	3	(X)	62.2	5	(X)	43.0
36249 13	Other fractional horsepower brushes and contacts, including replacement brushes and automobile accessory brushes	10			12	(X)	22.0
36249 15	Other industrial brushes and contacts (brushes more than 1/4 sq inch in cross section and more than 1 1/2 inches long)	8	(X)	60.5	11	(X)	56.7
36249 17	Brush plates	5	(X)	28.5	7	(X)	6.3
36249 88	Carbon and graphite fibers	10	(X)	178.4	8	(X)	152.2
	All other carbon and graphite products, except refractories:						
36249 81	For electrical uses, including welding products, illuminating carbons, battery, except silver or other metal contacts	12	(X)	71.4	10	(X)	87.6
36249 83	For mechanical uses, rotor vanes, and other uses where motion is between two parts, except metallic oilless bearings	17	(X)	116.6	19	(X)	79.4
36249 86	For aerospace uses, including unmachined stock and machined items not included elsewhere	8	(X)	12.1	8	(X)	19.9
	For all other uses (including chemical, metallurgical, etc.):						
36249 94	Paste	9	(X)	45.8	5	(X)	33.5
36249 96	Other	15	(X)	72.2	12	(X)	84.8
36249 00	All other carbon and graphite products, n.s.k.	(NA)	(X)	2.3	(NA)	(X)	2.2
36240	Carbon and graphite products, n.s.k.	(NA)	(X)	29.1	(NA)	(X)	56.9
36240 00	Carbon and graphite products, n.s.k.[8]	(NA)	(X)	21.4	(NA)	(X)	33.0
36240 02	Carbon and graphite products, n.s.k.[9]	(NA)	(X)	7.7	(NA)	(X)	24.0

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3625– —	**RELAYS AND INDUSTRIAL CONTROLS**				
	Total	**(NA)**	**7 109.4**	**(NA)**	**6 040.3**
36251	Relays for electronic circuitry, industrial control, overload, and switchgear type	(NA)	840.0	(NA)	927.0
36251 00	Relays for electronic circuitry, industrial control, overload, and switchgear type[7]	141	840.0	126	927.0
36252	Specific-purpose industrial controls	(NA)	2 267.5	(NA)	1 755.0
36252 00	Specific-purpose industrial controls	340	2 267.5	266	1 755.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3625– —	**RELAYS AND INDUSTRIAL CONTROLS**—Con.				
36253	General-purpose industrial controls	(NA)	2 870.7	(NA)	2 368.0
36253 00	General-purpose industrial controls[7]	236	2 870.7	224	2 368.0
36254	Parts for industrial controls and motor-control accessories	(NA)	491.5	(NA)	440.9
36254 00	Parts for industrial controls and motor-control accessories[7]	116	491.5	125	440.9
36250	Relays and industrial controls, n.s.k.	(NA)	639.7	(NA)	549.4
36250 00	Relays and industrial controls, n.s.k.[8]	(NA)	461.0	(NA)	268.4
36250 02	Relays and industrial controls, n.s.k.[9]	(NA)	178.8	(NA)	281.0
3629– —	**ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.**				
	Total	**(NA)**	**1 906.3**	**(NA)**	**1 163.7**
36291	Capacitors for industrial use (except for electronic circuitry)	(NA)	279.8	(NA)	136.9
36291 01	Shunt and series power capacitors, units, and equipment, 1/2 kVA or more, and accessories	15	180.9	4	97.5
36291 04	Other capacitors (except electrolytic) incl. ac, general-purpose for motors, controls, high intensity discharge lighting[4]	13	91.9	(NA)	35.6
36291 00	Capacitors for industrial use (except for electronic circuitry), n.s.k.	(NA)	7.0	(NA)	3.8
36292	Rectifying apparatus	(NA)	1 064.6	(NA)	581.9
	Rectifying (power conversion) apparatus, except for electronic circuitry:				
	Semiconductor power conversion apparatus:				
	Semiconductor battery chargers:				
36292 21	Automotive	6	78.4	3	46.2
36292 25	Industrial and railroad	17	81.3	9	51.0
	Semiconductor high-voltage power supplies in excess of 2 kV:				
36292 41	100 kW or less	19	140.1	16	120.3
36292 45	More than 100 kW	9	50.9	9	63.3
36292 51	All other ac to dc semiconductor power conversion apparatus, including computer supplies[4]	47	214.7	(NA)	118.4
36292 99	Other rectifying (power conversion) apparatus	46	469.3	18	151.8
36292 00	Rectifying apparatus, n.s.k.	(NA)	29.9	(NA)	31.0
36293	Other electrical equipment for industrial use, except for electronic circuitry	(NA)	410.4	(NA)	259.5
36293 01	Coil windings, electrical	15	31.5	10	42.9
36293 02	Solenoids (except solenoid-actuated regulating valves)	16	49.5	10	33.3
36293 03	Surge suppressors	6	39.9	3	4.6
36293 04	Cathodic protection equipment	3	7.3	4	19.7
36293 11	Other miscellaneous electrical equipment for industrial use, n.e.c., including electrical discharge equipment[4]	28	276.4	(NA)	136.4
36293 00	Other electrical equipment for industrial use, except for electronic circuitry, n.s.k.	(NA)	5.8	(NA)	22.6
36290	Electrical industrial apparatus, n.e.c., n.s.k.	(NA)	151.5	(NA)	185.4
36290 00	Electrical industrial apparatus, n.e.c., n.s.k.[12]	(NA)	131.9	(NA)	91.1
36290 02	Electrical industrial apparatus, n.e.c., n.s.k.[13]	(NA)	19.5	(NA)	94.3

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, products were combined to avoid disclosing data for individual companies.
[4]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[5]For 1992, products are combined to avoid disclosing data for individual companies.
[6]For 1987, products were combined to avoid disclosing data for individual companies.
[7]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[8]Typically for establishments with 10 employees or more.
[9]Typically for establishments with less than 10 employees.
[10]Typically for establishments with 20 employees or more.
[11]Typically for establishments with less than 20 employees.
[12]Typically for establishments with 5 employees or more.
[13]Typically for establishments with less than 5 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36122, POWER AND DISTRIBUTION TRANSFORMERS, EXCEPT PARTS		
United States	**2 153.1**	**1 694.8**
California	117.9	87.9
Mississippi	228.0	147.4
New Jersey	16.1	(NA)
New York	19.0	17.2
North Carolina	170.1	(NA)
Texas	51.3	(NA)
Virginia	150.4	126.7
Wisconsin	290.9	(NA)
36123, SPECIALTY TRANSFORMERS, EXCEPT FLUORESCENT LAMP BALLAST		
United States	**435.0**	**273.8**
Illinois	38.4	11.8
Indiana	17.8	(NA)
Michigan	3.2	(NA)
New York	4.3	(NA)
North Carolina	43.9	(NA)
Wisconsin	113.8	81.8
36124, FLUORESCENT LAMP BALLASTS		
United States	**794.9**	**414.5**
Illinois	119.0	82.6
36126, COMMERCIAL, INSTITUTIONAL, AND INDUSTRIAL GENERAL-PURPOSE TRANSFORMERS, ALL VOLTAGES		
United States	**272.6**	**232.7**
California	14.3	12.6
Indiana	26.9	(NA)
Michigan	7.4	(NA)
New Jersey	16.5	4.1
Pennsylvania	11.0	(NA)
Wisconsin	42.2	(NA)
36127, POWER REGULATORS, BOOSTERS, AND OTHER TRANSFORMERS AND PARTS FOR ALL TRANSFORMERS		
United States	**267.8**	**277.8**
New Jersey	2.0	(NA)
36132, POWER CIRCUIT BREAKERS, ALL VOLTAGES		
United States	**440.6**	**390.3**
Arkansas	8.0	(NA)
California	2.6	(NA)
Illinois	13.7	(NA)
Ohio	2.9	(NA)
Pennsylvania	158.3	86.6
36133, LOW VOLTAGE PANELBOARDS AND DISTRIBUTION BOARDS		
United States	**1 566.8**	**1 536.4**
California	89.2	186.7
Colorado	3.5	3.6
Florida	10.3	6.6
Illinois	116.8	99.2
Massachusetts	35.5	34.6
Michigan	55.2	33.0
Missouri	23.8	27.0
New Jersey	36.6	38.9
New York	8.0	36.3
Ohio	82.5	101.2
Oregon	18.6	(NA)
Pennsylvania	31.1	31.6
South Carolina	112.4	(NA)
Texas	111.3	90.6
Washington	10.0	(NA)
36134, FUSES AND FUSE EQUIPMENT, LESS THAN 2.3 KV, EXCEPT POWER DISTRIBUTION CUT-OUTS		
United States	**425.1**	**359.2**
New York	8.1	(NA)
36135, MOLDED CASE CIRCUIT BREAKERS, 1000 VOLTS OR LESS		
United States	**906.0**	**900.1**
Maryland	65.0	(NA)
36136, DUCT, INCLUDING PLUG-IN UNITS AND ACCESSORIES, 1000 VOLTS OR LESS		
United States	**183.0**	**131.6**
Ohio	67.0	(NA)
36139, SWITCHGEAR, EXCEPT DUCTS AND RELAYS		
United States	**1 594.5**	**1 030.1**
California	105.0	62.9
Georgia	42.5	(NA)
Illinois	293.9	213.5
Minnesota	14.1	(NA)
Missouri	71.9	71.7
New York	24.4	35.7
Ohio	87.4	43.3
Oklahoma	31.1	(NA)
Oregon	12.6	(NA)
Pennsylvania	33.0	15.2
Texas	49.5	25.3
36211, FRACTIONAL HORSEPOWER MOTORS		
United States	**3 856.4**	**3 479.0**
Arkansas	347.4	439.0
California	44.6	44.8
Illinois	265.2	220.1
Indiana	207.2	265.1
Minnesota	14.8	(NA)
Mississippi	176.0	182.7
Missouri	517.9	340.7
North Carolina	155.7	124.5
Ohio	216.1	108.1
Pennsylvania	131.6	97.1
Tennessee	236.0	(NA)
Virginia	83.5	71.6
Wisconsin	355.0	184.6
36212, INTEGRAL HORSEPOWER MOTORS AND GENERATORS		
United States	**1 763.9**	**1 293.5**
Arkansas	226.4	129.4
California	34.4	30.0
Indiana	45.3	(NA)
Minnesota	141.6	(NA)
New Jersey	21.8	18.4
North Carolina	85.3	54.8
Ohio	227.1	264.4
Pennsylvania	112.0	(NA)
Wisconsin	136.4	172.4
36213, LAND TRANSPORTATION MOTORS AND GENERATORS		
United States	**188.3**	**233.1**
36214, PRIME MOVER GENERATOR SETS, EXCEPT STEAM OR HYDRAULIC TURBINE		
United States	**1 155.7**	**787.7**
Wisconsin	260.0	124.1
36217, FRACTIONAL MOTOR GENERATOR SETS AND OTHER ROTATING EQUIPMENT, INCLUDING HERMETICS		
United States	**329.5**	**237.9**
California	16.6	4.7
36218, INTEGRAL MOTOR GENERATOR SETS AND OTHER ROTATING EQUIPMENT, INCLUDING HERMETICS		
United States	**440.5**	**296.8**
California	8.6	(NA)
Kentucky	204.2	147.4
Ohio	17.3	21.6

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36219, PARTS, SUPPLIES FOR MOTORS, GENERATORS, GENERATOR SETS, AND OTHER ROTATING EQUIPMENT, EXCLUDING MOTORS FOR BUILT-IN JOBS		
United States	**594.2**	**535.0**
Arkansas	11.3	29.4
California	24.2	31.8
Connecticut	24.1	31.6
Illinois	40.4	55.1
Indiana	12.9	14.0
Michigan	67.5	39.1
Minnesota	37.0	45.2
Mississippi	3.1	27.8
New York	34.1	15.1
North Carolina	32.2	5.0
Ohio	126.9	96.6
Pennsylvania	85.9	39.8
Tennessee	11.7	(NA)
Wisconsin	12.4	26.8
36241, ELECTRODES		
United States	**497.9**	**551.5**
36249, ALL OTHER CARBON AND GRAPHITE PRODUCTS		
United States	**649.9**	**587.7**
California	63.6	35.8
Massachusetts	3.5	(NA)
Michigan	15.9	(NA)
New York	18.6	25.1
Ohio	77.6	49.8
Pennsylvania	126.8	140.3
South Carolina	97.9	(NA)
36251, RELAYS FOR ELECTRONIC CIRCUITRY, INDUSTRIAL CONTROL, OVERLOAD, AND SWITCHGEAR TYPE		
United States	**840.0**	**927.0**
California	106.7	158.6
Connecticut	24.4	43.5
Illinois	64.7	60.5
Indiana	65.1	88.4
Kentucky	30.8	(NA)
Maryland	3.8	(NA)
Michigan	14.2	14.0
New Jersey	40.3	45.4
New York	44.1	52.4
North Carolina	50.1	37.3
Ohio	36.4	44.2
Pennsylvania	58.2	61.0
South Carolina	29.6	(NA)
Texas	15.8	10.1
Wisconsin	42.6	60.2
36252, SPECIFIC-PURPOSE INDUSTRIAL CONTROLS		
United States	**2 267.5**	**1 755.0**
Alabama	7.8	(NA)
California	151.8	69.3
Colorado	8.0	9.7
Connecticut	46.0	38.6
Florida	77.4	91.9
Georgia	141.4	(NA)
Illinois	140.5	57.5
Indiana	7.6	9.5
Iowa	68.1	(NA)
Massachusetts	199.9	194.9
Michigan	88.3	44.9
Minnesota	48.5	15.1
New Jersey	28.8	19.9
New York	89.3	60.7
North Carolina	133.5	67.4
Ohio	347.9	333.8
Oregon	11.3	(NA)
Pennsylvania	99.7	119.2
Texas	77.4	31.8
Washington	5.0	3.6
West Virginia	5.6	(NA)
Wisconsin	120.3	116.9
36253, GENERAL-PURPOSE INDUSTRIAL CONTROLS		
United States	**2 870.7**	**2 368.0**
Arkansas	9.9	(NA)
California	257.5	195.8
Colorado	4.4	(NA)
Connecticut	33.2	67.6
Florida	39.3	42.1
Illinois	220.5	230.9
Indiana	25.8	83.2
Iowa	9.1	(NA)
Kentucky	64.8	(NA)
Michigan	42.7	41.3
Minnesota	71.6	42.4
New York	110.7	64.9
North Carolina	387.4	355.0
Ohio	222.8	171.7
Oklahoma	8.6	9.9
Pennsylvania	83.2	115.3
Tennessee	5.8	(NA)
Texas	70.1	61.5
Wisconsin	634.2	466.9
36254, PARTS FOR INDUSTRIAL CONTROLS AND MOTOR-CONTROL ACCESSORIES		
United States	**491.5**	**440.9**
California	7.7	22.0
Georgia	18.5	(NA)
Illinois	37.1	37.1
Indiana	7.3	(NA)
Michigan	5.9	8.9
New York	27.7	36.5
Ohio	46.1	54.4
Pennsylvania	22.0	13.1
Texas	3.8	4.3
Wisconsin	77.5	57.9
36291, CAPACITORS FOR INDUSTRIAL USE (EXCEPT FOR ELECTRONIC CIRCUITRY)		
United States	**279.8**	**136.9**
36292, RECTIFYING APPARATUS		
United States	**1 064.6**	**581.9**
Arizona	26.2	(NA)
California	188.7	126.2
Illinois	91.0	61.9
Massachusetts	23.4	4.0
Minnesota	29.2	(NA)
New Jersey	57.4	(NA)
New York	25.5	53.9
Ohio	120.7	69.3
Texas	54.9	(NA)
Washington	27.9	(NA)
36293, OTHER ELECTRICAL EQUIPMENT FOR INDUSTRIAL USE, EXCEPT FOR ELECTRONIC CIRCUITRY		
United States	**410.4**	**259.5**
California	43.3	17.7
Illinois	39.6	16.7
Indiana	29.6	34.0

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3612-	**Transformers, except electronic**	**4 028.4**	**3 956.0**	**4 032.4**	**3 810.7**	**3 495.9**	**3 136.9**	**2 772.6**	**2 117.8**
36122	Power and distribution transformers, except parts	2 153.1	2 083.5	2 162.4	2 091.8	1 928.1	1 694.8	1 554.0	1 320.9
36123	Specialty transformers, except fluorescent lamp ballast	435.0	453.3	463.0	357.4	306.8	273.8	(NA)	(NA)
36124	Fluorescent lamp ballasts	794.9	706.5	606.4	496.1	444.9	414.5	312.1	210.7
36126	Commercial, institutional, and industrial general-purpose transformers, all voltages	272.6	241.2	243.6	225.6	240.1	232.7	(NA)	(NA)
36127	Power regulators, boosters, and other transformers and parts for all transformers	267.8	194.7	211.6	317.7	328.1	277.8	243.2	168.1
36120	Transformers, except electronic, n.s.k.	104.9	276.8	345.3	322.1	247.9	243.4	118.2	75.3
3613-	**Switchgear and switchboard apparatus**	**5 324.5**	**5 083.9**	**5 345.4**	**5 216.6**	**4 894.5**	**4 597.6**	**4 760.6**	**(NA)**
36132	Power circuit breakers, all voltages	440.6	373.3	379.8	381.7	403.5	390.3	394.6	261.2
36133	Low voltage panelboards and distribution boards	1 566.8	1 615.2	1 730.1	1 700.7	1 595.0	1 536.4	1 299.5	878.2
36134	Fuses and fuse equipment, less than 2.3 kV, except power distribution cut-outs	425.1	404.2	440.1	410.8	391.5	359.2	280.6	201.6
36135	Molded case circuit breakers, 1000 volts or less	906.0	922.3	956.1	932.2	999.3	900.1	711.1	492.0
36136	Duct, including plug-in units and accessories, 1000 volts or less	183.0	193.2	200.7	192.2	149.4	131.6	162.5	88.5
36139	Switchgear, except ducts and relays	1 594.5	1 368.1	1 384.3	1 346.7	1 089.4	1 030.1	1 230.5	(NA)
36130	Switchgear and switchboard apparatus, n.s.k.	208.5	207.5	254.3	252.3	266.5	249.9	184.8	179.3
3621-	**Motors and generators**	**8 495.3**	**7 973.5**	**7 846.3**	**8 299.7**	**7 629.5**	**6 982.9**	**6 724.6**	**4 976.2**
36211	Fractional horsepower motors	3 856.4	3 436.5	3 519.0	3 854.5	3 733.0	3 479.0	2 518.7	1 956.3
36212	Integral horsepower motors and generators	1 763.9	1 710.2	1 687.4	1 640.0	1 491.1	1 293.5	1 454.2	1 163.0
36213	Land transportation motors and generators	188.3	271.2	201.7	215.5	206.1	233.1	460.2	205.7
36214	Prime mover generator sets, except steam or hydraulic turbine	1 155.7	1 111.3	983.5	1 147.2	864.1	787.7	961.5	643.9
36217	Fractional motor generator sets and other rotating equipment, including hermetics	329.5	284.3	259.8	294.1	274.0	237.9	264.5	274.5
36218	Integral motor generator sets and other rotating equipment, including hermetics	440.5	355.6	325.2	358.8	339.6	296.8	379.3	288.1
36219	Parts, supplies for motors, generators, generator sets, and other rotating equipment, excluding motors for built-in jobs	594.2	462.8	483.2	513.2	577.3	535.0	510.6	354.0
36210	Motors and generators, n.s.k.	166.8	341.7	386.7	276.6	144.5	119.9	175.6	90.7
3624-	**Carbon and graphite products**	**1 177.0**	**1 277.0**	**1 172.8**	**1 270.2**	**1 258.1**	**1 196.2**	**900.9**	**663.0**
36241	Electrodes	497.9	645.5	557.0	601.3	625.8	551.5	440.5	362.0
36249	All other carbon and graphite products	649.9	573.3	560.0	601.8	573.4	587.7	433.6	293.1
36240	Carbon and graphite products, n.s.k.	29.1	58.2	55.8	67.2	58.8	56.9	26.8	7.9
3625-	**Relays and industrial controls**	**7 109.4**	**6 736.7**	**7 276.4**	**6 925.2**	**6 483.9**	**6 040.3**	**(NA)**	**(NA)**
36251	Relays for electronic circuitry, industrial control, overload, and switchgear type	840.0	758.2	818.7	835.9	920.3	927.0	(NA)	(NA)
36252	Specific-purpose industrial controls	2 267.5	2 095.2	2 226.6	2 151.9	1 915.2	1 755.0	1 406.7	(NA)
36253	General-purpose industrial controls	2 870.7	2 819.6	2 897.1	2 791.6	2 607.2	2 368.0	2 171.8	(NA)
36254	Parts for industrial controls and motor-control accessories	491.5	466.3	509.4	520.4	492.6	440.9	(NA)	(NA)
36250	Relays and industrial controls, n.s.k.	639.7	597.4	824.7	625.4	548.7	549.4	(NA)	(NA)
3629-	**Electrical industrial apparatus, n.e.c.**	**1 906.3**	**1 461.3**	**1 517.2**	**1 476.6**	**1 331.9**	**1 163.7**	**1 003.1**	**699.1**
36291	Capacitors for industrial use (except for electronic circuitry)	279.8	167.3	161.1	146.6	177.3	136.9	190.0	154.8
36292	Rectifying apparatus	1 064.6	623.8	695.9	713.7	672.5	581.9	524.8	310.2
36293	Other electrical equipment for industrial use, except for electronic circuitry	410.4	405.8	406.0	369.9	284.2	259.5	213.0	182.2
36290	Electrical industrial apparatus, n.e.c., n.s.k.	151.5	264.3	254.2	246.3	197.9	185.4	75.3	51.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC		
	Materials, ingredients, containers, and supplies	**1 885.4**	**1 552.4**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	18.5	16.1
340098	Other fabricated metal products	54.5	(1)
346000	Forgings	(2)	(1)
330091	Castings (rough and semifinished)	2.9	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	17.1	(3)
331022	Sheet and strip	298.9	(3)
331023	Structural shapes and sheet piling	7.3	(3)
331091	All other steel shapes and forms	74.1	3439.4
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	28.8	30.7
335011	All other (except sheet, plate, foil, and welded tubing)	33.9	27.4
	Copper and copper-base alloy:		
335728	Bare wire for electrical conduction only	29.9	33.5
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	53.6	25.7
335170	All other copper and copper-base alloy shapes and forms		15.6
335099	All other nonferrous shapes and forms	.8	(4)
335770	Magnet wire	117.0	121.6
335791	Insulated wire and cable, except magnet wire	40.9	(1)
290002	Refined petroleum products (transformer oils, lubricating oils, and greases, etc.)	59.6	63.0
326400	Porcelain, steatite, and other ceramic electrical products	45.2	32.5
260070	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard	53.6	48.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	16.8	20.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3612, TRANSFORMERS, EXCEPT ELECTRONIC—Con.		
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	95.0	57.7
364300	Current-carrying wiring devices	41.1	33.5
970099	All other materials and components, parts, containers, and supplies	[2]669.0	429.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	126.9	157.8
	INDUSTRY 3613, SWITCHGEAR AND SWITCHBOARD APPARATUS		
	Materials, ingredients, containers, and supplies	**1 955.3**	**1 693.5**
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	41.5	21.8
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	70.6	50.1
340094	All other fabricated metal products	89.1	(1)
346000	Forgings	5.3	(1)
330091	Castings (rough and semifinished)	38.2	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	22.0	(4)
331022	Sheet and strip	132.0	(4)
331023	Structural shapes and sheet piling	5.5	(4)
331091	All other steel shapes and forms	13.0	(4)
	Nonferrous:		
333001	Nonferrous metal smelter and refinery shapes, including precious metal	12.0	30.6
335025	Aluminum and aluminum-base alloy, except wire	35.9	36.7
335125	Copper and copper-base alloy, except wire	124.0	82.2
335098	All other nonferrous shapes and forms	13.8	(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	50.6	17.8
	Industrial electrical control equipment:		
362500	Purchased from other companies	209.8	88.9
362501	Received from other plants of the same company	165.2	142.5
326400	Porcelain, steatite, and other ceramic electrical products	57.3	32.1
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	48.6	58.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	36.7	32.7
361301	Switches, except snap, toggle and push, and circuit breakers	92.4	18.3
367001	Resistors, capacitors, transformers, and other electronic-type components, except electron tubes and semiconductors	99.6	(4)
970099	All other materials and components, parts, containers, and supplies	348.5	684.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	243.5	397.0
	INDUSTRY 3621, MOTORS AND GENERATORS		
	Materials, ingredients, containers, and supplies	**3 502.8**	**2 760.3**
	Fabricated metal products, except forgings:		
346901	Metal stampings	231.5	134.4
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	77.1	53.9
340093	All other fabricated metal products	81.3	(1)
346000	Forgings	3.0	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	85.8	64.2
336005	Aluminum and aluminum-base alloy	90.1	77.0
336003	Other nonferrous	49.8	22.0
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	80.2	(6)
331022	Sheet and strip	374.9	(6)
331027	Wire and wire products	3.7	(6)
331019	All other steel shapes and forms	93.0	[6]403.1
	Copper and copper-base alloy:		
335728	Bare wire for electrical conduction only	10.3	24.6
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	3.0	29.6
335170	All other copper and copper-base alloy shapes and forms	49.2	12.7
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	5.4	17.1
335011	All other (except sheet, plate, foil, and welded tubing)	31.3	28.0
335099	Other nonferrous shapes and forms	3.6	(1)
335770	Magnet wire	355.6	191.2
335792	Insulated copper wire and cable, except magnet wire	35.1	16.8
333401	Primary aluminum and aluminum-base alloy refinery shapes	42.0	40.4
	Engines:		
351920	Diesel and semidiesel engines	188.1	65.9
351905	Gasoline and other carburetor	60.1	38.4
362111	Fractional horsepower electric motors less than 1 hp	24.6	(1)
362120	Integral horsepower electric motors and generators (1 hp or more)	35.9	12.1
356200	Ball and roller bearings (mounted or unmounted)	62.1	36.2
356810	Plain bearings and bushings	46.6	20.3
356601	Speed changers, gears, and industrial high-speed drives	9.6	27.8
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	65.4	16.0
362491	Carbon brushes	12.4	16.3
326401	Ceramic magnets (ferrite)	47.4	34.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	135.2	77.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	24.9	29.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3621, MOTORS AND GENERATORS—Con.		
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	40.2	23.5
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	110.9	53.8
360101	Electrical transmission, distribution, and control equipment	36.3	42.8
265001	Paperboard containers, boxes, and corrugated paperboard	38.2	47.8
970099	All other materials and components, parts, containers, and supplies	513.7	604.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	345.3	498.0
	INDUSTRY 3624, CARBON AND GRAPHITE PRODUCTS		
	Materials, ingredients, containers, and supplies	**434.7**	**444.4**
340091	Fabricated metal products, except forgings	(7)	(1)
346000	Forgings	(7)	(1)
330091	Castings (rough and semifinished)	(7)	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
335105	Copper and copper-base alloy	(7)	4.3
335090	All other nonferrous shapes and forms	(7)	(1)
286556	Pitch	33.5	20.0
299901	Coke, petroleum coke, metallurgical coke, calcined coke, foundry coke, etc., used as raw material	91.2	55.7
329508	Natural graphite	22.4	7.9
329900	Artificial graphite	28.1	(8)
329500	Carbon, ground or treated	13.1	17.9
339915	Metal powders	2.7	4.0
970099	All other materials and components, parts, containers, and supplies	[7]205.3	[8]248.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	38.3	86.6
	INDUSTRY 3625, RELAYS AND INDUSTRIAL CONTROLS		
	Materials, ingredients, containers, and supplies	**2 427.4**	**2 043.5**
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	86.5	35.4
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	45.7	40.1
340094	All other fabricated metal products	81.7	(1)
346000	Forgings	3.6	(1)
330091	Castings (rough and semifinished)	21.3	23.4
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	8.6	(3)
331022	Sheet and strip	35.4	(3)
331023	Structural shapes and sheet piling	3.9	(3)
331091	All other steel shapes and forms	8.3	[3]68.9
	Nonferrous:		
333001	Nonferrous metal smelter and refinery shapes, including precious metal	19.8	(1)
335025	Aluminum and aluminum-base alloy, except wire	10.9	12.5
335125	Copper and copper-base alloy, except wire	30.8	21.7
335098	All other nonferrous shapes and forms	6.0	(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	32.4	34.0
	Industrial electrical control equipment:		
362500	Purchased from other companies	247.8	(1)
362501	Received from other plants of the same company	257.8	(1)
326400	Porcelain, steatite, and other ceramic electrical products	7.7	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	44.4	(1)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	22.1	18.0
361301	Switches, except snap, toggle and push, and circuit breakers	31.5	(1)
367001	Resistors, capacitors, transformers, and other electronic-type components, except electron tubes and semiconductors	404.2	(1)
970099	All other materials and components, parts, containers, and supplies	674.1	1 309.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	342.9	480.0
	INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.		
	Materials, ingredients, containers, and supplies	**830.0**	**446.0**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.0	4.6
340098	All other fabricated metal products	16.3	(1)
346000	Forgings	(9)	(1)
330091	Castings (rough and semifinished)	2.0	(8)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	13.5	(4)
335105	Copper and copper-base alloy	6.8	10.2
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	4.8	5.0
335011	All other (except sheet, plate, foil, and welded tubing)	3.6	4.1
335099	All other nonferrous shapes and forms	4.4	(1)
335770	Magnet wire	24.7	9.2
335791	Insulated wire and cable, except magnet wire	17.1	(8)
326400	Porcelain, steatite, and other ceramic electrical products	.7	(8)
362502	Industrial electrical control equipment	58.1	16.1
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	9.1	11.3
367001	Electronic components (resistors, capacitors, etc.), except tubes and semiconductors	70.0	20.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3629, ELECTRICAL INDUSTRIAL APPARATUS, N.E.C.—Con.		
265001	Paperboard containers, boxes, and corrugated paperboard	5.4	(1)
190003	Flexible packaging materials	1.5	(1)
970099	All other materials and components, parts, containers, and supplies	[9]436.6	[8]232.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	141.4	132.2

[1]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the material was consumed.
[2]For 1992, materials are combined to avoid disclosing data for individual companies.
[3]For 1987, materials were collected differently and were combined with code 331091 of the industry in which the material was consumed.
[4]For 1987, materials were collected differently and were combined with code 970099 of the industry in which the material was consumed.
[5]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[6]For 1987, materials were collected differently and were combined with code 331019.
[7]For 1992, materials are combined to avoid disclosing data for individual companies.
[8]For 1987, materials were combined to avoid disclosing data for individual companies.
[9]For 1992, materials are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
36123 08	36123 03	36293 11	36293 05	36947 11	36947 09	36999	36997
36123 08	36123 04	36293 11	36293 09	36947 19	36947 09		
36123 08	36123 05					36999	36998
		36520 02	36520 01	36992 83	36992 00	36999 00	36997 00
36127 01	36127 11	36520 02	36520 03	36992 84	36992 00	36999 00	36998 04
36127 01	36127 31	36520 06	36520 07	36992 87	36992 00		
		36520 08	36520 07	36992 91	36992 00	3699A	36998
36291 04	36291 03	36520 12	36520 11	36992 92	36992 00	3699A 01	36998 01
36291 04	36291 05	36520 13	36520 11	36992 93	36992 00	3699A 03	36998 03
36291 04	36291 09			36992 94	36992 00	3699A 05	36998 05
				36992 95	36992 00	3699A 07	36998 07
		36914 21	36914 25	36992 96	36992 00	3699A 21	36998 02
36292 51	36292 31	36914 79	36914 07	36992 98	36992 00	3699A 21	36998 06
36292 51	36292 49	36914 79	36914 25	36992 99	36992 00	3699A 21	36998 19

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
36123 03	36123 08	36293 05	36293 11	36947 09	36947 11	36997	36999
36123 04	36123 08	36293 09	36293 11	36947 09	36947 19	36997 00	36999 00
36123 05	36123 08						
		36520 01	36520 02	36992 00	36992 83	36998	36999
36127 11	36127 01	36520 03	36520 02	36992 00	36992 84		
36127 31	36127 01	36520 07	36520 06	36992 00	36992 87	36998	3699A
		36520 07	36520 08	36992 00	36992 91	36998 01	3699A 01
36291 03	36291 04	36520 11	36520 12	36992 00	36992 92	36998 02	3699A 21
36291 05	36291 04	36520 11	36520 13	36992 00	36992 93	36998 03	3699A 03
36291 09	36291 04			36992 00	36992 94	36998 04	36999 00
				36992 00	36992 95	36998 05	3699A 05
		36914 07	36914 79	36992 00	36992 96	36998 06	3699A 21
36292 31	36292 51	36914 25	36914 21	36992 00	36992 98	36998 07	3699A 07
36292 49	36292 51	36914 25	36914 79	36992 00	36992 99	36998 19	3699A 21

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3632200	MA36F, Major Household Appliances
3613200	MA36A, Switchgear and Industrial Controls	3632300	MA36F, Major Household Appliances
3613300	MA36A, Switchgear and Industrial Controls	3633010	MA36F, Major Household Appliances
3613400	MA36A, Switchgear and Industrial Controls	3633020	MA36F, Major Household Appliances
3613500	MA36A, Switchgear and Industrial Controls	3634100	MA36E, Electric Housewares and Fans
3613600	MA36A, Switchgear and Industrial Controls	3634500	MA36E, Electric Housewares and Fans
3613900	MA36A, Switchgear and Industrial Controls	3634911	MA36E, Electric Housewares and Fans
3621100	MA36H, Motors and Generators	3634920	MA36E, Electric Housewares and Fans
3621200	MA36H, Motors and Generators	3639100	MA36F, Major Household Appliances
3621300	MA36H, Motors and Generators	3639200	MA36F, Major Household Appliances
3621400	MA36H, Motors and Generators	3639510	MA36F, Major Household Appliances
3621700	MA36H, Motors and Generators	3639520	MA36F, Major Household Appliances
3621800	MA36H, Motors and Generators	3641100	MQ36B, Electric Lamps
3621900	MA36H, Motors and Generators	3643100	MA36K, Wiring Devices and Supplies
3625100	MA36A, Switchgear and Industrial Controls	3643200	MA36K, Wiring Devices and Supplies
3625200	MA36A, Switchgear and Industrial Controls	3643300	MA36K, Wiring Devices and Supplies
3625300	MA36A, Switchgear and Industrial Controls	3643400	MA36K, Wiring Devices and Supplies
3625400	MA36A, Switchgear and Industrial Controls	3643500	MA36K, Wiring Devices and Supplies
3631110	MA36F, Major Household Appliances	3643600	MA36K, Wiring Devices and Supplies
3631120	MA36F, Major Household Appliances	3644100	MA36K, Wiring Devices and Supplies
3631310	MA36F, Major Household Appliances	3644200	MA36K, Wiring Devices and Supplies
3631320	MA36F, Major Household Appliances	3644300	MA36K, Wiring Devices and Supplies
3631410	MA36F, Major Household Appliances	3645100	MA36L, Electric Lighting Fixtures
3631420	MA36F, Major Household Appliances	3646200	MA36L, Electric Lighting Fixtures
3632100	MA36F, Major Household Appliances	3646300	MA36L, Electric Lighting Fixtures

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TSF:TIPS92-08514904.DAT;1 1/ 6/ 95 08:51:56 UTF:TIPS93-08514904.DAT;1 1/ 6/ 95 08:51:57 META:TIPS96-08514904.DAT;1 1/ 6/ 95 08:52:31

Part 3. Current Industrial Reports by Product Code—Con.

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3647000	MA36L, Electric Lighting Fixtures	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3648500	MA36L, Electric Lighting Fixtures	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651100	MA36M, Consumer Electronics	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651200	MA36M, Consumer Electronics	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651400	MA36M, Consumer Electronics	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651500	MA36M, Consumer Electronics	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661100	MA36P, Communications Equipment	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661300	MA36P, Communications Equipment	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661400	MA36P, Communications Equipment	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663100	MA36P, Communications Equipment	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663200	MA36P, Communications Equipment	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669100	MA36P, Communications Equipment	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669200	MA36P, Communications Equipment	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669300	MA36P, Communications Equipment	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3679930	MA36M, Consumer Electronics
3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3695000	MA35R, Computers and Office and Accounting Machines
3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699100	MA36P, Communications Equipment
3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699283	MA36P, Communications Equipment
3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699284	MA36P, Communications Equipment
3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699285	MA36P, Communications Equipment
3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699500	MA36P, Communications Equipment
3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699900	MA36P, Communications Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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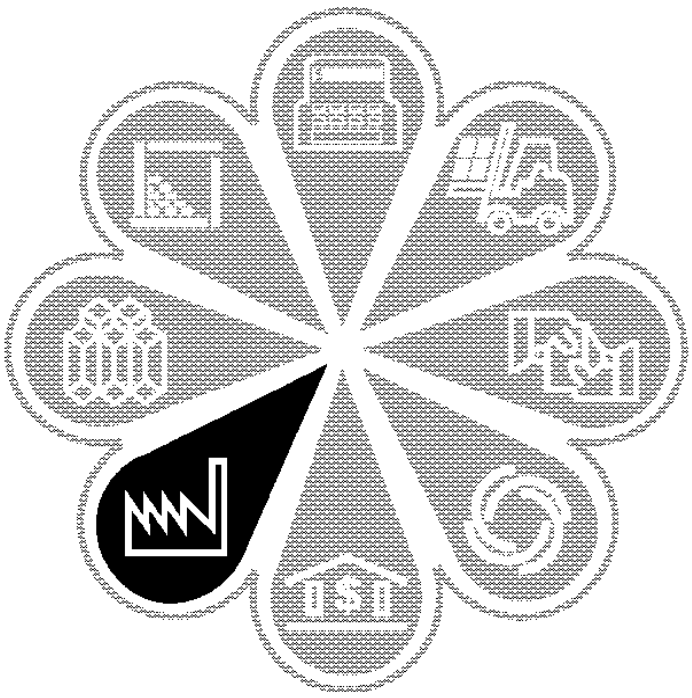
1992 Census of Manufactures

MC92-I-36B

INDUSTRY SERIES

Household Appliances

Industries 3631, 3632, 3633, 3634, 3635, and 3639



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-36B

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/17/95 11:15 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 1
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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3631	Household Cooking Equipment
3632	Household Refrigerators and Freezers
3633	Household Laundry Equipment
3634	Electric Housewares and Fans
3635	Household Vacuum Cleaners
3639	Household Appliances, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing household electric and nonelectric cooking equipment, such as stoves, ranges, and ovens, except portable electric appliances. This industry includes establishments primarily engaged in manufacturing microwave and convection ovens, including portable. Establishments primarily engaged in manufacturing other electric household cooking appliances, such as portable ovens, hot plates, grills, percolators, and toasters, are classified in industry 3634. Establishments primarily engaged in manufacturing commercial cooking equipment are classified in industry 3589. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36F, Major Household Appliances. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3631, Household Cooking Equipment, had employment of 18.8 thousand. The employment figure was 14 percent below the 21.9 thousand reported in 1987.

The leading States in employment in 1992 were Georgia, Illinois, Ohio, and Tennessee. This represents a shift from 1987 when Tennessee, Georgia, Kentucky, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $3.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3631 shipped $2.5 billion of household cooking equipment considered primary to the industry.

Establishments in this industry accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 78 percent.

The products primary to industry 3631, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household cooking equipment industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS

This industry is made up of establishments primarily engaged in manufacturing household refrigerators and home and farm freezers. Establishments primarily engaged in manufacturing commercial and industrial refrigeration equipment, packaged room coolers, and all refrigeration compressor and condenser units are classified in industry 3585, and those manufacturing portable room dehumidifiers are classified in industry 3634. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36F, Major Household Appliances. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3632, Household Refrigerators and Freezers, had employment of 25.4 thousand. The employment figure was 1 percent below the 25.7 thousand reported in 1987. Compared with 1991, employment increased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arkansas, Indiana, Iowa, and Kentucky. This represents a shift from 1987 when Indiana, Arkansas, Kentucky and Illinois were the leading States.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3632 shipped $3.9 billion of household refrigerators and freezers considered primary to the industry, $71.4 million of secondary products, and had $230.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3632, no matter in what industry they were produced, appear in table 6a and aggregate to $4.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household refrigerators and freezers industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing laundry equipment, such as washing machines, dryers, and ironers, for household use, including coin-operated. Establishments primarily engaged in manufacturing commercial laundry equipment are classified in industry 3582, and those manufacturing portable electric irons are classified in industry 3634. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36F, Major Household Appliances. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3633, Household Laundry Equipment, had employment of 14.2 thousand. The employment figure was 15 percent below the 16.7 thousand reported in 1987. Compared with 1991, employment decreased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Iowa, Kentucky, Ohio, and Wisconsin. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3633 shipped $3.0 billion of household laundry equipment considered primary to the industry.

Establishments in this industry accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3633, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household laundry equipment industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS

This industry is made up of establishments primarily engaged in manufacturing electric housewares for heating, cooking, and other purposes; and electric household fans, except attic fans. Important products of this industry include household-type ventilation and exhaust fans; portable household cooking appliances, except convection and microwave ovens; electric space heaters; electrically heated bedcoverings, electric scissors; and portable humidifiers and dehumidifiers. Establishments primarily engaged in manufacturing attic fans and industrial and commercial exhaust and ventilation fans are classified in industry 3564; and those manufacturing room air-conditioners and humidifying and dehumidifying equipment, except portable, are classified in industry 3585. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36E, Electric Housewares and Fans. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3634, Electric Housewares and Fans, had employment of 20.4 thousand. The employment figure was 19 percent below the 25.1 thousand reported in 1987.

The leading States in employment in 1992 were Missouri, North Carolina, Ohio, and Wisconsin. This represents a shift from 1987 when North Carolina, Tennessee, Wisconsin, and Missouri were the leading States.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3634 shipped $2.4 billion of electric housewares and fans considered primary to the industry, $171.3 million of secondary products, and had $306.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3634, no matter in what industry they were produced, appear in table 6a and aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electric housewares and fans industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS

This industry is made up of establishments primarily engaged in manufacturing vacuum cleaners for household use. Establishments primarily engaged in manufacturing vacuum cleaners for industrial use are classified in industry 3589. Establishments primarily engaged in installation of central vacuum cleaner systems are classified in construction, industry 1796.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3635, Household Vacuum Cleaners, had employment of 11.3 thousand. The employment figure was unchanged from the 11.3 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Kentucky, Ohio, and South Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3635 shipped $1.7 billion of household vacuum cleaners considered primary to the industry, $99.5 million of secondary products, and had $95.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3635, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household vacuum cleaners industry amounted to $859.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing household appliances, not elsewhere classified, such as water heaters, dishwashers, food waste disposal units, and household sewing machines. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36F, Major Household Appliances. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3639, Household Appliances, N.E.C., had employment of 12.7 thousand. The employment figure was 21 percent below the 16.0 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Kentucky, Ohio, South Carolina, and Tennessee. This represents a shift from 1987 when Tennessee, Ohio, Kentucky, and Indiana were the leading States.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3639 shipped $2.0 billion of household appliances, not elsewhere classified, considered primary to the industry.

Establishments in this industry accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3639, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household appliances, not elsewhere classified, industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 25 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT															
1992 Census	80	89	43	18.8	437.0	15.0	29.9	293.4	1 141.4	1 811.7	2 950.0	82.9	466.2	(D)	82
1991 ASM	(NA)	(NA)	(NA)	18.4	401.5	14.8	28.0	278.7	1 091.2	1 801.0	2 890.7	95.7	457.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.2	442.2	15.3	30.2	303.0	1 138.9	1 821.7	2 994.0	84.7	515.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.0	440.7	15.9	31.3	305.7	1 087.6	1 940.0	3 094.5	63.2	576.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.8	463.8	17.3	33.3	325.7	1 404.7	2 382.3	3 699.4	92.6	714.8	(NA)	(NA)
1987 Census	65	78	47	21.9	475.8	16.9	33.3	323.6	1 267.9	2 118.3	3 395.8	79.6	648.6	96	78
1986 ASM	(NA)	(NA)	(NA)	22.2	461.9	16.9	32.6	310.1	1 305.3	2 089.8	3 328.7	88.6	663.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.2	492.4	18.5	35.9	323.7	1 236.5	2 006.7	3 297.3	76.6	621.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.7	544.8	21.5	42.9	370.8	1 528.8	2 161.4	3 578.5	86.3	756.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.5	488.7	19.7	39.4	323.7	1 276.9	1 862.0	3 075.8	69.4	590.8	(NA)	(NA)
1982 Census	71	88	59	23.7	402.1	17.0	31.4	254.8	941.4	1 408.3	2 414.9	51.5	497.1	88	84
1981 ASM	(NA)	(NA)	(NA)	27.3	417.3	20.9	42.1	288.9	1 041.8	1 552.4	2 525.9	57.7	499.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	28.1	398.9	21.1	42.3	272.8	968.0	1 507.5	2 465.5	49.8	440.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.1	384.1	21.6	42.1	255.2	991.1	1 369.8	2 353.4	41.5	432.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.0	339.8	21.6	40.5	235.0	841.3	1 110.7	1 912.4	35.8	365.6	(NA)	(NA)
1977 Census	84	96	58	25.4	289.1	19.1	36.8	197.9	784.1	943.9	1 707.2	36.1	303.8	92	80
INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS															
1992 Census	52	58	19	25.4	719.0	21.4	41.5	531.7	1 629.1	2 596.6	4 232.4	187.4	446.7	98	97
1991 ASM	(NA)	(NA)	(NA)	21.8	605.5	17.8	35.8	459.9	1 386.9	2 238.4	3 721.3	168.7	452.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.6	609.2	19.2	36.6	460.5	1 464.3	2 193.9	3 799.8	101.9	580.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.2	683.9	20.7	42.0	535.6	1 653.4	2 444.1	4 015.4	172.6	747.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.0	695.6	22.5	43.1	550.6	1 538.6	2 382.4	3 902.0	133.6	671.9	(NA)	(NA)
1987 Census	40	49	26	25.7	650.7	21.6	41.5	518.2	1 450.4	2 161.6	3 518.9	100.3	621.0	97	98
1986 ASM	(NA)	(NA)	(NA)	23.9	594.7	20.1	38.4	466.2	1 427.2	1 977.8	3 352.8	84.9	502.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	22.3	514.5	18.4	34.1	393.1	1 352.2	1 889.5	3 340.5	64.3	452.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	24.0	526.5	20.4	37.9	415.5	1 152.5	2 052.6	3 088.0	56.3	523.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	21.0	460.2	17.5	33.4	359.1	1 146.2	1 653.7	2 821.2	53.7	429.8	(NA)	(NA)
1982 Census	39	50	30	22.4	441.2	18.4	33.1	340.4	1 032.3	1 460.5	2 470.7	79.1	432.4	85	94
1981 ASM	(NA)	(NA)	(NA)	27.1	469.7	22.9	39.6	364.6	1 059.9	1 658.4	2 702.9	55.8	273.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.2	422.1	23.0	40.2	327.3	1 034.4	1 380.6	2 460.2	55.4	257.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.9	424.6	24.6	45.7	336.2	1 130.6	1 402.2	2 683.8	38.6	265.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	38.2	540.4	32.1	59.7	405.6	1 204.3	1 606.9	2 773.0	73.3	439.0	(NA)	(NA)
1977 Census	33	42	25	35.8	468.6	29.8	56.9	358.0	1 166.1	1 447.6	2 576.6	46.9	399.1	77	98
INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT															
1992 Census	10	17	15	14.2	423.1	12.1	24.8	340.0	1 545.2	1 721.2	3 328.5	93.6	264.4	(D)	99
1991 ASM	(NA)	(NA)	(NA)	14.7	413.3	12.4	24.5	334.5	1 517.6	1 654.3	3 205.7	82.2	326.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.1	439.5	13.9	27.4	360.9	1 543.1	1 726.1	3 234.4	54.6	393.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.6	453.3	14.2	27.7	366.2	1 460.6	1 657.0	3 103.8	59.4	367.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.6	449.1	14.1	26.5	364.3	1 398.1	1 727.4	3 117.9	93.2	350.6	(NA)	(NA)
1987 Census	11	18	16	16.7	465.8	14.1	27.7	373.4	1 406.2	1 649.0	3 034.8	73.4	342.9	(D)	99
1986 ASM	(NA)	(NA)	(NA)	17.4	452.3	14.7	28.7	358.9	1 520.4	1 558.4	3 062.9	69.3	325.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.2	415.5	14.4	27.1	330.3	1 375.5	1 450.9	2 838.4	81.4	306.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.7	401.2	14.1	27.0	319.3	1 292.5	1 435.1	2 715.6	69.9	323.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.1	361.9	13.6	25.4	288.2	1 114.8	1 290.5	2 369.4	36.9	313.9	(NA)	(NA)
1982 Census	15	25	20	16.5	335.4	13.4	23.4	261.1	984.1	1 116.2	2 122.2	35.1	286.4	85	99
1981 ASM	(NA)	(NA)	(NA)	18.9	360.2	15.6	28.1	280.1	1 021.3	1 240.7	2 259.0	43.5	173.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	19.2	331.6	15.7	28.4	256.7	989.5	1 148.8	2 142.2	45.6	170.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.1	323.0	16.7	30.9	251.5	1 066.5	1 152.3	2 214.7	32.0	185.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	19.6	288.4	16.1	29.5	221.8	918.5	1 017.6	1 946.1	33.4	157.7	(NA)	(NA)
1977 Census	21	31	24	19.4	262.4	15.9	29.4	202.4	844.7	953.1	1 792.8	27.3	170.6	87	90
INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS															
1992 Census	189	209	81	20.4	400.6	16.5	30.9	261.0	1 387.0	1 525.0	2 897.5	46.3	482.7	93	91
1991 ASM	(NA)	(NA)	(NA)	23.6	453.8	18.9	34.0	295.4	1 371.7	1 651.2	3 111.8	47.1	493.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.9	462.1	19.5	35.1	298.5	1 425.0	1 633.7	3 055.9	48.9	613.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.9	463.1	20.5	37.3	298.4	1 488.4	1 639.2	3 077.9	44.5	582.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.4	445.4	19.4	37.3	283.9	1 322.6	1 506.6	2 828.1	38.3	468.7	(NA)	(NA)
1987 Census	201	230	100	25.1	432.5	19.2	37.0	280.4	1 378.1	1 430.7	2 825.7	57.0	482.1	91	90
1986 ASM	(NA)	(NA)	(NA)	28.6	502.2	21.3	40.5	306.5	1 436.4	1 644.3	3 116.1	65.7	531.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	30.7	524.3	23.4	43.8	333.4	1 546.6	1 559.2	3 099.6	68.5	557.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.1	522.6	25.7	47.1	338.4	1 669.7	1 607.9	3 238.6	64.9	541.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	36.0	543.3	28.1	51.0	348.6	1 639.6	1 548.7	3 186.2	66.1	588.9	(NA)	(NA)
1982 Census	217	262	134	38.7	539.1	29.3	54.4	341.3	1 511.9	1 556.2	3 128.4	73.0	605.8	90	94
1981 ASM	(NA)	(NA)	(NA)	44.0	568.3	34.2	64.1	387.3	1 515.5	1 621.6	3 078.4	74.4	601.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	47.1	574.4	36.8	70.2	399.5	1 690.0	1 654.9	3 299.8	70.1	539.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.8	531.2	36.7	68.8	365.1	1 417.4	1 466.9	2 868.9	62.1	479.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.9	491.7	36.8	68.2	331.1	1 344.5	1 244.9	2 581.1	62.9	463.1	(NA)	(NA)
1977 Census	239	291	148	47.3	458.7	37.6	71.4	305.0	1 365.7	1 169.8	2 531.2	47.8	429.5	87	90
INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS															
1992 Census	35	43	22	11.3	278.7	7.7	15.2	172.1	1 054.6	859.8	1 905.3	66.8	230.5	94	95
1991 ASM	(NA)	(NA)	(NA)	11.9	282.5	8.2	15.8	176.9	961.8	827.4	1 804.5	53.3	227.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.4	295.6	8.6	17.2	186.7	997.8	860.4	1 860.1	33.8	245.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.9	272.7	8.3	15.9	173.1	835.8	773.0	1 605.0	32.1	234.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	11.4	256.7	7.5	14.4	163.3	795.6	712.6	1 473.0	48.7	241.2	(NA)	(NA)
1987 Census	28	31	21	11.3	247.1	7.6	14.4	162.7	718.2	622.5	1 324.2	59.6	200.0	89	87
1986 ASM	(NA)	(NA)	(NA)	11.5	242.4	7.5	14.9	152.3	702.8	626.6	1 337.3	46.7	191.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.2	236.4	7.5	14.3	149.8	691.9	592.9	1 301.9	35.3	210.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	11.9	237.5	8.2	15.5	156.9	746.5	610.9	1 307.3	43.4	231.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.1	189.4	6.7	12.4	122.0	556.7	423.6	970.6	23.4	149.7	(NA)	(NA)
1982 Census	29	31	18	8.4	151.1	5.2	9.5	94.6	463.6	294.9	775.7	17.1	121.1	95	80
1981 ASM	(NA)	(NA)	(NA)	9.5	153.5	6.3	11.3	100.6	427.3	347.2	769.8	26.5	101.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.3	149.1	7.0	12.6	101.0	413.0	335.2	753.9	20.9	93.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.2	147.8	7.7	14.4	101.5	459.2	342.7	796.1	19.1	102.6	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/17/95 11:14 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 1
TSF:36B_92.DAT;2 5/17/95 11:11:27 UTF:36B_93.DAT;4 5/17/95 11:11:28 META:TIPS96-11111203.DAT;1 5/17/95 11:13:47

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
	INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS—Con.														
1978 ASM	(NA)	(NA)	(NA)	10.5	127.5	7.4	13.2	86.7	408.5	281.4	683.0	14.5	92.9	(NA)	(NA)
1977 Census	33	36	23	10.4	117.1	7.4	13.0	79.2	380.4	267.5	644.3	16.4	85.3	(D)	81
	INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.														
1992 Census	61	68	34	12.7	329.7	10.5	21.0	253.5	1 061.3	1 954.5	3 169.1	79.2	204.2	(D)	89
1991 ASM	(NA)	(NA)	(NA)	14.0	340.1	11.7	23.4	264.1	1 083.5	1 771.3	2 958.2	49.4	378.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.2	355.9	11.8	23.5	275.2	1 266.9	1 874.0	3 124.9	66.5	493.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.7	359.5	12.2	24.8	275.6	1 647.7	1 959.0	3 438.0	113.5	460.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.2	361.7	12.5	24.6	278.5	1 103.6	1 215.8	2 312.0	63.0	272.9	(NA)	(NA)
1987 Census	61	75	38	16.0	370.2	13.1	26.0	276.3	1 215.5	1 208.2	2 398.3	60.2	279.6	87	91
1986 ASM	(NA)	(NA)	(NA)	16.7	373.5	13.9	27.1	285.5	1 053.8	1 247.1	2 280.1	44.9	284.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	16.0	337.1	13.2	26.7	259.3	1 018.9	1 147.7	2 175.3	71.9	260.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.2	338.3	13.6	27.8	262.2	1 025.5	1 157.6	2 150.7	48.5	274.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.7	313.9	13.0	25.9	238.9	869.7	1 026.0	1 879.0	36.6	239.5	(NA)	(NA)
1982 Census	70	83	49	14.2	252.4	11.4	21.7	180.2	673.8	754.9	1 432.0	40.6	217.9	90	82
1981 ASM	(NA)	(NA)	(NA)	15.4	265.8	12.4	23.7	193.7	692.8	789.4	1 462.4	33.7	197.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.7	243.2	12.6	23.7	177.2	622.9	768.4	1 411.1	23.6	182.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.3	249.9	14.0	26.5	182.2	644.9	809.4	1 424.9	28.2	209.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.4	215.3	13.1	24.2	154.9	546.4	721.1	1 267.7	29.9	167.5	(NA)	(NA)
1977 Census	65	80	40	15.7	195.6	12.8	25.1	143.2	527.9	667.5	1 184.0	24.6	164.2	93	79

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT								
1992 Census	23 245	80	1 993	9.81	61	76	60 713	38	38.17
1991 ASM	21 821	80	1 892	9.95	62	76	59 304	37	38.97
1990 ASM	23 031	80	1 974	10.03	61	76	59 318	39	37.71
1989 ASM	22 035	79	1 969	9.77	63	77	54 380	41	34.75
1988 ASM	21 275	79	1 925	9.78	64	77	64 436	33	42.18
1987 Census	21 726	77	1 970	9.72	62	76	57 895	38	38.08
1986 ASM	20 806	76	1 929	9.51	63	77	58 797	35	40.04
1985 ASM	20 347	76	1 941	9.02	61	76	51 095	40	34.44
1984 ASM	19 668	78	1 995	8.64	60	76	55 191	36	35.64
1983 ASM	18 442	74	2 000	8.22	61	76	48 185	38	32.41
1982 Census	16 966	72	1 847	8.11	58	75	39 722	43	29.98
1981 ASM	15 286	77	2 014	6.86	61	78	38 161	40	24.75
1980 ASM	14 196	75	2 005	6.45	61	77	34 448	41	22.88
1979 ASM	13 199	74	1 949	6.06	58	75	34 058	39	23.54
1978 ASM	12 136	77	1 875	5.80	58	76	30 046	40	20.77
1977 Census	11 382	75	1 927	5.38	55	72	30 870	37	21.31
	INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS								
1992 Census	28 307	84	1 939	12.81	61	78	64 138	44	39.26
1991 ASM	27 775	82	2 011	12.85	60	76	63 619	44	38.74
1990 ASM	25 814	81	1 906	12.58	58	74	62 047	42	40.01
1989 ASM	27 139	82	2 029	12.75	61	78	65 611	41	39.37
1988 ASM	25 763	83	1 916	12.77	61	79	56 985	45	35.70
1987 Census	25 319	84	1 921	12.49	61	80	56 436	45	34.95
1986 ASM	24 883	84	1 910	12.14	59	77	59 715	42	37.17
1985 ASM	23 072	83	1 853	11.53	57	72	60 637	38	39.65
1984 ASM	21 938	85	1 858	10.96	66	84	48 021	46	30.41
1983 ASM	21 914	83	1 909	10.75	59	75	54 581	40	34.32
1982 Census	19 696	82	1 799	10.28	59	77	46 085	43	31.19
1981 ASM	17 332	85	1 729	9.21	61	79	39 111	44	26.77
1980 ASM	15 518	85	1 748	8.14	56	73	38 029	41	25.73
1979 ASM	14 692	85	1 858	7.36	52	68	39 121	38	24.74
1978 ASM	14 147	84	1 860	6.79	58	77	31 526	45	20.17
1977 Census	13 089	83	1 909	6.29	56	74	32 573	40	20.49

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT								
1992 Census	29 796	85	2 050	13.71	52	64	108 817	27	62.31
1991 ASM	28 116	84	1 976	13.65	52	64	103 238	27	61.94
1990 ASM	27 298	86	1 971	13.17	53	67	95 845	28	56.32
1989 ASM	27 307	86	1 951	13.22	53	68	87 988	31	52.73
1988 ASM	27 054	85	1 879	13.75	55	70	84 223	32	52.76
1987 Census	27 892	84	1 965	13.48	54	70	84 204	33	50.77
1986 ASM	25 994	84	1 952	12.51	51	66	87 379	30	52.98
1985 ASM	24 157	84	1 882	12.19	51	66	79 971	30	50.76
1984 ASM	24 024	84	1 915	11.83	53	68	77 395	31	47.87
1983 ASM	22 478	84	1 868	11.35	54	70	69 242	32	43.89
1982 Census	20 327	81	1 746	11.16	53	68	59 642	34	42.06
1981 ASM	19 058	83	1 801	9.97	55	71	54 037	35	36.35
1980 ASM	17 271	82	1 809	9.04	54	69	51 536	34	34.84
1979 ASM	16 070	83	1 850	8.14	52	67	53 060	30	34.51
1978 ASM	14 714	82	1 832	7.52	52	67	46 862	31	31.14
1977 Census	13 526	82	1 849	6.88	53	68	43 541	31	28.73
	INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS								
1992 Census	19 637	81	1 873	8.45	53	66	67 990	29	44.89
1991 ASM	19 229	80	1 799	8.69	53	68	58 123	33	40.34
1990 ASM	18 558	78	1 800	8.50	53	69	57 229	32	40.60
1989 ASM	17 880	79	1 820	8.00	53	68	57 467	31	39.90
1988 ASM	17 535	76	1 923	7.61	53	69	52 071	34	35.46
1987 Census	17 231	76	1 927	7.58	51	66	54 904	31	37.25
1986 ASM	17 559	74	1 901	7.57	53	69	50 224	35	35.47
1985 ASM	17 078	76	1 872	7.61	50	67	50 378	34	35.31
1984 ASM	15 789	78	1 833	7.18	50	66	50 444	31	35.45
1983 ASM	15 092	78	1 815	6.84	49	66	45 544	33	32.15
1982 Census	13 930	76	1 857	6.27	50	67	39 067	36	27.79
1981 ASM	12 916	78	1 874	6.04	53	71	34 443	37	23.64
1980 ASM	12 195	78	1 908	5.69	50	68	35 881	34	24.07
1979 ASM	11 350	78	1 875	5.31	51	70	30 286	37	20.60
1978 ASM	10 484	78	1 853	4.85	48	67	28 667	37	19.71
1977 Census	9 698	79	1 899	4.27	46	64	28 873	34	19.13
	INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS								
1992 Census	24 664	68	1 974	11.32	45	60	93 327	26	69.38
1991 ASM	23 739	69	1 927	11.20	46	62	80 824	29	60.87
1990 ASM	23 839	69	2 000	10.85	46	62	80 468	30	58.01
1989 ASM	22 916	70	1 916	10.89	48	65	70 235	33	52.57
1988 ASM	22 518	66	1 920	11.34	48	66	69 789	32	55.25
1987 Census	21 867	67	1 895	11.30	47	66	63 558	34	49.88
1986 ASM	21 078	65	1 987	10.22	47	65	61 113	34	47.17
1985 ASM	21 107	67	1 907	10.48	46	64	61 777	34	48.38
1984 ASM	19 958	69	1 890	10.12	47	65	62 731	32	48.16
1983 ASM	18 752	66	1 851	9.84	44	63	55 119	34	44.90
1982 Census	17 988	62	1 827	9.96	38	57	55 190	33	48.80
1981 ASM	16 158	66	1 794	8.90	45	65	44 979	36	37.81
1980 ASM	14 476	68	1 800	8.02	44	64	40 097	36	32.78
1979 ASM	13 196	69	1 870	7.05	43	62	41 000	32	31.89
1978 ASM	12 143	70	1 784	6.57	41	60	38 905	31	30.95
1977 Census	11 260	71	1 757	6.09	42	60	36 577	31	29.26
	INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.								
1992 Census	25 961	83	2 000	12.07	62	72	83 567	31	50.54
1991 ASM	24 293	84	2 000	11.29	60	71	77 393	31	46.30
1990 ASM	25 063	83	1 992	11.71	60	71	89 218	28	53.91
1989 ASM	24 456	83	2 033	11.11	57	67	112 088	22	66.44
1988 ASM	23 796	82	1 968	11.32	53	68	72 605	33	44.86
1987 Census	23 138	82	1 985	10.63	50	66	75 969	30	46.75
1986 ASM	22 365	83	1 950	10.54	55	71	63 102	35	38.89
1985 ASM	21 069	83	2 023	9.71	53	68	63 681	33	38.16
1984 ASM	20 883	84	2 044	9.43	54	70	63 302	33	36.89
1983 ASM	19 994	83	1 992	9.22	55	71	55 395	36	33.58
1982 Census	17 775	80	1 904	8.30	53	70	47 451	37	31.05
1981 ASM	17 260	81	1 911	8.17	54	72	44 987	38	29.23
1980 ASM	15 490	80	1 881	7.48	54	72	39 675	39	26.28
1979 ASM	14 445	81	1 893	6.88	57	74	37 277	39	24.34
1978 ASM	13 128	80	1 847	6.40	57	74	33 317	39	22.58
1977 Census	12 459	82	1 961	5.71	56	73	33 624	37	21.03

Note: For qualifications of data, see footnotes on table 1a.

TIPS [UPF] C_BROOKS [APS_PSB,C_BROOKS] APS-PSB 5/17/95 11:14 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT														
United States	–	**89**	**43**	**18.8**	**437.0**	**15.0**	**29.9**	**293.4**	**1 141.4**	**1 811.7**	**2 950.0**	**82.9**	**21.9**	**1 267.9**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	11	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	5	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	17.9	(NA)	(D)
Illinois	–	10	8	2.3	56.0	1.8	3.7	37.9	101.1	166.0	264.2	(D)	1.6	88.7
Indiana	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	9	8	4.5	113.2	3.5	7.8	71.8	298.8	542.8	850.4	21.8	4.7	245.3
INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS														
United States	–	**58**	**19**	**25.4**	**719.0**	**21.4**	**41.5**	**531.7**	**1 629.1**	**2 596.6**	**4 232.4**	**187.4**	**25.7**	**1 450.4**
Alabama	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	10	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	3	2	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E1	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	4	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT														
United States	–	**17**	**15**	**14.2**	**423.1**	**12.1**	**24.8**	**340.0**	**1 545.2**	**1 721.2**	**3 328.5**	**93.6**	**16.7**	**1 406.2**
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Iowa	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	2	2	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS														
United States	–	**209**	**81**	**20.4**	**400.6**	**16.5**	**30.9**	**261.0**	**1 387.0**	**1 525.0**	**2 897.5**	**46.3**	**25.1**	**1 378.1**
Alabama	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E1	20	8	.6	12.4	.5	.9	8.1	60.1	70.3	125.5	1.7	.6	52.1
Connecticut	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	15	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	G	(D)
Indiana	–	8	3	.6	11.7	.5	.9	7.5	22.6	34.6	56.7	4.3	E	(D)
Iowa	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	7	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	8	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E3	5	1	.1	1.6	.1	.2	1.1	3.9	6.0	9.9	(D)	(NA)	(D)
New Mexico	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	18	2	.3	5.7	.3	.6	4.0	24.5	17.6	41.3	.7	E	(D)
North Carolina	E1	8	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.1	(NA)	(D)
Ohio	–	13	8	2.0	43.9	1.3	2.6	24.4	197.6	202.3	406.4	6.6	G	(D)
Pennsylvania	E1	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	29.8
Tennessee	–	7	4	1.3	24.5	1.0	1.5	13.9	47.2	113.2	160.6	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS—Con.														
Texas	–	7	4	.8	12.0	.7	1.3	8.5	40.4	57.9	104.5	1.2	F	(D)
Virginia	E5	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.0	2.6	146.4
INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS														
United States	**E1**	**43**	**22**	**11.3**	**278.7**	**7.7**	**15.2**	**172.1**	**1 054.6**	**859.8**	**1 905.3**	**66.8**	**11.3**	**718.2**
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E2	11	8	3.9	119.9	2.7	5.1	70.6	498.8	247.2	736.3	(D)	(NA)	(D)
Pennsylvania	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.														
United States	**–**	**68**	**34**	**12.7**	**329.7**	**10.5**	**21.0**	**253.5**	**1 061.3**	**1 954.5**	**3 169.1**	**79.2**	**16.0**	**1 215.5**
Alabama	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E5	13	5	.8	19.7	.6	1.2	13.6	42.4	70.9	114.2	1.1	F	(D)
Illinois	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E4	5	3	.2	4.2	.2	.3	2.4	8.8	11.6	20.3	(D)	(NA)	(NA)
Michigan	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nevada	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E7	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E3	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Household cooking equipment (SIC 3631)	Household refrigerators and freezers (SIC 3632)	Household laundry equipment (SIC 3633)	Electric housewares and fans (SIC 3634)	Household vacuum cleaners (SIC 3635)	Household appliances, n.e.c. (SIC 3639)
Companies	number	80	52	10	189	35	61
All establishments	number	89	58	17	209	43	68
With 1 to 19 employees	number	46	39	2	128	21	34
With 20 to 99 employees	number	12	3	3	34	6	17
With 100 employees or more	number	31	16	12	47	16	17
Employment and labor costs:							
Employees	1,000	18.8	25.4	14.2	20.4	11.3	12.7
Compensation, total	mil dol	554.2	937.7	556.5	504.4	349.3	426.8
Annual payroll	mil dol	437.0	719.0	423.1	400.6	278.7	329.7
Fringe benefits	mil dol	117.3	218.7	133.4	103.9	70.6	97.0
Social Security and other legally required payments	mil dol	45.4	76.1	44.4	44.0	30.4	40.3
Employer voluntary payments	mil dol	71.9	142.6	89.1	59.9	40.2	56.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household cooking equipment (SIC 3631)	Household refrigerators and freezers (SIC 3632)	Household laundry equipment (SIC 3633)	Electric housewares and fans (SIC 3634)	Household vacuum cleaners (SIC 3635)	Household appliances, n.e.c. (SIC 3639)
Production workers:						
Average for year ---- 1,000	15.0	21.4	12.1	16.5	7.7	10.5
March ---- 1,000	15.8	21.3	12.2	15.1	7.4	10.4
May ---- 1,000	15.7	22.3	12.6	16.3	7.7	10.7
August ---- 1,000	13.8	21.6	11.5	17.1	7.8	10.5
November ---- 1,000	14.5	20.5	12.2	17.7	7.9	10.4
Hours ---- millions	29.9	41.5	24.8	30.9	15.2	21.0
Wages ---- mil dol	293.4	531.7	340.0	261.0	172.1	253.5
Cost of materials[1] ---- mil dol	1 811.7	2 596.6	1 721.2	1 525.0	859.8	1 954.5
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 482.0	2 375.7	1 531.7	1 278.2	804.4	1 230.4
Resales ---- mil dol	284.4	178.5	158.8	211.8	31.3	694.6
Fuels ---- mil dol	10.0	6.7	9.4	5.9	3.4	7.0
Purchased electricity ---- mil dol	18.5	27.6	20.2	20.0	13.2	16.4
Contract work ---- mil dol	16.8	8.0	1.1	9.1	7.4	6.1
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	372.2	589.5	473.9	330.0	248.1	350.5
Generated less sold ---- mil kWh	(D)	(D)	(D)	–	–	(D)
Total value of shipments ---- mil dol	2 950.0	4 232.4	3 328.5	2 897.5	1 905.3	3 169.1
Value added ---- mil dol	1 141.4	1 629.1	1 545.2	1 387.0	1 054.6	1 061.3
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	451.2	458.8	330.8	443.4	218.3	362.7
Finished goods ---- mil dol	244.1	312.9	219.8	224.2	112.2	256.4
Work in process ---- mil dol	84.2	43.3	48.9	66.3	57.7	33.4
Materials and supplies ---- mil dol	122.9	102.6	62.0	152.9	48.4	73.0
End of 1992 ---- mil dol	466.2	446.7	264.4	482.7	230.5	204.2
Finished goods ---- mil dol	255.2	311.8	163.5	236.2	119.4	101.0
Work in process ---- mil dol	76.2	37.7	43.2	68.9	59.6	35.4
Materials and supplies ---- mil dol	134.8	97.2	57.7	177.7	51.6	67.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household cooking equipment (SIC 3631)	Household refrigerators and freezers (SIC 3632)	Household laundry equipment (SIC 3633)	Electric housewares and fans (SIC 3634)	Household vacuum cleaners (SIC 3635)	Household appliances, n.e.c. (SIC 3639)
Gross book value of depreciable assets:						
Total:						
Beginning of year	968.3	1 462.9	1 103.8	629.7	534.3	741.7
New capital expenditures[1]	82.9	187.4	93.6	46.3	66.8	79.2
Used capital expenditures	15.2	1.4	(D)	5.4	9.0	7.8
Retirements	73.8	43.2	(D)	39.7	14.9	56.9
End of year	992.6	1 608.5	1 182.7	641.7	595.2	771.8
Buildings and other structures:						
Beginning of year	201.9	332.7	226.4	142.2	118.0	340.7
New capital expenditures	4.8	16.3	12.3	4.1	5.2	1.5
Used capital expenditures	(D)	(D)	(D)	(D)	(D)	(D)
Retirements	(D)	(D)	(D)	(D)	(D)	(D)
End of year	197.5	347.6	238.4	146.8	127.4	328.2
Machinery and equipment:						
Beginning of year	766.4	1 130.3	877.4	487.5	416.3	400.9
New capital expenditures[1]	78.1	171.1	81.4	42.2	61.6	77.7
Used capital expenditures	(D)	(D)	(D)	(D)	(D)	(D)
Retirements	(D)	(D)	(D)	(D)	(D)	(D)
End of year	795.2	1 260.9	944.3	494.8	467.8	443.6
Depreciation charges during 1992:						
Total	75.1	113.7	74.0	62.3	45.2	51.5
Buildings and other structures	11.1	14.1	7.9	10.9	4.5	24.3
Machinery and equipment	64.0	99.6	66.0	51.4	40.7	27.2
Rental payments:						
Total	17.6	9.6	2.9	16.7	10.7	17.5
Buildings and other structures	9.6	3.8	1.0	9.8	4.8	5.1
Machinery and equipment	8.1	5.8	1.8	6.9	5.9	12.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household cooking equipment (SIC 3631)		Household refrigerators and freezers (SIC 3632)		Household laundry equipment (SIC 3633)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	4.8	(X)	3.2	(X)	2.2	(X)
Response coverage ratio (percent)[2]	92.1	(X)	87.5	(X)	99.9	(X)
Machinery	14.8	(X)	15.2	(X)	5.9	(X)
Response coverage ratio (percent)[2]	93.3	(X)	87.5	(X)	99.9	(X)
Other purchased services:						
Communications	4.1	(X)	2.4	(X)	1.1	(X)
Response coverage ratio (percent)[2]	88.4	(X)	66.7	(X)	82.8	(X)
Legal	2.0	(X)	.9	(X)	.5	(X)
Response coverage ratio (percent)[2]	91.6	(X)	87.5	(X)	94.9	(X)
Accounting and bookkeeping	2.4	(X)	.4	(X)	.1	(X)
Response coverage ratio (percent)[2]	91.6	(X)	87.5	(X)	94.9	(X)
Advertising	94.8	(X)	.1	(X)	26.2	(X)
Response coverage ratio (percent)[2]	92.1	(X)	87.5	(X)	94.9	(X)
Software and other data processing	1.9	(X)	1.7	(X)	.4	(X)
Response coverage ratio (percent)[2]	91.6	(X)	87.5	(X)	94.9	(X)
Refuse removal, including hazardous waste	2.2	(X)	1.6	(X)	1.6	(X)
Response coverage ratio (percent)[2]	91.6	(X)	87.5	(X)	99.9	(X)
New machinery and equipment expenditures	78.1	(X)	171.1	(X)	81.4	(X)
Automobiles, trucks, etc., for highway use	.5	41	.2	1	.1	1
Computers and peripheral data processing equipment	5.9	3	8.5	1	4.3	1
All other	71.8	1	162.4	1	77.0	1
Adjustment ratio[3]	1.1	(X)	1.0	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	1 482.0	(X)	2 375.7	(X)	1 531.7	(X)
Materials purchased or transferred from foreign sources[4]	69.4	1	267.2	1	22.8	1
Materials purchased or transferred from domestic sources	1 412.6	1	2 108.5	1	1 508.9	1
Adjustment ratio[3]	1.5	(X)	1.2	(X)	1.5	(X)

Item	Electric housewares and fans (SIC 3634)		Household vacuum cleaners (SIC 3635)		Household appliances, n.e.c. (SIC 3639)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	3.3	(X)	1.7	(X)	3.2	(X)
Response coverage ratio (percent)[2]	91.1	(X)	97.7	(X)	75.7	(X)
Machinery	16.4	(X)	6.9	(X)	7.6	(X)
Response coverage ratio (percent)[2]	85.8	(X)	97.7	(X)	75.7	(X)
Other purchased services:						
Communications	5.6	(X)	5.7	(X)	2.3	(X)
Response coverage ratio (percent)[2]	80.6	(X)	97.7	(X)	69.1	(X)
Legal	4.1	(X)	7.5	(X)	2.2	(X)
Response coverage ratio (percent)[2]	83.4	(X)	97.7	(X)	81.5	(X)
Accounting and bookkeeping	1.6	(X)	2.0	(X)	.4	(X)
Response coverage ratio (percent)[2]	83.4	(X)	97.7	(X)	78.8	(X)
Advertising	36.4	(X)	66.8	(X)	16.0	(X)
Response coverage ratio (percent)[2]	87.1	(X)	97.7	(X)	81.5	(X)
Software and other data processing	.7	(X)	3.1	(X)	2.7	(X)
Response coverage ratio (percent)[2]	87.5	(X)	97.7	(X)	81.5	(X)
Refuse removal, including hazardous waste	1.8	(X)	1.1	(X)	1.4	(X)
Response coverage ratio (percent)[2]	88.8	(X)	97.7	(X)	75.7	(X)
New machinery and equipment expenditures	42.2	(X)	61.6	(X)	77.7	(X)
Automobiles, trucks, etc., for highway use	.6	49	.1	14	(Z)	(X)
Computers and peripheral data processing equipment	1.8	8	6.1	7	2.0	1
All other	39.7	1	55.3	1	75.6	1
Adjustment ratio[3]	1.0	(X)	1.1	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	1 278.2	(X)	804.4	(X)	1 230.4	(X)
Materials purchased or transferred from foreign sources[4]	174.9	15	26.5	12	12.4	1
Materials purchased or transferred from domestic sources	1 103.3	3	777.9	1	1 218.0	1
Adjustment ratio[3]	1.3	(X)	1.1	(X)	1.3	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT												
Total	**–**	**89**	**18.8**	**437.0**	**15.0**	**29.9**	**293.4**	**1 141.4**	**1 811.7**	**2 950.0**	**82.9**	**466.2**
Establishments with an average of—												
1 to 4 employees	E9	23	(Z)	1.0	(Z)	.1	.7	2.5	3.8	6.3	.2	1.1
5 to 9 employees	E9	14	.1	1.9	.1	.1	1.3	4.8	7.3	12.0	.3	2.0
10 to 19 employees	E2	9	.1	2.6	.1	.2	1.2	6.9	8.3	15.1	.7	3.2
20 to 49 employees	–	7	.2	4.7	.2	.3	2.9	10.7	10.7	21.2	.4	4.2
50 to 99 employees	–	5	.4	8.3	.3	.6	4.2	24.6	29.5	52.1	2.1	11.5
100 to 249 employees	–	9	1.6	27.9	1.2	2.2	15.5	76.8	79.1	162.9	4.0	14.0
250 to 499 employees	–	8	2.6	60.3	2.2	4.5	46.7	109.2	153.1	255.5	7.4	48.7
500 to 999 employees	–	11	8.0	199.0	6.5	12.9	137.6	509.5	880.6	1 370.2	37.6	236.7
1,000 to 2,499 employees	–	3	5.7	131.2	4.4	8.9	83.4	396.5	639.3	1 054.7	30.2	144.9
Covered by administrative records[2]	E9	31	.1	1.9	.1	.2	1.3	4.8	7.7	12.5	.3	2.1
INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS												
Total	**–**	**58**	**25.4**	**719.0**	**21.4**	**41.5**	**531.7**	**1 629.1**	**2 596.6**	**4 232.4**	**187.4**	**446.7**
Establishments with an average of—												
1 to 4 employees	E9	27	(Z)	1.0	(Z)	.1	.8	2.3	3.1	5.3	.1	.8
5 to 9 employees	E5	8	.1	1.0	(Z)	.1	.7	3.7	4.2	7.7	.3	.9
10 to 19 employees	E9	4	(Z)	1.5	(Z)	.1	1.1	3.6	4.9	8.4	.9	1.6
50 to 99 employees	–	3	.2	5.1	.2	.3	3.0	18.6	15.8	34.1	(D)	4.9
100 to 249 employees	E2	3	.5	10.0	.4	.9	7.7	29.8	72.9	102.2	3.0	9.2
250 to 499 employees	–	3	1.7	41.1	1.4	3.0	31.6	165.4	230.4	394.8	4.1	34.5
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	5	9.8	272.2	8.5	16.1	218.7	540.6	1 054.8	1 635.4	99.8	116.1
2,500 employees or more	–	4	13.2	387.0	10.8	21.0	268.2	865.1	1 210.5	2 044.4	79.0	278.8
Covered by administrative records[2]	E9	32	.1	1.7	.1	.1	1.3	3.8	5.2	9.0	.2	1.4
INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT												
Total	**–**	**17**	**14.2**	**423.1**	**12.1**	**24.8**	**340.0**	**1 545.2**	**1 721.2**	**3 328.5**	**93.6**	**264.4**
Establishments with an average of—												
1 to 4 employees	E9	1	.4	9.4	.3	.8	7.6	24.0	28.6	51.8	(D)	7.9
5 to 9 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E7	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	–	2	1.8	51.6	1.5	3.2	40.0	142.2	167.0	310.2	(D)	23.2
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	5	12.0	362.1	10.3	20.8	292.3	1 379.0	1 525.6	2 966.5	(D)	233.3
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1	(Z)	(Z)	(Z)	(Z)	(Z)	.1	.1	.2	(Z)	(Z)
INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS												
Total	**–**	**209**	**20.4**	**400.6**	**16.5**	**30.9**	**261.0**	**1 387.0**	**1 525.0**	**2 897.5**	**46.3**	**482.7**
Establishments with an average of—												
1 to 4 employees	E9	64	.1	2.4	.1	.2	1.6	6.9	8.6	15.5	.2	2.8
5 to 9 employees	E7	39	.3	6.2	.2	.4	4.1	16.9	22.0	38.9	.5	6.8
10 to 19 employees	E4	25	.4	7.8	.3	.5	5.1	20.6	24.2	44.8	.7	8.2
20 to 49 employees	E1	19	.6	10.9	.4	.7	6.3	33.3	44.2	77.0	1.0	15.4
50 to 99 employees	–	15	1.1	22.8	.8	1.6	12.5	77.6	91.8	165.7	5.4	27.9
100 to 249 employees	–	19	3.3	64.9	2.7	5.2	41.1	231.9	310.6	526.6	6.8	115.3
250 to 499 employees	–	17	6.2	109.2	5.2	9.7	76.6	389.7	465.4	863.1	14.2	126.9
500 to 999 employees	–	10	8.5	176.4	6.8	12.7	113.6	610.1	558.3	1 165.8	17.6	179.6
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	84	.3	5.9	.3	.4	3.9	13.9	17.0	30.9	.4	5.7
INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS												
Total	**E1**	**43**	**11.3**	**278.7**	**7.7**	**15.2**	**172.1**	**1 054.6**	**859.8**	**1 905.3**	**66.8**	**230.5**
Establishments with an average of—												
1 to 4 employees	E9	11	(Z)	.4	(Z)	(Z)	.3	1.4	1.2	2.6	.1	.4
5 to 9 employees	E6	7	.1	1.8	(Z)	.1	.8	7.4	22.5	30.0	.2	2.2
10 to 19 employees	E1	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E6	4	.3	6.3	.2	.4	3.8	21.1	19.8	40.5	.6	5.8
50 to 99 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	E6	5	.8	18.9	.7	1.2	11.0	97.2	104.5	202.3	15.5	15.8
250 to 499 employees	E1	5	1.9	54.3	1.3	2.9	28.8	239.4	248.8	485.6	3.7	50.3
500 to 999 employees	–	3	2.1	52.9	1.6	3.1	32.8	170.3	193.6	354.7	23.8	37.5
1,000 to 2,499 employees	–	2	6.0	144.2	3.8	7.6	94.5	517.8	269.3	789.6	22.9	118.5
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	17	.1	1.2	(Z)	.1	.7	3.5	3.0	6.6	.1	.9

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.												
Total	**–**	**68**	**12.7**	**329.7**	**10.5**	**21.0**	**253.5**	**1 061.3**	**1 954.5**	**3 169.1**	**79.2**	**204.2**
Establishments with an average of—												
1 to 4 employees	E9	17	(Z)	.7	(Z)	.1	.5	2.2	2.7	4.9	(D)	.6
5 to 9 employees	E6	10	.1	1.7	.1	.1	1.3	4.5	5.6	10.1	(D)	1.3
10 to 19 employees	E4	7	.1	2.1	.1	.2	1.7	7.7	9.4	17.1	(D)	2.2
20 to 49 employees	–	13	.4	10.0	.3	.6	5.0	31.0	33.3	64.9	(D)	7.8
50 to 99 employees	E4	4	.3	8.1	.2	.4	4.9	30.0	23.0	52.8	(D)	7.5
100 to 249 employees	E2	6	1.7	41.4	1.4	2.9	31.0	76.7	154.9	233.6	(D)	26.2
250 to 499 employees	E5	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	E1	6	4.7	114.8	3.6	7.6	83.5	408.6	463.9	883.5	(D)	66.7
1,000 to 2,499 employees	–	3	5.4	150.9	4.8	9.2	125.5	500.5	1 261.7	1 902.2	(D)	91.9
Covered by administrative records[2]	E9	21	.1	1.4	.1	.1	1.1	4.2	5.2	9.5	.2	1.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3631	**Household cooking equipment:**										
	All establishments in industry	89	18.8	437.0	15.0	29.9	293.4	1 141.4	1 811.7	2 950.0	82.9
	Establishments with this product class primary:										
36311	Electric, including microwave, household ranges, ovens, surface cooking units	15	7.9	188.4	6.5	12.6	135.5	469.4	673.9	1 159.4	31.9
36313	Gas household ranges, ovens, surface cooking units, and equipment	11	5.8	147.0	4.3	9.3	90.8	364.8	703.7	1 045.9	26.0
36314	Other household ranges and cooking equipment	22	4.9	97.0	4.0	7.6	64.1	296.4	417.3	717.2	24.1
3632	**Household refrigerators and freezers:**										
	All establishments in industry	58	25.4	719.0	21.4	41.5	531.7	1 629.1	2 596.6	4 232.4	187.4
	Establishments with this product class primary:										
36321	Household mechanical refrigerators, including combination refrigerator-freezers	16	23.0	665.7	19.3	37.2	489.2	1 467.7	2 344.4	3 815.8	170.7
36322	Food freezers, household	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
36323	Parts and attachments for household refrigerators and freezers	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3633	**Household laundry equipment:**										
	All establishments in industry	17	14.2	423.1	12.1	24.8	340.0	1 545.2	1 721.2	3 328.5	93.6
3634	**Electric housewares and fans:**										
	All establishments in industry	209	20.4	400.6	16.5	30.9	261.0	1 387.0	1 525.0	2 897.5	46.3
	Establishments with this product class primary:										
36341	Electric fans, except industrial-type	19	4.8	107.1	3.5	7.3	64.2	316.5	448.5	777.9	15.4
36345	Small electric household appliances, except fans	59	13.2	251.4	11.1	20.3	166.3	968.3	953.8	1 896.3	28.1
36349	Parts and attachments for small household electric appliances	14	1.7	27.5	1.4	2.4	21.1	63.2	66.7	127.7	1.6
3635	**Household vacuum cleaners:**										
	All establishments in industry	43	11.3	278.7	7.7	15.2	172.1	1 054.6	859.8	1 905.3	66.8
3639	**Household appliances, n.e.c.:**										
	All establishments in industry	68	12.7	329.7	10.5	21.0	253.5	1 061.3	1 954.5	3 169.1	79.2
	Establishments with this product class primary:										
36391	Household water heaters, electric	8	1.2	19.8	.8	1.6	12.7	107.7	111.0	219.8	1.1
36392	Household water heaters, except electric	11	4.9	121.3	4.1	8.0	91.1	355.3	481.3	845.7	6.1
36395	Household appliances, n.e.c., and parts for household appliances, n.e.c.	13	6.2	181.3	5.3	10.9	144.5	577.5	1 336.9	2 057.5	71.3

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT			
Total value of shipments	2 950.0	3 395.8	2 414.9
Primary products value of shipments	2 469.4	2 530.4	1 975.8
Secondary products value of shipments	(D)	107.5	259.2
Total miscellaneous receipts	(D)	757.9	179.9
Value of resales	(D)	714.9	167.4
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	96	88
Value of primary products shipments made in all industries	3 006.8	3 232.5	2 346.3
Value of primary products shipments made in this industry	2 469.4	2 530.4	1 975.8
Value of primary products shipments made in other industries	537.4	702.1	370.5
Coverage ratio	82	78	84
INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS			
Total value of shipments	4 232.4	3 518.9	2 470.7
Primary products value of shipments	3 930.9	3 250.0	2 061.7
Secondary products value of shipments	71.4	95.6	358.9
Total miscellaneous receipts	230.1	173.3	50.1
Value of resales	226.8	(D)	48.0
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	3.3	(D)	(D)
Primary products specialization ratio	98	97	85
Value of primary products shipments made in all industries	4 047.6	3 322.1	2 201.7
Value of primary products shipments made in this industry	3 930.9	3 250.0	2 061.7
Value of primary products shipments made in other industries	116.8	72.1	139.9
Coverage ratio	97	98	94
INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT			
Total value of shipments	3 328.5	3 034.8	2 122.2
Primary products value of shipments	2 963.0	2 783.3	1 787.0
Secondary products value of shipments	(D)	(D)	309.6
Total miscellaneous receipts	(D)	(D)	25.6
Value of resales	(D)	(D)	(D)
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	(D)	85
Value of primary products shipments made in all industries	2 995.0	2 790.5	1 800.2
Value of primary products shipments made in this industry	2 963.0	2 783.3	1 787.0
Value of primary products shipments made in other industries	32.0	7.2	13.2
Coverage ratio	99	99	99
INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS			
Total value of shipments	2 897.5	2 825.7	3 128.4
Primary products value of shipments	2 419.3	2 324.2	2 669.6
Secondary products value of shipments	171.3	235.6	300.9
Total miscellaneous receipts	306.8	265.9	157.9
Value of resales	303.0	243.0	147.1
Contract receipts	(D)	(D)	1.1
Other miscellaneous receipts	(D)	(D)	9.7
Primary products specialization ratio	93	91	90
Value of primary products shipments made in all industries	2 651.8	2 589.1	2 845.6
Value of primary products shipments made in this industry	2 419.3	2 324.2	2 669.6
Value of primary products shipments made in other industries	232.5	264.9	176.0
Coverage ratio	91	90	94
INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS			
Total value of shipments	1 905.3	1 324.2	775.7
Primary products value of shipments	1 710.3	1 125.3	726.7
Secondary products value of shipments	99.5	144.9	36.3
Total miscellaneous receipts	95.4	54.0	12.7
Value of resales	92.8	52.8	11.8
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	94	89	95
Value of primary products shipments made in all industries	1 808.6	1 290.6	905.8
Value of primary products shipments made in this industry	1 710.3	1 125.3	726.7
Value of primary products shipments made in other industries	98.3	165.2	179.1
Coverage ratio	95	87	80

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.			
Total value of shipments	3 169.1	2 398.3	1 432.0
Primary products value of shipments	2 032.6	2 080.4	1 260.0
Secondary products value of shipments	(D)	300.0	140.0
Total miscellaneous receipts	(D)	17.9	32.0
Value of resales	(D)	16.8	30.4
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	87	90
Value of primary products shipments made in all industries	2 278.8	2 284.7	(NA)
Value of primary products shipments made in this industry	2 032.6	2 080.4	(NA)
Value of primary products shipments made in other industries	246.2	204.3	(NA)
Coverage ratio	89	91	82

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3631– —	**HOUSEHOLD COOKING EQUIPMENT**				
	Total	**(NA)**	**3 006.8**	**(NA)**	**3 232.5**
36311	Electric, including microwave, household ranges, ovens, surface cooking units	(NA)	1 609.4	(NA)	1 999.1
36311 10	Electric household ranges, ovens, surface cooking units, and equipment[3]	14	1 490.2	21	1 823.4
36311 20	Parts and accessories for electric household ranges and ovens, such as burners, rotisseries, oven racks, broiler pans[3]	14	119.2	17	175.7
36311 00	Electric, including microwave, household ranges, ovens, surface cooking units, n.s.k.	(NA)	–	(NA)	–
36313	Gas household ranges, ovens, surface cooking units, and equipment	(NA)	613.8	(NA)	678.2
36313 10	Gas household ranges, ovens, surface cooking units, and equipment[3]	12	581.9	12	637.5
36313 20	Parts and accessories for gas household ranges and ovens, such as burners, rotisseries, oven racks, broiler pans, etc.[3]	12	31.9	10	40.7
36313 00	Gas household ranges, ovens, surface cooking units, and equipment, n.s.k.	(NA)	–	(NA)	–
36314	Other household ranges and cooking equipment	(NA)	763.3	(NA)	538.2
36314 10	Other household ranges and cooking equipment (except gas and electric), and outdoor cooking equipment[3]	27	682.4	26	486.5
36314 20	Parts and accessories for outdoor and other cooking equipment, sold separately[3]	19	80.9	16	48.6
36314 00	Other household ranges and cooking equipment, n.s.k.	(NA)	–	(NA)	3.1
36310	Household cooking equipment, n.s.k.	(NA)	20.3	(NA)	17.0
36310 00	Household cooking equipment, n.s.k.[4]	(NA)	7.8	(NA)	–
36310 02	Household cooking equipment, n.s.k.[5]	(NA)	12.5	(NA)	17.0
3632– —	**HOUSEHOLD REFRIGERATORS AND FREEZERS**				
	Total	**(NA)**	**4 047.6**	**(NA)**	**3 322.1**
36321	Household mechanical refrigerators, including combination refrigerator-freezers	(NA)	([6])	(NA)	3 004.5
36321 00	Household mechanical refrigerators, including combination refrigerator-freezers[3]	17	([7])	18	3 004.5
36322	Food freezers, household	(NA)	[6]3 953.2	(NA)	230.1
36322 00	Food freezers, complete units, household-type[3]	8	[7]3 953.2	9	230.1
36323	Parts and attachments for household refrigerators and freezers	(NA)	77.5	(NA)	76.9
36323 00	Parts, attachments for household refrigerators and freezers (excl. compressors, condensing units, ice making machines[3]	18	77.5	17	76.9
36320	Household refrigerators and freezers, n.s.k.	(NA)	16.9	(NA)	10.6
36320 00	Household refrigerators and freezers, n.s.k.[8]	(NA)	7.9	(NA)	2.6
36320 02	Household refrigerators and freezers, n.s.k.[9]	(NA)	9.0	(NA)	8.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3633– —	**HOUSEHOLD LAUNDRY EQUIPMENT**				
	Total	**(NA)**	**2 995.0**	**(NA)**	**2 790.5**
36330	Household laundry machines, including washing machines, dryers, and combinations	(NA)	2 995.0	(NA)	2 790.5
36330 10	Household laundry machines, including both coin- and noncoin-operated washing machines, dryers, and combinations[3]	6	2 845.4	6	2 581.5
36330 20	Parts, accessories, and attachments for household laundry equipment, sold separately[3]	12	142.5	10	206.9
36330 00	Household laundry equipment, n.s.k.[8]	(NA)	7.1	(NA)	2.0
36330 02	Household laundry equipment, n.s.k.[9]	(NA)			
3634– —	**ELECTRIC HOUSEWARES AND FANS**				
	Total	**(NA)**	**2 651.8**	**(NA)**	**2 589.1**
36341	Electric fans, except industrial-type	(NA)	498.8	(NA)	492.6
36341 00	Electric fans, except industrial-type[3]	25	498.8	25	492.6
36345	Small electric household appliances, except fans	(NA)	1 914.8	(NA)	1 806.8
36345 00	Small electric household appliances, except fans[3]	86	1 914.8	81	1 806.8
36349	Parts and attachments for small household electric appliances	(NA)	153.3	(NA)	190.7
36349 11	Parts and attachments for household electric fans[3]	9	20.0	7	12.5
36349 20	Parts for other small household electric appliances[3]	18	133.3	23	169.0
36349 00	Parts and attachments for small household electric appliances, n.s.k.	(NA)	–	(NA)	9.2
36340	Electric housewares and fans, n.s.k.	(NA)	84.9	(NA)	99.0
36340 00	Electric housewares and fans, n.s.k.[4]	(NA)	55.9	(NA)	8.4
36340 02	Electric housewares and fans, n.s.k.[5]	(NA)	29.0	(NA)	90.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3635– —	**HOUSEHOLD VACUUM CLEANERS**						
	Total	**(NA)**	**(X)**	**1 808.6**	**(NA)**	**(X)**	**1 290.6**
36350	Household vacuum cleaners, including parts and attachments	(NA)	(X)	1 808.6	(NA)	(X)	1 290.6
36350 41	Complete power units, central system type thousands	6	(S)	23.1	6	(S)	24.2
36350 11	Hand type thousands	6	5 967.2	169.4	7	6 778.9	154.7
36350 33	Upright/stick type thousands	8	*9 807.6	950.6	10	6 425.3	551.7
36350 31	Cannister/tank type thousands	11	2 129.0	423.4	(NA)	(NA)	400.6
36350 36	Other general-purpose types, including utility thousands	2					
36350 51	Attachments and cleaning tools, including central system attachments	9	(X)	83.4	11	(X)	54.9
36350 71	Parts for household-type vacuum cleaners, including central system parts	14	(X)	124.9	13	(X)	93.9
36350 00	Household vacuum cleaners, n.s.k.[10]	(NA)	(X)	27.3	(NA)	(X)	4.8
36350 02	Household vacuum cleaners, n.s.k.[11]	(NA)	(X)	6.6	(NA)	(X)	5.7

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3639– —	**HOUSEHOLD APPLIANCES, N.E.C.**				
	Total	**(NA)**	**2 278.8**	**(NA)**	**2 284.7**
36391	Household water heaters, electric	(NA)	432.6	(NA)	388.9
36391 00	Water heaters, electric, for permanent installation[3]	15	432.6	10	388.9
36392	Household water heaters, except electric	(NA)	568.4	(NA)	541.5
36392 00	Water heaters, except electric[3]	12	568.4	12	541.5
36395	Household appliances, n.e.c., and parts for household appliances, n.e.c.	(NA)	1 231.3	(NA)	1 309.0
36395 10	Other major household appliances, n.e.c., excluding parts[3]	11	1 133.6	14	1 210.4
36395 20	Parts and accessories for other household appliances, n.e.c.[3]	15	[12]95.9	18	[12]98.6
36395 00	Household appliances, n.e.c., and parts for household appliances, n.e.c., n.s.k.	(NA)	1.8	(NA)	–
36390	Household appliances, n.e.c., n.s.k.	(NA)	46.4	(NA)	45.4
36390 00	Household appliances, n.e.c., n.s.k.[13]	(NA)	36.9	(NA)	19.5
36390 02	Household appliances, n.e.c., n.s.k.[14]	(NA)	9.5	(NA)	25.9

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 20 employees or more.
[5]Typically for establishments with less than 20 employees.
[6]For 1992, product class 36322 is included with product class 36321 to avoid disclosing data for individual companies.
[7]For 1992, product code 36322 00 is included with product code 36323 00 to avoid disclosing data for individual companies.
[8]Typically for establishments with 5 employees or more.
[9]Typically for establishments with less than 5 employees.
[10]Typically for establishments with 10 employees or more.
[11]Typically for establishments with less than 10 employees.
[12]Data include parts for household water heaters.
[13]Typically for establishments with 25 employees or more.
[14]Typically for establishments with less than 25 employees.

Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36311, ELECTRIC, INCLUDING MICROWAVE, HOUSEHOLD RANGES, OVENS, SURFACE COOKING UNITS		
United States	**1 609.4**	**1 999.1**
Tennessee	399.8	328.0
36313, GAS HOUSEHOLD RANGES, OVENS, SURFACE COOKING UNITS, AND EQUIPMENT		
United States	**613.8**	**678.2**
California	18.6	(NA)
Tennessee	317.5	316.3
36314, OTHER HOUSEHOLD RANGES AND COOKING EQUIPMENT		
United States	**763.3**	**538.2**
Illinois	212.9	179.4
36321, HOUSEHOLD MECHANICAL REFRIGERATORS, INCLUDING COMBINATION REFRIGERATOR-FREEZERS[1]		
United States	**(D)**	**3 004.5**
36322, FOOD FREEZERS, HOUSEHOLD[1]		
United States	**(D)**	**230.1**
36323, PARTS AND ATTACHMENTS FOR HOUSEHOLD REFRIGERATORS AND FREEZERS		
United States	**77.5**	**76.9**
Alabama	6.0	(NA)
Indiana	4.5	16.4
36341, ELECTRIC FANS, EXCEPT INDUSTRIAL-TYPE		
United States	**498.8**	**492.6**
Tennessee	59.4	60.6
Texas	73.1	46.8
36345, SMALL ELECTRIC HOUSEHOLD APPLIANCES, EXCEPT FANS		
United States	**1 914.8**	**1 806.8**
California	36.3	25.5
Illinois	29.0	103.8
Michigan	15.6	(NA)
New York	62.5	46.2
Ohio	175.5	77.6
Washington	15.6	(NA)
Wisconsin	197.1	140.5
36349, PARTS AND ATTACHMENTS FOR SMALL HOUSEHOLD ELECTRIC APPLIANCES		
United States	**153.3**	**190.7**
36391, HOUSEHOLD WATER HEATERS, ELECTRIC		
United States	**432.6**	**388.9**
36392, HOUSEHOLD WATER HEATERS, EXCEPT ELECTRIC		
United States	**568.4**	**541.5**
36395, HOUSEHOLD APPLIANCES, N.E.C., AND PARTS FOR HOUSEHOLD APPLIANCES, N.E.C.		
United States	**1 231.3**	**1 309.0**

Note: For qualifications of data, see footnotes on table 6a.

[1]Product classes 36321 and 36322 are combined to avoid disclosing data for individual companies. The combined value is $3 953.2 million.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3631-	**Household cooking equipment**	**3 006.8**	**2 942.3**	**3 026.9**	**3 135.8**	**3 311.0**	**3 232.5**	**2 346.3**	**1 818.8**
36311	Electric, including microwave, household ranges, ovens, surface cooking units	1 609.4	1 523.1	1 637.8	1 816.7	1 988.0	1 999.1	1 543.2	1 232.5
36313	Gas household ranges, ovens, surface cooking units, and equipment	613.8	664.7	741.4	710.5	736.9	678.2	418.8	349.1
36314	Other household ranges and cooking equipment	763.3	689.3	609.3	573.4	570.5	538.2	370.6	215.8
36310	Household cooking equipment, n.s.k.	20.3	65.2	38.4	35.2	15.5	17.0	13.7	21.4
3632-	**Household refrigerators and freezers**	**4 047.6**	**3 621.3**	**3 711.3**	**3 895.0**	**3 683.1**	**3 322.1**	**2 201.7**	**2 005.6**
36321	Household mechanical refrigerators, including combination refrigerator-freezers	3 953.2	3 276.5	3 363.8	3 547.1	3 296.1	3 004.5	1 786.9	1 644.4
36322	Food freezers, household		263.6	254.0	240.3	253.1	230.1	311.2	296.0
36323	Parts and attachments for household refrigerators and freezers	77.5	75.1	86.2	102.9	125.2	76.9	92.0	61.8
36320	Household refrigerators and freezers, n.s.k.	16.9	6.0	7.3	4.7	8.8	10.6	11.6	3.4
3633-	**Household laundry equipment**	**2 995.0**	**2 859.5**	**2 905.5**	**2 913.3**	**2 841.0**	**2 790.5**	**1 800.2**	**1 697.3**
36330	Household laundry machines, including washing machines, dryers, and combinations	2 995.0	2 859.5	2 905.5	2 913.3	2 841.0	2 790.5	1 800.2	1 697.3
3634-	**Electric housewares and fans**	**2 651.8**	**2 608.1**	**2 683.6**	**2 847.3**	**2 675.0**	**2 589.1**	**2 845.6**	**2 304.0**
36341	Electric fans, except industrial-type	498.8	437.4	471.9	499.9	532.1	492.6	592.3	257.0
36345	Small electric household appliances, except fans	1 914.8	1 866.6	1 925.1	2 062.5	1 889.3	1 806.8	1 977.3	1 846.2
36349	Parts and attachments for small household electric appliances	153.3	119.1	120.1	148.8	148.8	190.7	210.6	148.4
36340	Electric housewares and fans, n.s.k.	84.9	185.0	166.5	136.2	104.7	99.0	65.4	52.4
3635-	**Household vacuum cleaners**	**1 808.6**	**1 834.2**	**1 876.1**	**1 626.1**	**1 460.9**	**1 290.6**	**905.8**	**710.4**
36350	Household vacuum cleaners, including parts and attachments	1 808.6	1 834.2	1 876.1	1 626.1	1 460.9	1 290.6	905.8	710.4
3639-	**Household appliances, n.e.c.**	**2 278.8**	**2 224.0**	**2 296.4**	**2 270.9**	**2 239.0**	**2 284.7**	**(NA)**	**(NA)**
36391	Household water heaters, electric	432.6	429.3	411.6	396.7	394.1	388.9	300.8	222.5
36392	Household water heaters, except electric	568.4	534.6	554.0	550.9	528.3	541.5	390.5	281.6
36395	Household appliances, n.e.c., and parts for household appliances, n.e.c.	1 231.3	1 186.6	1 255.7	1 279.2	1 275.5	1 309.0	(NA)	(NA)
36390	Household appliances, n.e.c., n.s.k.	46.4	73.5	75.1	44.1	41.1	45.4	21.6	17.3

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3631, HOUSEHOLD COOKING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**1 482.0**	**1 564.0**
	Fabricated metal products, except forgings:		
346901	Metal stampings	98.9	(1)
349013	Wire racks, grills, springs, and other fabricated nonelectric wire products	36.5	31.1
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	20.5	24.7
340059	All other fabricated metal products	29.9	(1)
346000	Forgings	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	12.6	3.1
336005	Aluminum and aluminum-base alloy	65.4	35.4
336003	All other nonferrous		(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	(D)	(1)
331022	Sheet and strip	103.2	(1)
331034	All other steel shapes and forms	49.9	(1)
335010	Aluminum and aluminum-base alloy	8.7	25.2
335091	All other nonferrous shapes and forms		(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	4.7	(1)
	Electric motors and generators:		
	Fractional horsepower electric motors:		
362110	Timing motors, synchronous and subsynchronous	13.2	(1)
362115	Other fractional horsepower electric motors, excluding timing motors		12.9
362120	Integral horsepower electric motors and generators (1 hp or more)		(1)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	58.8	47.4
360101	Electrical transmission, distribution, and control equipment	49.0	30.7
364300	Current-carrying wiring devices	34.0	20.3
387316	Timing mechanisms, except microprocessors	12.8	39.1
382201	Automatic temperature controls (thermostats, regulators, etc.)	28.8	69.9
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	27.8	28.8
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	4.6	1.3
305201	Rubber and plastics hose and belting	6.0	4.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	28.8	20.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	3.3	(1)
335762	Complete flexible cord sets	(D)	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	53.9	78.9
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	12.2	23.0
970099	All other materials and components, parts, containers, and supplies	361.0	[1] r750.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	341.7	317.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3632, HOUSEHOLD REFRIGERATORS AND FREEZERS		
	Materials, ingredients, containers, and supplies	**2 375.7**	**1 991.4**
358501	Refrigeration compressors, compressor units, fin coils, and other heat transfer equipment	343.7	303.2
	Electric motors and generators:		
	Fractional horsepower electric motors (less than 1 hp):		
362110	Timing motors, synchronous and subsynchronous		25.6
362114	Other (excluding timing motors)	87.8	42.7
362120	Integral horsepower motors and generators (1 hp or more)		–
356401	Fans and blowers	(D)	(1)
360101	Electrical transmission, distribution, and control equipment	30.6	29.0
364300	Current-carrying wiring devices	73.0	81.8
382201	Automatic temperature controls, thermostats, regulators, etc.	48.1	59.2
356200	Ball and roller bearings (mounted or unmounted)	(D)	(Z)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	59.1	42.1
346901	Metal stampings	30.2	30.7
342903	Metal hardware including hinges, handles, locks, casters, etc.	37.8	31.5
349402	Pipe, valves, and pipe fittings	19.5	5.0
340073	All other fabricated metal products		(1)
346000	Forgings	–	(1)
	Castings (rough and semifinished):		
332001	Iron and steel		(1)
336005	Aluminum and aluminum-base alloy	30.8	(1)
336003	Other nonferrous		(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	(Z)	(1)
331022	Sheet and strip	249.5	236.4
331027	Wire and wire products	100.6	(1)
331035	All other steel shapes and forms		16.4
	Copper and copper-base alloy:		
335152	Pipe and tube	19.4	(1)
335191	All other copper and copper-base alloy (except pipe and tube)	15.2	23.6
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	20.6	18.2
335011	All other (except sheet, plate, foil, and welded tubing)	15.4	(1)
335099	Other nonferrous shapes and forms		(1)
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	48.3	61.9
244022	Wooden containers, complete (including combination wood and paperboard)	6.3	(1)
285101	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	29.1	24.3
286903	Refrigerant gases and other synthetic organic chemicals	90.2	40.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	139.7	167.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	44.6	21.7
308004	Fabricated plastics products, except gaskets, hose, and belting	209.1	170.4
305201	Rubber and plastics hose and belting	(D)	(1)
329300	Gaskets (all types) and asbestos packing	41.6	50.2
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	24.3	20.8
970099	All other materials and components, parts, containers, and supplies	192.0	[1] r440.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	343.6	47.6
	INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT		
	Materials, ingredients, containers, and supplies	**1 531.7**	**1 569.7**
	Fabricated metal products, except forgings:		
346901	Metal stampings	42.8	(1)
349013	Wire racks, grills, springs, and other fabricated nonelectric wire products	8.8	10.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	40.1	54.9
340059	All other fabricated metal products	34.6	(1)
346000	Forgings	–	(1)
	Castings (rough and semifinished):		
332001	Iron and steel		(1)
336005	Aluminum and aluminum-base alloy	134.8	23.2
336003	All other nonferrous		(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	19.1	(1)
331022	Sheet and strip	293.4	(1)
331034	All other steel shapes and forms		(1)
335010	Aluminum and aluminum-base alloy	(D)	(1)
335091	All other nonferrous shapes and forms	(D)	(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	(D)	(1)
	Electric motors and generators:		
	Fractional horsepower electric motors:		
362110	Timing motors, synchronous and subsynchronous		(1)
362115	Other fractional horsepower electric motors, excluding timing motors	226.0	188.3
362120	Integral horsepower electric motors and generators (1 hp or more)	29.9	–
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	37.7	78.2
360101	Electrical transmission, distribution, and control equipment	49.4	56.3
364300	Current-carrying wiring devices	(D)	47.1
387316	Timing mechanisms, except microprocessors	72.9	104.3
382201	Automatic temperature controls (thermostats, regulators, etc.)	42.5	13.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	46.3	38.4

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3633, HOUSEHOLD LAUNDRY EQUIPMENT—Con.		
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(D)	26.3
305201	Rubber and plastics hose and belting	46.2	32.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	67.6	68.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	29.3	42.7
335762	Complete flexible cord sets	(D)	.9
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	(D)	(1)
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	142.4	[1] r782.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	4.5	2.2
	INDUSTRY 3634, ELECTRIC HOUSEWARES AND FANS		
	Materials, ingredients, containers, and supplies	**1 278.2**	**1 209.7**
	Fabricated metal products, except forgings:		
346901	Metal stampings	31.8	8.3
349013	Wire racks, grills, springs, and other fabricated nonelectric wire products	21.3	5.6
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	21.6	34.4
340059	All other fabricated metal products	16.0	(1)
346000	Forgings	–	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	5.2	(1)
336005	Aluminum and aluminum-base alloy	25.5	11.3
336003	All other nonferrous	13.0	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	(3)	(1)
331022	Sheet and strip	86.9	(1)
331034	All other steel shapes and forms	[3]5.8	(1)
335010	Aluminum and aluminum-base alloy	25.7	(1)
335091	All other nonferrous shapes and forms	7.8	(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	9.5	(1)
	Electric motors and generators:		
	Fractional horsepower electric motors:		
362110	Timing motors, synchronous and subsynchronous	140.8	15.2
362115	Other fractional horsepower electric motors, excluding timing motors		58.6
362120	Integral horsepower electric motors and generators (1 hp or more)	4.3	8.8
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	72.1	48.1
360101	Electrical transmission, distribution, and control equipment	20.0	6.5
364300	Current-carrying wiring devices	24.8	29.3
387316	Timing mechanisms, except microprocessors	(D)	(1)
382201	Automatic temperature controls (thermostats, regulators, etc.)	61.4	31.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	21.7	10.5
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	6.5	3.2
305201	Rubber and plastics hose and belting	(D)	1.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	74.5	98.7
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	50.2	42.8
335762	Complete flexible cord sets	39.1	17.6
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	32.5	11.6
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	286.6	[1] r442.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	164.3	325.1
	INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS		
	Materials, ingredients, containers, and supplies	**804.4**	**574.6**
	Fabricated metal products, except forgings:		
346901	Metal stampings	9.3	5.0
349013	Wire racks, grills, springs, and other fabricated nonelectric wire products	3.6	1.6
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.4	13.3
340059	All other fabricated metal products	8.2	(1)
346000	Forgings	–	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	–	(1)
336005	Aluminum and aluminum-base alloy	16.8	12.1
336003	All other nonferrous		1.6
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	16.2	(1)
331022	Sheet and strip		(1)
331034	All other steel shapes and forms		(1)
335010	Aluminum and aluminum-base alloy	2.6	(1)
335091	All other nonferrous shapes and forms		(1)
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	9.9	(1)
	Electric motors and generators:		
	Fractional horsepower electric motors:		
362110	Timing motors, synchronous and subsynchronous	54.7	(1)
362115	Other fractional horsepower electric motors, excluding timing motors		15.2
362120	Integral horsepower electric motors and generators (1 hp or more)	36.4	43.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3635, HOUSEHOLD VACUUM CLEANERS—Con.		
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	39.0	19.8
360101	Electrical transmission, distribution, and control equipment	(D)	(1)
364300	Current-carrying wiring devices	13.4	(1)
387316	Timing mechanisms, except microprocessors	–	(1)
382201	Automatic temperature controls (thermostats, regulators, etc.)	(D)	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	.7	1.5
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	3.3	(1)
305201	Rubber and plastics hose and belting	15.7	20.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(D)	56.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	115.5	55.1
335762	Complete flexible cord sets	19.5	6.4
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	(D)	11.5
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	–	(1)
970099	All other materials and components, parts, containers, and supplies	184.5	1 r271.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	195.6	39.0
	INDUSTRY 3639, HOUSEHOLD APPLIANCES, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 230.4**	**1 159.2**
	Fabricated metal products, except forgings:		
346901	Metal stampings	30.0	6.6
349013	Wire racks, grills, springs, and other fabricated nonelectric wire products	23.2	21.9
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	23.4	16.3
340059	All other fabricated metal products	30.8	(1)
346000	Forgings	(4)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	18.6	3.3
336005	Aluminum and aluminum-base alloy		(1)
336003	All other nonferrous		(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	(3)	(1)
331022	Sheet and strip	146.7	(1)
331034	All other steel shapes and forms	3 39.6	(1)
335010	Aluminum and aluminum-base alloy	21.1	(1)
335091	All other nonferrous shapes and forms		
335701	Nonferrous wire and cable, including magnet wire, bare or insulated wire, etc.	7.5	(1)
	Electric motors and generators:		
	Fractional horsepower electric motors:		
362110	Timing motors, synchronous and subsynchronous	57.2	(1)
362115	Other fractional horsepower electric motors, excluding timing motors		38.9
362120	Integral horsepower electric motors and generators (1 hp or more)	2.5	–
260091	Paper and paperboard containers including shipping sacks and other paper packaging supplies	43.8	42.1
360101	Electrical transmission, distribution, and control equipment	55.4	(1)
364300	Current-carrying wiring devices	27.8	25.7
387316	Timing mechanisms, except microprocessors	23.5	25.4
382201	Automatic temperature controls (thermostats, regulators, etc.)	85.7	116.9
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	16.7	14.9
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	5.2	4.3
305201	Rubber and plastics hose and belting	11.4	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	77.7	24.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	79.2	25.1
335762	Complete flexible cord sets	.4	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	3.7	25.4
329601	Mineral wool insulation (fibrous glass, rock wool, etc.)	18.6	11.0
970099	All other materials and components, parts, containers, and supplies	4 215.1	1 r700.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	165.8	56.6

[1] In 1987, data for these material codes were not collected separately but were included in material code 970099.
[2] Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3] For 1992, material code 331007 is included with material code 331034 to avoid disclosing data for individual companies.
[4] For 1992, material code 346000 is included with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3647000	MA36L, Electric Lighting Fixtures
3613200	MA36A, Switchgear and Industrial Controls	3648500	MA36L, Electric Lighting Fixtures
3613300	MA36A, Switchgear and Industrial Controls	3651100	MA36M, Consumer Electronics
3613400	MA36A, Switchgear and Industrial Controls	3651200	MA36M, Consumer Electronics
3613500	MA36A, Switchgear and Industrial Controls	3651400	MA36M, Consumer Electronics
3613600	MA36A, Switchgear and Industrial Controls		
3613900	MA36A, Switchgear and Industrial Controls	3651500	MA36M, Consumer Electronics
3621100	MA36H, Motors and Generators	3661100	MA36P, Communications Equipment
3621200	MA36H, Motors and Generators	3661300	MA36P, Communications Equipment
3621300	MA36H, Motors and Generators	3661400	MA36P, Communications Equipment
3621400	MA36H, Motors and Generators	3663100	MA36P, Communications Equipment
3621700	MA36H, Motors and Generators		
3621800	MA36H, Motors and Generators	3663200	MA36P, Communications Equipment
3621900	MA36H, Motors and Generators	3669100	MA36P, Communications Equipment
3625100	MA36A, Switchgear and Industrial Controls	3669200	MA36P, Communications Equipment
3625200	MA36A, Switchgear and Industrial Controls	3669300	MA36P, Communications Equipment
3625300	MA36A, Switchgear and Industrial Controls	3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3625400	MA36A, Switchgear and Industrial Controls		
3631110	MA36F, Major Household Appliances	3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631120	MA36F, Major Household Appliances	3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631310	MA36F, Major Household Appliances	3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631320	MA36F, Major Household Appliances	3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631410	MA36F, Major Household Appliances	3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631420	MA36F, Major Household Appliances		
3632100	MA36F, Major Household Appliances	3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632200	MA36F, Major Household Appliances	3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632300	MA36F, Major Household Appliances	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633010	MA36F, Major Household Appliances	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633020	MA36F, Major Household Appliances	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634100	MA36E, Electric Housewares and Fans		
3634500	MA36E, Electric Housewares and Fans	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634911	MA36E, Electric Housewares and Fans	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634920	MA36E, Electric Housewares and Fans	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639100	MA36F, Major Household Appliances	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639200	MA36F, Major Household Appliances	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639510	MA36F, Major Household Appliances	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639520	MA36F, Major Household Appliances	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3641100	MQ36B, Electric Lamps	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643100	MA36K, Wiring Devices and Supplies	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643200	MA36K, Wiring Devices and Supplies	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643300	MA36K, Wiring Devices and Supplies	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643400	MA36K, Wiring Devices and Supplies	3679930	MA36M, Consumer Electronics
3643500	MA36K, Wiring Devices and Supplies	3695000	MA35R, Computers and Office and Accounting Machines
3643600	MA36K, Wiring Devices and Supplies	3699100	MA36P, Communications Equipment
3644100	MA36K, Wiring Devices and Supplies	3699283	MA36P, Communications Equipment
3644200	MA36K, Wiring Devices and Supplies		
3644300	MA36K, Wiring Devices and Supplies	3699284	MA36P, Communications Equipment
3645100	MA36L, Electric Lighting Fixtures	3699285	MA36P, Communications Equipment
3646200	MA36L, Electric Lighting Fixtures	3699500	MA36P, Communications Equipment
3646300	MA36L, Electric Lighting Fixtures	3699900	MA36P, Communications Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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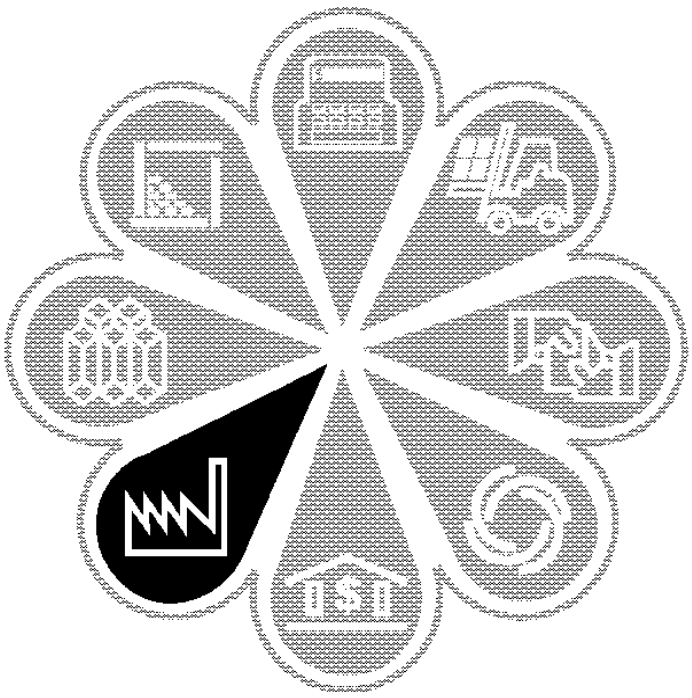
1992 Census of Manufactures

MC92-I-36C

INDUSTRY SERIES

Electric Lighting and Wiring Equipment

Industries 3641, 3643, 3644, 3645, 3646, 3647, and 3648



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3641	Electric Lamp Bulbs and Tubes
3643	Current-Carrying Wiring Devices
3644	Noncurrent-Carrying Wiring Devices
3645	Residential Lighting Fixtures
3646	Commercial Lighting Fixtures
3647	Vehicular Lighting Equipment
3648	Lighting Equipment, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES

This industry is made up of establishments primarily engaged in manufacturing electric bulbs, tubes, and related light sources. Important products of this industry include incandescent filament lamps, vapor and fluorescent lamps, photoflash and photoflood lamps, and electrotherapeutic lamp units for ultraviolet and infrared radiation. Establishments primarily engaged in manufacturing glass blanks for bulbs are classified in industry 3229. Products of this industry also are collected in the Current Industrial Report (CIR) MQ-36B, Electric Lamps. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3641, Electric Lamp Bulbs and Tubes, had employment of 17.5 thousand. The employment figure was 21 percent below the 22.2 thousand reported in 1987.

The leading States in employment in 1992 were Kentucky, New Hampshire, Ohio, and Pennsylvania. This represents a shift from 1987 when Ohio, Massachusetts, New Hampshire, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $3.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3641 shipped $2.9 billion of electric lamp bulbs and tubes considered primary to the industry, $58.2 million of secondary products, and had $97.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3641, no matter in what industry they were produced, appear in table 6a and aggregate to $2.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electric lamp bulbs and tubes industry amounted to $955.6 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES

This industry is made up of establishments primarily engaged in manufacturing current-carrying wiring devices. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36K, Wiring Devices and Supplies. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3643, Current-Carrying Wiring Devices, had employment of 41.1 thousand. The employment figure was 14 percent below the 47.9 thousand reported in 1987. Compared with 1991, employment increased 4 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, New York, Ohio, and Pennsylvania, accounting for approximately 45 percent of the industry's employment. This represents a shift from 1987 when Illinois, New York, Ohio, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $4.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3643 shipped $3.5 billion of current-carrying wiring devices considered primary to the industry, $827.4 million of secondary products, and had $298.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 81 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 84 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3643, no matter in what industry they were produced, appear in table 6a and aggregate to $4.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the current-carrying wiring devices industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES

This industry is made up of establishments primarily engaged in manufacturing noncurrent-carrying wiring devices. Important products of this industry include conduits and fittings; electrical insulators, except porcelain and other ceramic insulators and glass insulators; outlet, switch, and fuse boxes; and pole line hardware. Establishments primarily engaged in manufacturing ceramic insulators are classified in industry 3264, and those manufacturing glass insulators are classified in industry 3229. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36K, Wiring Devices and Supplies. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3644, Noncurrent-Carrying Wiring Devices, had employment of 23.2 thousand. The employment figure was 8 percent above the 21.5 thousand reported in 1987. Compared with 1991, employment increased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Connecticut, Illinois, Missouri, and New York. This represents a shift from 1987 when Illinois, New York, Connecticut, and California were the leading States.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3644 shipped $2.7 billion of noncurrent-carrying wiring devices considered primary to the industry, $437.9 million of secondary products, and had $53.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 84 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 85 percent.

The products primary to industry 3644, no matter in what industry they were produced, appear in table 6a and aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the noncurrent-carrying wiring devices industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES

This industry is made up of establishments primarily engaged in manufacturing residential electric lighting fixtures and equipment, fixed or portable. Establishments primarily engaged in producing glassware for lighting fixtures are classified in major group 32; those manufacturing electric light bulbs, tubes, and related light sources are classified in industry 3641; those manufacturing lamp shades, except glass and metal, are classified in industry 3999; and those manufacturing nonelectric fixtures and portable electric flashlights, lanterns, and similar lamps are classified in industry 3648. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36L, Electric Lighting Fixtures. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3645, Residential Lighting Fixtures, had employment of 16.5 thousand. The employment figure was 27 percent below the 22.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3645 shipped $1.4 billion of residential lighting fixtures considered primary to the industry, $63.8 million of secondary products, and had $154.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3645, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the residential lighting fixtures industry amounted to $757.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 17 percent of the total value of shipments.

INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES

This industry is made up of establishments primarily engaged in manufacturing commercial, industrial, and institutional electric lighting fixtures. Establishments primarily engaged in producing glassware for lighting fixtures are classified in major group 32; those manufacturing residential lighting fixtures are classified in industry 3645; and those manufacturing vehicular lighting fixtures are classified in industry 3647. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36L, Electric Lighting Fixtures. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3646, Commercial Lighting Fixtures, had employment of 20.6 thousand. The employment figure was 9 percent below the 22.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Georgia, Illinois, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $3.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3646 shipped $2.6 billion of commercial lighting fixtures considered primary to the industry, $305.6 million of secondary products, and had $88.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3646, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the commercial lighting fixtures industry amounted to $1.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing vehicular lighting equipment. Establishments primarily engaged in manufacturing sealed-beam lamps are classified in industry 3641.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3647, Vehicular Lighting Equipment, had employment of 14.6 thousand. The employment figure was 6 percent below the 15.5 thousand reported in 1987. Compared with 1991, employment increased 11 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Indiana, Louisiana, and Ohio. This represents a shift from 1987 when Indiana, Ohio, Illinois, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $2.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3647 shipped $1.7 billion of vehicular lighting equipment considered primary to the industry, $385.9 million of secondary products, and had $93.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 82 percent (specialization ratio). In 1987, the specialization ratio was not shown.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3647, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the vehicular lighting equipment industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing lighting fixtures and equipment, electric and nonelectric, not elsewhere classified, including flashlights and similar portable lamps, searchlights, ultraviolet lamp fixtures, and infrared lamp fixtures. Establishments primarily engaged in manufacturing electric light bulbs, tubes, and related light sources are classified in

industry 3641; those producing glassware for lighting fixtures are classified in major group 32; and those manufacturing traffic signals are classified in industry 3669. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36L, Electric Lighting Fixtures. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3648, Lighting Equipment, N.E.C., had employment of 14.5 thousand. The employment figure was 1 percent above the 14.4 thousand reported in 1987.

The leading States in employment in 1992 were California, North Carolina, Ohio, and Pennsylvania. This represents a shift from 1987 when California, North Carolina, Mississippi, and Ohio were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3648 shipped $1.7 billion of lighting equipment, not elsewhere classified, considered primary to the industry, $285.1 million of secondary products, and had $107.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio also was 86 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 81 percent.

The products primary to industry 3648, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lighting equipment, not elsewhere classified, industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES															
1992 Census	76	105	66	17.5	510.7	14.7	29.3	406.2	2 067.5	955.6	3 026.9	99.6	320.5	98	97
1991 ASM	(NA)	(NA)	(NA)	18.6	486.8	15.6	33.0	385.4	1 863.0	898.4	2 772.9	105.4	343.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.8	521.8	16.7	35.6	419.0	1 862.5	969.3	2 830.9	107.5	340.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.8	513.1	16.9	35.1	416.2	1 861.2	924.9	2 793.5	96.3	315.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.9	546.1	18.7	37.1	441.3	2 201.7	957.7	3 168.9	122.8	306.6	(NA)	(NA)
1987 Census	93	127	67	22.2	526.8	19.0	36.8	421.1	2 125.5	977.8	3 096.7	101.9	304.2	98	99
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES															
1992 Census	406	475	264	41.1	1 071.4	28.9	57.7	592.9	2 881.7	1 795.3	4 668.1	124.2	713.0	81	84
1991 ASM	(NA)	(NA)	(NA)	39.4	961.9	28.3	55.5	545.9	2 560.7	1 692.8	4 260.2	98.8	714.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	44.1	1 019.4	31.8	62.0	582.6	2 642.1	1 739.5	4 404.0	155.2	758.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	45.4	1 011.4	32.7	63.4	583.5	2 663.6	1 767.8	4 434.1	128.5	776.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	48.7	1 019.2	36.2	69.8	604.2	2 542.0	1 768.3	4 262.6	120.4	792.2	(NA)	(NA)
1987 Census	365	430	246	47.9	963.8	34.5	66.3	558.4	2 330.8	1 518.2	3 848.1	111.9	680.8	84	82
1986 ASM	(NA)	(NA)	(NA)	48.3	941.3	34.6	65.0	539.8	2 147.5	1 421.7	3 537.0	101.2	665.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	49.8	920.3	36.5	66.1	541.8	2 089.9	1 416.1	3 518.2	109.0	639.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	50.7	905.5	37.5	69.3	537.7	2 042.1	1 446.1	3 415.1	100.3	617.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.9	786.5	34.1	63.6	483.5	1 742.5	1 210.2	2 914.0	85.5	571.2	(NA)	(NA)
1982 Census	357	415	222	44.5	699.8	31.9	57.2	421.6	1 464.2	996.7	2 510.3	88.8	500.0	85	76
1981 ASM	(NA)	(NA)	(NA)	51.7	736.4	38.6	72.8	464.3	1 597.3	1 185.3	2 762.2	103.7	499.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	50.7	666.3	38.0	71.2	419.3	1 501.6	1 109.0	2 603.5	116.3	454.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	53.7	642.3	41.3	78.7	421.2	1 454.1	1 044.6	2 453.6	99.9	454.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	44.7	513.3	34.7	68.0	333.9	1 109.9	772.0	1 893.4	59.5	347.6	(NA)	(NA)
1977 Census	362	413	198	43.9	480.3	33.6	66.2	312.1	1 100.1	738.7	1 795.2	55.8	341.5	84	79
INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES															
1992 Census	177	220	134	23.2	643.0	17.1	35.4	407.8	1 871.7	1 344.8	3 223.7	80.7	512.5	86	85
1991 ASM	(NA)	(NA)	(NA)	20.6	565.8	14.6	29.5	344.8	1 629.9	1 162.3	2 824.6	81.8	482.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.6	618.6	15.8	31.8	363.7	1 919.5	1 418.6	3 346.1	145.4	562.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.3	618.7	16.2	33.9	383.1	1 784.3	1 606.4	3 392.7	83.4	574.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.1	607.4	16.1	31.9	380.7	1 782.4	1 550.5	3 283.8	75.6	611.9	(NA)	(NA)
1987 Census	177	209	124	21.5	550.3	15.3	30.8	356.6	1 588.9	1 340.8	2 903.2	73.8	581.2	84	85
1986 ASM	(NA)	(NA)	(NA)	23.4	557.7	16.2	31.6	340.1	1 483.1	1 177.1	2 660.3	62.8	559.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	23.6	541.2	16.7	33.6	338.1	1 390.0	1 139.8	2 541.5	79.1	552.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	23.3	515.7	16.5	32.8	323.7	1 289.0	1 171.3	2 426.2	59.1	561.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.5	511.2	17.1	33.9	316.3	1 194.3	1 132.0	2 309.4	47.5	587.4	(NA)	(NA)
1982 Census	187	226	140	26.3	509.9	18.1	35.3	314.0	1 218.7	1 130.5	2 399.6	69.1	575.2	79	88
1981 ASM	(NA)	(NA)	(NA)	28.4	540.1	19.5	38.4	327.1	1 276.8	1 181.5	2 404.8	74.2	540.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	28.5	477.8	19.8	37.9	296.5	1 146.3	1 043.2	2 174.5	69.5	475.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	30.3	464.6	21.5	42.4	299.4	1 131.4	1 063.4	2 151.9	64.8	469.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	27.3	382.6	19.7	38.3	245.8	896.0	841.3	1 719.8	43.5	407.4	(NA)	(NA)
1977 Census	173	202	123	25.8	330.1	18.4	35.9	210.9	744.4	682.4	1 421.8	32.8	350.5	82	83
INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES															
1992 Census	511	526	176	16.5	329.3	12.6	23.9	187.6	857.9	757.7	1 610.9	21.4	332.8	96	82
1991 ASM	(NA)	(NA)	(NA)	16.6	314.8	13.0	25.1	191.4	678.4	651.3	1 352.1	13.0	295.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.8	344.3	13.8	26.8	207.9	826.0	721.4	1 561.3	24.3	337.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	20.9	381.0	16.2	31.8	233.7	981.3	739.8	1 725.8	27.0	348.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.6	392.5	16.4	32.0	240.4	1 032.0	822.2	1 862.9	26.4	366.0	(NA)	(NA)
1987 Census	551	580	220	22.5	398.8	17.5	34.1	254.2	1 005.5	790.9	1 772.6	24.7	379.1	95	91
1986 ASM	(NA)	(NA)	(NA)	20.5	353.7	15.8	30.2	220.4	888.9	748.3	1 628.5	20.2	351.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.5	349.6	16.9	30.7	223.5	856.4	758.1	1 607.5	31.3	350.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	22.6	344.5	17.9	34.2	220.7	841.7	783.6	1 606.7	28.8	339.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.4	328.9	18.4	34.9	209.9	818.3	729.9	1 529.5	15.7	314.0	(NA)	(NA)
1982 Census	613	643	250	22.2	308.8	16.9	31.5	194.7	708.7	634.5	1 351.8	17.9	280.2	93	95
1981 ASM	(NA)	(NA)	(NA)	23.8	296.8	18.1	34.9	186.7	598.6	607.2	1 202.4	14.4	245.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	24.0	271.1	18.3	34.3	169.5	536.9	599.6	1 147.5	16.5	226.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	25.8	267.9	20.1	36.7	170.5	547.3	584.4	1 115.2	17.6	230.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	24.6	252.5	19.3	35.0	160.6	551.6	567.6	1 110.6	16.0	213.7	(NA)	(NA)
1977 Census	676	710	244	23.7	229.5	18.2	33.4	139.4	494.2	495.6	986.6	11.8	193.2	95	92
INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES															
1992 Census	305	336	148	20.6	530.5	14.0	28.3	283.5	1 479.8	1 547.7	3 023.3	57.7	431.3	90	87
1991 ASM	(NA)	(NA)	(NA)	21.4	536.7	14.2	29.5	291.8	1 541.1	1 466.8	3 020.9	63.3	446.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.0	559.9	15.3	31.7	301.3	1 609.8	1 585.8	3 208.9	64.4	450.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.8	544.9	15.5	32.0	299.1	1 533.9	1 563.6	3 083.7	63.0	465.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.6	482.0	15.0	29.4	277.6	1 289.4	1 440.1	2 743.4	60.8	427.4	(NA)	(NA)
1987 Census	242	271	148	22.7	478.2	15.6	31.3	278.4	1 367.4	1 375.1	2 739.9	60.6	450.2	88	89
1986 ASM	(NA)	(NA)	(NA)	22.5	456.7	16.0	31.3	269.7	1 282.6	1 340.0	2 623.7	56.4	421.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.1	411.6	15.6	29.9	243.6	1 104.1	1 228.0	2 321.2	53.0	379.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	19.7	362.3	14.6	28.4	222.5	987.5	1 068.3	2 051.6	47.5	343.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.6	342.1	14.0	27.5	203.2	871.6	938.3	1 800.0	37.5	342.2	(NA)	(NA)
1982 Census	219	243	140	18.9	313.3	13.4	25.7	184.2	774.8	892.3	1 671.9	32.0	290.8	91	87
1981 ASM	(NA)	(NA)	(NA)	18.8	277.5	13.2	25.0	156.8	722.7	867.7	1 605.9	27.6	251.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	250.0	13.2	24.8	143.1	681.0	798.9	1 463.3	32.9	254.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.7	223.2	13.0	25.4	132.4	651.1	699.7	1 339.3	25.2	250.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.8	193.5	12.0	22.9	115.9	502.0	572.8	1 062.5	20.8	208.8	(NA)	(NA)
1977 Census	192	218	122	15.6	169.1	11.1	20.6	98.8	434.7	498.4	922.7	18.0	182.3	90	86

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT															
1992 Census	90	96	58	14.6	499.0	10.8	21.3	344.5	1 143.4	1 024.0	2 190.4	61.3	209.9	82	99
1991 ASM	(NA)	(NA)	(NA)	13.2	460.7	9.7	19.3	311.3	990.6	1 074.2	2 061.9	74.4	220.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.9	480.8	10.9	20.9	320.2	1 025.1	1 095.6	2 121.7	103.5	241.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.7	491.5	11.6	22.5	335.4	1 051.7	1 125.6	2 179.1	79.8	245.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.6	519.1	11.5	23.1	369.2	989.8	1 053.9	2 051.6	67.9	233.7	(NA)	(NA)
1987 Census	68	72	49	15.5	509.4	11.7	23.6	370.3	957.1	1 025.6	1 969.6	75.7	230.7	(D)	96
1986 ASM	(NA)	(NA)	(NA)	13.3	439.0	9.8	20.0	309.9	873.9	870.7	1 729.7	150.6	193.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.8	393.8	9.6	19.4	283.3	798.6	659.0	1 453.1	87.7	160.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.0	382.3	9.9	20.0	271.5	832.4	602.0	1 418.6	39.9	151.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.9	344.1	10.7	21.6	250.0	790.9	501.4	1 282.1	34.4	138.7	(NA)	(NA)
1982 Census	78	84	54	12.9	281.6	9.6	18.8	193.4	602.4	411.2	1 013.6	43.8	122.9	65	96
1981 ASM	(NA)	(NA)	(NA)	13.3	292.9	10.0	19.4	206.6	564.5	387.9	956.3	70.0	116.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.9	265.6	9.8	18.8	185.0	506.2	365.5	876.0	51.1	114.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.8	285.2	12.5	24.9	205.8	603.3	461.4	1 061.5	51.1	121.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.8	279.8	12.5	25.2	204.6	602.2	468.8	1 057.2	41.2	113.9	(NA)	(NA)
1977 Census	70	75	43	14.5	246.0	11.4	23.3	178.8	536.0	388.9	908.5	46.3	97.1	68	94
INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.															
1992 Census	272	293	132	14.5	394.3	9.3	18.7	191.0	1 073.8	1 018.0	2 083.5	50.9	321.3	86	85
1991 ASM	(NA)	(NA)	(NA)	14.1	350.4	9.3	18.6	183.9	897.0	938.2	1 838.5	33.5	312.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.5	347.6	9.7	19.2	177.7	883.6	958.2	1 849.5	46.8	324.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.3	337.4	9.9	19.5	182.0	933.6	962.2	1 889.3	48.5	339.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.1	344.8	10.1	19.9	186.8	952.3	917.2	1 863.1	32.1	345.7	(NA)	(NA)
1987 Census	246	262	128	14.4	304.4	9.9	19.3	166.6	884.7	801.5	1 673.9	31.3	288.1	86	81
1986 ASM	(NA)	(NA)	(NA)	13.2	270.6	9.1	17.5	150.1	922.9	681.2	1 607.3	32.5	250.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.6	272.7	9.4	18.6	153.2	843.9	670.3	1 515.5	43.4	263.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.9	251.3	9.8	18.9	143.9	693.7	614.1	1 303.5	33.9	242.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.8	210.5	8.4	15.8	119.7	539.0	458.6	992.9	17.1	190.9	(NA)	(NA)
1982 Census	222	233	113	12.2	207.9	8.5	16.1	121.2	566.4	454.4	1 028.0	28.0	188.6	87	74
1981 ASM	(NA)	(NA)	(NA)	14.5	233.9	10.1	20.0	135.0	613.0	536.0	1 133.1	32.0	197.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	14.5	209.4	10.2	20.1	121.2	562.3	479.4	1 031.6	28.4	174.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.0	182.8	10.0	19.5	106.3	499.3	414.7	897.9	25.0	163.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	12.7	159.4	9.1	17.6	93.6	394.3	369.7	762.2	22.3	135.6	(NA)	(NA)
1977 Census	208	223	119	12.8	148.0	9.1	17.7	85.7	342.5	332.7	670.6	15.8	128.5	85	81

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES									
1992 Census	29 183	84	1 993	13.86	32	48	118 143	25	70.56
1991 ASM	26 172	84	2 115	11.68	32	50	100 161	26	56.45
1990 ASM	26 354	84	2 132	11.77	34	53	94 066	28	52.32
1989 ASM	25 914	85	2 077	11.86	33	51	94 000	28	53.03
1988 ASM	24 936	85	1 984	11.89	30	47	100 534	25	59.35
1987 Census	23 730	86	1 937	11.44	32	49	95 743	25	57.76
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES									
1992 Census	26 068	70	1 997	10.28	38	61	70 114	37	49.94
1991 ASM	24 414	72	1 961	9.84	40	62	64 992	38	46.14
1990 ASM	23 116	72	1 950	9.40	39	63	59 912	39	42.61
1989 ASM	22 278	72	1 939	9.20	40	63	58 670	38	42.01
1988 ASM	20 928	74	1 928	8.66	41	65	52 197	40	36.42
1987 Census	20 121	72	1 922	8.42	39	64	48 660	41	35.16
1986 ASM	19 489	72	1 879	8.30	40	67	44 462	44	33.04
1985 ASM	18 480	73	1 811	8.20	40	66	41 966	44	31.62
1984 ASM	17 860	74	1 848	7.76	42	69	40 278	44	29.47
1983 ASM	17 135	74	1 865	7.60	42	69	37 963	45	27.40
1982 Census	15 726	72	1 793	7.37	40	68	32 903	48	25.60
1981 ASM	14 244	75	1 886	6.38	43	70	30 896	46	21.94
1980 ASM	13 142	75	1 874	5.89	43	68	29 617	44	21.09
1979 ASM	11 961	77	1 906	5.35	43	69	27 078	44	18.48
1978 ASM	11 483	78	1 960	4.91	41	68	24 830	46	16.32
1977 Census	10 941	77	1 970	4.71	41	68	25 059	44	16.62

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES									
1992 Census	27 716	74	2 070	11.52	42	62	80 677	34	52.87
1991 ASM	27 466	71	2 021	11.69	41	61	79 121	35	55.25
1990 ASM	27 372	70	2 013	11.44	42	61	84 934	32	60.36
1989 ASM	26 554	70	2 093	11.30	47	66	76 579	35	52.63
1988 ASM	26 294	70	1 981	11.93	47	66	77 160	34	55.87
1987 Census	25 595	71	2 013	11.58	46	65	73 902	35	51.59
1986 ASM	23 833	69	1 951	10.76	44	65	63 380	38	46.93
1985 ASM	22 932	71	2 012	10.06	45	66	58 898	39	41.37
1984 ASM	22 133	71	1 988	9.87	48	70	55 322	40	39.30
1983 ASM	20 865	70	1 982	9.33	49	71	48 747	43	35.23
1982 Census	19 388	69	1 950	8.90	47	68	46 338	42	34.52
1981 ASM	19 018	69	1 969	8.52	49	72	44 958	42	33.25
1980 ASM	16 765	69	1 914	7.82	48	70	40 221	42	30.25
1979 ASM	15 333	71	1 972	7.06	49	71	37 340	41	26.68
1978 ASM	14 015	72	1 944	6.42	49	71	32 821	43	23.39
1977 Census	12 795	71	1 951	5.87	48	71	28 853	44	20.74
INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES									
1992 Census	19 958	76	1 897	7.85	47	67	51 994	38	35.90
1991 ASM	18 964	78	1 931	7.63	48	71	40 867	46	27.03
1990 ASM	19 343	78	1 942	7.76	46	68	46 404	42	30.82
1989 ASM	18 230	78	1 963	7.35	43	65	46 952	39	30.86
1988 ASM	18 171	76	1 951	7.51	44	65	47 778	38	32.25
1987 Census	17 724	78	1 949	7.45	45	67	44 689	40	29.49
1986 ASM	17 254	77	1 911	7.30	46	68	43 361	40	29.43
1985 ASM	16 260	79	1 817	7.28	47	69	39 833	41	27.90
1984 ASM	15 243	79	1 911	6.45	49	70	37 243	41	24.61
1983 ASM	14 056	79	1 897	6.01	48	69	34 970	40	23.45
1982 Census	13 910	76	1 864	6.18	47	70	31 923	44	22.50
1981 ASM	12 471	76	1 928	5.35	50	75	25 151	50	17.15
1980 ASM	11 296	76	1 874	4.94	52	76	22 371	50	15.65
1979 ASM	10 384	78	1 826	4.65	52	76	21 213	49	14.91
1978 ASM	10 264	78	1 813	4.59	51	74	22 423	46	15.76
1977 Census	9 684	77	1 835	4.17	50	73	20 852	46	14.80
INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES									
1992 Census	25 752	68	2 021	10.02	51	69	71 835	36	52.29
1991 ASM	25 079	66	2 077	9.89	49	66	72 014	35	52.24
1990 ASM	24 343	67	2 072	9.50	49	67	69 991	35	50.78
1989 ASM	23 899	68	2 065	9.35	51	68	67 276	36	47.93
1988 ASM	22 315	69	1 960	9.44	52	70	59 694	37	43.86
1987 Census	21 066	69	2 006	8.89	50	68	60 238	35	43.69
1986 ASM	20 298	71	1 956	8.62	51	68	57 004	36	40.98
1985 ASM	19 507	74	1 917	8.15	53	71	52 327	37	36.93
1984 ASM	18 391	74	1 945	7.83	52	70	50 127	37	34.77
1983 ASM	17 454	71	1 964	7.39	52	71	44 469	39	31.69
1982 Census	16 577	71	1 918	7.17	53	72	40 995	40	30.15
1981 ASM	14 761	70	1 894	6.27	54	71	38 441	38	28.91
1980 ASM	13 369	71	1 879	5.77	55	72	36 417	37	27.46
1979 ASM	11 936	70	1 954	5.21	52	69	34 818	34	25.63
1978 ASM	11 518	71	1 908	5.06	54	72	29 881	39	21.92
1977 Census	10 840	71	1 856	4.80	54	72	27 865	39	21.10
INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT									
1992 Census	34 178	74	1 972	16.17	47	70	78 315	44	53.68
1991 ASM	34 902	73	1 990	16.13	52	74	75 045	47	51.33
1990 ASM	32 268	73	1 917	15.32	52	74	68 799	47	49.05
1989 ASM	31 306	74	1 940	14.91	52	74	66 987	47	46.74
1988 ASM	33 276	74	2 009	15.98	51	77	63 449	52	42.85
1987 Census	32 865	75	2 017	15.69	52	78	61 748	53	40.56
1986 ASM	33 008	74	2 041	15.50	50	76	65 707	50	43.70
1985 ASM	30 766	75	2 021	14.60	45	72	62 391	49	41.16
1984 ASM	29 408	76	2 020	13.58	42	69	64 031	46	41.62
1983 ASM	24 755	77	2 019	11.57	39	66	56 899	44	36.62
1982 Census	21 829	74	1 958	10.29	41	68	46 698	47	32.04
1981 ASM	22 023	75	1 940	10.65	41	71	42 444	52	29.10
1980 ASM	20 589	76	1 918	9.84	42	72	39 240	52	26.93
1979 ASM	18 051	79	1 992	8.27	43	70	38 184	47	24.23
1978 ASM	17 709	79	2 016	8.12	44	71	38 114	46	23.90
1977 Census	16 966	79	2 044	7.67	43	70	36 966	46	23.00
INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.									
1992 Census	27 193	64	2 011	10.21	49	68	74 055	37	57.42
1991 ASM	24 851	66	2 000	9.89	51	70	63 617	39	48.23
1990 ASM	23 972	67	1 979	9.26	52	71	60 938	39	46.02
1989 ASM	22 052	65	1 970	9.33	51	69	61 020	36	47.88
1988 ASM	22 834	67	1 970	9.39	49	68	63 066	36	47.85
1987 Census	21 139	69	1 949	8.63	48	66	61 438	34	45.84
1986 ASM	20 500	69	1 923	8.58	42	59	69 917	29	52.74
1985 ASM	20 051	69	1 979	8.24	44	62	62 051	32	45.37
1984 ASM	18 079	71	1 929	7.61	47	66	49 906	36	36.70
1983 ASM	17 839	71	1 881	7.58	46	67	45 678	39	34.11

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.—Con.								
1982 Census	17 041	70	1 894	7.53	44	64	46 426	37	35.18
1981 ASM	16 131	70	1 980	6.75	47	68	42 276	38	30.65
1980 ASM	14 441	70	1 971	6.03	46	67	38 779	37	27.98
1979 ASM	13 057	71	1 950	5.45	46	67	35 664	37	25.61
1978 ASM	12 551	72	1 934	5.32	49	69	31 047	40	22.40
1977 Census	11 563	71	1 945	4.84	50	72	26 758	43	19.35

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES														
United States	–	**105**	**66**	**17.5**	**510.7**	**14.7**	**29.3**	**406.2**	**2 067.5**	**955.6**	**3 026.9**	**99.6**	**22.2**	**2 125.5**
Arkansas	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	12	5	.3	8.0	.2	.6	5.1	17.6	11.5	29.0	1.0	E	(D)
Connecticut	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	8	5	.7	18.6	.7	1.3	16.3	55.8	18.6	74.3	(D)	F	(D)
Kansas	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.6	G	(D)
Maine	–	4	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E9	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	E3	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	10	5	.7	19.1	.4	.8	8.8	53.6	27.0	80.4	.6	.9	29.7
New York	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	12	10	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	E8	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	8	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Rhode Island	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	5	3	.9	24.6	.8	1.7	21.4	56.8	19.4	76.9	(D)	F	(D)
Texas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES														
United States	–	**475**	**264**	**41.1**	**1 071.4**	**28.9**	**57.7**	**592.9**	**2 881.7**	**1 795.3**	**4 668.1**	**124.2**	**47.9**	**2 330.8**
Alabama	–	8	5	1.3	31.3	1.0	1.9	19.3	61.6	40.2	103.4	(D)	1.0	44.3
Arizona	–	7	4	.3	5.1	.2	.4	3.0	8.4	6.9	16.4	.3	(NA)	(NA)
Arkansas	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	64	29	2.1	58.0	1.4	2.9	29.4	126.9	63.9	191.4	4.6	(NA)	(D)
Connecticut	–	15	9	1.5	46.7	1.0	2.0	25.6	141.4	77.9	219.2	7.0	2.1	163.6
Florida	–	32	11	1.2	24.2	.9	1.6	15.1	58.7	30.4	88.2	5.4	.9	35.6
Georgia	–	6	3	.2	3.9	.2	.4	3.2	5.5	5.0	10.8	.1	E	(D)
Illinois	E1	44	30	8.3	244.0	5.2	11.0	116.2	520.3	284.9	795.8	36.0	6.8	342.3
Indiana	–	14	10	1.0	23.1	.8	1.5	15.9	65.4	42.2	109.3	2.7	G	(D)
Iowa	E3	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(D)
Maine	E7	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	E9	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	21	12	1.5	44.6	1.0	1.9	24.9	101.5	63.1	163.9	4.3	G	(D)
Michigan	–	18	10	1.6	35.3	1.3	2.3	21.8	81.0	71.4	149.3	5.1	2.4	87.5
Minnesota	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	10	5	.6	15.1	.4	.8	8.1	23.9	24.5	48.4	1.9	1.4	60.0
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	21	14	1.3	30.5	.9	1.6	18.4	104.6	59.3	162.8	8.5	2.9	149.5
New York	E1	35	16	4.1	110.2	2.8	5.9	56.0	240.2	131.6	374.8	5.3	6.6	286.4
North Carolina	E1	15	10	2.3	51.4	1.8	3.7	32.1	246.0	61.6	301.6	5.0	(NA)	(D)
Ohio	–	28	17	3.0	64.8	2.3	4.4	40.8	118.5	109.9	228.2	4.9	3.9	134.0
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES—Con.														
Pennsylvania	–	41	24	3.0	84.0	2.1	4.2	47.9	258.5	178.8	434.3	9.9	2.5	164.9
Rhode Island	–	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Carolina	–	5	5	.8	15.5	.7	1.4	10.6	43.6	51.4	95.3	2.3	.6	34.6
Tennessee	E1	4	4	.6	10.0	.5	.9	7.6	17.9	16.7	34.8	(D)	1.1	33.8
Texas	E1	19	10	1.0	23.2	.8	1.5	12.6	48.8	18.0	67.5	1.4	E	(D)
Virginia	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	8	4	.4	10.2	.3	.5	5.4	34.0	33.7	70.9	(D)	.5	11.9
INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES														
United States	**–**	**220**	**134**	**23.2**	**643.0**	**17.1**	**35.4**	**407.8**	**1 871.7**	**1 344.8**	**3 223.7**	**80.7**	**21.5**	**1 588.9**
Alabama	–	9	7	.5	11.5	.3	.7	6.6	32.1	36.4	68.0	2.8	E	(D)
Arkansas	E3	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	33	17	1.6	42.7	1.1	2.3	26.0	126.6	153.7	278.6	5.8	1.6	111.0
Connecticut	–	9	6	1.7	56.1	1.2	2.5	31.9	212.1	56.4	270.8	5.1	2.1	147.2
Florida	–	9	5	.5	9.4	.4	.7	6.8	24.6	30.4	54.5	1.6	E	(D)
Georgia	–	6	4	.2	5.9	.2	.4	3.6	26.5	38.4	63.9	(D)	(NA)	(D)
Illinois	–	20	12	2.2	66.7	1.7	4.0	45.0	184.5	119.6	311.4	8.8	3.3	364.1
Indiana	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E9	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	8	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.5	G	(D)
Nebraska	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	6	4	.6	19.1	.4	.8	11.7	61.1	29.2	90.1	.9	.7	65.7
New York	–	13	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	104.0
North Carolina	–	5	3	1.6	32.7	1.4	2.8	25.8	51.3	24.8	76.1	(D)	E	(D)
Ohio	–	17	13	1.2	37.0	.8	1.7	21.0	74.9	75.4	151.4	6.4	G	(D)
Oklahoma	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	18	14	1.7	42.5	1.4	2.7	32.1	130.6	147.8	275.7	9.9	1.3	84.0
South Carolina	–	4	4	.5	9.9	.4	.8	5.6	20.3	18.2	38.9	(D)	(NA)	(NA)
Tennessee	–	4	4	.8	21.6	.6	1.1	10.3	69.2	48.7	130.4	(D)	F	(D)
Texas	–	15	9	.7	16.0	.6	1.2	11.7	48.7	69.4	118.2	2.5	.8	48.8
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	E1	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	E	(D)
INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES														
United States	**E1**	**526**	**176**	**16.5**	**329.3**	**12.6**	**23.9**	**187.6**	**857.9**	**757.7**	**1 610.9**	**21.4**	**22.5**	**1 005.5**
Alabama	–	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	E3	11	4	.2	2.6	.1	.2	1.5	5.5	4.2	9.6	.1	(NA)	(NA)
Arkansas	–	12	7	1.0	18.5	.8	1.8	11.2	45.9	55.0	99.6	.8	1.0	44.2
California	E3	119	38	3.3	59.9	2.6	4.7	35.1	146.0	118.6	266.8	3.8	4.4	224.7
Florida	E1	31	11	.8	12.3	.6	1.1	7.0	26.3	20.6	47.4	.4	F	(D)
Georgia	–	9	3	.3	4.8	.2	.4	3.4	6.5	9.9	16.3	.1	.4	11.9
Illinois	–	26	13	1.5	34.5	1.1	2.2	20.1	71.7	51.4	122.9	(D)	G	(D)
Kentucky	E1	9	4	.5	8.0	.4	.8	6.5	15.1	24.7	36.5	(D)	F	(D)
Louisiana	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Massachusetts	E5	14	5	.6	15.6	.5	.9	8.0	38.7	31.2	71.9	(D)	F	(D)
Mississippi	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	29	11	.8	18.0	.6	1.1	9.1	59.0	55.7	115.9	.7	1.6	87.0
New York	E3	69	17	1.5	39.2	1.1	2.2	21.7	98.7	91.6	186.8	1.3	3.5	136.3
North Carolina	E1	20	8	.7	11.5	.6	1.0	7.0	28.7	26.3	55.5	.4	E	(D)
Ohio	–	16	8	.9	21.7	.6	1.2	10.5	80.3	63.0	139.7	2.0	F	(D)
Pennsylvania	–	40	16	1.3	26.2	.9	1.7	12.0	109.4	73.3	182.5	(D)	2.9	117.3
Rhode Island	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E2	23	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
Vermont	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES														
United States	–	**336**	**148**	**20.6**	**530.5**	**14.0**	**28.3**	**283.5**	**1 479.8**	**1 547.7**	**3 023.3**	**57.7**	**22.7**	**1 367.4**
Alabama	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	65	24	2.8	78.5	1.7	3.6	34.9	232.3	176.6	406.5	6.0	3.0	160.5
Connecticut	E5	6	4	.3	7.9	.2	.3	3.5	21.8	17.8	39.6	(D)	.3	14.1
Florida	E1	11	1	.2	3.2	.2	.4	2.2	5.4	22.2	27.4	.3	.2	6.4
Georgia	–	8	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	10.6	(NA)	(D)
Illinois	–	23	11	2.4	66.4	1.3	2.8	25.3	216.9	137.9	352.9	11.1	2.6	203.9
Indiana	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	13	7	1.1	30.0	.8	1.5	19.0	122.8	76.9	200.5	3.7	G	(D)
Michigan	E1	11	6	.3	6.9	.2	.4	2.7	19.1	11.8	30.6	.4	.2	6.8
Minnesota	–	10	2	.2	4.7	.1	.2	2.6	8.0	8.0	15.8	.1	(NA)	(NA)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	5	4	.4	8.0	.3	.5	5.1	19.5	23.3	42.9	(D)	.5	24.9
New Jersey	–	22	11	1.0	29.2	.7	1.3	15.0	73.1	83.8	157.0	.5	.9	61.0
New York	E1	43	23	1.4	36.3	1.0	1.9	19.7	89.5	68.8	157.6	1.7	1.6	89.5
Ohio	–	17	6	.9	21.1	.7	1.3	13.5	68.2	71.7	146.2	2.0	1.1	86.3
Pennsylvania	–	25	11	1.5	32.2	1.0	2.1	17.3	71.2	135.9	204.7	7.7	1.7	94.1
Rhode Island	–	3	2	.1	3.6	.1	.2	2.1	8.7	5.7	13.9	(D)	(NA)	(D)
Tennessee	–	7	4	.7	15.1	.6	1.1	10.1	56.3	67.2	118.2	2.9	.7	37.1
Texas	–	13	6	.6	14.3	.4	.7	7.7	40.6	43.4	83.7	1.2	.8	25.2
Virginia	E8	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	7	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	5	5	.2	6.3	.2	.3	3.2	17.9	10.3	28.0	.5	E	(D)
INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT														
United States	–	**96**	**58**	**14.6**	**499.0**	**10.8**	**21.3**	**344.5**	**1 143.4**	**1 024.0**	**2 190.4**	**61.3**	**15.5**	**957.1**
Arizona	E7	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E2	12	4	.2	5.8	.1	.2	3.3	11.1	9.2	20.2	.5	E	(D)
Connecticut	–	5	4	.4	13.7	.3	.9	9.0	37.5	28.2	65.7	1.4	E	(D)
Illinois	–	8	6	1.2	26.6	.9	1.8	17.6	76.0	77.9	155.0	(D)	G	(D)
Indiana	–	8	7	5.7	224.1	4.6	8.9	166.9	382.0	317.1	717.2	13.3	(NA)	(D)
Louisiana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	6	4	.2	5.7	.1	.3	2.5	12.4	11.2	23.6	.6	.3	14.2
Missouri	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nevada	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(D)
New York	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.4	(NA)	(D)
Pennsylvania	E2	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	5	4	.6	18.7	.3	.6	6.5	33.0	23.4	55.8	(D)	(NA)	(NA)
INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.														
United States	**E1**	**293**	**132**	**14.5**	**394.3**	**9.3**	**18.7**	**191.0**	**1 073.8**	**1 018.0**	**2 083.5**	**50.9**	**14.4**	**884.7**
Arkansas	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	63	32	2.9	89.9	1.9	4.1	39.0	207.1	177.0	382.9	8.9	2.9	193.9
Connecticut	–	9	5	.4	15.3	.2	.4	4.0	43.7	58.6	94.3	(D)	.5	21.4
Florida	–	18	4	.4	8.7	.2	.4	4.3	12.3	15.4	26.5	.8	(NA)	(D)
Georgia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E3	24	9	.7	17.6	.5	1.1	9.8	41.9	38.7	83.1	4.7	F	(D)
Indiana	–	5	2	.3	7.6	.1	.2	2.4	21.3	18.7	40.0	.2	(NA)	(NA)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E2	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	F	(D)
Michigan	–	5	2	.1	4.0	.1	.2	2.3	9.8	9.9	19.4	.5	(NA)	(NA)
Minnesota	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	12	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	F	(D)
New York	–	23	8	.5	16.4	.3	.6	8.5	36.4	30.0	66.8	1.3	F	(D)
North Carolina	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E3	20	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	72.8
Pennsylvania	E2	15	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	F	(D)
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	13	8	.6	14.9	.4	.7	6.5	44.9	47.6	94.2	1.7	F	(D)
Vermont	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	E1	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	12	4	.6	15.2	.4	.7	5.3	54.4	31.2	85.3	(D)	.2	6.9

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electric lamp bulbs and tubes (SIC 3641)	Current-carrying wiring devices (SIC 3643)	Noncurrent-carrying wiring devices (SIC 3644)	Residential lighting fixtures (SIC 3645)	Commercial lighting fixtures (SIC 3646)	Vehicular lighting equipment (SIC 3647)	Lighting equipment, n.e.c. (SIC 3648)
Companies ---- number	76	406	177	511	305	90	272
All establishments ---- number	105	475	220	526	336	96	293
With 1 to 19 employees ---- number	39	211	86	350	188	38	161
With 20 to 99 employees ---- number	26	150	69	134	103	35	91
With 100 employees or more ---- number	40	114	65	42	45	23	41
Employment and labor costs:							
Employees ---- 1,000	17.5	41.1	23.2	16.5	20.6	14.6	14.5
Compensation, total ---- mil dol	692.0	1 359.7	810.1	408.0	662.7	661.0	496.5
Annual payroll ---- mil dol	510.7	1 071.4	643.0	329.3	530.5	499.0	394.3
Fringe benefits ---- mil dol	181.3	288.3	167.1	78.7	132.3	162.0	102.2
Social Security and other legally required payments ---- mil dol	57.0	107.9	71.7	35.7	55.9	46.4	36.9
Employer voluntary payments ---- mil dol	124.2	180.3	95.4	43.0	76.4	115.6	65.3
Production workers:							
Average for year ---- 1,000	14.7	28.9	17.1	12.6	14.0	10.8	9.3
March ---- 1,000	14.9	28.7	17.0	12.7	14.0	10.8	9.3
May ---- 1,000	14.8	28.9	17.0	12.6	13.9	11.0	9.3
August ---- 1,000	14.6	29.3	17.1	12.5	14.1	10.4	9.4
November ---- 1,000	14.7	28.9	17.0	12.5	14.0	10.9	9.4
Hours ---- millions	29.3	57.7	35.4	23.9	28.3	21.3	18.7
Wages ---- mil dol	406.2	592.9	407.8	187.6	283.5	344.5	191.0
Cost of materials[1] ---- mil dol	955.6	1 795.3	1 344.8	757.7	1 547.7	1 024.0	1 018.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	848.4	1 539.0	1 218.7	635.5	1 443.8	911.8	889.8
Resales ---- mil dol	50.4	144.6	33.7	92.1	51.0	68.9	76.6
Fuels ---- mil dol	14.9	8.8	12.0	6.3	10.2	4.8	5.3
Purchased electricity ---- mil dol	34.6	44.7	44.9	10.4	17.1	22.0	14.0
Contract work ---- mil dol	7.3	58.3	35.5	13.5	25.5	16.5	32.3
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	641.2	641.3	712.1	133.7	237.4	428.3	203.7
Generated less sold ---- mil kWh	(D)	(D)	–	–	–	–	–
Total value of shipments ---- mil dol	3 026.9	4 668.1	3 223.7	1 610.9	3 023.3	2 190.4	2 083.5
Value added ---- mil dol	2 067.5	2 881.7	1 871.7	857.9	1 479.8	1 143.4	1 073.8
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	334.6	709.2	521.6	321.9	419.9	230.1	305.5
Finished goods ---- mil dol	140.1	251.4	256.4	119.9	148.1	43.5	104.2
Work in process ---- mil dol	22.9	205.0	95.6	55.8	62.9	107.7	52.0
Materials and supplies ---- mil dol	171.7	252.8	169.6	146.2	208.9	78.8	149.3
End of 1992 ---- mil dol	320.5	713.0	512.5	332.8	431.3	209.9	321.3
Finished goods ---- mil dol	137.8	264.2	253.6	129.3	153.0	41.3	109.0
Work in process ---- mil dol	21.3	201.0	91.3	51.2	62.2	87.0	55.5
Materials and supplies ---- mil dol	161.3	247.8	167.7	152.4	216.0	81.7	156.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electric lamp bulbs and tubes (SIC 3641)	Current-carrying wiring devices (SIC 3643)	Noncurrent-carrying wiring devices (SIC 3644)	Residential lighting fixtures (SIC 3645)	Commercial lighting fixtures (SIC 3646)	Vehicular lighting equipment (SIC 3647)	Lighting equipment, n.e.c. (SIC 3648)
Gross book value of depreciable assets:							
Total:							
Beginning of year	1 351.8	1 421.0	1 035.0	307.2	735.3	908.5	521.2
New capital expenditures[1]	99.6	124.2	80.7	21.4	57.7	61.3	50.9
Used capital expenditures	2.2	10.9	(D)	2.2	2.2	(D)	5.9
Retirements	19.6	44.2	(D)	8.1	16.7	(D)	15.2
End of year	1 434.0	1 511.9	1 113.1	322.8	778.5	939.2	562.7
Buildings and other structures:							
Beginning of year	181.3	335.8	261.1	90.4	204.9	141.4	126.7
New capital expenditures	5.3	17.4	8.4	6.2	12.8	12.7	8.1
Used capital expenditures	.5	1.4	(D)	.2	.7	(D)	1.2
Retirements	2.9	2.3	(D)	.5	4.6	(D)	1.2
End of year	184.1	352.3	272.0	96.2	213.7	138.1	134.8
Machinery and equipment:							
Beginning of year	1 170.5	1 085.2	773.9	216.8	530.4	767.1	394.5
New capital expenditures[1]	94.3	106.8	72.3	15.3	44.9	48.6	42.8
Used capital expenditures	1.7	9.5	(D)	2.0	1.6	(D)	4.7
Retirements	16.7	41.9	(D)	7.6	12.1	(D)	14.1
End of year	1 249.8	1 159.6	841.1	226.6	564.8	801.1	427.9
Depreciation charges during 1992:							
Total	84.8	124.2	77.9	22.0	58.7	66.2	41.7
Buildings and other structures	9.3	17.4	10.3	4.2	10.8	5.4	5.6
Machinery and equipment	75.5	106.9	67.7	17.8	47.9	60.8	36.2
Rental payments:							
Total	8.4	35.7	20.7	27.8	32.3	67.9	23.7
Buildings and other structures	5.7	24.4	11.3	16.8	16.9	61.2	14.0
Machinery and equipment	2.7	11.3	9.4	11.0	15.4	6.7	9.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electric lamp bulbs and tubes (SIC 3641)		Current-carrying wiring devices (SIC 3643)		Noncurrent-carrying wiring devices (SIC 3644)		Residential lighting fixtures (SIC 3645)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	6.0	(X)	6.3	(X)	4.6	(X)	2.8	(X)
Response coverage ratio (percent)[2]	60.9	(X)	85.4	(X)	94.3	(X)	84.0	(X)
Machinery	14.6	(X)	27.0	(X)	23.4	(X)	10.8	(X)
Response coverage ratio (percent)[2]	61.0	(X)	85.4	(X)	87.4	(X)	84.4	(X)
Other purchased services:								
Communications	3.0	(X)	10.1	(X)	6.7	(X)	4.6	(X)
Response coverage ratio (percent)[2]	58.5	(X)	80.3	(X)	90.4	(X)	81.2	(X)
Legal	2.3	(X)	5.9	(X)	3.6	(X)	4.6	(X)
Response coverage ratio (percent)[2]	55.1	(X)	85.2	(X)	90.1	(X)	84.4	(X)
Accounting and bookkeeping	.4	(X)	5.0	(X)	2.2	(X)	3.6	(X)
Response coverage ratio (percent)[2]	55.2	(X)	82.1	(X)	85.4	(X)	83.3	(X)
Advertising	4.9	(X)	13.6	(X)	11.8	(X)	18.3	(X)
Response coverage ratio (percent)[2]	55.1	(X)	85.3	(X)	85.4	(X)	82.0	(X)
Software and other data processing	1.5	(X)	6.6	(X)	5.3	(X)	2.2	(X)
Response coverage ratio (percent)[2]	57.3	(X)	84.0	(X)	91.5	(X)	83.6	(X)
Refuse removal, including hazardous waste	2.1	(X)	4.1	(X)	4.1	(X)	2.7	(X)
Response coverage ratio (percent)[2]	61.0	(X)	81.5	(X)	92.9	(X)	84.4	(X)
New machinery and equipment expenditures	94.3	(X)	106.8	(X)	72.3	(X)	15.3	(X)
Automobiles, trucks, etc., for highway use	.1	1	1.9	26	2.3	39	1.3	10
Computers and peripheral data processing equipment	2.6	1	11.1	15	4.6	3	.6	47
All other	91.6	1	93.9	3	65.4	2	13.3	3
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.2	(X)	.3	(X)
Cost of materials, components, parts, etc., used	848.4	(X)	1 539.0	(X)	1 218.7	(X)	635.5	(X)
Materials purchased or transferred from foreign sources[4]	44.7	7	136.7	50	22.8	5	192.8	7
Materials purchased or transferred from domestic sources	803.7	1	1 402.2	6	1 195.9	1	442.7	4
Adjustment ratio[3]	1.8	(X)	1.8	(X)	1.6	(X)	.8	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Commercial lighting fixtures (SIC 3646)		Vehicular lighting equipment (SIC 3647)		Lighting equipment, n.e.c. (SIC 3648)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	8.2	(X)	1.6	(X)	2.8	(X)
Response coverage ratio (percent)[2]	86.3	(X)	81.5	(X)	85.1	(X)
Machinery	7.3	(X)	9.3	(X)	8.7	(X)
Response coverage ratio (percent)[2]	90.0	(X)	82.8	(X)	84.4	(X)
Other purchased services:						
Communications	8.5	(X)	2.4	(X)	5.4	(X)
Response coverage ratio (percent)[2]	89.6	(X)	51.6	(X)	84.6	(X)
Legal	4.8	(X)	2.6	(X)	6.7	(X)
Response coverage ratio (percent)[2]	88.6	(X)	81.5	(X)	85.7	(X)
Accounting and bookkeeping	2.3	(X)	(S)	(X)	1.7	(X)
Response coverage ratio (percent)[2]	87.1	(X)	(S)	(X)	85.7	(X)
Advertising	61.7	(X)	(S)	(X)	12.2	(X)
Response coverage ratio (percent)[2]	88.0	(X)	(S)	(X)	85.7	(X)
Software and other data processing	3.2	(X)	(S)	(X)	1.8	(X)
Response coverage ratio (percent)[2]	87.0	(X)	(S)	(X)	85.4	(X)
Refuse removal, including hazardous waste	2.7	(X)	2.0	(X)	1.4	(X)
Response coverage ratio (percent)[2]	89.9	(X)	81.5	(X)	85.4	(X)
New machinery and equipment expenditures	44.9	(X)	48.6	(X)	42.8	(X)
Automobiles, trucks, etc., for highway use	.6	30	.2	23	.7	47
Computers and peripheral data processing equipment	6.8	5	1.5	4	7.4	16
All other	37.6	1	46.8	1	34.7	4
Adjustment ratio[3]	1.3	(X)	1.3	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 443.8	(X)	911.8	(X)	889.8	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	102.1	7	25.9	16
Materials purchased or transferred from domestic sources	(S)	(X)	809.7	1	863.9	1
Adjustment ratio[3]	(S)	(X)	1.3	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES												
Total	**–**	**105**	**17.5**	**510.7**	**14.7**	**29.3**	**406.2**	**2 067.5**	**955.6**	**3 026.9**	**99.6**	**320.5**
Establishments with an average of—												
1 to 4 employees	E4	19	(Z)	.7	(Z)	.1	.5	2.6	1.5	4.1	(Z)	.5
5 to 9 employees	E3	10	.1	1.6	(Z)	.1	.8	4.1	5.2	9.4	.1	1.4
10 to 19 employees	–	10	.2	3.9	.1	.2	2.2	13.8	4.7	18.5	1.2	1.5
20 to 49 employees	E2	16	.5	9.6	.4	.8	6.9	17.2	13.5	30.6	1.1	5.1
50 to 99 employees	–	10	.8	16.0	.5	1.2	8.0	29.0	18.1	47.0	2.7	7.1
100 to 249 employees	E1	13	2.1	56.2	1.7	3.5	41.7	165.0	121.3	289.7	7.5	31.3
250 to 499 employees	–	15	6.0	177.4	5.2	10.5	145.0	853.9	318.9	1 173.4	41.0	166.3
500 to 999 employees	E1	12	7.8	245.2	6.7	13.0	201.1	981.9	472.4	1 454.0	45.9	107.4
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES												
Total	**–**	**475**	**41.1**	**1 071.4**	**28.9**	**57.7**	**592.9**	**2 881.7**	**1 795.3**	**4 668.1**	**124.2**	**713.0**
Establishments with an average of—												
1 to 4 employees	E6	76	.1	3.4	.1	.2	2.0	9.8	7.1	17.1	.4	3.0
5 to 9 employees	E7	64	.4	10.1	.3	.6	5.8	23.3	16.0	39.3	1.0	6.2
10 to 19 employees	E2	71	1.0	24.5	.7	1.4	13.2	51.4	30.3	81.9	1.5	13.9
20 to 49 employees	E1	89	2.8	66.1	2.0	3.9	35.1	150.1	145.3	295.1	6.1	51.7
50 to 99 employees	–	61	4.3	98.4	3.0	5.9	52.6	230.1	175.7	403.3	11.6	70.1
100 to 249 employees	–	75	11.7	304.9	8.4	16.6	177.9	942.7	534.3	1 475.0	47.6	211.1
250 to 499 employees	E2	28	9.5	256.8	6.5	13.2	136.0	636.3	375.0	1 015.3	21.4	151.8
500 to 999 employees	–	8	5.7	151.9	4.4	8.4	94.5	550.7	387.7	934.5	34.6	128.2
1,000 to 2,499 employees	–	2	5.6	155.3	3.7	7.5	75.7	287.3	123.9	406.6	(D)	77.1
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	135	.7	14.5	.5	1.0	8.4	31.3	19.5	50.7	1.5	9.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES												
Total	**–**	**220**	**23.2**	**643.0**	**17.1**	**35.4**	**407.8**	**1 871.7**	**1 344.8**	**3 223.7**	**80.7**	**512.5**
Establishments with an average of—												
1 to 4 employees	E9	38	.1	1.2	(Z)	.1	.7	3.4	2.1	5.5	.2	.9
5 to 9 employees	E8	20	.1	3.0	.1	.2	1.9	6.6	4.4	10.9	.3	2.0
10 to 19 employees	E1	28	.4	9.6	.3	.5	5.7	21.5	15.5	36.9	1.0	5.4
20 to 49 employees	E1	35	1.0	28.2	.7	1.5	15.9	81.9	58.1	139.7	2.5	23.6
50 to 99 employees	–	34	2.5	64.4	1.9	4.0	42.0	175.5	239.2	404.8	10.5	74.2
100 to 249 employees	–	41	6.3	163.9	4.8	9.5	107.6	457.5	421.9	876.6	23.9	164.1
250 to 499 employees	–	18	7.1	201.9	5.2	10.9	125.8	685.4	433.4	1 143.7	26.5	168.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	4	5.8	170.9	4.1	8.7	108.2	440.0	170.2	605.5	15.9	73.8
Covered by administrative records[2]	E9	59	.3	4.9	.2	.4	3.1	9.8	6.7	16.5	.5	2.8
INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES												
Total	**E1**	**526**	**16.5**	**329.3**	**12.6**	**23.9**	**187.6**	**857.9**	**757.7**	**1 610.9**	**21.4**	**332.8**
Establishments with an average of—												
1 to 4 employees	E9	185	.3	6.5	.2	.4	3.8	14.7	13.0	27.7	.4	5.7
5 to 9 employees	E4	89	.6	10.0	.4	.7	5.8	28.6	22.3	51.0	.5	8.4
10 to 19 employees	E2	76	1.1	19.0	.8	1.4	10.3	43.9	40.5	85.0	.7	17.8
20 to 49 employees	E2	95	3.1	58.7	2.3	4.3	33.7	124.3	119.9	247.0	2.3	48.1
50 to 99 employees	E1	39	2.7	52.6	2.1	4.0	29.3	134.8	122.4	255.4	1.9	54.5
100 to 249 employees	E1	31	5.1	119.2	3.9	7.5	62.9	370.7	296.8	666.0	5.7	137.5
250 to 499 employees	–	10	3.6	63.1	3.0	5.6	41.9	140.9	142.8	278.8	10.1	60.7
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	220	.7	11.0	.5	.9	6.2	25.2	22.4	47.6	.6	10.0
INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES												
Total	**–**	**336**	**20.6**	**530.5**	**14.0**	**28.3**	**283.5**	**1 479.8**	**1 547.7**	**3 023.3**	**57.7**	**431.3**
Establishments with an average of—												
1 to 4 employees	E9	70	.1	2.8	.1	.2	1.5	7.3	7.3	14.6	.2	2.1
5 to 9 employees	E3	57	.4	10.2	.2	.5	4.6	25.9	25.8	51.8	.7	6.5
10 to 19 employees	E2	61	.9	19.0	.6	1.1	9.3	42.6	39.1	81.6	1.0	12.7
20 to 49 employees	E1	63	2.0	48.7	1.4	2.7	24.8	119.7	111.6	230.7	2.8	33.5
50 to 99 employees	–	40	2.8	77.3	1.8	3.5	36.2	191.2	142.9	332.3	5.5	55.2
100 to 249 employees	–	25	3.7	91.2	2.6	5.0	47.5	255.7	275.5	531.3	10.0	88.0
250 to 499 employees	–	11	3.6	90.2	2.5	5.1	55.3	332.1	397.6	727.3	13.6	96.6
500 to 999 employees	–	6	7.1	191.1	4.8	10.2	104.4	505.3	548.0	1 053.7	23.8	136.7
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	98	.4	7.2	.3	.5	3.8	16.6	16.2	32.8	.6	4.5
INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT												
Total	**–**	**96**	**14.6**	**499.0**	**10.8**	**21.3**	**344.5**	**1 143.4**	**1 024.0**	**2 190.4**	**61.3**	**209.9**
Establishments with an average of—												
1 to 4 employees	E9	21	(Z)	.7	(Z)	(Z)	.4	1.6	1.4	3.0	.1	.3
5 to 9 employees	E5	11	.1	1.8	.1	.1	1.2	5.3	4.7	9.9	.4	1.3
10 to 19 employees	E3	6	.1	2.2	.1	.1	1.4	6.1	5.1	11.2	.8	.9
20 to 49 employees	E1	24	.9	23.0	.5	1.1	11.5	52.8	40.3	93.2	2.9	12.6
50 to 99 employees	E1	11	.8	21.1	.5	1.0	9.6	46.9	31.5	77.2	2.5	12.4
100 to 249 employees	–	8	1.4	31.5	1.1	2.0	19.3	90.8	66.4	158.6	2.7	26.5
250 to 499 employees	–	9	3.2	76.6	2.1	4.0	40.0	190.5	135.7	332.6	27.2	51.2
500 to 999 employees	–	4	8.2	342.3	6.5	13.0	261.1	749.5	738.9	1 504.6	24.7	104.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	29	.1	1.8	.1	.1	1.2	4.5	3.5	8.0	.4	.9
INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.												
Total	**E1**	**293**	**14.5**	**394.3**	**9.3**	**18.7**	**191.0**	**1 073.8**	**1 018.0**	**2 083.5**	**50.9**	**321.3**
Establishments with an average of—												
1 to 4 employees	E9	68	.1	2.8	.1	.1	1.6	6.3	7.2	13.6	.3	2.3
5 to 9 employees	E3	49	.3	8.0	.2	.4	4.4	20.6	22.2	42.7	1.7	7.1
10 to 19 employees	E1	44	.6	15.2	.4	.8	7.4	40.3	45.3	86.2	1.4	12.5
20 to 49 employees	E1	56	1.7	48.3	1.1	2.3	23.2	123.3	115.2	238.1	4.3	39.9
50 to 99 employees	E2	35	2.6	68.9	1.7	3.5	34.0	163.2	180.5	345.0	10.7	54.0
100 to 249 employees	–	31	4.7	117.5	2.9	5.7	54.9	331.1	314.9	643.5	17.0	109.6
250 to 499 employees	–	8	4.4	133.5	3.0	5.8	65.5	389.0	332.7	714.5	15.4	96.0
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	79	.2	4.4	.1	.3	2.4	10.4	11.7	22.1	.5	3.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3641	**Electric lamp bulbs and tubes:**										
	All establishments in industry	105	17.5	510.7	14.7	29.3	406.2	2 067.5	955.6	3 026.9	99.6
	Establishments with this product class primary:										
36411	Electric lamp bulbs and tubes	62	15.3	450.2	13.0	25.8	362.2	1 898.6	834.8	2 735.3	90.8
36412	Electric lamp (bulbs and tubes) components	18	1.8	52.2	1.4	2.8	38.4	144.9	108.8	255.6	7.9
3643	**Current-carrying wiring devices:**										
	All establishments in industry	475	41.1	1 071.4	28.9	57.7	592.9	2 881.7	1 795.3	4 668.1	124.2
	Establishments with this product class primary:										
36431	Lampholders	14	1.4	29.9	1.0	2.1	15.8	56.7	43.9	101.3	1.6
36432	Convenience and power outlets	10	3.8	84.6	2.7	5.0	44.4	304.4	142.3	446.8	3.2
36433	Switches for electrical circuitry	63	15.3	395.9	10.8	21.7	212.1	773.7	521.3	1 291.2	47.6
36434	Metal contacts	24	1.4	45.0	1.1	2.2	29.5	195.3	83.7	277.9	7.5
36435	Wire connectors for electrical circuitry	73	8.4	246.6	5.8	11.6	141.2	861.5	524.6	1 380.1	27.0
36436	Current-carrying wiring devices, n.e.c.	101	8.3	207.8	5.8	11.8	114.8	548.1	363.0	913.6	31.1
3644	**Noncurrent-carrying wiring devices:**										
	All establishments in industry	220	23.2	643.0	17.1	35.4	407.8	1 871.7	1 344.8	3 223.7	80.7
	Establishments with this product class primary:										
36441	Pole and transmission line hardware	29	4.3	121.9	2.9	6.3	68.3	298.2	278.9	582.3	15.0
36442	Electrical conduit and conduit fittings	64	9.9	283.6	7.2	14.6	178.0	895.9	750.1	1 631.5	37.7
36443	Noncurrent-carrying wiring devices and supplies	54	8.4	224.2	6.5	13.8	153.5	647.2	296.6	960.8	26.0
3645	**Residential lighting fixtures:**										
	All establishments in industry	526	16.5	329.3	12.6	23.9	187.6	857.9	757.7	1 610.9	21.4
	Establishments with this product class primary:										
36451	Residential lighting fixtures, except portable (including parts and accessories)	94	6.1	130.1	4.6	8.5	70.8	404.8	355.4	756.1	11.8
36457	Portable residential lighting fixtures (including parts and accessories for portable residential lighting fixtures)	127	7.2	143.4	5.6	11.2	84.2	323.0	289.6	612.9	6.8
3646	**Commercial lighting fixtures:**										
	All establishments in industry	336	20.6	530.5	14.0	28.3	283.5	1 479.8	1 547.7	3 023.3	57.7
	Establishments with this product class primary:										
36462	Commercial- and institutional-type lighting fixtures, including parts and accessories	160	17.5	455.4	11.8	24.1	242.3	1 272.3	1 346.8	2 609.9	51.4
36463	Industrial-type lighting fixtures, including parts and accessories	24	1.5	40.8	1.1	2.3	23.5	110.8	105.6	221.8	2.4
3647	**Vehicular lighting equipment:**										
	All establishments in industry	96	14.6	499.0	10.8	21.3	344.5	1 143.4	1 024.0	2 190.4	61.3
3648	**Lighting equipment, n.e.c.:**										
	All establishments in industry	293	14.5	394.3	9.3	18.7	191.0	1 073.8	1 018.0	2 083.5	50.9
	Establishments with this product class primary:										
36485	Outdoor lighting equipment (including parts and accessories)	87	7.9	204.7	5.3	10.2	111.3	624.9	616.0	1 238.4	29.1
36489	Electric and nonelectric lighting equipment, n.e.c., including hand portable, and parts and accessories	89	5.5	161.4	3.3	7.0	63.8	390.4	342.2	726.2	19.3

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES			
Total value of shipments	3 026.9	3 096.7	(NA)
Primary products value of shipments	2 871.7	2 960.1	(NA)
Secondary products value of shipments	58.2	49.1	(NA)
Total miscellaneous receipts	97.0	87.5	(NA)
Value of resales	93.7	86.6	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	98	98	(NA)
Value of primary products shipments made in all industries	2 947.4	2 988.3	(NA)
Value of primary products shipments made in this industry	2 871.7	2 960.1	(NA)
Value of primary products shipments made in other industries	75.8	28.2	(NA)
Coverage ratio	97	99	(NA)
INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES			
Total value of shipments	4 668.1	3 848.1	2 510.3
Primary products value of shipments	3 542.0	3 164.4	2 088.0
Secondary products value of shipments	827.4	582.6	360.3
Total miscellaneous receipts	298.7	101.1	62.0
Value of resales	251.8	78.4	40.6
Contract receipts	12.1	8.1	7.6
Other miscellaneous receipts	34.7	14.6	13.8
Sales of scrap and refuse	(D)	5.9	5.1
Receipts for research and development	(D)	(D)	(D)
Other miscellaneous receipts	(D)	1.8	6.6
Other miscellaneous receipts, n.s.k.	(D)	(D)	(D)
Primary products specialization ratio	81	84	85
Value of primary products shipments made in all industries	4 228.3	3 864.0	2 761.4
Value of primary products shipments made in this industry	3 542.0	3 164.4	2 088.0
Value of primary products shipments made in other industries	686.2	699.6	673.4
Coverage ratio	84	82	76
INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES			
Total value of shipments	3 223.7	2 903.2	2 399.6
Primary products value of shipments	2 732.0	2 378.9	1 827.4
Secondary products value of shipments	437.9	439.5	488.6
Total miscellaneous receipts	53.8	84.7	83.7
Value of resales	49.9	73.9	70.6
Contract receipts	(D)	(D)	6.3
Other miscellaneous receipts	(D)	(D)	6.8
Primary products specialization ratio	86	84	79
Value of primary products shipments made in all industries	3 227.2	2 798.0	2 082.3
Value of primary products shipments made in this industry	2 732.0	2 378.9	1 827.4
Value of primary products shipments made in other industries	495.2	419.1	254.9
Coverage ratio	85	85	88
INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES			
Total value of shipments	1 610.9	1 772.6	1 351.8
Primary products value of shipments	1 392.2	1 613.0	1 225.4
Secondary products value of shipments	63.8	87.0	98.2
Total miscellaneous receipts	154.9	72.7	28.2
Value of resales	153.8	71.5	24.9
Contract receipts	.9	(D)	(D)
Other miscellaneous receipts	.3	(D)	(D)
Primary products specialization ratio	96	95	93
Value of primary products shipments made in all industries	1 690.3	1 772.1	1 289.7
Value of primary products shipments made in this industry	1 392.2	1 613.0	1 225.4
Value of primary products shipments made in other industries	298.1	159.1	64.2
Coverage ratio	82	91	95
INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES			
Total value of shipments	3 023.3	2 739.9	1 671.9
Primary products value of shipments	2 629.8	2 361.6	1 499.0
Secondary products value of shipments	305.6	327.4	152.4
Total miscellaneous receipts	88.0	50.9	20.5
Value of resales	73.8	39.3	17.3
Contract receipts	8.6	(D)	(D)
Other miscellaneous receipts	5.7	(D)	(D)
Primary products specialization ratio	90	88	91
Value of primary products shipments made in all industries	3 025.1	2 644.4	1 720.8
Value of primary products shipments made in this industry	2 629.8	2 361.6	1 499.0
Value of primary products shipments made in other industries	395.4	282.8	221.8
Coverage ratio	87	89	87

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT			
Total value of shipments	2 190.4	1 969.6	1 013.6
Primary products value of shipments	1 711.0	1 318.5	639.2
Secondary products value of shipments	385.9	(D)	344.3
Total miscellaneous receipts	93.4	(D)	30.0
Value of resales	74.3	(D)	27.0
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	82	(D)	65
Value of primary products shipments made in all industries	1 731.6	1 366.3	668.3
Value of primary products shipments made in this industry	1 711.0	1 318.5	639.2
Value of primary products shipments made in other industries	20.5	47.9	29.1
Coverage ratio	99	96	96
INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.			
Total value of shipments	2 083.5	1 673.9	1 028.0
Primary products value of shipments	1 690.9	1 374.5	861.6
Secondary products value of shipments	285.1	221.8	134.2
Total miscellaneous receipts	107.6	77.6	32.2
Value of resales	100.2	69.0	28.0
Contract receipts	1.6	(D)	(D)
Other miscellaneous receipts	5.8	(D)	(D)
Primary products specialization ratio	86	86	87
Value of primary products shipments made in all industries	1 995.1	1 700.7	1 170.3
Value of primary products shipments made in this industry	1 690.9	1 374.5	861.6
Value of primary products shipments made in other industries	304.2	326.2	308.7
Coverage ratio	85	81	74

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3641– —	**ELECTRIC LAMPS (BULBS AND TUBES)**				
	Total	**(NA)**	**2 947.4**	**(NA)**	**2 988.3**
36411	Electric lamp bulbs and tubes	(NA)	2 697.3	(NA)	2 723.6
36411 00	Electric lamp bulbs and tubes (including sealed beam lamp bulbs)[2]	57	2 697.3	47	2 723.6
36412	Electric lamp (bulbs and tubes) components	(NA)	212.4	(NA)	197.2
36412 00	Electric lamp (bulbs and tubes) components (bases, supports, lead-ins, filaments, etc., but excluding lamp bulb blanks)	14	212.4	15	197.2
36410	Electric lamps (bulbs and tubes), n.s.k.	(NA)	37.8	(NA)	67.5
36410 00	Electric lamps (bulbs and tubes), n.s.k.[3]	(NA)	37.8	(NA)	63.5
36410 02	Electric lamps (bulbs and tubes), n.s.k.[4]	(NA)	–	(NA)	4.0

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3643– —	**CURRENT-CARRYING WIRING DEVICES**				
	Total	**(NA)**	**4 228.3**	**(NA)**	**3 864.0**
36431	Lampholders	(NA)	196.6	(NA)	218.6
36431 00	Lampholders[2]	31	196.6	38	218.6
36432	Convenience and power outlets	(NA)	328.7	(NA)	296.5
36432 00	Convenience and power outlets, both general- and special-purpose (excluding pin-and-sleeve type)[2]	19	328.7	18	296.5
36433	Switches for electrical circuitry	(NA)	1 360.3	(NA)	1 404.8
36433 00	Switches for electrical circuitry (including vehicular switches)[2]	120	1 360.3	107	1 404.8
36434	Metal contacts	(NA)	241.9	(NA)	165.1
36434 00	Metal contacts, precious and other[2]	27	241.9	23	165.1
36435	Wire connectors for electrical circuitry	(NA)	992.0	(NA)	815.6
36435 00	Wire connectors for electrical circuitry[2]	101	992.0	67	815.6
36436	Current-carrying wiring devices, n.e.c.	(NA)	949.1	(NA)	800.8
36436 00	Other current-carrying wiring devices (attachments, plug caps, connector bodies, lightning arrestors, etc.)[2]	150	949.1	118	800.8
36430	Current-carrying wiring devices, n.s.k.	(NA)	159.5	(NA)	162.6
36430 00	Current-carrying wiring devices, n.s.k.[5]	(NA)	108.0	(NA)	56.9
36430 02	Current-carrying wiring devices, n.s.k.[6]	(NA)	51.5	(NA)	105.7
3644– —	**NONCURRENT-CARRYING WIRING DEVICES**				
	Total	**(NA)**	**3 227.2**	**(NA)**	**2 798.0**
36441	Pole and transmission line hardware	(NA)	586.3	(NA)	391.9
36441 00	Pole and transmission line hardware[2]	30	586.3	32	391.9
36442	Electrical conduit and conduit fittings	(NA)	1 552.1	(NA)	1 471.1
36442 00	Electrical conduit and conduit fittings, including plastics conduit and conduit fittings[2]	68	1 552.1	76	1 471.1
36443	Noncurrent-carrying wiring devices and supplies	(NA)	1 042.0	(NA)	902.3
36443 00	Other noncurrent-carrying wiring devices and supplies (boxes, covers, bar hangers, etc.)[2]	71	1 042.0	80	902.3
36440	Noncurrent-carrying wiring devices, n.s.k.	(NA)	46.8	(NA)	32.7
36440 00	Noncurrent-carrying wiring devices, n.s.k.[7]	(NA)	30.4	(NA)	1.5
36440 02	Noncurrent-carrying wiring devices, n.s.k.[8]	(NA)	16.5	(NA)	31.3
3645– —	**RESIDENTIAL LIGHTING FIXTURES**				
	Total	**(NA)**	**1 690.3**	**(NA)**	**1 772.1**
36451	Residential lighting fixtures, except portable (including parts and accessories)	(NA)	855.4	(NA)	894.4
36451 00	Residential-type electric lighting fixtures (except portable, including parts and accessories)[2]	132	855.4	126	894.4
36457	Portable residential lighting fixtures (including parts and accessories for portable residential lighting fixtures)	(NA)	611.9	(NA)	576.7
	Incandescent portable lamps, complete:				
	Complete with shade:				
36457 21	Floor lamps	60	101.9	51	79.3
36457 22	Wall lamps (including adjustable types)	42	29.1	35	38.4
36457 23	Table lamps (excluding desk)	96	287.8	80	294.9
36457 29	Other (including boudoir and desk)	34	67.6	27	31.9
36457 32	Lamps sold without shades, including floor, table, etc.	17	20.2	15	21.3
36457 61	Portable lamps (desks, etc.), fluorescent	6	19.8	12	26.9
36457 73	Parts and accessories for portable residential lighting fixtures	13	32.9	11	47.5
36457 00	Portable residential lighting fixtures (incl. parts and accessories for portable residential lighting fixtures), n.s.k.	(NA)	52.7	(NA)	36.5
36450	Residential lighting fixtures, n.s.k.	(NA)	223.0	(NA)	301.0
36450 00	Residential lighting fixtures, n.s.k.[9]	(NA)	175.4	(NA)	247.9
36450 02	Residential lighting fixtures, n.s.k.[10]	(NA)	47.6	(NA)	53.0
3646– —	**COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL ELECTRIC LIGHTING FIXTURES**				
	Total	**(NA)**	**3 025.1**	**(NA)**	**2 644.4**
36462	Commercial- and institutional-type lighting fixtures, including parts and accessories	(NA)	2 389.5	(NA)	2 076.7
36462 00	Commercial- and institutional-type electric lighting fixtures, including parts and accessories[2]	190	2 389.5	171	2 076.7
36463	Industrial-type lighting fixtures, including parts and accessories	(NA)	467.2	(NA)	403.3
36463 00	Industrial-type electric lighting fixtures, including parts and accessories[2]	68	467.2	62	403.3
36460	Commercial, industrial, and institutional electric lighting fixtures, n.s.k.	(NA)	168.5	(NA)	164.4
36460 00	Commercial, industrial, and institutional electric lighting fixtures, n.s.k.[5]	(NA)	133.4	(NA)	78.1
36460 02	Commercial, industrial, and institutional electric lighting fixtures, n.s.k.[6]	(NA)	35.1	(NA)	86.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3647– —	**VEHICULAR LIGHTING EQUIPMENT**				
	Total	**(NA)**	**1 731.6**	**(NA)**	**1 366.3**
36470	Vehicular lighting equipment (including parts and accessories)	(NA)	1 731.6	(NA)	1 366.3
36470 00	Vehicular lighting equipment, electric (including parts and accessories)[11]	72	1 723.6	58	1 349.7
36470 02	Vehicular lighting equipment, n.s.k.[12]	(NA)	8.0	(NA)	16.7
3648– —	**LIGHTING EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**1 995.1**	**(NA)**	**1 700.7**
36485	Outdoor lighting equipment (including parts and accessories)	(NA)	1 141.7	(NA)	966.1
36485 00	Outdoor lighting equipment (including parts and accessories)[2]	109	1 141.7	104	966.1
36489	Electric and nonelectric lighting equipment, n.e.c., including hand portable, and parts and accessories	(NA)	754.3	(NA)	626.7
	Incandesent hand portable lighting equipment:				
36489 12	Rechargeable battery-operated	8	34.1	9	25.2
	Other than rechargeable battery-operated:				
36489 16	Flashlights and flashlight lanterns (one to five cells)	20	267.3	15	187.8
36489 17	Other, such as miners' lights, emergency warning lights, generator flashlights, etc.	13	23.6	15	42.2
36489 31	Other incandescent electric lighting equipment (including marine markers or beacons)	19	35.6	15	52.7
36489 75	Other fluorescent lighting equipment, complete units, including processing and technical equipment	24	124.5	13	52.1
36489 21	Other electric lighting equipment, including electrical discharge, such as mercury vapor, sodium vapor, etc.	23	53.8	13	42.6
36489 91	Ultraviolet and infrared health lamp fixtures (excluding lamp bulbs sold separately)	3	(D)	8	31.0
36489 70	Parts and accessories for other electric lighting fixtures, n.e.c.	14	24.5	10	30.5
	Nonelectric lighting equipment (including parts):				
36489 83	Lamps and lanterns (including kerosene, gasoline, propane, butane, etc.)	11	(D)	11	60.6
36489 87	Other nonelectric lighting fixtures and equipment, complete units (including carbide lamps of all types)	1	(D)	4	7.1
36489 85	Parts and accessories for nonelectric lighting equipment (including reflectors and fittings, incandescent mantles, etc.)	16	22.7	14	32.3
36489 00	Electric and nonelectric lighting equipment, n.e.c., including hand portable, and parts and accessories, n.s.k.	(NA)	58.0	(NA)	62.6
36480	Lighting equipment, n.e.c., n.s.k.	(NA)	99.1	(NA)	107.8
36480 00	Lighting equipment, n.e.c., n.s.k.[9]	(NA)	77.0	(NA)	r40.8
36480 02	Lighting equipment, n.e.c., n.s.k.[10]	(NA)	22.1	(NA)	67.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with 20 employees or more.
[4]For 1992, there were no administrative-record cases for this industry. For 1987, data for this product code are typically for establishments with less than 20 employees.
[5]Typically for establishments with 15 employees or more.
[6]Typically for establishments with less than 15 employees.
[7]Typically for establishments with 20 employees or more.
[8]Typically for establishments with less than 20 employees.
[9]Typically for establishments with 5 employees or more.
[10]Typically for establishments with less than 5 employees.
[11]Typically for establishments with 10 employees or more..
[12]Typically for establishments with less than 10 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36411, ELECTRIC LAMP BULBS AND TUBES			**36412, ELECTRIC LAMP (BULBS AND TUBES) COMPONENTS**		
United States	**2 697.3**	**2 723.6**			
			United States	**212.4**	**197.2**
California	28.0	11.5			
Connecticut	32.7	(NA)			
New Jersey	66.5	43.0	New Jersey	6.6	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36431, LAMPHOLDERS		
United States	**196.6**	**218.6**
Connecticut	13.2	6.0
Indiana	6.2	(NA)
New York	18.0	41.5
36432, CONVENIENCE AND POWER OUTLETS		
United States	**328.7**	**296.5**
New York	108.6	119.3
36433, SWITCHES FOR ELECTRICAL CIRCUITRY		
United States	**1 360.3**	**1 404.8**
California	77.7	72.5
Connecticut	46.6	64.3
Illinois	394.9	324.0
Indiana	132.4	122.5
Michigan	87.0	107.4
New Jersey	8.1	22.8
New York	33.9	102.0
North Carolina	80.0	68.6
Ohio	89.8	(NA)
Tennessee	25.1	56.8
Texas	39.8	20.3
Wisconsin	30.7	(NA)
36434, METAL CONTACTS		
United States	**241.9**	**165.1**
California	6.3	3.5
New Jersey	28.1	(NA)
Pennsylvania	77.0	47.4
36435, WIRE CONNECTORS FOR ELECTRICAL CIRCUITRY		
United States	**992.0**	**815.6**
California	29.4	41.7
Florida	50.0	46.4
Illinois	134.4	113.3
Massachusetts	29.4	27.3
New Jersey	37.4	45.9
New York	31.9	(NA)
North Carolina	13.3	(NA)
Ohio	69.4	(NA)
Pennsylvania	205.4	(NA)
36436, CURRENT-CARRYING WIRING DEVICES, N.E.C.		
United States	**949.1**	**800.8**
California	29.1	28.2
Florida	30.5	(NA)
Georgia	21.7	(NA)
Illinois	104.5	79.0
Indiana	46.1	28.8
Massachusetts	11.7	15.2
Michigan	14.9	(NA)
Minnesota	23.9	13.2
Missouri	45.3	41.0
New York	111.5	149.9
North Carolina	44.1	(NA)
Ohio	63.6	65.7
Pennsylvania	19.8	3.6
Tennessee	12.1	(NA)
Texas	27.6	6.3
Wisconsin	14.5	27.1
36441, POLE AND TRANSMISSION LINE HARDWARE		
United States	**586.3**	**391.9**
Alabama	74.9	48.1
Illinois	103.4	(NA)
Pennsylvania	29.0	(NA)
36442, ELECTRICAL CONDUIT AND CONDUIT FITTINGS		
United States	**1 552.1**	**1 471.1**
California	156.9	179.0
Connecticut	197.0	147.3
Florida	37.5	(NA)
Illinois	220.9	328.5
Massachusetts	14.4	(NA)
New York	104.0	85.1
North Carolina	5.8	(NA)
Ohio	111.2	103.3
Pennsylvania	176.2	106.4
Texas	81.7	78.2
36443, NONCURRENT-CARRYING WIRING DEVICES AND SUPPLIES		
United States	**1 042.0**	**902.3**
Arizona	3.6	(NA)
California	70.6	68.0
Indiana	23.3	(NA)
New Jersey	33.0	42.3
New York	81.5	85.3
North Carolina	41.6	19.5
Ohio	39.3	41.3
Pennsylvania	58.4	56.1
Texas	23.9	(NA)
36451, RESIDENTIAL LIGHTING FIXTURES, EXCEPT PORTABLE (INCLUDING PARTS AND ACCESSORIES)		
United States	**855.4**	**894.4**
California	138.1	166.1
Florida	7.3	12.8
Illinois	95.6	34.5
New Jersey	92.7	57.6
New York	65.4	96.5
Ohio	90.5	85.8
Pennsylvania	106.0	92.8
Texas	11.6	26.9
36457, PORTABLE RESIDENTIAL LIGHTING FIXTURES (INCLUDING PARTS AND ACCESSORIES FOR PORTABLE RESIDENTIAL LIGHTING FIXTURES)		
United States	**611.9**	**576.7**
Alabama	15.9	(NA)
Arkansas	64.5	39.3
California	61.3	83.5
Florida	29.5	19.9
Illinois	71.1	83.2
Kentucky	2.9	7.3
Massachusetts	57.0	(NA)
New Jersey	17.3	73.9
New York	95.9	114.5
North Carolina	31.3	14.2
Ohio	12.3	(NA)
Pennsylvania	51.9	45.3
Texas	29.8	3.7
36462, COMMERCIAL- AND INSTITUTIONAL-TYPE LIGHTING FIXTURES, INCLUDING PARTS AND ACCESSORIES		
United States	**2 389.5**	**2 076.7**
California	326.1	261.3
Colorado	8.1	(NA)
Connecticut	14.0	32.6
Illinois	332.0	313.0
Michigan	52.5	15.7
Minnesota	14.8	(NA)
Mississippi	85.9	(NA)
Missouri	45.6	35.8
New Jersey	136.2	113.3
New York	110.1	115.2
North Carolina	6.2	(NA)
Ohio	61.5	68.5
Pennsylvania	161.8	166.6
Tennessee	83.8	56.5
Texas	77.0	40.2
Wisconsin	14.3	23.6

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36463, INDUSTRIAL-TYPE LIGHTING FIXTURES, INCLUDING PARTS AND ACCESSORIES		
United States	**467.2**	**403.3**
California	16.4	14.9
Connecticut	3.1	(NA)
Georgia	50.0	(NA)
Illinois	11.9	10.2
New Jersey	16.9	16.5
New York	64.2	(NA)
Ohio	55.1	(NA)
Texas	13.1	16.5
36485, OUTDOOR LIGHTING EQUIPMENT (INCLUDING PARTS AND ACCESSORIES)		
United States	**1 141.7**	**966.1**
California	154.8	151.2
Illinois	25.9	27.0
Michigan	15.8	(NA)
New Jersey	43.9	(NA)
New York	14.0	32.7
Ohio	121.2	111.4
Pennsylvania	27.7	30.1
Texas	47.3	32.2
36489, ELECTRIC AND NONELECTRIC LIGHTING EQUIPMENT, N.E.C., INCLUDING HAND PORTABLE, AND PARTS AND ACCESSORIES		
United States	**754.3**	**626.7**
California	187.2	161.9
Connecticut	44.7	33.3
Florida	10.2	(NA)
Illinois	29.4	55.7
Massachusetts	26.0	30.0
New Jersey	7.3	18.1
New York	35.6	39.0
North Carolina	62.2	(NA)
Ohio	16.3	25.5
Pennsylvania	37.6	52.6
Texas	18.1	17.5
Wisconsin	56.1	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3641-	**Electric lamps (bulbs and tubes)**	**2 947.4**	**2 790.7**	**2 993.8**	**2 924.4**	**3 064.2**	**2 988.3**	**2 278.7**	**1 806.8**
36411	Electric lamp bulbs and tubes	2 697.3	2 487.1	2 655.1	2 670.5	2 761.8	2 723.6	1 977.2	1 571.7
36412	Electric lamp (bulbs and tubes) components	212.4	251.8	231.1	223.8	235.4	197.2	252.8	176.6
36410	Electric lamps (bulbs and tubes), n.s.k.	37.8	51.8	107.6	30.1	67.1	67.5	48.7	58.5
3643-	**Current-carrying wiring devices**	**4 228.3**	**4 075.4**	**4 199.6**	**4 306.9**	**4 150.7**	**3 864.0**	**2 761.4**	**1 824.9**
36431	Lampholders	196.6	195.8	214.4	206.5	237.8	218.6	154.7	
36432	Convenience and power outlets	328.7	288.4	304.2	331.1	309.3	296.5	169.5	
36433	Switches for electrical circuitry	1 360.3	1 282.1	1 343.7	1 470.5	1 511.4	1 404.8	965.5	
36434	Metal contacts	241.9	311.4	282.6	298.1	219.3	165.1	164.3	1 824.9
36435	Wire connectors for electrical circuitry	992.0	883.3	856.7	849.4	836.7	815.6	591.6	
36436	Current-carrying wiring devices, n.e.c.	949.1	877.3	865.9	880.4	851.6	800.8	569.5	
36430	Current-carrying wiring devices, n.s.k.	159.5	237.1	332.1	271.0	184.7	162.5	146.3	
3644-	**Noncurrent-carrying wiring devices**	**3 227.2**	**3 052.2**	**3 247.0**	**3 272.4**	**3 190.3**	**2 798.0**	**2 082.3**	**1 315.5**
36441	Pole and transmission line hardware	586.3	514.2	499.5	541.0	460.1	391.9	415.5	276.2
36442	Electrical conduit and conduit fittings	1 552.1	1 512.4	1 696.3	1 738.6	1 725.5	1 471.1	1 021.3	634.4
36443	Noncurrent-carrying wiring devices and supplies	1 042.0	944.5	963.1	923.0	966.7	902.3	574.6	342.7
36440	Noncurrent-carrying wiring devices, n.s.k.	46.8	81.1	88.2	69.7	38.0	32.7	70.9	62.2
3645-	**Residential lighting fixtures**	**1 690.3**	**1 409.1**	**1 585.8**	**1 776.7**	**1 794.6**	**1 772.1**	**1 289.7**	**974.6**
36451	Residential lighting fixtures, except portable (including parts and accessories)	855.4	711.2	811.4	864.1	953.9	894.4	469.8	461.0
36457	Portable residential lighting fixtures (including parts and accessories for portable residential lighting fixtures)	611.9	493.5	519.0	629.2	562.4	576.7	628.9	389.6
36450	Residential lighting fixtures, n.s.k.	223.0	204.4	255.3	283.4	278.3	301.0	191.0	124.0
3646-	**Commercial, industrial, and institutional electric lighting fixtures**	**3 025.1**	**2 954.6**	**3 196.3**	**3 056.4**	**2 762.4**	**2 644.4**	**1 720.8**	**935.0**
36462	Commercial- and institutional-type lighting fixtures, including parts and accessories	2 389.5	2 275.4	2 421.3	2 392.2	2 174.4	2 076.7	1 279.2	653.6
36463	Industrial-type lighting fixtures, including parts and accessories	467.2	479.4	522.6	490.1	421.6	403.3	361.8	243.0
36460	Commercial, industrial, and institutional electric lighting fixtures, n.s.k.	168.5	199.8	252.4	174.1	166.3	164.4	79.8	38.4
3647-	**Vehicular lighting equipment**	**1 731.6**	**1 542.6**	**1 565.9**	**1 568.6**	**1 509.5**	**1 366.3**	**668.3**	**646.1**
36470	Vehicular lighting equipment (including parts and accessories)	1 731.6	1 542.6	1 565.9	1 568.6	1 509.5	1 366.3	668.3	646.1
3648-	**Lighting equipment, n.e.c.**	**1 995.1**	**1 829.8**	**1 838.4**	**1 853.6**	**1 866.2**	**1 700.7**	**1 170.3**	**674.7**
36485	Outdoor lighting equipment (including parts and accessories)	1 141.7	1 097.9	1 089.0	1 124.3	1 102.7	966.1	706.5	392.0
36489	Electric and nonelectric lighting equipment, n.e.c., including hand portable, and parts and accessories	754.3	575.5	589.5	587.0	634.5	626.7	383.0	222.4
36480	Lighting equipment, n.e.c., n.s.k.	99.1	156.4	159.9	142.3	129.0	107.8	80.8	60.3

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3641, ELECTRIC LAMP BULBS AND TUBES		
	Materials, ingredients, containers, and supplies	**848.4**	**829.1**
320313	Glass and glass products (including lamp bulb blanks)	257.8	378.4
260091	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	89.7	35.5
281900	Industrial inorganic chemicals	33.2	(1)
335005	Nonferrous metal wire	124.3	(1)
364110	Electric lamp (bulb) bases	92.0	56.9
970099	All other materials and components, parts, containers, and supplies	151.8	[1]337.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	99.8	20.6
	INDUSTRY 3643, CURRENT-CARRYING WIRING DEVICES		
	Materials, ingredients, containers, and supplies	**1 539.0**	**1 334.2**
	Fabricated metal products (except forgings):		
346901	Metal stampings	77.1	79.1
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	71.1	79.1
340093	All other fabricated metal products	19.4	(3)
346000	Forgings	2.2	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	12.3	4.1
336005	Aluminum and aluminum-base alloy	18.0	25.6
336006	Copper and copper-base alloy	18.2	9.1
336008	Other nonferrous	2.4	6.4
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	7.3	
331022	Sheet and strip	26.0	47.6
331034	All other steel shapes and forms	1.6	
	Copper and copper-base alloy:		
335103	Rod, bar, and bar shapes	13.2	(4)
335143	Plate, sheet, and strip (including military cups and discs)	95.3	87.3
335109	All other copper and copper-base alloy mill shapes and forms (including mechanical wire)	20.7	51.6
335001	Aluminum and aluminum-base alloy (including sheet, plate, foil, extruded shapes, etc.)	25.8	42.1
335099	Other nonferrous shapes and forms	18.5	3.2
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	107.0	70.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	64.0	70.3
364300	Current-carrying wiring devices	76.9	63.4
333903	Precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	54.6	68.6
335791	Insulated wire and cable (except magnet wire)	45.6	55.0
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	74.3	27.7
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	21.8	(3)
970099	All other materials and components, parts, containers, and supplies	341.4	r363.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	324.2	179.8
	INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES		
	Materials, ingredients, containers, and supplies	**1 218.7**	**1 205.8**
	Fabricated metal products (except forgings):		
346901	Metal stampings	18.1	8.3
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	38.0	29.1
340093	All other fabricated metal products	8.4	(3)
346000	Forgings	1.3	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	46.7	28.7
336005	Aluminum and aluminum-base alloy	48.2	23.9
336006	Copper and copper-base alloy	3.8	.5
336008	Other nonferrous	9.2	4.2
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	52.9	(4)
331022	Sheet and strip	225.1	(4)
331034	All other steel shapes and forms	156.9	(4)
	Copper and copper-base alloy:		
335103	Rod, bar, and bar shapes		
335143	Plate, sheet, and strip (including military cups and discs)	19.9	2.3
335109	All other copper and copper-base alloy mill shapes and forms (including mechanical wire)		
335001	Aluminum and aluminum-base alloy (including sheet, plate, foil, extruded shapes, etc.)	20.6	17.7
335099	Other nonferrous shapes and forms	10.9	(3)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	186.7	153.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	15.6	12.4
364300	Current-carrying wiring devices	4.4	4.8
333903	Precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	15.1	3.7
335791	Insulated wire and cable (except magnet wire)	10.9	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	2.6	(3)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3644, NONCURRENT-CARRYING WIRING DEVICES—Con.		
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	21.8	(3)
970099	All other materials and components, parts, containers, and supplies	252.1	608.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	49.3	307.8
	INDUSTRY 3645, RESIDENTIAL LIGHTING FIXTURES		
	Materials, ingredients, containers, and supplies	**635.5**	**695.5**
361201	Specialty transformers and fluorescent ballasts	7.2	6.6
364300	Current-carrying wiring devices	21.6	19.5
364101	Electric lamp bulbs	11.2	3.2
321101	Flat glass (plate, float, and sheet)	16.6	14.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	3.6	.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	5.1	18.5
308006	Fabricated plastics products, except gaskets	4.7	8.7
335796	Insulated wire and cable, including magnet wire	8.5	(4)
265001	Paperboard containers, boxes, and corrugated paperboard	25.7	22.9
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	12.4	9.1
349910	Metal poles	2.8	1.7
340060	All other fabricated metal products	28.4	(3)
346000	Forgings	.3	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	4.5	11.7
336005	Aluminum and aluminum-base alloy	6.7	5.8
336003	Other nonferrous	8.2	7.3
	Shapes and forms (except castings and forgings):		
	Steel:		
331022	Sheet and strip	15.6	
331027	Wire and wire products	1.7	40.8
331096	All other steel mill shapes and forms	5.5	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing		3.4
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	4.2	3.7
335008	All other (wire, rolled rod and bar, etc.)		.2
335004	Copper and copper-base alloy	8.0	4.4
335099	Other nonferrous shapes and forms	6.3	(3)
399951	Lamp shades	22.1	27.2
970099	All other materials and components, parts, containers, and supplies	258.6	201.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	146.0	284.1
	INDUSTRY 3646, COMMERCIAL LIGHTING FIXTURES		
	Materials, ingredients, containers, and supplies	**1 443.8**	**1 298.5**
361201	Specialty transformers and fluorescent ballasts	464.4	350.7
364300	Current-carrying wiring devices	57.2	41.7
364101	Electric lamp bulbs	41.1	37.1
321101	Flat glass (plate, float, and sheet)	8.9	15.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	24.5	19.1
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	38.7	49.2
308006	Fabricated plastics products, except gaskets	45.4	30.7
335796	Insulated wire and cable, including magnet wire	6.3	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	56.1	51.7
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	38.2	26.5
349910	Metal poles	1.1	1.1
340060	All other fabricated metal products	52.3	(3)
346000	Forgings	–	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	14.3	(1)
336005	Aluminum and aluminum-base alloy	28.0	35.1
336003	Other nonferrous	2.0	(1)
	Shapes and forms (except castings and forgings):		
	Steel:		
331022	Sheet and strip	172.9	(4)
331027	Wire and wire products	4.8	(4)
331096	All other steel mill shapes and forms	17.0	(3)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	63.8	46.8
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	19.8	24.4
335008	All other (wire, rolled rod and bar, etc.)	.4	8.0
335004	Copper and copper-base alloy	.9	2.1
335099	Other nonferrous shapes and forms	(5)	(3)
399951	Lamp shades	(5)	(1)
970099	All other materials and components, parts, containers, and supplies	[5]134.1	376.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	151.4	182.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3647, VEHICULAR LIGHTING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**911.8**	**803.0**
361201	Specialty transformers and fluorescent ballasts	6.6	1.1
364300	Current-carrying wiring devices	13.5	20.1
364101	Electric lamp bulbs	78.5	58.1
321101	Flat glass (plate, float, and sheet)	(D)	.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	119.6	125.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	14.5	21.6
308006	Fabricated plastics products, except gaskets	142.1	41.3
335796	Insulated wire and cable, including magnet wire	10.2	6.4
265001	Paperboard containers, boxes, and corrugated paperboard	20.0	21.7
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	22.2	17.7
349910	Metal poles	(D)	–
340060	All other fabricated metal products	16.5	[3]
346000	Forgings	–	[3]
	Castings (rough and semifinished):		
332001	Iron and steel	5.9	[1]
336005	Aluminum and aluminum-base alloy	2.0	3.0
336003	Other nonferrous	(D)	1.3
	Shapes and forms (except castings and forgings):		
	Steel:		
331022	Sheet and strip	5.2	[4]
331027	Wire and wire products	(D)	[4]
331096	All other steel mill shapes and forms	1.1	[4]
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	(D)	1.0
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(D)	1.4
335008	All other (wire, rolled rod and bar, etc.)	(D)	.1
335004	Copper and copper-base alloy	1.3	.4
335099	Other nonferrous shapes and forms	.6	[3]
399951	Lamp shades	(D)	[1]
970099	All other materials and components, parts, containers, and supplies	320.9	407.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	70.0	73.8
	INDUSTRY 3648, LIGHTING EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**889.8**	**703.6**
361201	Specialty transformers and fluorescent ballasts	66.8	40.4
364300	Current-carrying wiring devices	57.2	20.2
364101	Electric lamp bulbs	50.8	43.7
321101	Flat glass (plate, float, and sheet)	11.5	4.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	9.7	14.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	14.5	3.3
308006	Fabricated plastics products, except gaskets	36.5	21.0
335796	Insulated wire and cable, including magnet wire	15.0	[1]
265001	Paperboard containers, boxes, and corrugated paperboard	28.3	21.0
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	22.1	18.9
349910	Metal poles	18.7	11.2
340060	All other fabricated metal products	30.9	[3]
346000	Forgings	–	[3]
	Castings (rough and semifinished):		
332001	Iron and steel	3.7	[1]
336005	Aluminum and aluminum-base alloy	58.1	52.2
336003	Other nonferrous	4.1	5.6
	Shapes and forms (except castings and forgings):		
	Steel:		
331022	Sheet and strip	24.1	
331027	Wire and wire products	4.5	41.3
331096	All other steel mill shapes and forms	8.6	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	19.2	24.5
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	41.7	31.6
335008	All other (wire, rolled rod and bar, etc.)	7.3	.7
335004	Copper and copper-base alloy	2.7	1.2
335099	Other nonferrous shapes and forms	1.8	[3]
399951	Lamp shades	7.7	1.4
970099	All other materials and components, parts, containers, and supplies	157.9	189.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	186.3	157.2

[1]For 1987, materials were combined to avoid disclosing data for individual companies and are included in code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the material was consumed.
[4]For 1987, materials were collected differently and were combined with code 970099 of the industry in which the material was consumed.
[5]For 1992, materials are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3647000	MA36L, Electric Lighting Fixtures
3613200	MA36A, Switchgear and Industrial Controls	3648500	MA36L, Electric Lighting Fixtures
3613300	MA36A, Switchgear and Industrial Controls	3651100	MA36M, Consumer Electronics
3613400	MA36A, Switchgear and Industrial Controls	3651200	MA36M, Consumer Electronics
3613500	MA36A, Switchgear and Industrial Controls	3651400	MA36M, Consumer Electronics
3613600	MA36A, Switchgear and Industrial Controls		
3613900	MA36A, Switchgear and Industrial Controls	3651500	MA36M, Consumer Electronics
3621100	MA36H, Motors and Generators	3661100	MA36P, Communications Equipment
3621200	MA36H, Motors and Generators	3661300	MA36P, Communications Equipment
3621300	MA36H, Motors and Generators	3661400	MA36P, Communications Equipment
3621400	MA36H, Motors and Generators	3663100	MA36P, Communications Equipment
3621700	MA36H, Motors and Generators		
3621800	MA36H, Motors and Generators	3663200	MA36P, Communications Equipment
3621900	MA36H, Motors and Generators	3669100	MA36P, Communications Equipment
3625100	MA36A, Switchgear and Industrial Controls	3669200	MA36P, Communications Equipment
3625200	MA36A, Switchgear and Industrial Controls	3669300	MA36P, Communications Equipment
3625300	MA36A, Switchgear and Industrial Controls	3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3625400	MA36A, Switchgear and Industrial Controls		
3631110	MA36F, Major Household Appliances	3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631120	MA36F, Major Household Appliances	3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631310	MA36F, Major Household Appliances	3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631320	MA36F, Major Household Appliances	3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631410	MA36F, Major Household Appliances	3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631420	MA36F, Major Household Appliances		
3632100	MA36F, Major Household Appliances	3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632200	MA36F, Major Household Appliances	3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632300	MA36F, Major Household Appliances	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633010	MA36F, Major Household Appliances	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633020	MA36F, Major Household Appliances	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634100	MA36E, Electric Housewares and Fans		
3634500	MA36E, Electric Housewares and Fans	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634911	MA36E, Electric Housewares and Fans	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634920	MA36E, Electric Housewares and Fans	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639100	MA36F, Major Household Appliances	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639200	MA36F, Major Household Appliances	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639510	MA36F, Major Household Appliances	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639520	MA36F, Major Household Appliances	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3641100	MQ36B, Electric Lamps	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643100	MA36K, Wiring Devices and Supplies	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643200	MA36K, Wiring Devices and Supplies	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643300	MA36K, Wiring Devices and Supplies	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643400	MA36K, Wiring Devices and Supplies	3679930	MA36M, Consumer Electronics
3643500	MA36K, Wiring Devices and Supplies	3695000	MA35R, Computers and Office and Accounting Machines
3643600	MA36K, Wiring Devices and Supplies	3699100	MA36P, Communications Equipment
3644100	MA36K, Wiring Devices and Supplies	3699283	MA36P, Communications Equipment
3644200	MA36K, Wiring Devices and Supplies		
3644300	MA36K, Wiring Devices and Supplies	3699284	MA36P, Communications Equipment
3645100	MA36L, Electric Lighting Fixtures	3699285	MA36P, Communications Equipment
3646200	MA36L, Electric Lighting Fixtures	3699500	MA36P, Communications Equipment
3646300	MA36L, Electric Lighting Fixtures	3699900	MA36P, Communications Equipment

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:53 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08525837.DAT;1 1/ 6/ 95 08:53:06 UTF:TIPS93-08525837.DAT;1 1/ 6/ 95 08:53:06 META:TIPS96-08525837.DAT;1 1/ 6/ 95 08:53:37

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-36D

INDUSTRY SERIES

Communication Equipment, Including Radio and Television

Industries 3651, 3652, 3661, 3663, and 3669

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Tue Feb 7 13:35:18 1995 / pssw02/ disk2/ economic/ mc92i/ 36d/ 01cvr

1992 Census of Manufactures

MC92-I-36D

INDUSTRY SERIES

Communication Equipment, Including Radio and Television

Industries 3651, 3652, 3661, 3663, and 3669

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3651	Household Audio and Video Equipment
3652	Prerecorded Records and Tapes
3661	Telephone and Telegraph Apparatus
3663	Radio and Television Communications Equipment
3669	Communications Equipment, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing electronic and audio and video equipment for home entertainment (including automotive), such as television sets, radio broadcast receivers, tape players, phonographs, and video recorders and players. Also included in this industry are establishments primarily engaged in manufacturing public address systems and music distribution apparatus. Establishments primarily engaged in manufacturing phonograph records and prerecorded audio tapes are classified in industry 3652; those manufacturing telephone answering machines are classified in industry 3661; those manufacturing motion picture reproduction equipment are classified in industry 3861; and those manufacturing phonograph needles and cartridges are classified in industry 3679.

Establishments primarily engaged in manufacturing separate cabinets for home electronic equipment are classified in industry major group 25. Products of this industry also are collected in the Current Industrial Report (CIR) MA36M, Consumer Electronics. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3651, Household Audio and Video Equipment, had employment of 31.2 thousand. The employment figure was 1 percent above the 30.9 thousand reported in 1987.

The leading States in employment in 1992 were California, Indiana, Mississippi, and Tennessee. This represents a shift from 1987 when California, Tennessee, Indiana, and Missouri were the leading States in employment.

The total value of shipments for establishments classified in this industry was $8.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3651 shipped $7.2 billion of household audio and video equipment considered primary to the industry, $1.1 billion of secondary products, and had $477.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3651, no matter in what industry they were produced, appear in table 6a and aggregate to $7.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the household audio and video equipment industry amounted to $6.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3652, PRERECORDED RECORDS AND TAPES

This industry is made up of establishments primarily engaged in manufacturing phonograph records and prerecorded audio tapes and disks. Establishments primarily engaged in the design, development, and production of prepackaged computer software are classified in services, industry group 737; and those reproducing prerecorded video tape cassettes and disks are classified in services, major group 78.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3652, Prerecorded Records and Tapes, had employment of 15.7 thousand. The employment figure was 18 percent above the 13.3 thousand reported in 1987. Compared with 1991, employment increased 16 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Georgia, North Carolina, and Pennsylvania. This represents a shift from 1987 when Georgia, California, Pennsylvania, and Illinois were the leading States in employment.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3652 shipped $1.6 billion of prerecorded records and tapes considered primary to the industry, $24.2 million of secondary products, and had $135.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 100 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3652, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the prerecorded records and tapes industry amounted to $631.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS

This industry is made up of establishments primarily engaged in manufacturing wire telephone and telegraph equipment. Also included in this industry are establishments primarily engaged in manufacturing modems and other telephone and telegraph communications interface equipment. Establishments primarily engaged in manufacturing cellular radio telephones are classified in industry 3663. Products of this industry also are collected in the Current Industrial Report (CIR) MA36P, Communication Equipment. The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3661, Telephone and Telegraph Apparatus, had employment of 91.0 thousand.

The leading States in employment in 1992 were California, Massachusetts, Texas, and Illinois. This represents a

shift from 1987 when North Carolina, California, Massachusetts, and Illinois were the leading States in employment.

The total value of shipments for establishments classified in this industry was $20.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3661 shipped $17.5 billion of telephone and telegraph apparatus considered primary to the industry, $976.8 million of secondary products, and had $2.0 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 3661, no matter in what industry they were produced, appear in table 6a and aggregate to $18.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the telephone and telegraph apparatus industry amounted to $8.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing radio and television broadcasting and communications equipment. Important products of this industry are closed-circuit and cable television equipment; studio equipment; light communications equipment; transmitters, transceivers and receivers (except household and automotive); cellular radio telephones; communication antennas; receivers; RF power amplifiers; and fixed and mobile radio systems. Establishments primarily engaged in manufacturing household audio and video equipment are classified in industry 3651; those manufacturing intercommunication equipment are classified in industry 3669; and those manufacturing consumer radio and television receiving antennas are classified in industry 3679. Products of this industry also are collected in the Current Industrial Report (CIR) MA36P, Communication Equipment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3663, Radio and Television Communications Equipment, had employment of 124.4 thousand. The employment figure was 1 percent below the 126.0 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Florida, California, and Massachusetts. This represents a shift from 1987 when California, Florida, Texas, and Illinois were the leading States in employment.

The total value of shipments for establishments classified in this industry was $19.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3663 shipped $15.9 billion of radio and television communications equipment considered primary to the industry, $2.2 billion of secondary products, and had $1.4 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 88 percent (specialization ratio). In 1987, the specialization ratio was also 88 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3663, no matter in what industry they were produced, appear in table 6a and aggregate to $17.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the radio and television communications equipment industry amounted to $7.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing communications and related equipment, not elsewhere classified. Important products of

this industry are intercommunication equipment, traffic signaling equipment, and fire and burglar alarm apparatus. Products of this industry also are collected in the Current Industrial Report (CIR) MA36P, Communication Equipment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3669, Communications Equipment, N.E.C., had employment of 22.5 thousand. The employment figure was 3 percent above the 21.9 thousand reported in 1987. Compared with 1991, employment increased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, and Massachusetts. This represents a shift from 1987 when New York, California, Massachusetts, and New Jersey were the leading States in employment.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3669 shipped $2.4 billion of communications equipment, n.e.c., considered primary to the industry, $180.9 million of secondary products, and had $350.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3669, no matter in what industry they were produced, appear in table 6a and aggregate to $2.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the communications equipment, n.e.c., industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT															
1992 Census	400	427	163	31.2	736.6	22.3	44.3	421.9	2 280.1	6 444.2	8 769.3	252.9	855.6	87	94
1991 ASM	(NA)	(NA)	(NA)	31.1	732.4	21.7	41.9	392.0	2 122.4	5 893.8	7 993.6	277.5	944.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.8	704.3	22.5	45.2	406.7	1 892.0	5 592.9	7 520.5	255.7	906.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	33.2	704.1	24.9	50.1	428.1	1 904.3	5 532.1	7 360.2	139.0	952.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.6	659.2	24.2	47.1	402.2	1 553.4	4 709.3	6 326.8	127.7	791.7	(NA)	(NA)
1987 Census	360	378	150	30.9	583.9	23.6	45.2	362.6	1 702.1	4 247.8	5 911.2	124.9	853.8	94	92
1986 ASM	(NA)	(NA)	(NA)	44.9	1 067.9	33.7	65.6	687.4	2 539.2	6 994.6	9 363.9	240.5	1 246.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	45.1	1 033.2	33.7	64.6	676.5	2 323.1	6 333.9	8 888.1	252.9	1 114.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	47.5	1 038.0	35.9	68.9	678.6	2 868.0	5 642.5	8 216.9	255.9	1 241.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.3	935.9	32.5	64.8	594.2	2 096.6	4 648.4	6 772.8	166.7	893.0	(NA)	(NA)
1982 Census	432	458	182	48.4	862.3	35.4	65.3	546.2	2 010.6	3 967.2	6 063.9	140.9	888.4	90	95
1981 ASM	(NA)	(NA)	(NA)	60.6	1 038.4	44.6	83.2	663.5	2 608.1	4 549.4	7 057.8	187.2	1 145.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.0	996.1	47.7	90.9	625.4	2 705.2	4 177.3	6 798.8	159.3	1 105.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	68.4	945.7	51.1	96.2	618.3	2 559.1	4 029.4	6 572.7	165.2	1 016.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	76.7	946.3	57.5	105.2	612.2	2 617.7	3 902.6	6 441.9	118.5	1 004.2	(NA)	(NA)
1977 Census	547	581	192	74.6	852.4	57.6	106.6	570.0	2 351.8	3 393.9	5 732.6	105.8	835.0	94	98
INDUSTRY 3652, PRERECORDED RECORDS AND TAPES															
1992 Census	402	419	95	15.7	382.4	12.1	24.5	250.8	1 181.6	631.5	1 808.2	182.6	124.8	99	97
1991 ASM	(NA)	(NA)	(NA)	13.5	294.8	10.5	20.8	201.5	1 247.4	550.2	1 829.0	70.6	129.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.9	294.5	10.6	21.3	195.4	1 257.9	583.7	1 856.1	90.0	170.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.6	286.0	10.5	20.7	176.8	1 221.3	536.0	1 735.4	97.0	185.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.1	311.8	10.6	19.5	185.5	1 346.5	696.9	2 033.6	86.7	162.4	(NA)	(NA)
1987 Census	462	476	94	13.3	265.7	10.2	20.4	160.4	1 362.2	567.4	1 921.6	50.7	155.2	100	99
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS															
1992 Census	479	544	315	91.0	3 741.4	44.7	87.4	1 306.9	12 463.1	8 153.5	20 498.3	614.8	2 892.8	95	96
1991 ASM	(NA)	(NA)	(NA)	94.1	3 468.1	46.9	89.7	1 297.9	9 502.5	7 838.7	17 424.9	458.7	3 216.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	92.7	3 421.2	46.5	91.8	1 329.3	9 619.4	7 606.3	17 297.3	592.7	2 857.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	96.4	3 312.6	49.0	93.9	1 362.1	8 326.5	6 975.0	15 467.0	573.1	2 904.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	111.7	3 458.4	57.2	107.5	1 437.4	9 195.1	8 756.7	17 901.0	625.1	3 113.8	(NA)	(NA)
1987 Census	403	469	297	112.3	3 228.4	58.6	109.4	1 402.6	9 588.0	7 956.3	17 582.5	552.0	3 109.9	96	96
INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT															
1992 Census	861	948	492	124.4	4 700.8	58.3	115.1	1 589.0	12 246.9	7 311.6	19 472.3	700.3	3 293.5	88	90
1991 ASM	(NA)	(NA)	(NA)	123.4	4 394.8	53.7	110.4	1 380.9	10 339.3	7 638.7	18 164.9	592.4	3 368.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	135.4	4 651.9	62.4	125.0	1 487.7	11 278.0	7 840.0	18 759.3	751.8	3 692.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	135.2	4 624.4	62.1	125.2	1 514.8	10 899.3	6 434.4	17 286.5	697.5	3 604.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	129.4	4 080.4	58.5	115.3	1 331.4	10 054.3	6 052.1	15 693.1	704.5	2 917.6	(NA)	(NA)
1987 Census	572	655	455	126.0	3 775.6	58.6	115.2	1 286.8	9 060.8	5 265.0	14 228.6	622.7	2 511.5	88	87
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.															
1992 Census	502	517	174	22.5	650.2	10.8	21.3	220.7	1 767.0	1 167.5	2 923.9	65.0	539.5	93	92
1991 ASM	(NA)	(NA)	(NA)	20.0	530.7	8.8	18.2	176.9	1 444.6	926.2	2 356.1	63.3	474.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.4	587.9	10.5	21.7	201.9	1 452.3	945.0	2 395.1	71.6	503.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	22.1	566.2	10.6	20.7	194.7	1 423.3	942.3	2 364.1	69.6	512.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.4	647.9	12.3	24.3	224.2	1 509.8	999.0	2 498.5	58.7	554.5	(NA)	(NA)
1987 Census	364	382	162	21.9	533.0	11.1	21.5	198.1	1 316.7	870.9	2 189.6	64.1	513.3	93	89

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT								
1992 Census	23 609	71	1 987	9.52	73	82	73 080	32	51.47
1991 ASM	23 550	70	1 931	9.36	74	83	68 244	35	50.65
1990 ASM	22 867	73	2 009	9.00	74	84	61 429	37	41.86
1989 ASM	21 208	75	2 012	8.54	75	85	57 358	37	38.01
1988 ASM	20 861	77	1 946	8.54	74	85	49 158	42	32.98
1987 Census	18 896	76	1 915	8.02	72	82	55 084	34	37.66
1986 ASM	23 784	75	1 947	10.48	75	86	56 552	42	38.71
1985 ASM	22 909	75	1 917	10.47	71	83	51 510	44	35.96
1984 ASM	21 853	76	1 919	9.85	69	81	60 379	36	41.63
1983 ASM	20 660	72	1 994	9.17	69	82	46 283	45	32.35
1982 Census	17 816	73	1 845	8.36	65	80	41 541	43	30.79
1981 ASM	17 135	74	1 865	7.97	64	79	43 038	40	31.35
1980 ASM	15 325	73	1 906	6.88	61	76	41 618	37	29.76
1979 ASM	13 826	75	1 883	6.43	61	76	37 414	37	26.60
1978 ASM	12 338	75	1 830	5.82	61	75	34 129	36	24.88
1977 Census	11 426	77	1 851	5.35	59	74	31 525	36	22.06
	INDUSTRY 3652, PRERECORDED RECORDS AND TAPES								
1992 Census	24 357	77	2 025	10.24	35	56	75 261	32	48.23
1991 ASM	21 837	78	1 981	9.69	30	46	92 400	24	59.97
1990 ASM	21 187	76	2 009	9.17	31	47	90 496	23	59.06
1989 ASM	21 029	77	1 971	8.54	31	47	89 801	23	59.00
1988 ASM	22 113	75	1 840	9.51	34	50	95 496	23	69.05
1987 Census	19 977	77	2 000	7.86	30	43	102 421	20	66.77
	INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS								
1992 Census	41 114	49	1 955	14.95	40	58	136 957	30	142.60
1991 ASM	36 855	50	1 913	14.47	45	65	100 983	36	105.94
1990 ASM	36 906	50	1 974	14.48	44	64	103 769	36	104.79
1989 ASM	34 363	51	1 916	14.51	45	67	86 374	40	88.67
1988 ASM	30 962	51	1 879	13.37	49	68	82 320	38	85.54
1987 Census	28 748	52	1 867	12.82	45	64	85 378	34	87.64
	INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT								
1992 Census	37 788	47	1 974	13.81	38	62	98 448	38	106.40
1991 ASM	35 614	44	2 056	12.51	42	66	83 787	43	93.65
1990 ASM	34 357	46	2 003	11.90	42	67	83 294	41	90.22
1989 ASM	34 204	46	2 016	12.10	37	64	80 616	42	87.06
1988 ASM	31 533	45	1 971	11.55	39	65	77 699	41	87.20
1987 Census	29 965	47	1 966	11.17	37	64	71 911	42	78.65
	INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.								
1992 Census	28 898	48	1 972	10.36	40	62	78 533	37	82.96
1991 ASM	26 535	44	2 068	9.72	39	62	72 230	37	79.37
1990 ASM	26 246	47	2 067	9.30	39	64	64 835	40	66.93
1989 ASM	25 620	48	1 953	9.41	40	64	64 403	40	68.76
1988 ASM	25 508	48	1 976	9.23	40	66	59 441	43	62.13
1987 Census	24 338	51	1 937	9.21	40	64	60 123	40	61.24

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT														
United States	–	**427**	**163**	**31.2**	**736.6**	**22.3**	**44.3**	**421.9**	**2 280.1**	**6 444.2**	**8 769.3**	**252.9**	**30.9**	**1 702.1**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	7	4	.4	9.3	.2	.4	4.7	29.8	26.3	56.9	1.7	.2	21.3
Arkansas	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	100	38	7.0	192.6	4.3	9.3	97.6	573.8	1 651.6	2 237.8	56.1	5.7	236.2
Connecticut	–	5	3	.3	6.7	.2	.3	3.2	15.0	13.2	27.6	.4	.2	6.6
Florida	E2	16	3	.2	5.1	.1	.2	1.7	9.6	15.0	25.2	.4	.2	6.1
Georgia	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	28	10	1.9	51.8	1.1	2.0	19.3	269.5	182.9	450.5	7.8	2.0	77.1
Indiana	–	15	10	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	8	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT—Con.														
Maryland	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	17	7	1.0	29.8	.7	1.3	15.7	173.5	88.6	264.7	2.6	G	(D)
Michigan	–	11	5	.9	26.2	.7	1.3	16.0	89.0	81.2	167.1	.9	E	(D)
Minnesota	E2	10	3	.1	3.6	.1	.2	1.6	6.8	6.4	13.2	.3	(NA)	(D)
Mississippi	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
New Jersey	–	14	5	.6	16.2	.4	.9	8.2	53.1	202.3	248.9	(D)	1.1	62.9
New York	E6	42	8	.6	12.2	.4	.8	6.8	25.0	47.4	72.5	2.6	F	(D)
North Carolina	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oklahoma	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	E3	12	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	14	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	9	6	4.1	93.3	3.2	5.8	55.7	308.8	1 203.7	1 543.6	56.1	(NA)	(D)
Texas	E3	13	5	.4	6.8	.3	.6	4.4	16.6	25.0	41.6	1.3	G	(D)
Virginia	E1	7	3	.3	5.4	.2	.3	2.5	11.0	11.3	22.9	(D)	(NA)	(NA)
Washington	–	12	5	.6	13.4	.4	.9	8.0	47.3	162.6	208.6	3.6	F	(D)
Wisconsin	E6	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	4.8
INDUSTRY 3652, PRERECORDED RECORDS AND TAPES														
United States	**E1**	**419**	**95**	**15.7**	**382.4**	**12.1**	**24.5**	**250.8**	**1 181.6**	**631.5**	**1 808.2**	**182.6**	**13.3**	**1 362.2**
Alabama	–	7	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E2	98	17	1.5	39.1	1.1	2.5	24.2	129.8	60.0	189.3	13.2	1.7	293.4
Florida	E2	14	5	.4	9.4	.3	.6	5.8	21.0	13.8	34.7	1.6	.4	15.3
Georgia	–	7	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	16	5	1.3	26.1	.9	1.7	14.8	123.3	91.6	216.0	9.0	1.4	89.3
Indiana	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	8	3	.2	4.0	.1	.3	2.1	10.8	4.5	15.3	.5	(NA)	(NA)
Minnesota	E6	7	3	.3	7.8	.2	.4	4.7	33.5	12.0	45.4	2.1	(NA)	(D)
New Jersey	E1	20	8	1.0	27.5	.8	1.6	19.0	83.3	29.9	112.7	(D)	.8	37.5
New York	E1	61	11	1.4	34.7	1.0	1.9	22.9	125.2	78.4	202.0	9.9	G	(D)
North Carolina	–	10	6	1.6	43.6	1.1	2.5	28.2	109.6	55.4	164.4	(D)	F	(D)
Ohio	–	10	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	10	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	E1	30	6	.5	11.6	.4	.8	7.5	32.2	28.3	59.8	4.0	E	(D)
Texas	E5	22	4	.5	9.5	.4	.6	5.8	30.1	13.8	43.9	2.1	(NA)	(D)
Utah	E2	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS														
United States	**–**	**544**	**315**	**91.0**	**3 741.4**	**44.7**	**87.4**	**1 306.9**	**12 463.1**	**8 153.5**	**20 498.3**	**614.8**	**112.3**	**9 588.0**
Alabama	E1	13	9	2.0	69.2	1.0	1.9	18.3	182.1	100.6	282.1	15.2	G	(D)
Arizona	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	122	81	16.9	912.3	4.7	9.5	121.6	2 720.4	1 370.0	4 031.4	151.7	13.8	951.4
Colorado	–	10	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	–	11	4	1.1	35.9	.5	1.6	13.0	105.9	79.9	190.0	8.8	1.8	173.7
Florida	–	32	15	5.9	253.7	1.5	2.5	32.5	703.2	228.1	937.1	25.8	(NA)	(D)
Georgia	E1	17	11	1.7	61.2	.8	1.4	20.1	150.3	161.1	315.9	8.3	3.3	346.9
Illinois	E1	37	22	6.5	268.6	2.6	5.1	85.9	636.1	226.1	863.2	(D)	(NA)	(D)
Indiana	E2	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Louisiana	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	E3	10	6	.7	28.9	.3	.5	6.9	65.0	39.7	106.3	2.6	G	(D)
Massachusetts	–	28	23	10.7	503.5	5.6	11.0	207.3	1 530.1	987.7	2 531.1	100.7	(NA)	(D)
Michigan	–	5	4	.3	9.8	.1	.2	2.6	19.2	11.6	30.6	(D)	(NA)	(NA)
Minnesota	–	16	9	2.4	92.5	.9	1.7	16.8	308.9	130.1	442.2	13.8	G	(D)
Mississippi	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	E5	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Nebraska	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	26	11	3.0	98.8	1.4	2.7	56.5	277.7	307.6	567.5	5.2	4.0	314.6
New Mexico	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	25	12	1.8	59.2	.7	1.3	16.0	103.0	85.6	184.4	3.4	2.7	160.9
North Carolina	–	16	11	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	9	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	3	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	15	8	.7	16.8	.4	.8	7.4	41.4	25.9	69.1	(D)	1.1	55.7
South Carolina	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

TIPS [UPF] BATCH_973 [CASMR,J_SMITH] CASMR 3/ 1/ 95 10:05 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 3
TSF:36D_92.DAT;3 3/ 1/ 95 09:54:57 UTF:36D_93.DAT;4 3/ 1/ 95 09:55:06 META:TIPS96-09535770.DAT;1 3/ 1/ 95 10:04:38

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS—Con.														
Texas	–	43	23	8.1	286.9	5.5	10.7	156.8	1 116.3	731.7	1 841.3	47.1	(NA)	(D)
Virginia	–	15	8	1.9	60.5	1.0	1.6	17.0	132.5	110.9	242.4	9.9	G	(D)
Washington	–	16	8	.8	24.9	.3	.8	6.3	57.4	33.7	89.7	2.4	.6	39.4
Wisconsin	–	5	4	.5	14.7	.2	.3	2.7	33.6	22.6	55.5	(D)	(NA)	(NA)
INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT														
United States	**–**	**948**	**492**	**124.4**	**4 700.8**	**58.3**	**115.1**	**1 589.0**	**12 246.9**	**7 311.6**	**19 472.3**	**700.3**	**126.0**	**9 060.8**
Arizona	–	21	12	4.4	199.6	1.0	1.9	37.1	327.5	94.9	441.5	(D)	(NA)	(D)
Arkansas	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	235	121	19.4	809.7	8.1	16.4	268.6	2 130.4	892.6	3 033.3	97.0	(NA)	(D)
Colorado	–	18	11	1.3	44.0	.5	1.1	13.4	114.7	123.3	237.3	3.0	G	(D)
Connecticut	E1	14	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	61	31	19.5	775.4	7.8	14.5	168.3	2 392.5	1 049.1	3 380.8	136.3	16.9	1 281.8
Georgia	–	20	10	3.7	137.1	2.3	4.5	55.6	443.5	541.5	962.4	19.8	(NA)	(D)
Hawaii	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	39	19	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.3	766.3
Indiana	–	10	7	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.4	G	(D)
Iowa	–	5	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E1	20	13	2.7	124.9	1.0	1.9	31.8	269.3	216.9	525.7	17.4	3.2	189.0
Massachusetts	–	37	22	10.0	441.4	7.4	15.2	321.4	949.5	650.1	1 597.8	(D)	7.4	727.6
Michigan	–	11	2	.1	3.3	.1	.2	1.7	5.8	5.1	11.2	(D)	(NA)	(D)
Minnesota	–	13	9	2.3	66.1	1.3	2.6	24.2	145.8	108.0	258.0	13.3	2.0	89.9
Mississippi	E3	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	6	4	.2	5.0	.1	.2	2.5	9.2	11.9	20.9	(D)	(NA)	(NA)
Nebraska	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nevada	E1	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	E4	14	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	47	24	3.7	159.1	1.6	3.0	41.0	452.9	134.3	626.2	20.4	8.2	626.3
New York	E1	72	37	6.4	206.0	3.9	7.7	92.8	406.6	406.6	794.0	24.8	6.7	402.7
North Carolina	E3	12	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	E2	27	14	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.2	G	(D)
Oklahoma	–	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	E2	12	7	.3	10.9	.1	.3	3.6	25.2	15.3	39.9	(D)	F	(D)
Pennsylvania	–	44	25	4.0	127.4	2.1	4.8	54.0	253.4	196.7	454.1	7.0	4.0	185.0
South Carolina	–	7	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	E4	10	6	.3	5.8	.1	.2	1.6	9.6	6.8	16.3	.7	F	(D)
Texas	–	57	26	6.7	275.2	2.4	5.6	63.5	597.4	397.7	970.6	31.4	11.1	681.5
Utah	E1	18	11	1.1	31.5	.5	1.1	8.0	76.9	89.3	153.2	(D)	G	(D)
Virginia	–	26	15	4.7	172.6	2.9	5.9	101.5	459.6	360.7	787.4	26.1	(NA)	(D)
Washington	E1	27	15	1.1	34.2	.5	1.0	11.4	71.0	43.5	114.7	3.3	.6	32.8
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.														
United States	**E1**	**517**	**174**	**22.5**	**650.2**	**10.8**	**21.3**	**220.7**	**1 767.0**	**1 167.5**	**2 923.9**	**65.0**	**21.9**	**1 316.7**
Arizona	E4	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	106	43	4.0	120.1	1.6	3.2	33.1	284.6	203.1	479.8	9.6	(NA)	(D)
Colorado	E3	17	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	11.1
Connecticut	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E2	40	13	1.1	31.4	.6	.9	8.7	81.7	47.0	129.7	3.1	F	(D)
Georgia	E6	10	5	.3	7.4	.2	.3	2.7	17.1	14.3	31.0	.7	E	(D)
Idaho	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	30	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	E2	6	1	.2	4.3	.1	.1	1.1	7.6	9.0	16.4	.2	(NA)	(NA)
Kentucky	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E2	8	1	.2	6.4	.1	.2	2.9	15.4	5.7	20.7	.3	E	(D)
Massachusetts	–	15	9	1.8	58.3	.7	1.6	17.2	349.6	81.7	431.7	(D)	(NA)	(D)
Michigan	–	15	5	.6	16.5	.3	.7	7.1	43.4	36.6	80.0	1.0	E	(D)
Minnesota	–	14	5	1.0	31.0	.6	1.1	15.2	82.0	56.2	137.9	4.0	F	(D)
Missouri	–	9	4	.8	21.1	.4	.7	8.4	51.8	29.4	79.9	(D)	F	(D)
Nebraska	–	5	2	.1	2.7	.1	.1	.8	6.6	4.3	11.2	.1	(NA)	(D)
New Jersey	E1	23	8	1.0	32.0	.5	1.0	11.3	61.2	60.4	122.1	3.1	1.7	99.0
New Mexico	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	36	13	2.9	92.5	1.3	2.5	28.1	237.5	116.1	352.7	8.6	3.9	187.5
North Carolina	–	11	4	.6	13.9	.3	.6	4.2	34.1	38.0	70.4	(D)	E	(D)
Ohio	E7	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	10	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E2	14	3	.5	12.8	.2	.4	3.9	26.7	19.3	47.1	(D)	.3	17.7
South Carolina	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

See footnotes at end of table.

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TSF:36D_92.DAT;3 3/ 1/ 95 09:54:57 UTF:36D_93.DAT;4 3/ 1/ 95 09:55:06 META:TIPS96-09535770.DAT;1 3/ 1/ 95 10:04:38

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.—Con.														
Texas	E3	29	8	.6	15.1	.3	.7	5.3	32.6	32.1	65.4	1.3	E	(D)
Virginia	E3	19	3	.3	5.4	.1	.3	2.4	10.5	6.2	16.8	.3	(NA)	(NA)
Washington	E1	15	3	.2	5.1	.1	.1	1.2	9.5	5.9	15.4	.4	.3	14.6
Wisconsin	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household audio and video equipment (SIC 3651)	Prerecorded records and tapes (SIC 3652)	Telephone and telegraph apparatus (SIC 3661)	Radio and television communications equipment (SIC 3663)	Communications equipment, n.e.c. (SIC 3669)
Companies, number	400	402	479	861	502
All establishments, number	427	419	544	948	517
With 1 to 19 employees, number	264	324	229	456	343
With 20 to 99 employees, number	93	69	173	316	117
With 100 employees or more, number	70	26	142	176	57
Employment and labor costs:					
Employees, 1,000	31.2	15.7	91.0	124.4	22.5
Compensation, total, mil dol	953.9	479.5	4 672.6	5 826.7	811.3
Annual payroll, mil dol	736.6	382.4	3 741.4	4 700.8	650.2
Fringe benefits, mil dol	217.3	97.1	931.2	1 125.9	161.1
Social Security and other legally required payments, mil dol	75.5	41.4	335.4	417.6	68.1
Employer voluntary payments, mil dol	141.8	55.6	595.8	708.3	93.0
Production workers:					
Average for year, 1,000	22.3	12.1	44.7	58.3	10.8
March, 1,000	22.2	11.6	44.6	58.7	10.7
May, 1,000	22.0	11.8	44.7	58.6	10.7
August, 1,000	22.6	12.3	44.9	58.1	10.9
November, 1,000	22.6	12.7	44.5	57.7	10.9
Hours, millions	44.3	24.5	87.4	115.1	21.3
Wages, mil dol	421.9	250.8	1 306.9	1 589.0	220.7
Cost of materials[1], mil dol	6 444.2	631.5	8 153.5	7 311.6	1 167.5
Materials, parts, containers, etc., consumed[2], mil dol	5 999.0	576.7	7 446.9	5 977.9	989.5
Resales, mil dol	402.1	12.3	429.6	477.3	121.5
Fuels, mil dol	7.2	3.6	12.5	15.3	3.1
Purchased electricity, mil dol	24.9	22.7	87.3	106.5	14.4
Contract work, mil dol	11.0	16.2	177.3	734.6	39.0
Quantity of electric energy used for heat and power:					
Purchased, mil kWh	419.7	402.0	1 437.8	1 688.5	216.0
Generated less sold, mil kWh	–	–	–	(D)	–
Total value of shipments, mil dol	8 769.3	1 808.2	20 498.3	19 472.3	2 923.9
Value added, mil dol	2 280.1	1 181.6	12 463.1	12 246.9	1 767.0
Inventories by stage of fabrication:					
Beginning of 1992, mil dol	949.8	124.1	2 886.8	3 125.2	530.9
Finished goods, mil dol	308.2	41.3	605.2	542.6	161.0
Work in process, mil dol	172.9	14.9	1 035.5	1 465.9	121.8
Materials and supplies, mil dol	468.7	67.9	1 246.0	1 116.7	248.1
End of 1992, mil dol	855.6	124.8	2 892.8	3 293.5	539.5
Finished goods, mil dol	302.2	43.6	672.2	620.5	175.0
Work in process, mil dol	133.8	17.5	1 086.8	1 474.3	118.3
Materials and supplies, mil dol	419.6	63.7	1 133.8	1 198.7	246.2

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household audio and video equipment (SIC 3651)	Prerecorded records and tapes (SIC 3652)	Telephone and telegraph apparatus (SIC 3661)	Radio and television communications equipment (SIC 3663)	Communications equipment, n.e.c. (SIC 3669)
Gross book value of depreciable assets:					
Total:					
Beginning of year	1 242.4	818.8	5 284.2	5 252.0	598.5
New capital expenditures[1]	252.9	182.6	614.8	700.3	65.0
Used capital expenditures	12.2	7.0	72.4	30.2	5.8
Retirements	28.4	21.7	441.9	246.7	42.3
End of year	1 479.1	986.6	5 529.5	5 735.8	627.1
Buildings and other structures:					
Beginning of year	278.9	169.6	976.2	1 348.8	130.1
New capital expenditures	94.1	17.2	75.3	91.5	10.2
Used capital expenditures	4.6	3.2	(D)	(D)	1.6
Retirements	2.7	1.5	(D)	(D)	1.4
End of year	374.9	188.5	1 032.3	1 402.9	140.5
Machinery and equipment:					
Beginning of year	963.5	649.2	4 308.0	3 903.2	468.5
New capital expenditures[1]	158.8	165.5	539.5	608.8	54.8
Used capital expenditures	7.5	3.7	(D)	(D)	4.2
Retirements	25.7	20.3	(D)	(D)	40.9
End of year	1 104.2	798.1	4 497.2	4 332.9	486.6
Depreciation charges during 1992:					
Total	131.8	100.7	554.0	502.3	67.0
Buildings and other structures	13.9	9.6	41.3	68.0	9.0
Machinery and equipment	117.9	91.0	512.7	434.3	58.0
Rental payments:					
Total	63.9	22.5	158.9	253.8	39.4
Buildings and other structures	45.8	13.4	101.3	157.8	28.3
Machinery and equipment	18.2	9.1	57.5	96.0	11.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Household audio and video equipment (SIC 3651)		Prerecorded records and tapes (SIC 3652)		Telephone and telegraph apparatus (SIC 3661)		Radio and television communications equipment (SIC 3663)		Communications equipment, n.e.c. (SIC 3669)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	5.0	(X)	3.8	(X)	49.7	(X)	29.5	(X)	3.2	(X)
Response coverage ratio (percent)[2]	65.5	(X)	67.5	(X)	80.8	(X)	74.9	(X)	59.6	(X)
Machinery	16.8	(X)	24.8	(X)	77.5	(X)	85.0	(X)	4.6	(X)
Response coverage ratio (percent)[2]	65.7	(X)	67.5	(X)	75.4	(X)	74.7	(X)	58.3	(X)
Other purchased services:										
Communications	7.7	(X)	3.1	(X)	67.7	(X)	73.4	(X)	14.1	(X)
Response coverage ratio (percent)[2]	65.3	(X)	67.6	(X)	73.5	(X)	74.5	(X)	58.3	(X)
Legal	4.2	(X)	2.9	(X)	158.9	(X)	34.5	(X)	7.5	(X)
Response coverage ratio (percent)[2]	65.5	(X)	63.2	(X)	73.5	(X)	66.7	(X)	59.4	(X)
Accounting and bookkeeping	2.0	(X)	1.0	(X)	6.4	(X)	23.8	(X)	3.8	(X)
Response coverage ratio (percent)[2]	65.5	(X)	63.2	(X)	70.9	(X)	69.5	(X)	59.5	(X)
Advertising	15.7	(X)	1.7	(X)	40.7	(X)	51.2	(X)	17.2	(X)
Response coverage ratio (percent)[2]	62.7	(X)	62.9	(X)	73.9	(X)	66.9	(X)	58.3	(X)
Software and other data processing	5.6	(X)	1.2	(X)	92.2	(X)	61.8	(X)	3.2	(X)
Response coverage ratio (percent)[2]	65.3	(X)	67.7	(X)	74.6	(X)	73.7	(X)	54.6	(X)
Refuse removal, including hazardous waste	4.7	(X)	1.7	(X)	10.1	(X)	5.9	(X)	3.5	(X)
Response coverage ratio (percent)[2]	65.7	(X)	67.5	(X)	75.0	(X)	71.2	(X)	57.1	(X)
New machinery and equipment expenditures	158.8	(X)	165.5	(X)	539.5	(X)	608.8	(X)	54.8	(X)
Automobiles, trucks, etc., for highway use	4.8	5	.1	10	3.8	25	1.5	13	5.1	11
Computers and peripheral data processing equipment	7.9	11	7.7	41	136.5	2	230.4	3	12.7	5
All other	146.1	1	157.7	3	399.2	1	376.9	2	37.0	3
Adjustment ratio[3]	1.2	(X)	1.3	(X)	1.3	(X)	1.2	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	5 999.0	(X)	576.7	(X)	7 446.9	(X)	5 977.9	(X)	989.5	(X)
Materials purchased or transferred from foreign sources[4]	1 484.3	3	20.8	34	670.6	3	1 028.7	3	(S)	(X)
Materials purchased or transferred from domestic sources	4 514.8	1	555.8	2	6 776.3	1	4 949.1	1	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.9	(X)	1.4	(X)	2.0	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT												
Total	**–**	**427**	**31.2**	**736.6**	**22.3**	**44.3**	**421.9**	**2 280.1**	**6 444.2**	**8 769.3**	**252.9**	**855.6**
Establishments with an average of—												
1 to 4 employees	E9	140	.2	5.4	.2	.3	3.0	12.5	36.2	48.7	2.0	5.8
5 to 9 employees	E7	70	.5	10.3	.3	.6	5.2	20.6	58.1	78.1	3.0	9.5
10 to 19 employees	E6	54	.7	14.1	.5	1.0	7.6	28.3	63.7	92.5	3.0	12.4
20 to 49 employees	E4	63	1.9	46.1	1.2	2.4	20.7	114.6	137.1	250.1	6.0	37.6
50 to 99 employees	E1	30	2.1	46.4	1.4	2.6	21.6	135.3	192.4	326.7	5.0	45.9
100 to 249 employees	–	43	6.8	157.3	4.6	8.7	84.3	476.5	983.5	1 460.1	105.7	196.6
250 to 499 employees	–	13	4.5	110.9	3.1	6.3	53.0	414.6	625.1	1 030.2	25.4	111.2
500 to 999 employees	–	10	7.0	171.1	5.6	12.3	120.7	482.4	1 967.2	2 452.9	53.7	186.4
1,000 to 2,499 employees	–	4	7.4	175.0	5.4	10.1	105.8	595.3	2 380.9	3 030.1	49.1	250.1
Covered by administrative records[2]	E9	167	.6	9.8	.4	.7	5.5	16.4	47.8	64.2	2.6	7.6
INDUSTRY 3652, PRERECORDED RECORDS AND TAPES												
Total	**E1**	**419**	**15.7**	**382.4**	**12.1**	**24.5**	**250.8**	**1 181.6**	**631.5**	**1 808.2**	**182.6**	**124.8**
Establishments with an average of—												
1 to 4 employees	E7	220	.3	7.4	.3	.5	5.6	34.6	16.3	51.0	2.8	4.8
5 to 9 employees	E3	62	.4	10.2	.3	.5	6.4	30.9	15.6	46.7	2.1	4.4
10 to 19 employees	E2	42	.6	15.9	.4	.8	10.3	63.3	29.4	90.4	3.4	10.5
20 to 49 employees	E3	48	1.5	38.7	1.1	2.1	21.1	138.4	80.5	217.7	13.3	19.7
50 to 99 employees	E2	21	1.4	34.0	1.0	2.0	19.2	133.0	61.6	193.5	9.4	15.8
100 to 249 employees	–	11	1.8	43.4	1.2	2.4	23.6	153.9	87.3	241.2	11.7	19.3
250 to 499 employees	–	9	3.0	63.6	2.3	4.3	40.4	182.5	114.7	299.2	27.0	22.5
500 to 999 employees	–	4	6.6	169.2	5.6	11.8	124.3	445.0	226.1	668.5	112.9	27.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	188	.3	6.0	.3	.5	4.6	27.1	13.0	40.1	2.3	3.8
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS												
Total	**–**	**544**	**91.0**	**3 741.4**	**44.7**	**87.4**	**1 306.9**	**12 463.1**	**8 153.5**	**20 498.3**	**614.8**	**2 892.8**
Establishments with an average of—												
1 to 4 employees	E9	82	.2	4.9	.1	.2	1.8	14.7	11.5	26.1	.9	3.9
5 to 9 employees	E6	80	.5	16.9	.3	.5	5.4	45.0	33.3	77.2	2.2	12.8
10 to 19 employees	E5	67	.9	27.0	.4	.8	9.0	71.0	58.4	130.6	3.5	19.9
20 to 49 employees	E4	98	3.1	105.2	1.2	2.4	28.3	242.4	158.6	399.3	10.1	81.1
50 to 99 employees	E1	75	5.5	183.6	2.8	5.6	60.2	521.9	403.8	916.9	36.5	154.3
100 to 249 employees	–	67	10.9	403.6	4.9	10.1	105.3	1 172.2	674.3	1 823.3	61.0	348.0
250 to 499 employees	–	36	12.0	478.3	5.6	11.2	147.5	1 821.5	1 021.8	2 859.5	106.0	503.1
500 to 999 employees	–	18	13.0	626.1	5.9	11.6	159.1	1 892.4	1 531.3	3 349.3	116.8	549.0
1,000 to 2,499 employees	–	17	44.8	1 895.8	23.4	45.0	790.2	6 682.0	4 260.5	10 916.1	277.7	1 220.7
2,500 employees or more	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	119	.5	10.0	.3	.5	3.7	28.8	21.8	50.6	1.8	7.7
INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT												
Total	**–**	**948**	**124.4**	**4 700.8**	**58.3**	**115.1**	**1 589.0**	**12 246.9**	**7 311.6**	**19 472.3**	**700.3**	**3 293.5**
Establishments with an average of—												
1 to 4 employees	E9	225	.3	9.7	.1	.2	3.3	20.2	15.0	35.4	1.3	7.7
5 to 9 employees	E5	95	.7	19.6	.3	.6	6.8	39.9	32.9	72.7	2.1	13.9
10 to 19 employees	E2	136	1.9	61.1	.9	1.8	20.4	138.5	82.4	219.4	6.7	42.5
20 to 49 employees	E1	194	6.2	195.2	3.1	6.1	65.4	434.7	310.6	732.0	24.5	146.2
50 to 99 employees	E2	122	8.6	297.3	3.8	7.7	89.7	680.8	470.4	1 162.5	38.7	259.7
100 to 249 employees	E1	87	13.6	454.7	6.9	14.5	162.4	989.4	845.7	1 824.2	54.1	375.8
250 to 499 employees	E1	49	16.4	528.5	9.1	18.3	209.1	1 115.2	950.5	2 058.9	55.3	483.6
500 to 999 employees	–	17	11.5	387.2	5.8	12.1	136.1	1 355.0	885.8	2 232.1	55.5	361.2
1,000 to 2,499 employees	–	13	21.2	939.7	11.0	23.9	412.3	2 956.2	1 409.2	4 349.2	123.5	585.4
2,500 employees or more	–	10	43.9	1 807.9	17.4	29.8	483.7	4 517.0	2 309.0	6 785.9	338.5	1 017.6
Covered by administrative records[2]	E9	281	1.1	22.7	.4	.8	7.5	43.7	32.6	76.3	2.9	15.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.												
Total	**E1**	**517**	**22.5**	**650.2**	**10.8**	**21.3**	**220.7**	**1 767.0**	**1 167.5**	**2 923.9**	**65.0**	**539.5**
Establishments with an average of—												
1 to 4 employees	E7	180	.4	8.7	.1	.3	3.1	21.6	18.2	39.8	.9	8.1
5 to 9 employees	E6	97	.6	15.6	.3	.5	5.4	30.5	25.9	56.6	1.3	11.3
10 to 19 employees	E3	66	.9	23.0	.4	.8	7.9	48.4	44.5	92.8	1.7	16.4
20 to 49 employees	E2	76	2.4	69.0	1.2	2.5	23.3	152.3	114.6	266.3	4.6	51.9
50 to 99 employees	E2	41	2.9	82.0	1.5	3.2	29.8	182.1	156.2	338.9	10.5	68.4
100 to 249 employees	E1	37	5.5	174.2	2.8	5.5	59.8	433.1	262.9	695.5	15.5	118.6
250 to 499 employees	–	14	5.2	133.1	2.4	4.6	49.1	351.8	305.6	653.1	14.9	141.0
500 to 999 employees	–	5	4.5	144.7	2.0	3.9	42.4	547.2	239.5	780.9	15.7	124.0
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	239	.9	18.2	.3	.7	6.4	36.7	31.8	68.5	1.7	13.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3651	**Household audio and video equipment:**										
	All establishments in industry	427	31.2	736.6	22.3	44.3	421.9	2 280.1	6 444.2	8 769.3	252.9
	Establishments with this product class primary:										
36511	Home, portable, and automobile radios and radio-phonograph-tape recorder combinations	9	1.5	33.4	.9	1.6	15.5	112.5	254.5	363.2	9.0
36512	Television receivers (including television combinations)	20	12.0	305.4	8.7	17.4	187.3	1 031.2	4 964.8	6 035.2	186.0
36514	Consumer high fidelity components	31	2.1	51.6	1.4	2.9	29.1	137.8	127.2	262.1	2.5
36515	Speaker systems, microphones, and commercial sound equipment (including public address systems)	90	13.1	296.4	9.6	19.1	163.7	889.2	859.2	1 762.3	43.2
3652	**Prerecorded records and tapes:**										
	All establishments in industry	419	15.7	382.4	12.1	24.5	250.8	1 181.6	631.5	1 808.2	182.6
3661	**Telephone and telegraph apparatus:**										
	All establishments in industry	544	91.0	3 741.4	44.7	87.4	1 306.9	12 463.1	8 153.5	20 498.3	614.8
	Establishments with this product class primary:										
36611	Telephone switching and switchboard equipment	59	30.3	1 277.0	16.0	32.2	547.5	5 536.9	3 330.3	8 768.7	204.9
36613	Carrier line equipment and modems, including auxiliary sets	90	29.1	1 185.4	12.8	24.9	359.4	3 055.6	2 497.5	5 615.5	179.9
36614	Other telephone and telegraph (wire) apparatus	149	28.5	1 186.7	14.4	27.4	368.4	3 646.4	2 154.6	5 718.6	216.5
3663	**Radio and television communications equipment:**										
	All establishments in industry	948	124.4	4 700.8	58.3	115.1	1 589.0	12 246.9	7 311.6	19 472.3	700.3
	Establishments with this product class primary:										
36631	Communication systems and equipment, except broadcast	388	104.6	4 086.2	48.5	94.7	1 377.5	10 773.8	5 973.3	16 693.0	627.7
36632	Broadcast, studio, and related electronic equipment	135	14.6	467.1	7.5	15.7	160.7	1 220.2	1 114.3	2 302.2	53.9
3669	**Communications equipment, n.e.c.:**										
	All establishments in industry	517	22.5	650.2	10.8	21.3	220.7	1 767.0	1 167.5	2 923.9	65.0
	Establishments with this product class primary:										
36691	Alarm systems	95	12.1	348.1	5.8	11.1	113.2	1 058.1	665.5	1 716.6	39.5
36692	Traffic control equipment	39	4.3	137.2	2.4	4.7	54.1	354.4	269.9	619.9	13.4
36693	Intercommunication equipment, except telephone and telegraph	33	2.5	75.9	1.0	2.2	23.1	180.1	92.7	275.4	4.9

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT			
Total value of shipments	8 769.3	5 911.2	6 063.9
Primary products value of shipments	7 231.6	5 463.2	5 144.9
Secondary products value of shipments	1 060.7	320.2	586.2
Total miscellaneous receipts	477.0	127.8	332.8
Value of resales	466.4	124.0	326.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	87	94	90
Value of primary products shipments made in all industries	7 682.0	5 925.3	5 415.1
Value of primary products shipments made in this industry	7 231.6	5 463.2	5 144.9
Value of primary products shipments made in other industries	450.4	462.1	270.2
Coverage ratio	94	92	95
INDUSTRY 3652, PRERECORDED RECORDS AND TAPES			
Total value of shipments	1 808.2	1 921.6	(NA)
Primary products value of shipments	1 648.4	1 845.0	(NA)
Secondary products value of shipments	24.2	(Z)	(NA)
Total miscellaneous receipts	135.5	76.6	(NA)
Value of resales	20.8	11.1	(NA)
Contract receipts	5.4	1.6	(NA)
Other miscellaneous receipts	109.4	63.9	(NA)
Video tapes, prerecorded	48.9	27.3	(NA)
Receipts for recordings for others outside your company	9.4	8.0	(NA)
Other miscellaneous receipts	(D)	4.5	(NA)
Other miscellaneous receipts, n.s.k.	(D)	24.1	(NA)
Primary products specialization ratio	99	100	(NA)
Value of primary products shipments made in all industries	1 706.6	1 859.4	(NA)
Value of primary products shipments made in this industry	1 648.4	1 845.0	(NA)
Value of primary products shipments made in other industries	58.1	14.4	(NA)
Coverage ratio	97	99	(NA)
INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS			
Total value of shipments	20 498.3	17 582.5	(NA)
Primary products value of shipments	17 542.4	15 923.7	(NA)
Secondary products value of shipments	976.8	611.4	(NA)
Total miscellaneous receipts	1 979.0	1 047.3	(NA)
Value of resales	541.1	692.4	(NA)
Contract receipts	54.0	7.8	(NA)
Other miscellaneous receipts	1 383.9	347.1	(NA)
Receipts for research and development	117.1	(NA)	(NA)
Other miscellaneous receipts	(D)	(NA)	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	95	96	(NA)
Value of primary products shipments made in all industries	18 321.9	16 528.5	(NA)
Value of primary products shipments made in this industry	17 542.4	15 923.7	(NA)
Value of primary products shipments made in other industries	779.5	604.8	(NA)
Coverage ratio	96	96	(NA)
INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT			
Total value of shipments	19 472.3	14 228.6	(NA)
Primary products value of shipments	15 920.3	11 473.3	(NA)
Secondary products value of shipments	2 156.0	1 636.0	(NA)
Total miscellaneous receipts	1 395.9	1 119.2	(NA)
Value of resales	618.8	497.9	(NA)
Contract receipts	33.8	12.3	(NA)
Other miscellaneous receipts	743.3	609.0	(NA)
Primary products specialization ratio	88	88	(NA)
Value of primary products shipments made in all industries	17 727.8	13 255.9	(NA)
Value of primary products shipments made in this industry	15 920.3	11 473.3	(NA)
Value of primary products shipments made in other industries	1 807.5	1 782.6	(NA)
Coverage ratio	90	87	(NA)
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.			
Total value of shipments	2 923.9	2 189.6	(NA)
Primary products value of shipments	2 392.9	1 897.3	(NA)
Secondary products value of shipments	180.9	149.6	(NA)
Total miscellaneous receipts	350.1	142.7	(NA)
Value of resales	178.5	53.2	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	93	93	(NA)
Value of primary products shipments made in all industries	2 590.9	2 126.0	(NA)
Value of primary products shipments made in this industry	2 392.9	1 897.3	(NA)
Value of primary products shipments made in other industries	198.0	228.6	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.—Con.			
Coverage ratio	92	89	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3651– —	**RADIO RECEIVERS, TELEVISION SETS, PHONOGRAPHS, SPEAKERS, AND RELATED EQUIPMENT**				
	Total	**(NA)**	**7 682.0**	**(NA)**	**5 925.3**
36511	Home, portable, and automobile radios and radio-phonograph-tape recorder combinations	(NA)	591.8	(NA)	474.5
36511 00	Home, portable, and automobile radios and radio-phonograph-tape recorder combinations[3]	17	591.8	16	474.5
36512	Television receivers (including television combinations)	(NA)	4 901.6	(NA)	3 784.4
36512 00	Television receivers (including television combinations)[3]	20	4 901.6	24	3 784.4
36515	Speaker systems, microphones, and commercial sound equipment (including public address systems)	(NA)	1 616.5	(NA)	981.3
36515 00	Speakers (including loudspeaker systems and loudspeakers sold separately, and commercial sound equipment)[3]	104	1 616.5	83	981.3
36514	Consumer high fidelity components	(NA)	229.1	(NA)	287.0
36514 00	Consumer high fidelity components (including audio and video recorders and players, camcorders)[3]	47	229.1	40	287.0
36510	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k.	(NA)	342.9	(NA)	398.2
36510 00	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k.[4]	(NA)	278.7	(NA)	222.8
36510 02	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k.[5]	(NA)	64.2	(NA)	175.4

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3652– —	**PRERECORDED RECORDS AND TAPES**						
	Total	**(NA)**	**(X)**	**1 706.6**	**(NA)**	**(X)**	**1 859.4**
36520	Prerecorded records and tapes	(NA)	(X)	1 706.6	(NA)	(X)	1 859.4
	Audio discs or records (including compact discs prerecorded):						
36520 05	Long playing (LP), excluding digitally mastered records for consumer use—millions	22	*56.0	[6]35.9	(NA)	(S)	[6]347.0
36520 06	Compact disc (CD) singles/ maxisingles[7]—millions	13	*9.2	23.7	11	*73.0	233.1
36520 08	Compact disc (CD) full-length[7]—millions	39	*583.1	794.9			
36520 09	Other, including digitally mastered records for consumer use, and master records used to press commercial records—millions	10	(S)	20.4	13	(S)	12.7
	Audio tapes, prerecorded:						
36520 12	Cassette singles/ maxisingles[7]—millions	17	138.6	72.1	57	**727.1	900.8
36520 13	Cassette full-length[7]—millions	66	**675.5	457.6			
36520 19	Other (including 8 track and DAT)	5	(X)	1.0	5	(X)	6.8
36520 00	Prerecorded records and tapes, n.s.k.[8]	(NA)	(X)	261.0	(NA)	(X)	293.3
36520 02	Prerecorded records and tapes, n.s.k.[9]	(NA)	(X)	40.1	(NA)	(X)	65.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3661– —	**TELEPHONE AND TELEGRAPH APPARATUS**				
	Total	**(NA)**	**18 321.9**	**(NA)**	**16 528.5**
36611	Telephone switching and switchboard equipment	(NA)	7 513.5	(NA)	7 561.1
36611 00	Telephone switching and switchboard equipment[3]	76	7 513.5	67	7 561.1
36613	Carrier line equipment and modems, including auxiliary sets	(NA)	4 930.7	(NA)	5 091.1
36613 00	Carrier line equipment (office and line repeaters and line terminating carrier equipment) and modems[3]	123	4 930.7	112	5 091.1
36614	Other telephone and telegraph (wire) apparatus	(NA)	5 487.6	(NA)	3 548.5
36614 00	Other telephone and telegraph (wire) apparatus, including telephone sets, telephone answering, and fax machines[3]	169	5 487.6	117	3 548.5
36610	Telephone and telegraph apparatus, n.s.k.	(NA)	390.1	(NA)	327.8
36610 00	Telephone and telegraph apparatus, n.s.k.[10]	(NA)	339.5	(NA)	215.5
36610 02	Telephone and telegraph apparatus, n.s.k.[11]	(NA)	50.6	(NA)	112.3
3663– —	**RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT**				
	Total	**(NA)**	**17 727.8**	**(NA)**	**13 255.9**
36631	Communication systems and equipment, except broadcast	(NA)	15 333.1	(NA)	11 600.6
36631 00	Communication systems and equipment, except broadcast, but including microwave equipment, and space satellites[3]	441	15 333.1	377	11 600.6
36632	Broadcast, studio, and related electronic equipment	(NA)	1 983.5	(NA)	1 568.8
36632 00	Broadcast, studio, and related electronic equipment[3]	161	1 983.5	156	1 568.8
36630	Radio and television communications equipment, n.s.k.	(NA)	411.2	(NA)	86.5
36630 00	Radio and television communications equipment, n.s.k.[10]	(NA)	333.6	(NA)	13.3
36630 02	Radio and television communications equipment, n.s.k.[11]	(NA)	77.6	(NA)	73.2
3669– —	**COMMUNICATIONS EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**2 590.9**	**(NA)**	**2 126.0**
36691	Alarm systems	(NA)	1 410.7	(NA)	1 261.2
36691 00	Alarm systems, including electric sirens and horns[3]	129	1 410.7	132	1 261.2
36692	Traffic control equipment	(NA)	589.3	(NA)	427.9
36692 00	Vehicular and pedestrian traffic control equipment, electric railway signals and attachments[3]	38	589.3	36	427.9
36693	Intercommunication equipment, except telephone and telegraph	(NA)	304.7	(NA)	290.3
36693 00	Intercommunications systems, including inductive paging systems (selective paging)[3]	52	304.7	44	290.3
36690	Communications equipment, n.e.c., n.s.k.	(NA)	286.2	(NA)	146.5
36690 00	Communications equipment, n.e.c., n.s.k.[12]	(NA)	217.7	(NA)	3.8
36690 02	Communications equipment, n.e.c., n.s.k.[13]	(NA)	68.5	(NA)	142.8

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix B, part 3.
[4]Typically for establishments with 20 employees or more.
[5]Typically for establishments with less than 20 employees.
[6]Data for product code 36520 05 include data for vinyl singles including 7 and 12 inch.
[7]For 1992, product code is revised, See appendix B, parts 1 and 2 for comparability.
[8]Typically for establishments with 5 employees or more.
[9]Typically for establishments with less than 5 employees.
[10]Typically for establishments with 15 employees or more.
[11]Typically for establishments with less than 15 employees.
[12]Typically for establishments with 10 employees or more.
[13]Typically for establishments with less than 10 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36511, HOME, PORTABLE, AND AUTOMOBILE RADIOS AND RADIO-PHONOGRAPH-TAPE RECORDER COMBINATIONS		
United States	**591.8**	**474.5**
36512, TELEVISION RECEIVERS (INCLUDING TELEVISION COMBINATIONS)		
United States	**4 901.6**	**3 784.4**
California	1 230.4	704.6
Tennessee	1 261.6	1 050.3
36514, CONSUMER HIGH FIDELITY COMPONENTS		
United States	**229.1**	**287.0**
California	41.4	28.5
Illinois	9.6	(NA)
Washington	27.9	(NA)
36515, SPEAKER SYSTEMS, MICROPHONES, AND COMMERCIAL SOUND EQUIPMENT (INCLUDING PUBLIC ADDRESS SYSTEMS)		
United States	**1 616.5**	**981.3**
Arkansas	38.9	(NA)
California	353.5	169.4
Illinois	165.7	59.0
Kentucky	42.8	(NA)
Massachusetts	238.6	172.8
Michigan	82.0	22.4
New York	5.5	(NA)
Oregon	8.7	(NA)
Pennsylvania	83.3	74.6
Washington	5.9	8.7
Wisconsin	27.8	(NA)
36611, TELEPHONE SWITCHING AND SWITCHBOARD EQUIPMENT		
United States	**7 513.5**	**7 561.1**
California	877.9	670.9
Illinois	376.5	611.1
New Jersey	175.8	123.6
New York	24.5	(NA)
Pennsylvania	15.1	(NA)
Texas	430.1	279.5
Virginia	106.1	(NA)
Washington	28.2	(NA)
36613, CARRIER LINE EQUIPMENT AND MODEMS, INCLUDING AUXILIARY SETS		
United States	**4 930.7**	**5 091.1**
California	722.2	297.2
Florida	390.1	(NA)
Illinois	167.0	(NA)
New Jersey	294.2	301.2
New York	41.9	(NA)
Texas	272.6	(NA)
Washington	28.7	(NA)
36614, OTHER TELEPHONE AND TELEGRAPH (WIRE) APPARATUS		
United States	**5 487.6**	**3 548.5**
California	1 763.0	358.5
Colorado	12.2	(NA)
Connecticut	7.0	37.0
Florida	102.7	68.4
Georgia	83.8	(NA)
Illinois	207.1	125.8
Maryland	66.5	(NA)
Massachusetts	658.8	31.9
Minnesota	246.3	(NA)
New Jersey	32.4	(NA)
36614, OTHER TELEPHONE AND TELEGRAPH (WIRE) APPARATUS—Con.		
New York	94.3	195.9
Pennsylvania	51.3	53.7
Texas	613.0	483.0
Virginia	93.9	(NA)
Washington	22.2	33.5
Wisconsin	44.7	(NA)
36631, COMMUNICATION SYSTEMS AND EQUIPMENT, EXCEPT BROADCAST		
United States	**15 333.1**	**11 600.6**
Arizona	228.5	(NA)
California	2 372.2	2 515.1
Colorado	205.8	211.5
Connecticut	46.8	34.4
Florida	2 495.4	1 891.5
Georgia	683.9	296.3
Kentucky	3.3	(NA)
Maryland	483.6	427.0
Massachusetts	1 345.8	667.7
Minnesota	161.0	(NA)
New Hampshire	31.4	(NA)
New Jersey	670.4	396.8
New Mexico	15.5	(NA)
New York	385.5	523.2
North Carolina	62.6	106.1
Ohio	314.9	213.2
Oklahoma	9.8	37.6
Oregon	90.1	(NA)
Pennsylvania	122.2	296.0
South Carolina	15.4	25.4
Texas	1 155.9	1 145.3
Virginia	500.9	390.0
Washington	53.6	25.8
36632, BROADCAST, STUDIO, AND RELATED ELECTRONIC EQUIPMENT		
United States	**1 983.5**	**1 568.8**
California	564.7	370.3
Colorado	95.7	(NA)
Illinois	72.0	75.4
Maine	10.9	(NA)
Massachusetts	78.1	36.4
New Jersey	37.6	91.1
New York	226.4	193.4
Ohio	17.4	(NA)
Pennsylvania	214.3	151.4
Tennessee	9.4	12.0
Texas	42.5	41.8
Utah	84.7	77.0
Washington	20.4	13.2
36691, ALARM SYSTEMS		
United States	**1 410.7**	**1 261.2**
California	217.2	184.8
Colorado	23.9	15.1
Florida	60.1	35.6
Illinois	205.4	93.0
Massachusetts	157.1	271.2
Michigan	57.4	34.0
Minnesota	85.0	(NA)
Nebraska	10.0	(NA)
New Jersey	108.3	151.8
New York	157.8	155.5
Texas	18.6	10.3
Virginia	11.5	14.0
Wisconsin	4.8	(NA)
36692, TRAFFIC CONTROL EQUIPMENT		
United States	**589.3**	**427.9**
California	102.0	82.0
Florida	35.2	(NA)
Texas	22.8	(NA)
36693, INTERCOMMUNICATION EQUIPMENT, EXCEPT TELEPHONE AND TELEGRAPH		
United States	**304.7**	**290.3**
California	81.1	80.7
Florida	5.7	(NA)
Illinois	48.7	34.5
New York	31.3	19.6

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3651-	**Radio receivers, television sets, phonographs, speakers, and related equipment**	**7 682.0**	**7 154.3**	**7 092.2**	**7 140.7**	**6 100.3**	**5 925.3**	**5 415.1**	**4 730.8**
36511	Home, portable, and automobile radios and radio-phonograph-tape recorder combinations	591.8	298.9	334.9	306.1	315.4	474.5	783.4	811.6
36512	Television receivers (including television combinations)	4 901.6	4 720.7	4 647.3	4 834.7	3 931.2	3 784.4	3 386.0	2 450.9
36514	Consumer high fidelity components	229.1	374.9	384.4	461.5	364.9	287.0	312.0	558.3
36515	Speaker systems, microphones, and commercial sound equipment (including public address systems)	1 616.5	1 243.9	1 156.1	1 172.2	1 089.8	981.3	783.9	753.9
36510	Radio receivers, television sets, phonographs, speakers, and related equipment, n.s.k.	342.9	516.0	569.5	366.2	398.9	398.1	149.8	156.1
3652-	**Prerecorded records and tapes**	**1 706.6**	**1 955.4**	**1 947.7**	**1 840.8**	**2 048.7**	**1 859.4**	**(NA)**	**(NA)**
36520	Prerecorded records and tapes	1 706.6	1 955.4	1 947.7	1 840.8	2 048.7	1 859.4	(NA)	(NA)
3661-	**Telephone and telegraph apparatus**	**18 321.9**	**15 283.8**	**16 037.3**	**14 679.2**	**16 668.3**	**16 528.5**	**(NA)**	**(NA)**
36611	Telephone switching and switchboard equipment	7 513.5	7 268.4	7 530.0	6 664.3	7 725.3	7 561.1	4 569.4	2 827.1
36613	Carrier line equipment and modems, including auxiliary sets	4 930.7	4 209.1	5 110.2	4 825.5	5 471.7	5 091.1	(NA)	(NA)
36614	Other telephone and telegraph (wire) apparatus	5 487.6	3 462.2	2 973.5	2 893.5	3 002.1	3 548.5	(NA)	(NA)
36610	Telephone and telegraph apparatus, n.s.k.	390.1	344.1	423.6	296.0	469.3	327.8	(NA)	(NA)
3663-	**Radio and television communications equipment**	**17 727.8**	**17 247.2**	**17 735.1**	**16 334.5**	**15 461.6**	**13 255.9**	**(NA)**	**(NA)**
36631	Communication systems and equipment, except broadcast	15 333.1	15 168.0	15 545.1	14 170.1	13 502.5	11 600.6	6 995.7	3 344.4
36632	Broadcast, studio, and related electronic equipment	1 983.5	1 791.5	1 893.3	1 996.8	1 843.7	1 568.8	1 591.4	568.4
36630	Radio and television communications equipment, n.s.k.	411.2	287.7	296.7	167.6	115.4	86.5	(NA)	(NA)
3669-	**Communications equipment, n.e.c.**	**2 590.9**	**2 020.1**	**2 066.2**	**2 165.2**	**2 341.9**	**2 126.0**	**(NA)**	**(NA)**
36691	Alarm systems	1 410.7	1 077.3	1 019.6	1 138.3	1 271.1	1 261.2	827.9	(NA)
36692	Traffic control equipment	589.3	434.6	414.3	397.4	455.7	427.9	418.3	(NA)
36693	Intercommunication equipment, except telephone and telegraph	304.7	256.7	322.4	371.1	440.8	290.3	163.8	851.9
36690	Communications equipment, n.e.c., n.s.k.	286.2	251.5	310.0	258.4	174.3	146.5	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3651, HOUSEHOLD AUDIO AND VIDEO EQUIPMENT		
	Materials, ingredients, containers, and supplies	**5 999.0**	**4 129.6**
251011	Cabinets (wood, metal, and plastics)	510.4	346.5
365141	Tuners	183.2	133.6
365151	Speakers and speaker systems	159.3	70.7
367101	Cathode ray picture tubes	1 593.3	897.7
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	143.5	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	751.2	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	110.3	211.7
367501	Capacitors	41.6	27.9
367601	Resistors	23.8	16.2
367990	Other components and accessories, n.e.c.	314.6	[1]354.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	98.9	83.5
260091	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	84.0	58.4
364300	Current-carrying wiring devices	112.6	52.2
	Fabricated metal products (except forgings):		
346901	Metal stampings	88.7	43.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	28.0	25.7
340093	Other fabricated metal products	73.2	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	(D)	(2)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	19.6	14.4
336002	Nonferrous	25.5	(2)
335796	Insulated wire and cable (including magnet wire)	75.8	14.2
970099	All other materials and components, parts, containers, and supplies	661.4	[2]910.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	874.6	868.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3652, PRERECORDED RECORDS AND TAPES		
	Materials, ingredients, containers, and supplies	**576.7**	**531.1**
369501	Unrecorded audio-range magnetic tape, with or without cassettes or cartridges	123.0	58.8
365201	Record blanks, audio	8.8	14.0
369502	Compact disc blanks for audio and computer use	37.3	(2)
308962	Empty tape cassettes and cartridges	33.4	76.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	35.8	8.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	36.8	25.0
260050	Paper and paperboard products (including album covers, sleeves, etc.)	33.8	48.3
970099	All other materials and components, parts, containers, and supplies	42.8	281.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	225.0	218.6
	INDUSTRY 3661, TELEPHONE AND TELEGRAPH APPARATUS		
	Materials, ingredients, containers, and supplies	**7 446.9**	**7 182.1**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	630.7	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	729.8	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	1 500.6	408.5
367501	Capacitors	161.7	115.4
367601	Resistors	156.8	53.4
367990	Other components and accessories, n.e.c.	403.6	11 918.6
366301	Electronic communication equipment	486.8	(2)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	20.8	(2)
357001	Electronic computing equipment	123.8	(2)
364300	Current-carrying wiring devices	49.3	93.5
335796	Insulated wire and cable (including magnet wire)	139.0	63.6
365150	Loudspeakers, microphones, and tuners (all types)	9.2	(2)
362111	Fractional horsepower electric motors (less than 1 hp)	.8	(2)
281995	Silicon, hyperpure	(D)	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	43.4	39.9
308004	Fabricated plastics products (except gaskets, hoses, and belting)	46.8	(2)
	Fabricated metal products (except forgings):		
344401	Sheet metal products (except stampings)	92.4	(2)
346901	Metal stampings	19.8	(2)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	22.8	50.4
340063	Other fabricated metal products	63.1	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	12.1	(2)
	Shapes and forms (except castings and forgings):		
331002	Steel	7.0	33.0
335001	Aluminum and aluminum-base alloy	10.0	15.8
335091	Other nonferrous shapes and forms	(D)	(2)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	29.4	(2)
970099	All other materials and components, parts, containers, and supplies	1 099.8	22 666.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	1 572.2	1 723.4
	INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT		
	Materials, ingredients, containers, and supplies	**5 977.9**	**4 362.6**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	226.3	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	185.0	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	590.7	(1)
367501	Capacitors	147.3	(1)
367601	Resistors	92.1	(1)
367990	Other components and accessories, n.e.c.	1 296.3	1938.2
366301	Electronic communication equipment	385.1	398.6
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	59.7	14.4
357001	Electronic computing equipment	45.5	(2)
364300	Current-carrying wiring devices	(D)	61.5
335796	Insulated wire and cable (including magnet wire)	110.1	42.0
365150	Loudspeakers, microphones, and tuners (all types)	42.2	24.7
362111	Fractional horsepower electric motors (less than 1 hp)	11.6	22.6
281995	Silicon, hyperpure	.9	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	18.7	2.3
308004	Fabricated plastics products (except gaskets, hoses, and belting)	69.9	23.5
	Fabricated metal products (except forgings):		
344401	Sheet metal products (except stampings)	109.3	37.6
346901	Metal stampings	160.6	36.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	96.1	39.8
340063	Other fabricated metal products	63.3	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	(D)	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3663, RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT—Con.		
	Shapes and forms (except castings and forgings):		
331002	Steel	25.1	16.8
335001	Aluminum and aluminum-base alloy	46.2	35.6
335091	Other nonferrous shapes and forms	26.2	(2)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	46.7	21.9
970099	All other materials and components, parts, containers, and supplies	678.9	[2]1 187.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	1 129.6	1 459.8
	INDUSTRY 3669, COMMUNICATIONS EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**989.5**	**776.7**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	46.0	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	35.1	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	73.8	(1)
367501	Capacitors	17.9	(1)
367601	Resistors	14.0	(1)
367990	Other components and accessories, n.e.c.	64.3	[1]78.8
366301	Electronic communication equipment	22.7	56.7
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	24.8	7.1
357001	Electronic computing equipment	3.3	(2)
364300	Current-carrying wiring devices	9.1	17.5
335796	Insulated wire and cable (including magnet wire)	12.5	5.8
365150	Loudspeakers, microphones, and tuners (all types)	6.7	4.9
362111	Fractional horsepower electric motors (less than 1 hp)	7.3	5.0
281995	Silicon, hyperpure	(D)	–
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	7.2	3.0
308004	Fabricated plastics products (except gaskets, hoses, and belting)	38.2	17.0
	Fabricated metal products (except forgings):		
344401	Sheet metal products (except stampings)	29.4	8.7
346901	Metal stampings	17.2	4.1
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	10.0	11.1
340063	Other fabricated metal products	(D)	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	22.1	23.0
	Shapes and forms (except castings and forgings):		
331002	Steel	6.2	8.9
335001	Aluminum and aluminum-base alloy	6.4	6.6
335091	Other nonferrous shapes and forms	1.7	(2)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	12.6	6.2
970099	All other materials and components, parts, containers, and supplies	125.0	[2]174.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	330.1	338.1

[1]For 1987, data are included with Material Code 367990, Other Components and Accessories, N.E.C.
[2]For 1987, data are included with Material Code 970099, All Other Materials, Components, Parts, Containers, and Supplies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
36123 08	36123 03	36293 11	36293 05	36947 11	36947 09	36999	36997
36123 08	36123 04	36293 11	36293 09	36947 19	36947 09		
36123 08	36123 05					36999	36998
		36520 02	36520 01	36992 83	36992 00	36999 00	36997 00
36127 01	36127 11	36520 02	36520 03	36992 84	36992 00	36999 00	36998 04
36127 01	36127 31	36520 06	36520 07	36992 87	36992 00		
		36520 08	36520 07	36992 91	36992 00	3699A	36998
36291 04	36291 03	36520 12	36520 11	36992 92	36992 00	3699A 01	36998 01
36291 04	36291 05	36520 13	36520 11	36992 93	36992 00	3699A 03	36998 03
36291 04	36291 09			36992 94	36992 00	3699A 05	36998 05
				36992 95	36992 00	3699A 07	36998 07
		36914 21	36914 25	36992 96	36992 00	3699A 21	36998 02
36292 51	36292 31	36914 79	36914 07	36992 98	36992 00	3699A 21	36998 06
36292 51	36292 49	36914 79	36914 25	36992 99	36992 00	3699A 21	36998 19

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
36123 03	36123 08	36293 05	36293 11	36947 09	36947 11	36997	36999
36123 04	36123 08	36293 09	36293 11	36947 09	36947 19	36997 00	36999 00
36123 05	36123 08						
		36520 01	36520 02	36992 00	36992 83	36998	36999
36127 11	36127 01	36520 03	36520 02	36992 00	36992 84		
36127 31	36127 01	36520 07	36520 06	36992 00	36992 87	36998	3699A
		36520 07	36520 08	36992 00	36992 91	36998 01	3699A 01
36291 03	36291 04	36520 11	36520 12	36992 00	36992 92	36998 02	3699A 21
36291 05	36291 04	36520 11	36520 13	36992 00	36992 93	36998 03	3699A 03
36291 09	36291 04			36992 00	36992 94	36998 04	36999 00
				36992 00	36992 95	36998 05	3699A 05
		36914 07	36914 79	36992 00	36992 96	36998 06	3699A 21
36292 31	36292 51	36914 25	36914 21	36992 00	36992 98	36998 07	3699A 07
36292 49	36292 51	36914 25	36914 79	36992 00	36992 99	36998 19	3699A 21

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3632200	MA36F, Major Household Appliances
3613200	MA36A, Switchgear and Industrial Controls	3632300	MA36F, Major Household Appliances
3613300	MA36A, Switchgear and Industrial Controls	3633010	MA36F, Major Household Appliances
3613400	MA36A, Switchgear and Industrial Controls	3633020	MA36F, Major Household Appliances
3613500	MA36A, Switchgear and Industrial Controls	3634100	MA36E, Electric Housewares and Fans
3613600	MA36A, Switchgear and Industrial Controls	3634500	MA36E, Electric Housewares and Fans
3613900	MA36A, Switchgear and Industrial Controls	3634911	MA36E, Electric Housewares and Fans
3621100	MA36H, Motors and Generators	3634920	MA36E, Electric Housewares and Fans
3621200	MA36H, Motors and Generators	3639100	MA36F, Major Household Appliances
3621300	MA36H, Motors and Generators	3639200	MA36F, Major Household Appliances
3621400	MA36H, Motors and Generators	3639510	MA36F, Major Household Appliances
3621700	MA36H, Motors and Generators	3639520	MA36F, Major Household Appliances
3621800	MA36H, Motors and Generators	3641100	MQ36B, Electric Lamps
3621900	MA36H, Motors and Generators	3643100	MA36K, Wiring Devices and Supplies
3625100	MA36A, Switchgear and Industrial Controls	3643200	MA36K, Wiring Devices and Supplies
3625200	MA36A, Switchgear and Industrial Controls	3643300	MA36K, Wiring Devices and Supplies
3625300	MA36A, Switchgear and Industrial Controls	3643400	MA36K, Wiring Devices and Supplies
3625400	MA36A, Switchgear and Industrial Controls	3643500	MA36K, Wiring Devices and Supplies
3631110	MA36F, Major Household Appliances	3643600	MA36K, Wiring Devices and Supplies
3631120	MA36F, Major Household Appliances	3644100	MA36K, Wiring Devices and Supplies
3631310	MA36F, Major Household Appliances	3644200	MA36K, Wiring Devices and Supplies
3631320	MA36F, Major Household Appliances	3644300	MA36K, Wiring Devices and Supplies
3631410	MA36F, Major Household Appliances	3645100	MA36L, Electric Lighting Fixtures
3631420	MA36F, Major Household Appliances	3646200	MA36L, Electric Lighting Fixtures
3632100	MA36F, Major Household Appliances	3646300	MA36L, Electric Lighting Fixtures

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Part 3. Current Industrial Reports by Product Code—Con.

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3647000	MA36L, Electric Lighting Fixtures	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3648500	MA36L, Electric Lighting Fixtures	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651100	MA36M, Consumer Electronics	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651200	MA36M, Consumer Electronics	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651400	MA36M, Consumer Electronics	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651500	MA36M, Consumer Electronics	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661100	MA36P, Communications Equipment	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661300	MA36P, Communications Equipment	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661400	MA36P, Communications Equipment	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663100	MA36P, Communications Equipment	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663200	MA36P, Communications Equipment	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669100	MA36P, Communications Equipment	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669200	MA36P, Communications Equipment	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669300	MA36P, Communications Equipment	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3679930	MA36M, Consumer Electronics
3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3695000	MA35R, Computers and Office and Accounting Machines
3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699100	MA36P, Communications Equipment
3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699283	MA36P, Communications Equipment
3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699284	MA36P, Communications Equipment
3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699285	MA36P, Communications Equipment
3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699500	MA36P, Communications Equipment
3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699900	MA36P, Communications Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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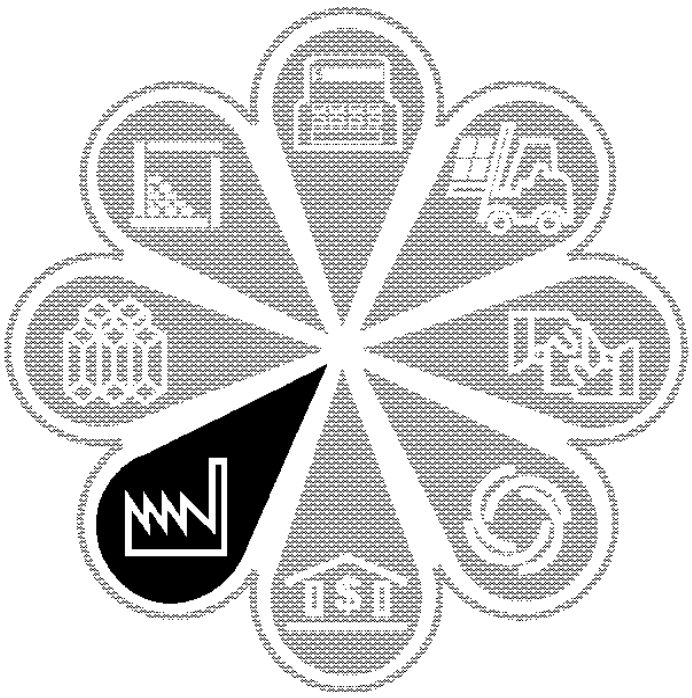
1992 Census of Manufactures

MC92-I-36E

INDUSTRY SERIES

Electronic Components

Industries 3671, 3672, 3674, 3675, 3676, 3677, 3678, and 3679



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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-13195862.DAT;1 6/15/95 13:20:02 UTF:TIPS93-13195862.DAT;1 6/15/95 13:20:03 META:TIPS96-13195862.DAT;1 6/15/95 13:20:14

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3671	Electron Tubes
3672	Printed Circuit Boards
3674	Semiconductors and Related Devices
3675	Electronic Capacitors
3676	Electronic Resistors
3677	Electronic Coils and Transformers
3678	Electronic Connectors
3679	Electronic Components, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3671, ELECTRON TUBES

This industry is made up of establishments primarily engaged in manufacturing electron tubes and tube parts. Establishments primarily engaged in manufacturing X-ray tubes and parts are classified in industry 3844.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3671, Electron Tubes, had employment of 22.2 thousand. The employment figure was 22 percent below the 28.4 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, Ohio, and Pennsylvania. This represents a shift from 1987 when California, Pennsylvania, Illinois, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3671 shipped $2.8 billion of electron tubes products considered primary to the industry, $135.4 million of secondary products, and had $161.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3671, no matter in what industry they were produced, appear in table 6a and aggregate to $3.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electron tubes industry amounted to $1.9 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3672, PRINTED CIRCUIT BOARDS

This industry is made up of establishments primarily engaged in manufacturing printed circuit boards.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3672, Printed Circuit Boards, had employment of 75.8 thousand. The employment figure was 14 percent above the 66.6 thousand reported in 1987. Compared with 1991, employment increased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, New York, Minnesota, and Illinois, accounting for approximately 59 percent of the industry's employment. This represents a shift from 1987 when California, Minnesota, New York, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $7.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3672 shipped $5.9 billion of printed circuit boards considered primary to the industry, $1.2 billion of secondary products, and had $271.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3672, no matter in what industry they were produced, appear in table 6a and aggregate to $6.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the printed circuit boards industry amounted to $3.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 14 percent of the total value of shipments.

INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES

This industry is made up of establishments primarily engaged in manufacturing semiconductors and related solid-state devices.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3674, Semiconductors and Related Devices, had employment of 171.9 thousand. The employment figure was 7 percent below the 184.6 thousand reported in 1987. Compared with 1991, employment decreased 2 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Texas, Arizona, and Massachusetts, accounting for approximately 60 percent of the industry's employment. This represents a shift from 1987 when California, Arizona, Texas, and New York accounted for approximately 62 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $32.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3674 shipped $28.4 billion of semiconductors and related devices products considered primary to the industry, $1.2 billion of secondary products, and had $2.5 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio also was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3674, no matter in what industry they were produced, appear in table 6a and

aggregate to $29.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the semiconductors and related devices industry amounted to $9.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3675, ELECTRONIC CAPACITORS

This industry is made up of establishments primarily engaged in manufacturing electronic capacitors. Establishments primarily engaged in manufacturing electrical capacitors are classified in industry 3629.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3675, Electronic Capacitors, had employment of 17.9 thousand. The employment figure was 18 percent below the 21.7 thousand reported in 1987.

The leading States in employment in 1992 were South Carolina, California, North Carolina, and New York, accounting for approximately 56 percent of the industry's employment. This represents a shift from 1987 when South Carolina, California, New York, and Massachusetts accounted for approximately 50 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3675 shipped $1.3 billion of electronic capacitor products considered primary to the industry, $95.2 million of secondary products, and had $205.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 97 percent.

The products primary to industry 3675, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic capacitors industry amounted to $703.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3676, ELECTRONIC RESISTORS

This industry is made up of establishments primarily engaged in manufacturing electronic resistors. Establishments primarily engaged in manufacturing resistors for telephone and telegraph apparatus are classified in industry 3661.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3676, Electronic Resistors, had employment of 11.7 thousand. The employment figure was 25 percent below the 15.7 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Nebraska, Texas, and Florida. This represents a shift from 1987 when California, Texas, Indiana, and Nebraska were the leading States.

The total value of shipments for establishments classified in this industry was $827.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3676 shipped $715.9 million of electronic resistor products considered primary to the industry, $45.8 million of secondary products, and had $65.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3676, no matter in what industry they were produced, appear in table 6a and aggregate to $753.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic resistors industry amounted to $258.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS

This industry is made up of establishments primarily engaged in manufacturing electronic coils, transformers, and inductors. Establishments primarily engaged in manufacturing electrical transformers are classified in industry 3612. Establishments primarily engaged in manufacturing transformers and inductors for telephone and telegraph apparatus are classified in industry 3661, and those manufacturing semiconductors and related devices are classified in industry 3674.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3677, Electronic Coils and Transformers, had employment of 19.2 thousand. The employment figure was 20 percent below the 23.9 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, California, New York, and Indiana, accounting for approximately 45 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3677 shipped $1.0 billion of electronic coils and transformers considered primary to the industry, $64.7 million of secondary products, and had $20.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3677, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic coils and transformers industry amounted to $452.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3678, ELECTRONIC CONNECTORS

This industry is made up of establishments primarily engaged in manufacturing electronic connectors. Establishments primarily engaged in manufacturing electrical connectors are classified in industry 3643. Establishments primarily engaged in manufacturing electronic capacitors are classified in industry 3675, and those manufacturing electronic coils, transformers, and other inductors are classified in industry 3677.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3678, Electronic Connectors, had employment of 30.7 thousand. The employment figure was 28 percent below the 42.8 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Pennsylvania, New York, and Missouri, accounting for approximately 55 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, New York, and Connecticut accounted for approximately 61 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3678 shipped $3.3 billion of electronic connectors products considered primary to the industry, $312.3 million of secondary products, and had $136.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3678, no matter in what industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic connectors industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing electronic components, not elsewhere classified, such as receiving antennas, switches, and waveguides. Establishments primarily engaged in manufacturing radio and television transmitting antennas are classified in industry 3663.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3679, Electronic Components, N.E.C., had employment of 182.4 thousand. The employment figure was 12 percent below the 162.6 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Texas, Massachusetts, and New York, accounting for approximately 46 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 52 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $23.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3679 shipped $19.8 billion of electronic components, not elsewhere classified, considered primary to the industry, $2.9 billion of secondary products, and had $1.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3679, no matter in what industry they were produced, appear in table 6a and aggregate to $25.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electronic components, not elsewhere classified, industry amounted to $11.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3671, ELECTRON TUBES															
1992 Census	174	189	69	22.2	677.4	16.8	33.5	442.5	1 280.4	1 883.6	3 144.9	61.7	466.7	95	85
1991 ASM	(NA)	(NA)	(NA)	22.1	630.3	16.3	32.2	415.3	1 131.0	1 454.6	2 568.3	77.3	384.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.4	653.3	17.5	34.1	428.9	1 317.8	1 258.8	2 570.4	169.7	388.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.8	813.1	20.0	40.5	507.6	1 606.8	1 443.4	3 038.8	201.9	525.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.4	810.6	19.4	37.7	514.3	1 629.3	1 330.8	2 942.7	193.9	499.1	(NA)	(NA)
1987 Census	102	121	64	28.4	792.4	20.5	41.2	502.0	1 513.0	1 234.7	2 735.4	103.4	474.2	83	93
INDUSTRY 3672, PRINTED CIRCUIT BOARDS															
1992 Census	1 261	1 324	589	75.8	2 110.6	50.8	104.8	1 066.2	4 348.3	2 972.8	7 311.8	316.8	890.3	83	93
1991 ASM	(NA)	(NA)	(NA)	69.9	1 920.7	47.1	99.4	985.8	3 443.9	2 678.0	6 352.9	311.1	856.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	76.7	2 104.4	51.0	109.1	1 055.7	4 997.2	2 886.7	7 844.1	405.1	958.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	79.0	2 006.4	52.4	107.9	1 019.0	4 623.5	2 776.2	7 354.4	372.8	914.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	80.9	1 957.1	53.9	112.1	1 022.2	4 643.2	3 041.9	7 960.6	336.8	949.8	(NA)	(NA)
1987 Census	950	1 009	566	66.6	1 378.5	48.6	100.0	835.5	2 683.1	2 023.8	4 672.6	239.3	586.8	97	92
INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES															
1992 Census	823	921	438	171.9	6 879.8	84.7	172.2	2 333.5	22 299.7	9 823.3	32 157.0	3 118.0	3 464.0	96	97
1991 ASM	(NA)	(NA)	(NA)	175.0	6 490.8	86.2	177.4	2 251.3	20 151.9	9 197.7	29 668.1	2 945.0	3 600.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	181.8	6 432.4	87.7	174.9	2 200.3	17 855.5	8 197.3	25 977.3	3 439.3	3 512.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	184.0	6 314.1	90.5	176.0	2 116.1	17 819.8	7 956.3	25 707.7	3 132.0	3 424.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	179.4	5 899.4	86.5	170.7	1 943.3	15 694.1	7 248.8	22 596.6	2 680.9	3 243.0	(NA)	(NA)
1987 Census	755	853	437	184.6	5 494.8	87.4	175.4	1 853.6	13 429.3	6 462.5	19 794.9	1 920.8	2 823.6	96	95
1986 ASM	(NA)	(NA)	(NA)	172.9	4 967.1	79.2	155.4	1 687.2	10 910.9	4 784.5	15 785.0	2 220.2	2 576.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	190.4	5 016.3	91.8	177.5	1 837.2	10 872.1	5 427.6	16 487.3	2 831.7	2 807.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	192.3	5 216.0	96.1	186.6	1 838.1	13 414.3	6 039.5	19 134.5	2 817.6	3 044.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	169.3	4 287.1	84.1	161.7	1 464.9	9 991.3	4 640.7	14 339.4	1 831.6	2 626.0	(NA)	(NA)
1982 Census	685	766	352	166.5	3 785.0	81.3	154.4	1 313.3	8 356.6	4 196.0	12 429.9	1 723.8	2 260.7	94	96
1981 ASM	(NA)	(NA)	(NA)	169.5	3 405.0	84.9	161.1	1 312.2	7 729.8	4 018.3	11 701.5	1 493.1	2 029.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	160.7	2 935.8	87.3	170.8	1 177.9	7 055.2	3 816.1	10 500.8	1 595.8	1 978.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	142.9	2 249.5	81.1	160.0	935.5	5 591.5	2 958.7	8 266.7	850.5	1 471.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	130.8	1 898.9	73.6	145.4	809.6	4 203.1	2 310.1	6 435.4	636.9	1 069.9	(NA)	(NA)
1977 Census	502	545	219	114.0	1 601.1	63.5	126.5	670.3	3 409.6	2 011.2	5 322.6	409.0	909.5	93	94
INDUSTRY 3675, ELECTRONIC CAPACITORS															
1992 Census	99	117	80	17.9	415.7	13.4	26.3	247.9	930.0	703.0	1 630.1	64.0	259.2	93	95
1991 ASM	(NA)	(NA)	(NA)	18.5	417.8	13.5	27.2	239.8	926.3	618.6	1 546.1	57.1	271.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.5	398.4	14.4	28.2	236.1	848.5	609.8	1 471.6	52.1	260.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.4	408.1	15.7	30.6	247.9	937.4	614.9	1 563.2	55.6	285.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.0	465.0	18.1	36.3	296.5	1 044.2	663.3	1 723.9	95.3	342.8	(NA)	(NA)
1987 Census	116	148	105	21.7	392.8	16.4	31.7	249.3	892.0	551.3	1 440.1	78.2	358.2	93	97
1986 ASM	(NA)	(NA)	(NA)	22.1	380.0	17.0	33.1	243.5	747.2	483.5	1 241.4	75.1	308.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.5	417.9	20.2	38.3	282.5	851.6	536.1	1 410.0	125.2	349.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	32.2	501.8	25.1	50.4	339.0	1 059.0	696.5	1 702.0	111.9	416.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	27.9	403.1	21.0	40.5	268.5	813.8	539.0	1 330.6	68.4	333.3	(NA)	(NA)
1982 Census	93	130	99	28.9	387.9	21.6	40.7	243.6	728.4	466.9	1 188.9	72.3	289.2	94	90
1981 ASM	(NA)	(NA)	(NA)	28.4	363.3	22.2	43.6	239.9	680.1	475.8	1 151.6	76.5	260.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.6	343.0	24.5	46.4	244.4	728.1	479.7	1 180.2	69.2	260.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.8	322.3	26.6	52.8	236.2	631.6	393.5	1 005.1	45.6	219.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.9	290.7	25.5	49.7	201.4	523.9	318.6	830.1	43.0	177.6	(NA)	(NA)
1977 Census	86	118	97	28.9	260.5	23.4	45.7	179.0	486.1	266.2	742.3	34.0	152.4	92	91
INDUSTRY 3676, ELECTRONIC RESISTORS															
1992 Census	87	105	80	11.7	258.7	8.3	16.1	134.3	562.6	258.3	827.2	21.3	157.8	94	95
1991 ASM	(NA)	(NA)	(NA)	12.9	244.4	8.6	16.2	116.0	510.4	277.7	797.1	33.6	179.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.4	273.0	10.1	19.6	139.7	535.4	328.5	862.7	53.3	181.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.3	285.4	11.7	21.0	151.5	561.3	323.9	890.3	56.3	168.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.1	291.2	10.7	19.6	148.5	613.9	283.5	888.3	48.9	187.8	(NA)	(NA)
1987 Census	87	118	88	15.7	293.4	10.9	21.4	150.3	602.1	281.3	882.7	43.5	187.1	95	94
1986 ASM	(NA)	(NA)	(NA)	17.2	297.2	11.7	22.7	155.8	640.7	276.2	918.9	69.3	201.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.3	297.2	11.8	22.8	159.9	643.8	280.9	908.5	88.0	193.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	18.5	294.3	13.0	26.9	159.4	724.1	269.6	983.0	(D)	181.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.8	246.7	11.0	20.7	125.4	543.0	214.3	761.6	38.6	163.2	(NA)	(NA)
1982 Census	77	103	85	18.3	258.4	12.4	23.8	139.1	524.0	238.4	765.8	28.9	164.8	89	88
1981 ASM	(NA)	(NA)	(NA)	21.7	295.4	15.0	28.4	168.9	534.1	259.0	784.6	36.1	161.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	23.3	299.3	16.2	29.9	167.3	550.6	261.1	794.4	49.6	153.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.8	253.6	17.0	33.2	151.7	484.9	197.8	664.2	36.7	138.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.5	223.4	16.0	31.2	137.7	411.9	184.9	591.1	22.1	111.8	(NA)	(NA)
1977 Census	76	101	80	21.3	210.9	15.9	32.4	130.6	401.0	186.2	578.3	25.1	104.2	87	81
INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS															
1992 Census	401	423	228	19.2	374.0	14.1	27.2	208.3	680.6	452.3	1 133.8	20.1	157.8	94	90
1991 ASM	(NA)	(NA)	(NA)	21.8	355.4	16.6	29.6	206.3	639.0	458.5	1 098.8	21.1	168.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.8	365.8	17.4	30.4	220.9	599.1	470.1	1 074.6	25.3	193.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.3	382.4	18.7	33.5	233.2	702.0	502.2	1 199.3	28.8	216.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	24.9	413.2	19.1	37.3	251.5	754.2	502.7	1 254.7	17.5	202.4	(NA)	(NA)
1987 Census	391	416	246	23.9	396.3	18.3	34.8	238.2	747.9	476.1	1 228.4	29.1	195.2	90	91
1986 ASM	(NA)	(NA)	(NA)	20.9	300.4	16.7	31.5	189.6	567.6	373.5	952.4	15.8	142.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.0	334.5	19.5	35.9	215.4	682.6	437.3	1 130.2	19.7	166.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.5	339.2	21.1	41.9	232.7	653.2	446.0	1 085.2	(D)	170.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.2	346.3	21.2	39.6	219.4	625.9	415.2	1 029.4	31.8	160.6	(NA)	(NA)
1982 Census	353	386	245	23.7	293.4	18.7	35.2	183.5	537.6	327.6	863.3	36.5	127.5	91	84
1981 ASM	(NA)	(NA)	(NA)	22.5	261.1	18.3	36.4	171.2	481.5	315.9	794.0	25.2	109.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	22.5	230.8	18.6	35.3	155.8	424.5	276.6	699.5	21.1	96.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	24.3	219.1	19.9	36.9	147.2	397.0	267.8	655.9	16.5	98.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.3	180.9	17.8	33.1	122.4	323.1	223.7	542.5	15.4	106.2	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS—Con.														
1977 Census	277	294	194	20.7	166.6	17.1	31.8	113.1	289.1	221.0	506.4	9.5	74.5	91	75
	INDUSTRY 3678, ELECTRONIC CONNECTORS														
1992 Census	240	285	188	30.7	909.2	21.1	42.4	505.5	2 385.9	1 390.2	3 773.5	144.3	630.9	91	89
1991 ASM	(NA)	(NA)	(NA)	33.6	887.5	23.7	48.3	528.4	2 334.7	1 321.3	3 751.2	142.2	678.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	37.4	958.0	26.2	54.1	558.4	2 389.3	1 427.5	3 820.9	173.5	711.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	37.0	938.0	26.4	55.0	560.0	2 538.5	1 482.4	4 037.2	146.1	739.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	41.5	996.0	28.9	57.4	586.7	2 626.6	1 704.0	4 333.2	132.5	799.6	(NA)	(NA)
1987 Census	216	271	190	42.8	984.5	29.9	59.7	572.3	2 564.8	1 516.9	4 065.0	153.2	800.0	87	92
1986 ASM	(NA)	(NA)	(NA)	38.6	872.1	27.6	53.6	517.7	2 137.0	1 094.0	3 211.8	125.4	668.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	39.2	818.3	28.2	52.8	504.2	1 968.6	1 086.4	3 097.8	207.3	645.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	39.2	828.4	29.2	58.1	502.8	2 232.3	1 299.5	3 491.6	184.8	672.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	36.7	697.9	26.7	52.6	428.5	1 880.0	1 042.5	2 899.0	146.7	590.3	(NA)	(NA)
1982 Census	148	198	159	39.7	687.5	28.0	54.2	418.4	1 633.5	974.9	2 565.0	168.7	603.8	87	91
1981 ASM	(NA)	(NA)	(NA)	35.3	570.3	24.9	49.7	357.5	1 519.6	827.0	2 310.9	117.8	489.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	37.0	542.8	27.3	53.8	340.8	1 470.7	827.0	2 269.0	140.9	487.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.4	465.5	25.4	50.1	287.7	1 306.1	643.7	1 872.8	71.0	417.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	30.2	385.6	22.3	43.4	238.2	996.6	472.6	1 417.1	51.6	311.0	(NA)	(NA)
1977 Census	109	133	107	26.0	303.6	19.1	37.6	185.1	754.2	371.7	1 104.6	40.4	234.5	78	86
	INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.														
1992 Census	3 108	3 295	1 347	182.4	5 180.5	109.2	238.8	2 225.1	11 925.9	11 842.4	23 869.9	740.8	3 793.9	87	78
1991 ASM	(NA)	(NA)	(NA)	165.4	4 530.5	101.6	219.5	1 974.0	9 513.0	9 875.8	19 450.3	540.3	3 429.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	159.9	4 107.6	101.1	203.2	1 840.9	8 727.1	8 380.0	17 222.4	485.0	3 307.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	161.2	4 013.8	103.3	202.9	1 814.8	8 168.2	8 403.6	16 122.5	539.4	3 366.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	157.6	3 738.1	99.9	196.9	1 767.2	8 254.0	7 139.2	15 299.4	448.1	2 805.9	(NA)	(NA)
1987 Census	2 743	2 900	1 185	162.6	3 890.4	97.3	187.9	1 677.5	8 383.2	7 285.2	15 438.5	533.3	2 852.2	83	83

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3671, ELECTRON TUBES								
1992 Census	30 514	76	1 994	13.21	60	81	57 676	53	38.22
1991 ASM	28 520	74	1 975	12.90	57	81	51 176	56	35.12
1990 ASM	27 919	75	1 949	12.58	49	74	56 316	50	38.65
1989 ASM	29 248	72	2 025	12.53	47	74	57 799	51	39.67
1988 ASM	29 584	71	1 943	13.64	45	73	59 464	50	43.22
1987 Census	27 901	72	2 010	12.18	45	74	53 275	52	36.72
	INDUSTRY 3672, PRINTED CIRCUIT BOARDS								
1992 Census	27 844	67	2 063	10.17	41	70	57 365	49	41.49
1991 ASM	27 478	67	2 110	9.92	42	72	49 269	56	34.65
1990 ASM	27 437	66	2 139	9.68	37	64	65 153	42	45.80
1989 ASM	25 397	66	2 059	9.44	38	65	58 525	43	42.85
1988 ASM	24 192	67	2 080	9.12	38	63	57 394	42	41.42
1987 Census	20 698	73	2 058	8.35	43	73	40 287	51	26.83
	INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES								
1992 Census	40 022	49	2 033	13.55	31	52	129 725	31	129.50
1991 ASM	37 090	49	2 058	12.69	31	53	115 154	32	113.60
1990 ASM	35 382	48	1 994	12.58	32	56	98 215	36	102.09
1989 ASM	34 316	49	1 945	12.02	31	56	96 847	35	101.25
1988 ASM	32 884	48	1 973	11.38	32	58	87 481	38	91.94
1987 Census	29 766	47	2 007	10.57	33	60	72 748	41	76.56
1986 ASM	28 728	46	1 962	10.86	30	62	63 105	46	70.21
1985 ASM	26 346	48	1 934	10.35	33	63	57 101	46	61.25
1984 ASM	27 124	50	1 942	9.85	32	59	69 757	39	71.89
1983 ASM	25 323	50	1 923	9.06	32	62	59 015	43	61.79
1982 Census	22 733	49	1 899	8.51	34	64	50 190	45	54.12
1981 ASM	20 088	50	1 898	8.15	34	63	45 604	44	47.98

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES—Con.									
1980 ASM	18 269	54	1 956	6.90	36	64	43 903	42	41.31
1979 ASM	15 742	57	1 973	5.85	36	63	39 129	40	34.95
1978 ASM	14 518	56	1 976	5.57	36	65	32 134	45	28.91
1977 Census	14 045	56	1 992	5.30	38	68	29 909	47	26.95
INDUSTRY 3675, ELECTRONIC CAPACITORS									
1992 Census	23 223	75	1 963	9.43	43	69	51 955	45	35.36
1991 ASM	22 584	73	2 015	8.82	40	67	50 070	45	34.06
1990 ASM	20 431	74	1 958	8.37	41	69	43 513	47	30.09
1989 ASM	19 070	73	1 949	8.10	39	65	43 804	44	30.63
1988 ASM	19 375	75	2 006	8.17	38	65	43 508	45	28.77
1987 Census	18 101	76	1 933	7.86	38	66	41 106	44	28.14
1986 ASM	17 195	77	1 947	7.36	39	70	33 810	51	22.57
1985 ASM	15 770	76	1 896	7.38	38	68	32 136	49	22.23
1984 ASM	15 584	78	2 008	6.73	41	70	32 888	47	21.01
1983 ASM	14 448	75	1 929	6.63	41	71	29 168	50	20.09
1982 Census	13 422	75	1 884	5.99	39	72	25 204	53	17.90
1981 ASM	12 792	78	1 964	5.50	41	73	23 947	53	15.60
1980 ASM	11 209	80	1 894	5.27	41	70	23 794	47	15.69
1979 ASM	10 135	84	1 985	4.47	39	71	19 862	51	11.96
1978 ASM	9 408	83	1 949	4.05	38	73	16 955	55	10.54
1977 Census	9 014	81	1 953	3.92	36	71	16 820	54	10.64
INDUSTRY 3676, ELECTRONIC RESISTORS									
1992 Census	22 111	71	1 940	8.34	31	63	48 085	46	34.94
1991 ASM	18 946	67	1 884	7.16	35	65	39 566	48	31.51
1990 ASM	18 958	70	1 941	7.13	38	70	37 181	51	27.32
1989 ASM	17 509	72	1 795	7.21	36	68	34 436	51	26.73
1988 ASM	18 087	66	1 832	7.58	32	65	38 130	47	31.32
1987 Census	18 688	69	1 963	7.02	32	65	38 350	49	28.14
1986 ASM	17 279	68	1 940	6.86	30	62	37 250	46	28.22
1985 ASM	17 179	68	1 932	7.01	31	64	37 214	46	28.24
1984 ASM	15 908	70	2 069	5.93	27	57	39 141	41	26.92
1983 ASM	15 614	70	1 882	6.06	28	61	34 367	45	26.23
1982 Census	14 120	68	1 919	5.84	31	65	28 634	49	22.02
1981 ASM	13 613	69	1 893	5.95	33	71	24 613	55	18.81
1980 ASM	12 845	70	1 846	5.60	33	71	23 631	54	18.41
1979 ASM	11 123	75	1 953	4.57	30	68	21 268	52	14.61
1978 ASM	10 391	74	1 950	4.41	31	69	19 158	54	13.20
1977 Census	9 901	75	2 038	4.03	32	69	18 826	53	12.38
INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS									
1992 Census	19 479	73	1 929	7.66	40	73	35 448	55	25.02
1991 ASM	16 303	76	1 783	6.97	42	74	29 312	56	21.59
1990 ASM	16 044	76	1 747	7.27	44	78	26 276	61	19.71
1989 ASM	15 737	77	1 791	6.96	42	74	28 889	54	20.96
1988 ASM	16 594	77	1 953	6.74	40	73	30 289	55	20.22
1987 Census	16 582	77	1 902	6.84	39	71	31 293	53	21.49
1986 ASM	14 373	80	1 886	6.02	39	71	27 158	53	18.02
1985 ASM	13 938	81	1 841	6.00	39	68	28 442	49	19.01
1984 ASM	13 302	83	1 986	5.55	41	72	25 616	52	15.59
1983 ASM	13 218	81	1 868	5.54	40	74	23 889	55	15.81
1982 Census	12 380	79	1 882	5.21	38	72	22 684	55	15.27
1981 ASM	11 604	81	1 989	4.70	40	73	21 400	54	13.23
1980 ASM	10 258	83	1 898	4.41	40	73	18 867	54	12.03
1979 ASM	9 016	82	1 854	3.99	41	74	16 337	55	10.76
1978 ASM	8 493	84	1 860	3.70	41	75	15 169	56	9.76
1977 Census	8 048	83	1 860	3.56	44	77	13 966	58	9.09
INDUSTRY 3678, ELECTRONIC CONNECTORS									
1992 Census	29 616	69	2 009	11.92	37	61	77 717	38	56.27
1991 ASM	26 414	71	2 038	10.94	35	59	69 485	38	48.34
1990 ASM	25 615	70	2 065	10.32	37	62	63 885	40	44.16
1989 ASM	25 351	71	2 083	10.18	37	60	68 608	37	46.15
1988 ASM	24 000	70	1 986	10.22	39	62	63 292	38	45.76
1987 Census	23 002	70	1 997	9.59	37	62	59 925	38	42.96
1986 ASM	22 593	72	1 942	9.66	34	61	55 363	41	39.87
1985 ASM	20 875	72	1 872	9.55	35	61	50 219	42	37.28
1984 ASM	21 133	74	1 990	8.65	37	61	56 946	37	38.42
1983 ASM	19 016	73	1 970	8.15	36	60	51 226	37	35.74
1982 Census	17 317	71	1 936	7.72	38	65	41 146	42	30.14
1981 ASM	16 156	71	1 996	7.19	36	60	43 048	38	30.58
1980 ASM	14 670	74	1 971	6.33	36	60	39 749	37	27.34
1979 ASM	13 532	74	1 972	5.74	34	59	37 968	36	26.07
1978 ASM	12 768	74	1 946	5.49	33	61	33 000	39	22.96
1977 Census	11 677	73	1 969	4.92	34	61	29 008	40	20.06

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.								
1992 Census	28 402	60	2 187	9.32	50	71	65 383	43	49.94
1991 ASM	27 391	61	2 160	8.99	51	74	57 515	48	43.34
1990 ASM	25 689	63	2 010	9.06	49	73	54 578	47	42.95
1989 ASM	24 900	64	1 964	8.94	52	77	50 671	49	40.26
1988 ASM	23 719	63	1 971	8.98	47	71	52 373	45	41.92
1987 Census	23 926	60	1 931	8.93	47	72	51 557	46	44.62

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3671, ELECTRON TUBES														
United States	**–**	**189**	**69**	**22.2**	**677.4**	**16.8**	**33.5**	**442.5**	**1 280.4**	**1 883.6**	**3 144.9**	**61.7**	**28.4**	**1 513.0**
Arizona	–	6	3	.5	11.5	.4	.7	7.1	28.5	26.2	53.3	.8	F	(D)
California	–	54	19	4.0	148.9	2.7	5.1	99.0	279.3	146.6	427.5	6.0	10.4	640.7
Florida	E1	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Illinois	–	8	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	11	5	1.8	71.5	1.2	2.4	39.5	126.2	60.3	192.1	2.4	(NA)	(D)
Minnesota	E9	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
New Jersey	E2	13	8	.6	15.7	.4	.7	8.3	33.9	19.6	53.8	1.9	.9	33.3
New York	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	10	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	8	7	1.9	58.1	1.5	2.9	39.7	166.8	199.5	364.7	(D)	3.3	203.2
Rhode Island	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	10	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3672, PRINTED CIRCUIT BOARDS														
United States	**E1**	**1 324**	**589**	**75.8**	**2 110.6**	**50.8**	**104.8**	**1 066.2**	**4 348.3**	**2 972.8**	**7 311.8**	**316.8**	**66.6**	**2 683.1**
Alabama	–	11	5	1.5	23.7	1.0	1.6	17.6	68.3	54.2	103.7	(D)	(NA)	(D)
Arizona	–	39	18	2.8	70.5	2.1	4.3	46.1	168.5	95.6	260.9	12.6	2.1	125.0
California	E1	417	179	18.0	498.8	13.5	28.3	297.2	1 005.2	678.4	1 666.4	81.2	18.6	802.6
Colorado	–	37	13	1.2	24.1	.9	1.8	16.4	48.3	42.6	86.7	9.2	.5	18.7
Connecticut	E1	34	16	1.5	43.5	1.1	2.3	25.2	98.1	50.6	148.3	3.4	2.3	100.1
Florida	–	59	24	2.4	54.1	1.9	4.0	36.1	98.9	89.9	187.3	7.7	2.8	104.0
Georgia	–	20	8	.8	22.1	.5	1.2	10.2	36.4	37.2	71.7	5.5	E	(D)
Illinois	E1	72	43	4.2	97.4	3.4	7.6	63.0	210.4	148.6	356.0	11.1	3.2	112.1
Indiana	E1	15	8	.5	9.8	.4	.7	5.8	19.4	13.6	32.7	1.0	2.1	54.7
Iowa	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	E2	9	2	.2	4.0	.1	.3	2.1	4.7	3.5	8.2	.1	(NA)	(NA)
Kentucky	E2	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Maryland	E1	15	7	.4	10.3	.3	.5	5.3	19.8	8.5	28.4	1.8	1.0	45.0
Massachusetts	E3	64	32	3.9	111.5	2.8	5.8	58.3	195.5	149.2	343.2	12.0	3.9	151.6
Michigan	E2	27	10	.9	16.0	.7	1.3	10.1	37.0	31.0	68.1	1.5	.8	32.1
Minnesota	E2	47	31	5.2	128.0	3.9	7.6	76.9	223.4	159.3	383.5	23.1	4.9	168.4
Missouri	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	E1	31	19	2.1	58.7	1.4	2.8	29.2	124.9	89.9	213.7	5.5	2.4	69.4
New Jersey	–	30	10	.8	25.8	.4	.9	9.0	38.0	29.1	68.9	3.3	1.1	43.1
New York	–	60	27	13.7	507.4	5.0	9.5	110.3	1 267.4	650.5	1 964.7	71.4	(NA)	(D)
North Carolina	E2	17	7	.5	12.2	.3	.7	6.2	25.0	14.9	39.2	2.0	F	(D)
Ohio	E1	41	19	1.3	28.6	1.0	2.0	18.9	58.4	37.3	95.7	4.2	.9	29.2
Oklahoma	–	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Oregon	–	22	12	1.2	29.0	1.0	2.5	22.7	58.6	35.6	92.7	6.7	.8	23.6
Pennsylvania	E3	37	14	1.2	24.9	.9	1.7	12.4	56.4	46.5	103.7	2.5	1.1	38.9
Rhode Island	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	E4	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Dakota	E8	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E8	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	(NA)	(NA)
Texas	E3	83	30	2.0	47.8	1.5	3.3	31.5	78.5	59.3	137.7	3.9	3.3	94.2

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3672, PRINTED CIRCUIT BOARDS—Con.														
Utah	–	18	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.2	.3	12.1
Virginia	–	13	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	21	10	.9	24.2	.8	1.6	18.0	49.1	28.3	76.7	1.7	.5	18.0
Wisconsin	E2	16	9	1.0	22.3	.6	1.4	10.8	37.5	26.8	64.3	4.2	.6	37.2
INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES														
United States	**–**	**921**	**438**	**171.9**	**6 879.8**	**84.7**	**172.2**	**2 333.5**	**22 299.7**	**9 823.3**	**32 157.0**	**3 118.0**	**184.6**	**13 429.3**
Arizona	–	37	21	16.7	638.2	7.5	16.2	173.0	2 240.5	333.8	2 558.2	194.5	19.9	1 511.1
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	343	169	50.6	2 294.5	22.2	45.0	640.9	6 485.4	2 602.0	9 082.5	654.6	58.6	4 756.8
Colorado	–	20	10	3.2	125.8	1.7	3.7	49.4	293.0	134.3	423.3	58.5	4.1	212.8
Connecticut	E3	14	3	.4	11.3	.3	.5	6.8	24.8	11.6	37.4	(D)	F	(D)
Florida	E1	21	12	3.3	96.4	2.5	4.9	61.1	228.4	126.1	356.2	(D)	5.0	302.9
Idaho	–	5	4	6.2	175.3	3.1	7.2	112.7	388.8	190.6	581.4	89.1	(NA)	(D)
Illinois	E7	25	8	.5	13.1	.3	.6	4.1	33.5	56.2	89.5	7.7	F	(D)
Indiana	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	E2	5	1	.1	1.9	.1	.1	.9	4.2	2.0	6.0	(D)	(NA)	(NA)
Maine	–	5	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	E2	7	4	.4	16.5	.2	.5	6.0	21.1	15.2	35.6	6.1	F	(D)
Massachusetts	E1	76	41	11.2	401.8	5.7	11.6	152.6	676.3	558.5	1 230.3	110.0	11.6	578.9
Michigan	E5	14	4	.3	9.3	.2	.5	4.8	19.2	11.0	30.6	2.6	(NA)	(D)
Minnesota	–	15	9	1.4	51.6	.7	1.5	19.1	118.0	33.1	152.5	23.7	E	(D)
Missouri	E8	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	E6	8	4	1.0	33.0	.6	1.3	13.7	85.9	41.5	128.1	16.8	1.6	57.9
New Jersey	E3	40	14	1.4	44.7	.9	1.7	18.1	96.7	41.8	136.5	14.2	3.3	105.3
New Mexico	–	8	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	41	17	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	16.8	1 062.4
North Carolina	–	13	5	1.4	35.1	.8	1.9	17.3	118.4	138.8	251.0	(D)	G	(D)
Ohio	–	10	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.9	G	(D)
Oregon	–	22	12	7.9	276.7	4.9	10.5	136.5	1 249.4	407.1	1 598.8	176.7	2.1	335.8
Pennsylvania	–	50	23	8.1	349.4	5.1	9.7	189.0	1 510.4	474.5	1 995.2	(D)	9.7	830.2
Rhode Island	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	E9	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	60	36	25.3	982.3	10.7	21.8	287.4	4 084.9	1 071.5	5 183.6	545.0	19.6	1 525.1
Utah	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Vermont	–	5	2	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E5	13	3	.1	3.5	.1	.1	1.4	7.0	4.0	10.9	1.0	(NA)	(NA)
Washington	–	13	6	2.2	67.0	1.7	3.6	44.9	180.4	120.7	298.7	38.7	G	(D)
INDUSTRY 3675, ELECTRONIC CAPACITORS														
United States	**–**	**117**	**80**	**17.9**	**415.7**	**13.4**	**26.3**	**247.9**	**930.0**	**703.0**	**1 630.1**	**64.0**	**21.7**	**892.0**
Arizona	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	26	18	1.6	33.7	1.2	2.3	19.8	75.3	50.4	124.3	5.0	3.1	121.3
Connecticut	–	5	3	.6	15.4	.5	1.0	8.2	21.3	13.3	34.3	(D)	1.3	42.4
Florida	E5	7	4	.6	10.3	.5	1.0	7.1	22.9	12.7	35.8	.8	1.0	36.0
Illinois	E4	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Indiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(NA)
Maine	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	6	5	.6	13.9	.4	.8	8.2	29.5	24.1	56.0	.5	1.6	82.7
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E6	5	3	.4	11.3	.3	.6	7.0	24.1	14.1	38.3	(D)	.6	22.6
New York	–	7	6	1.3	40.2	1.0	1.9	23.6	104.2	71.3	176.3	(D)	2.2	117.0
North Carolina	–	5	5	1.5	35.2	1.2	2.4	24.5	92.2	68.4	155.6	1.7	1.4	61.5
Pennsylvania	–	9	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	36.4
South Carolina	–	10	6	5.6	134.7	4.0	7.3	71.5	262.6	226.5	493.9	(D)	4.0	187.0
Vermont	–	3	3	.3	5.9	.2	.5	4.2	11.1	9.5	20.9	(D)	(NA)	(D)
Virginia	–	3	3	.4	8.0	.4	.8	6.2	27.8	9.1	36.1	(D)	F	(D)
Washington	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3676, ELECTRONIC RESISTORS														
United States	**E1**	**105**	**80**	**11.7**	**258.7**	**8.3**	**16.1**	**134.3**	**562.6**	**258.3**	**827.2**	**21.3**	**15.7**	**602.1**
Arkansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	17	15	1.5	46.1	.8	1.5	16.5	104.4	67.1	172.3	4.1	2.5	99.7
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	7	6	.9	15.2	.6	1.1	7.7	25.4	11.2	36.3	(D)	.6	8.9
Illinois	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	26.9
Indiana	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	52.9
Massachusetts	E1	6	6	.5	12.7	.4	.7	6.0	23.7	8.0	31.8	.5	F	(D)
Michigan	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nebraska	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	E4	4	4	.8	18.8	.6	1.3	11.5	35.3	18.7	54.1	1.9	1.0	30.3
New Jersey	–	5	4	.4	8.5	.2	.5	4.7	17.2	9.9	28.1	.4	.4	16.5
New York	E6	5	4	.6	13.5	.5	1.0	8.5	26.5	11.3	38.0	(D)	F	(D)
North Carolina	E3	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	6	4	.6	12.3	.4	.6	5.7	37.2	9.7	47.0	(D)	.5	30.9
Rhode Island	E8	3	3	.2	5.9	.2	.3	2.9	12.2	6.0	18.1	.6	E	(D)
Texas	E1	7	4	1.1	23.0	.8	1.4	12.3	45.6	25.4	75.4	2.3	G	(D)
Utah	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS														
United States	**E1**	**423**	**228**	**19.2**	**374.0**	**14.1**	**27.2**	**208.3**	**680.6**	**452.3**	**1 133.8**	**20.1**	**23.9**	**747.9**
Arizona	E2	12	7	.4	5.7	.3	.5	3.1	11.8	6.5	18.3	.6	.5	14.9
Arkansas	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	84	34	2.5	56.0	1.7	3.1	27.0	104.4	87.1	191.7	2.8	2.5	116.9
Connecticut	E1	13	10	.6	10.2	.5	.8	6.0	18.2	10.6	28.8	(D)	.8	16.2
Florida	E2	17	15	.8	14.2	.6	1.1	8.0	20.7	13.0	34.3	(D)	.8	19.4
Illinois	E1	52	36	2.9	51.3	2.2	4.3	29.5	86.9	56.9	144.4	2.9	3.2	69.0
Indiana	E2	15	10	1.0	18.0	.8	1.8	12.8	38.7	22.7	62.1	1.0	2.3	58.0
Iowa	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E3	22	11	.7	15.6	.5	.9	8.1	38.0	15.9	53.4	.6	G	(D)
Michigan	E1	14	5	.5	10.3	.4	.7	6.3	20.8	15.5	36.2	.4	.3	8.9
Minnesota	–	11	9	.8	12.7	.6	1.3	7.7	22.9	16.6	39.3	.6	.9	29.3
Missouri	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	11.2
New Jersey	E3	14	5	.8	18.6	.5	1.1	10.6	30.1	21.4	51.5	(D)	1.3	40.5
New York	E1	37	25	2.3	44.9	1.5	2.9	22.1	66.9	35.9	104.2	(D)	(NA)	(D)
North Carolina	E1	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E2	15	9	.7	18.7	.5	1.0	9.3	35.7	20.9	55.3	(D)	F	(D)
Oregon	E4	11	2	.2	4.5	.2	.3	3.1	7.1	3.4	10.5	.1	(NA)	(NA)
Pennsylvania	E4	14	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.7	22.2
South Dakota	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E1	19	8	.4	8.5	.3	.6	4.6	17.8	10.7	28.6	.2	E	(D)
Virginia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	12	7	.6	10.0	.4	.8	6.1	15.7	9.7	25.4	(D)	.2	4.5
INDUSTRY 3678, ELECTRONIC CONNECTORS														
United States	**–**	**285**	**188**	**30.7**	**909.2**	**21.1**	**42.4**	**505.5**	**2 385.9**	**1 390.2**	**3 773.5**	**144.3**	**42.8**	**2 564.8**
Arizona	–	8	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
California	E1	71	46	8.1	246.1	5.7	11.7	135.2	461.2	244.8	715.3	28.9	11.5	514.5
Connecticut	E1	13	10	1.5	45.5	1.1	2.4	28.6	93.6	59.2	153.4	3.4	2.9	110.3
Delaware	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E4	8	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
Illinois	–	15	11	1.4	37.4	.9	1.7	17.9	90.1	38.1	124.6	6.7	2.6	135.8
Indiana	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(D)
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	15	12	1.1	35.8	.7	1.7	17.6	61.9	29.1	91.2	2.9	G	(D)
Michigan	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	8	3	.7	22.7	.4	.9	9.0	33.0	18.8	52.4	(D)	G	(D)
Missouri	–	5	4	2.2	72.7	1.5	2.9	44.4	157.5	111.8	269.4	(D)	F	(D)
New Jersey	E2	13	8	.8	20.5	.5	.9	9.0	44.0	30.9	72.2	2.0	.4	21.0
New York	E1	20	12	3.2	105.4	2.4	5.1	67.5	209.2	92.8	303.2	(D)	5.1	252.0
North Carolina	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	8	5	.5	7.9	.3	.5	4.6	51.4	13.3	64.1	1.4	E	(D)
Oklahoma	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	32	28	4.1	110.9	2.3	4.5	51.6	417.4	317.7	727.7	30.8	6.1	406.5

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3678, ELECTRONIC CONNECTORS—Con.														
Rhode Island	E1	6	5	.3	6.2	.2	.4	3.1	11.7	7.4	19.1	(D)	E	(D)
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	70.4
Texas	–	10	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.														
United States	**E1**	**3 295**	**1 347**	**182.4**	**5 180.5**	**109.2**	**238.8**	**2 225.1**	**11 925.9**	**11 842.4**	**23 869.9**	**740.8**	**162.6**	**8 383.2**
Alabama	–	28	16	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	66	21	4.3	89.1	1.7	3.3	34.2	347.5	237.8	580.5	(D)	2.4	89.3
Arkansas	E2	20	10	1.2	17.8	.8	1.4	9.9	45.1	47.3	90.1	1.5	E	(D)
California	E1	815	342	39.9	1 283.4	23.7	66.7	526.6	3 305.8	2 547.2	5 859.8	204.9	38.0	2 001.9
Colorado	–	57	22	4.4	163.0	2.1	5.1	41.9	136.9	276.4	412.6	13.8	1.8	56.3
Connecticut	E3	82	34	3.4	104.3	2.1	4.3	43.7	218.6	144.8	368.0	15.6	4.1	177.9
Delaware	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	141	47	7.4	212.1	3.9	8.1	73.4	367.3	376.8	764.5	30.7	7.5	287.1
Georgia	–	29	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Idaho	–	8	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	F	(D)
Illinois	E1	131	50	5.8	136.2	3.9	7.9	73.9	292.9	209.3	509.2	12.5	8.8	407.8
Indiana	E1	58	28	3.8	97.0	2.6	5.2	46.9	171.8	168.4	341.4	9.6	2.9	82.1
Iowa	E1	12	4	.7	13.1	.4	.7	5.2	31.2	22.0	53.5	(D)	F	(D)
Kansas	E3	43	13	.8	17.2	.6	1.0	7.6	32.6	21.0	53.3	1.1	F	(D)
Kentucky	–	17	7	1.0	23.9	.7	1.4	11.4	30.5	18.8	56.2	(D)	(NA)	(NA)
Maine	E5	13	6	.4	8.3	.2	.5	3.7	14.8	8.0	22.5	(D)	F	(D)
Maryland	E3	49	16	1.4	39.2	1.0	2.1	22.8	84.4	41.7	124.8	1.8	1.7	90.8
Massachusetts	E1	202	99	12.6	415.7	7.8	16.4	189.9	832.3	575.4	1 406.0	47.4	11.1	484.4
Michigan	E1	79	35	2.5	55.9	1.7	3.2	30.0	116.9	142.5	265.1	4.6	1.7	63.9
Minnesota	–	72	39	6.2	162.7	4.1	7.7	91.3	432.9	368.7	803.6	32.8	2.8	90.5
Mississippi	–	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E1	31	13	1.1	20.2	.7	1.4	10.2	40.6	53.2	92.7	1.5	F	(D)
Montana	–	5	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	E7	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	–	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	E1	55	25	2.6	77.2	1.5	3.1	31.6	130.1	98.2	231.2	10.6	1.5	58.0
New Jersey	E1	160	61	6.2	186.9	3.9	10.0	81.6	408.6	279.7	681.2	16.1	7.0	342.4
New Mexico	–	14	5	1.4	26.1	1.2	2.4	16.1	73.0	29.0	103.9	(D)	F	(D)
New York	E2	213	78	11.5	292.8	7.7	15.0	153.7	520.8	387.6	918.7	(D)	22.5	1 572.5
North Carolina	–	50	30	7.3	215.2	3.5	7.1	77.7	902.0	1 442.2	2 401.3	29.1	(NA)	(D)
North Dakota	–	5	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E2	96	42	3.4	88.7	2.1	4.3	40.4	201.8	170.0	374.4	7.6	3.8	166.2
Oklahoma	E4	34	12	2.3	54.7	1.6	3.3	32.3	108.5	85.4	196.6	(D)	G	(D)
Oregon	–	51	18	2.3	53.3	1.7	3.2	30.0	100.0	87.1	186.3	6.1	2.2	71.4
Pennsylvania	E1	157	67	7.5	177.0	4.7	9.0	77.2	352.5	248.7	604.3	18.8	5.6	210.2
Rhode Island	E1	11	5	.4	8.8	.2	.5	4.4	19.2	17.0	36.2	1.0	.7	25.4
South Carolina	–	18	8	1.2	21.8	.9	1.7	14.5	55.8	31.5	87.1	1.2	.6	18.6
South Dakota	–	7	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	F	(D)
Tennessee	E1	34	6	1.0	21.7	.7	1.6	12.1	41.4	41.3	85.0	1.1	F	(D)
Texas	–	189	70	20.1	659.9	9.5	17.1	224.1	1 493.6	2 354.9	3 943.4	115.9	(NA)	(D)
Utah	–	25	10	.7	12.3	.4	.8	6.5	31.6	35.9	64.4	(D)	.3	12.9
Vermont	E6	16	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E2	44	19	1.8	50.4	1.0	2.1	15.8	150.2	121.0	264.3	7.0	.7	27.7
Washington	E1	55	18	1.9	59.4	1.0	1.9	17.2	104.4	95.4	204.3	7.3	2.4	95.7
West Virginia	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	53	30	3.9	81.0	2.8	5.9	43.7	191.7	193.5	383.6	13.4	1.4	68.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electron tubes (SIC 3671)	Printed circuit boards (SIC 3672)	Semi-conductors and related devices (SIC 3674)	Electronic capacitors (SIC 3675)	Electronic resistors (SIC 3676)	Electronic coils and trans-formers (SIC 3677)	Electronic connectors (SIC 3678)	Electronic components, n.e.c. (SIC 3679)
Companies ---- number	174	1 261	823	99	87	401	240	3 108
All establishments ---- number	189	1 324	921	117	105	423	285	3 295
With 1 to 19 employees ---- number	120	735	483	37	25	195	97	1 948
With 20 to 99 employees ---- number	33	423	217	39	42	173	101	929
With 100 employees or more ---- number	36	166	221	41	38	55	87	418
Employment and labor costs:								
Employees ---- 1,000	22.2	75.8	171.9	17.9	11.7	19.2	30.7	182.4
Compensation, total ---- mil dol	891.2	2 565.9	8 443.7	544.9	327.1	461.6	1 140.4	6 402.6
Annual payroll ---- mil dol	677.4	2 110.6	6 879.8	415.7	258.7	374.0	909.2	5 180.5
Fringe benefits ---- mil dol	213.8	455.3	1 564.0	129.2	68.3	87.6	231.2	1 222.1
Social Security and other legally required payments ---- mil dol	71.3	197.4	617.0	39.8	26.9	35.1	88.0	486.4
Employer voluntary payments ---- mil dol	142.6	257.9	947.0	89.4	41.4	52.5	143.2	735.7
Production workers:								
Average for year ---- 1,000	16.8	50.8	84.7	13.4	8.3	14.1	21.1	109.2
March ---- 1,000	17.1	50.0	85.3	13.1	8.7	14.1	21.7	109.7
May ---- 1,000	16.9	50.7	84.9	13.2	8.4	14.1	21.6	109.5
August ---- 1,000	16.7	51.2	84.6	13.6	8.2	14.1	20.9	109.4
November ---- 1,000	16.4	51.3	84.2	13.6	7.9	14.0	20.3	108.6
Hours ---- millions	33.5	104.8	172.2	26.3	16.1	27.2	42.4	238.8
Wages ---- mil dol	442.5	1 066.2	2 333.5	247.9	134.3	208.3	505.5	2 225.1
Cost of materials[1] ---- mil dol	1 883.6	2 972.8	9 823.3	703.0	258.3	452.3	1 390.2	11 842.4
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 710.5	2 701.8	6 687.2	472.9	190.1	413.8	1 206.0	10 892.3
Resales ---- mil dol	92.4	30.3	1 954.8	152.5	43.4	11.1	73.4	338.8
Fuels ---- mil dol	15.2	23.2	48.0	4.4	1.9	2.4	6.2	27.8
Purchased electricity ---- mil dol	50.5	118.6	451.9	27.0	15.9	8.4	37.9	164.1
Contract work ---- mil dol	15.1	99.0	681.4	46.2	7.1	16.6	66.7	419.5
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	930.9	1 721.7	8 001.2	480.7	250.5	119.0	590.3	2 491.3
Generated less sold ---- mil kWh	–	(D)	(D)	–	–	–	–	(D)
Total value of shipments ---- mil dol	3 144.9	7 311.8	32 157.0	1 630.1	827.2	1 133.8	3 773.5	23 869.9
Value added ---- mil dol	1 280.4	4 348.3	22 299.7	930.0	562.6	680.6	2 385.9	11 925.9
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	435.7	864.6	3 504.9	255.5	163.2	162.0	640.6	3 846.9
Finished goods ---- mil dol	112.3	82.3	735.3	77.7	63.8	31.0	176.4	465.8
Work in process ---- mil dol	174.5	505.6	1 941.2	90.3	49.5	42.0	264.2	2 179.8
Materials and supplies ---- mil dol	149.0	276.7	828.5	87.4	49.9	89.0	200.1	1 201.3
End of 1992 ---- mil dol	466.7	890.3	3 464.0	259.2	157.8	157.8	630.9	3 793.9
Finished goods ---- mil dol	131.7	93.5	672.7	77.1	57.5	31.2	174.5	477.1
Work in process ---- mil dol	174.2	503.7	1 969.8	93.9	49.6	40.8	268.8	2 067.0
Materials and supplies ---- mil dol	160.9	293.1	821.5	88.2	50.8	85.8	187.7	1 249.9

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electron tubes (SIC 3671)	Printed circuit boards (SIC 3672)	Semi-conductors and related devices (SIC 3674)	Electronic capacitors (SIC 3675)	Electronic resistors (SIC 3676)	Electronic coils and trans-formers (SIC 3677)	Electronic connectors (SIC 3678)	Electronic components, n.e.c. (SIC 3679)
Gross book value of depreciable assets:								
Total:								
Beginning of year	1 314.0	3 698.2	23 158.6	674.4	446.6	272.8	1 807.5	6 255.0
New capital expenditures[1]	61.7	316.8	3 118.0	64.0	21.3	20.1	144.3	740.8
Used capital expenditures	12.5	34.2	347.7	2.7	3.2	2.9	37.3	51.6
Retirements	41.1	229.5	1 648.5	12.6	14.8	11.1	136.6	433.5
End of year	1 347.1	3 819.7	24 975.8	728.5	456.3	284.7	1 852.5	6 613.9
Buildings and other structures:								
Beginning of year	291.6	1 017.4	5 719.1	131.0	120.0	66.6	345.1	1 673.7
New capital expenditures	3.3	42.2	378.9	9.6	1.5	5.0	6.5	93.4
Used capital expenditures	4.6	15.8	(D)	.2	(D)	.2	6.5	6.8
Retirements	4.5	12.2	(D)	1.5	(D)	.6	4.0	60.9
End of year	295.0	1 063.2	6 087.6	139.3	122.1	71.1	354.1	1 713.1
Machinery and equipment:								
Beginning of year	1 022.3	2 680.8	17 439.6	543.4	326.6	206.2	1 462.4	4 581.3
New capital expenditures[1]	58.4	274.6	2 739.1	54.4	19.8	15.1	137.8	647.4
Used capital expenditures	8.0	18.4	(D)	2.5	(D)	2.7	30.9	44.8
Retirements	36.6	217.3	(D)	11.1	(D)	10.4	132.6	372.6
End of year	1 052.1	2 756.5	18 888.2	589.2	334.2	213.6	1 498.4	4 900.8
Depreciation charges during 1992:								
Total	117.1	347.4	2 385.4	62.1	31.6	27.9	140.0	777.4
Buildings and other structures	12.7	47.9	372.1	6.1	5.5	4.5	18.2	124.2
Machinery and equipment	104.4	299.5	2 013.3	56.0	26.1	23.4	121.9	653.2
Rental payments:								
Total	21.5	101.0	396.9	13.5	9.3	21.9	37.8	315.2
Buildings and other structures	14.9	59.4	228.1	8.5	6.5	11.9	23.7	195.8
Machinery and equipment	6.6	41.6	168.9	5.0	2.8	9.9	14.0	119.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Electron tubes (SIC 3671)		Printed circuit boards (SIC 3672)		Semiconductors and related devices (SIC 3674)		Electronic capacitors (SIC 3675)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	3.7	(X)	21.9	(X)	202.2	(X)	1.4	(X)
Response coverage ratio (percent)[2]	63.3	(X)	69.7	(X)	88.5	(X)	90.5	(X)
Machinery	15.9	(X)	64.4	(X)	470.3	(X)	8.6	(X)
Response coverage ratio (percent)[2]	63.3	(X)	70.4	(X)	89.5	(X)	90.5	(X)
Other purchased services:								
Communications	2.8	(X)	13.3	(X)	89.3	(X)	4.9	(X)
Response coverage ratio (percent)[2]	63.3	(X)	66.0	(X)	88.3	(X)	88.8	(X)
Legal	1.4	(X)	17.2	(X)	71.4	(X)	1.4	(X)
Response coverage ratio (percent)[2]	63.3	(X)	69.2	(X)	88.0	(X)	90.5	(X)
Accounting and bookkeeping	1.1	(X)	14.1	(X)	15.8	(X)	.9	(X)
Response coverage ratio (percent)[2]	63.3	(X)	70.5	(X)	87.3	(X)	84.1	(X)
Advertising	1.3	(X)	16.5	(X)	80.5	(X)	3.7	(X)
Response coverage ratio (percent)[2]	63.3	(X)	67.9	(X)	88.0	(X)	89.9	(X)
Software and other data processing	1.0	(X)	3.5	(X)	150.1	(X)	1.1	(X)
Response coverage ratio (percent)[2]	63.3	(X)	65.9	(X)	88.0	(X)	89.9	(X)
Refuse removal, including hazardous waste	6.6	(X)	18.2	(X)	32.1	(X)	1.7	(X)
Response coverage ratio (percent)[2]	63.3	(X)	68.1	(X)	87.8	(X)	88.0	(X)
New machinery and equipment expenditures	58.4	(X)	274.6	(X)	2 739.1	(X)	54.4	(X)
Automobiles, trucks, etc., for highway use	.1	1	1.5	26	.4	8	.2	49
Computers and peripheral data processing equipment	2.9	2	26.8	6	191.2	2	2.8	4
All other	55.3	1	246.3	1	2 547.5	1	51.4	1
Adjustment ratio[3]	1.4	(X)	1.5	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 710.5	(X)	2 701.8	(X)	6 687.2	(X)	472.9	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	89.8	6	1 651.1	5	28.6	6
Materials purchased or transferred from domestic sources	(S)	(X)	2 612.0	1	5 036.1	2	444.3	1
Adjustment ratio[3]	(S)	(X)	1.8	(X)	1.7	(X)	1.6	(X)

Item	Electronic resistors (SIC 3676)		Electronic coils and transformers (SIC 3677)		Electronic connectors (SIC 3678)		Electronic components, n.e.c. (SIC 3679)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	1.5	(X)	1.4	(X)	8.7	(X)	168.2	(X)
Response coverage ratio (percent)[2]	87.8	(X)	75.1	(X)	85.1	(X)	77.8	(X)
Machinery	5.0	(X)	2.9	(X)	35.0	(X)	64.7	(X)
Response coverage ratio (percent)[2]	87.8	(X)	75.7	(X)	85.1	(X)	78.2	(X)
Other purchased services:								
Communications	3.5	(X)	2.8	(X)	9.3	(X)	55.0	(X)
Response coverage ratio (percent)[2]	87.8	(X)	73.9	(X)	81.7	(X)	70.9	(X)
Legal	39.2	(X)	1.2	(X)	7.7	(X)	31.0	(X)
Response coverage ratio (percent)[2]	87.8	(X)	70.6	(X)	83.2	(X)	76.7	(X)
Accounting and bookkeeping	2.4	(X)	2.1	(X)	2.2	(X)	21.0	(X)
Response coverage ratio (percent)[2]	83.6	(X)	75.6	(X)	83.2	(X)	75.8	(X)
Advertising	4.3	(X)	2.7	(X)	8.5	(X)	72.2	(X)
Response coverage ratio (percent)[2]	87.8	(X)	73.3	(X)	83.2	(X)	78.1	(X)
Software and other data processing	2.2	(X)	.7	(X)	4.9	(X)	28.5	(X)
Response coverage ratio (percent)[2]	83.6	(X)	62.5	(X)	85.1	(X)	76.9	(X)
Refuse removal, including hazardous waste	.8	(X)	.7	(X)	2.7	(X)	11.1	(X)
Response coverage ratio (percent)[2]	87.8	(X)	70.6	(X)	85.1	(X)	76.6	(X)
New machinery and equipment expenditures	19.8	(X)	15.1	(X)	137.8	(X)	647.4	(X)
Automobiles, trucks, etc., for highway use	.3	67	.3	28	.5	51	5.5	11
Computers and peripheral data processing equipment	1.3	11	2.2	19	6.4	9	150.7	8
All other	18.1	3	12.6	4	131.0	1	491.1	3
Adjustment ratio[3]	1.7	(X)	1.5	(X)	1.2	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	190.1	(X)	413.8	(X)	1 206.0	(X)	10 892.3	(X)
Materials purchased or transferred from foreign sources[4]	7.0	19	9.3	27	55.1	6	1 070.4	5
Materials purchased or transferred from domestic sources	183.1	1	404.5	1	1 150.9	1	9 821.9	1
Adjustment ratio[3]	1.8	(X)	2.0	(X)	1.5	(X)	1.6	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3671, ELECTRON TUBES												
Total	**–**	**189**	**22.2**	**677.4**	**16.8**	**33.5**	**442.5**	**1 280.4**	**1 883.6**	**3 144.9**	**61.7**	**466.7**
Establishments with an average of—												
1 to 4 employees	E8	67	.1	3.1	.1	.2	2.0	5.4	5.2	10.5	.5	1.7
5 to 9 employees	E8	30	.2	5.5	.1	.3	3.5	9.8	8.9	18.8	.7	2.7
10 to 19 employees	E2	23	.3	8.9	.2	.5	5.1	11.0	13.1	27.7	1.0	4.2
20 to 49 employees	E1	14	.5	12.9	.4	.7	8.2	30.4	16.1	46.3	.7	7.6
50 to 99 employees	E1	19	1.3	38.8	.9	1.6	18.6	80.5	51.5	132.8	3.0	28.4
100 to 249 employees	E1	15	2.3	62.0	1.6	3.1	36.6	126.8	102.6	232.0	7.2	45.6
250 to 499 employees	–	11	4.0	115.5	2.6	4.8	60.6	241.1	269.5	513.1	11.7	92.7
500 to 999 employees	–	4	2.7	96.0	1.8	3.6	53.6	187.4	244.3	412.1	2.4	114.4
1,000 to 2,499 employees	–	5	10.8	334.8	9.1	18.7	254.2	588.1	1 172.6	1 751.6	34.5	169.4
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	89	.3	6.9	.2	.5	4.6	12.2	12.3	24.4	1.0	3.6
INDUSTRY 3672, PRINTED CIRCUIT BOARDS												
Total	**E1**	**1 324**	**75.8**	**2 110.6**	**50.8**	**104.8**	**1 066.2**	**4 348.3**	**2 972.8**	**7 311.8**	**316.8**	**890.3**
Establishments with an average of—												
1 to 4 employees	E8	317	.6	14.2	.4	.7	7.0	35.0	19.7	54.7	2.8	6.1
5 to 9 employees	E7	205	1.4	34.3	.9	1.8	16.4	71.3	41.2	112.2	5.2	13.0
10 to 19 employees	E4	213	2.9	65.6	2.0	3.9	33.9	125.8	73.5	199.6	7.9	23.2
20 to 49 employees	E1	244	7.6	189.2	5.6	10.8	106.6	369.3	241.5	609.3	20.3	66.4
50 to 99 employees	E1	179	12.5	307.5	9.3	19.6	182.5	611.1	396.5	1 005.0	32.9	108.3
100 to 249 employees	E1	119	17.7	440.2	13.6	27.9	276.8	880.6	679.3	1 552.7	64.4	201.3
250 to 499 employees	E1	30	10.1	289.6	7.3	16.7	165.9	517.5	456.2	957.5	58.3	111.9
500 to 999 employees	E2	12	8.1	228.5	5.3	11.3	111.6	458.2	447.5	891.7	38.0	100.3
1,000 to 2,499 employees	–	4	14.8	541.5	6.3	12.0	165.5	1 279.5	617.4	1 929.2	87.1	259.9
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	525	2.7	49.6	1.8	3.3	24.3	103.1	60.8	163.9	8.8	19.2
INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES												
Total	**–**	**921**	**171.9**	**6 879.8**	**84.7**	**172.2**	**2 333.5**	**22 299.7**	**9 823.3**	**32 157.0**	**3 118.0**	**3 464.0**
Establishments with an average of—												
1 to 4 employees	E9	213	.4	10.6	.1	.3	3.6	27.1	12.7	39.4	5.0	5.8
5 to 9 employees	E6	148	1.0	30.5	.4	.8	10.1	70.8	36.1	106.2	11.4	14.4
10 to 19 employees	E3	122	1.7	51.4	.9	1.8	19.6	111.5	60.7	176.8	14.0	25.9
20 to 49 employees	E2	120	3.6	117.3	1.8	3.7	37.5	261.4	147.9	414.3	30.5	49.1
50 to 99 employees	E2	97	6.9	214.4	3.8	7.7	81.2	498.1	368.1	874.7	71.3	124.9
100 to 249 employees	E1	87	14.2	511.9	7.5	15.5	178.3	1 173.4	642.6	1 806.4	132.5	333.3
250 to 499 employees	E1	50	17.8	651.1	10.2	20.3	245.9	1 593.1	869.4	2 435.0	180.6	429.2
500 to 999 employees	–	50	35.2	1 305.9	20.5	41.0	577.0	4 480.3	2 023.2	6 497.6	584.8	833.1
1,000 to 2,499 employees	–	21	32.0	1 296.8	16.3	33.1	510.9	5 759.1	2 516.2	8 285.6	547.5	638.4
2,500 employees or more	–	13	59.1	2 689.8	23.2	48.0	669.5	8 324.8	3 146.4	11 521.0	1 540.3	1 009.9
Covered by administrative records[2]	E9	342	1.5	36.0	.6	1.3	12.2	80.3	38.5	118.8	15.0	16.2
INDUSTRY 3675, ELECTRONIC CAPACITORS												
Total	**–**	**117**	**17.9**	**415.7**	**13.4**	**26.3**	**247.9**	**930.0**	**703.0**	**1 630.1**	**64.0**	**259.2**
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.4	(Z)	(Z)	.2	.8	.6	1.4	.1	.3
5 to 9 employees	E8	14	.1	1.7	.1	.1	1.0	3.3	2.0	5.2	.2	.9
10 to 19 employees	E4	14	.2	4.4	.2	.3	2.5	7.8	5.7	13.6	.4	2.1
20 to 49 employees	–	20	.7	17.8	.5	1.0	9.2	30.5	28.0	59.6	1.0	10.9
50 to 99 employees	–	19	1.3	24.6	1.0	2.0	15.2	60.4	52.6	111.3	1.4	21.3
100 to 249 employees	E2	25	4.0	86.6	3.2	6.4	52.4	215.6	123.4	339.5	9.3	66.7
250 to 499 employees	E1	8	2.9	69.0	2.2	4.4	43.4	159.1	126.3	282.5	7.2	42.5
500 to 999 employees	–	5	3.5	83.7	2.8	5.3	57.0	202.6	155.3	355.9	24.8	54.1
1,000 to 2,499 employees	–	3	5.1	127.5	3.5	6.7	66.9	249.9	209.0	461.1	19.7	60.4
Covered by administrative records[2]	E9	27	.2	3.6	.2	.3	2.1	6.3	4.2	10.5	.4	1.9
INDUSTRY 3676, ELECTRONIC RESISTORS												
Total	**E1**	**105**	**11.7**	**258.7**	**8.3**	**16.1**	**134.3**	**562.6**	**258.3**	**827.2**	**21.3**	**157.8**
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.4	(Z)	(Z)	.2	.8	.4	1.2	(Z)	.3
5 to 9 employees	E9	6	(Z)	1.0	(Z)	.1	.5	1.9	1.1	3.1	.1	.7
10 to 19 employees	E1	10	.1	3.1	.1	.2	1.4	6.7	5.5	12.4	.3	1.6
20 to 49 employees	–	17	.5	11.4	.4	.7	6.1	21.3	6.9	28.2	.3	4.5
50 to 99 employees	E3	25	1.8	36.9	1.2	2.4	18.5	77.5	32.5	111.0	3.8	20.6
100 to 249 employees	–	23	3.5	81.9	2.4	4.7	38.2	197.2	94.0	291.5	4.9	60.4
250 to 499 employees	E1	11	3.5	76.5	2.5	4.5	43.0	140.8	71.6	218.0	11.8	43.7
500 to 999 employees	–	4	2.2	47.5	1.7	3.5	26.3	116.4	46.3	162.0	(D)	26.1
Covered by administrative records[2]	E9	17	.1	2.1	.1	.2	1.1	4.0	2.3	6.2	.2	1.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS												
Total	**E1**	**423**	**19.2**	**374.0**	**14.1**	**27.2**	**208.3**	**680.6**	**452.3**	**1 133.8**	**20.1**	**157.8**
Establishments with an average of—												
1 to 4 employees	E9	79	.2	2.9	.1	.2	1.7	5.9	4.2	10.1	.2	1.6
5 to 9 employees	E6	42	.3	5.0	.2	.4	2.8	9.4	6.1	15.5	.2	2.5
10 to 19 employees	E1	74	1.0	20.8	.7	1.4	10.5	41.8	29.4	71.3	.5	10.7
20 to 49 employees	E1	105	3.3	66.2	2.5	4.7	37.5	121.2	75.9	198.2	3.0	26.0
50 to 99 employees	E2	68	4.7	96.3	3.4	6.5	52.9	165.1	89.6	255.4	3.6	35.9
100 to 249 employees	E1	47	6.9	134.6	5.1	10.2	74.8	247.5	175.7	423.0	9.0	58.6
250 to 499 employees	–	7	2.8	48.2	2.0	3.8	28.0	89.7	71.4	160.3	3.6	22.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	116	.5	7.2	.4	.6	4.2	14.0	10.1	24.0	.4	4.0
INDUSTRY 3678, ELECTRONIC CONNECTORS												
Total	**–**	**285**	**30.7**	**909.2**	**21.1**	**42.4**	**505.5**	**2 385.9**	**1 390.2**	**3 773.5**	**144.3**	**630.9**
Establishments with an average of—												
1 to 4 employees	E9	45	.1	2.3	.1	.1	1.4	5.1	3.3	8.3	.4	1.3
5 to 9 employees	E6	28	.2	5.0	.1	.3	3.1	11.1	7.2	18.9	.6	2.7
10 to 19 employees	E4	24	.4	9.8	.2	.4	5.0	24.5	15.0	38.6	1.3	7.9
20 to 49 employees	E1	68	2.3	60.6	1.6	3.2	33.0	122.9	68.5	192.4	6.8	30.7
50 to 99 employees	–	33	2.3	63.2	1.6	3.0	31.4	150.4	89.4	238.4	9.2	41.6
100 to 249 employees	E1	51	8.5	235.9	5.8	11.6	130.2	630.9	377.6	995.9	41.8	187.1
250 to 499 employees	–	27	9.4	288.5	6.3	13.3	154.8	911.7	517.5	1 430.2	46.4	186.7
500 to 999 employees	–	7	7.5	244.0	5.4	10.5	146.6	529.5	311.9	850.8	37.8	172.7
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	69	.3	6.6	.2	.5	4.1	13.8	8.4	22.2	1.1	3.8
INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.												
Total	**E1**	**3 295**	**182.4**	**5 180.5**	**109.2**	**238.8**	**2 225.1**	**11 925.9**	**11 842.4**	**23 869.9**	**740.8**	**3 793.9**
Establishments with an average of—												
1 to 4 employees	E8	1 040	1.6	41.4	1.1	2.0	17.6	91.4	84.6	175.5	4.1	33.3
5 to 9 employees	E7	470	3.1	74.5	1.9	3.6	31.2	141.4	128.4	269.7	6.0	50.9
10 to 19 employees	E3	438	6.1	154.0	3.7	26.0	60.8	295.5	232.6	527.8	12.7	91.3
20 to 49 employees	E2	592	19.0	489.7	12.0	23.0	204.8	988.3	778.7	1 757.3	38.1	297.7
50 to 99 employees	E1	337	23.8	596.6	15.4	31.8	268.6	1 248.6	942.1	2 188.2	58.6	342.3
100 to 249 employees	E1	279	43.1	1 151.8	26.9	55.1	510.2	3 010.7	2 294.8	5 303.5	130.4	875.9
250 to 499 employees	–	93	31.9	872.6	22.0	44.1	478.3	1 743.8	1 387.1	3 173.7	110.0	584.5
500 to 999 employees	–	31	20.1	588.7	12.9	27.1	294.8	1 339.0	1 093.1	2 434.9	92.3	372.9
1,000 to 2,499 employees	E1	13	33.7	1 211.1	13.4	26.0	358.7	3 067.2	4 901.2	8 039.4	288.7	1 145.2
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 395	5.3	99.6	3.3	5.9	42.3	185.8	181.4	367.2	9.5	69.0

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3671	**Electron tubes:**										
	All establishments in industry	189	22.2	677.4	16.8	33.5	442.5	1 280.4	1 883.6	3 144.9	61.7
	Establishments with this product class primary:										
36713	Transmittal, industrial, and special purpose electron tubes, except x-ray	34	8.2	286.6	5.4	10.3	169.6	561.4	428.1	1 003.7	11.4
36714	Receiving-type electron tubes (including cathode ray picture tubes) (new and rebuilt)	17	11.6	332.8	9.6	19.8	238.3	606.4	1 356.3	1 926.1	42.5
36715	Electron tube parts	11	.7	18.4	.5	1.0	9.8	44.4	30.0	73.9	3.5
3672	**Printed circuit boards:**										
	All establishments in industry	1 324	75.8	2 110.6	50.8	104.8	1 066.2	4 348.3	2 972.8	7 311.8	316.8

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3674	**Semiconductors and related devices:**										
	All establishments in industry	921	171.9	6 879.8	84.7	172.2	2 333.5	22 299.7	9 823.3	32 157.0	3 118.0
	Establishments with this product class primary:										
36741	Integrated microcircuits (including semiconductor networks, microprocessors, and MOS memories)	181	98.6	4 171.7	45.2	92.5	1 348.9	15 862.3	5 668.4	21 594.0	1 925.7
36742	Transistors	22	10.2	408.2	4.3	8.7	98.0	998.1	199.0	1 184.6	69.3
36743	Diodes and rectifiers	35	3.9	102.2	2.4	5.2	48.7	263.6	115.0	372.1	15.3
36749	Other semiconductor devices (including semiconductor parts such as chips, wafers, and heat sinks)	133	47.3	1 825.5	26.9	53.8	709.3	4 384.0	3 405.3	7 786.2	980.2
3675	**Electronic capacitors:**										
	All establishments in industry	117	17.9	415.7	13.4	26.3	247.9	930.0	703.0	1 630.1	64.0
3676	**Electronic resistors:**										
	All establishments in industry	105	11.7	258.7	8.3	16.1	134.3	562.6	258.3	827.2	21.3
3677	**Electronic coils and transformers:**										
	All establishments in industry	423	19.2	374.0	14.1	27.2	208.3	680.6	452.3	1 133.8	20.1
3678	**Electronic connectors:**										
	All establishments in industry	285	30.7	909.2	21.1	42.4	505.5	2 385.9	1 390.2	3 773.5	144.3
	Establishments with this product class primary:										
36781	Coaxial (RF) connectors for electronic circuitry	24	3.9	118.7	2.8	6.1	67.5	244.2	126.9	366.4	6.7
36782	Cylindrical connectors for electronic circuitry	21	4.9	144.5	3.5	7.1	83.8	263.9	135.8	410.2	6.8
36783	Rack and panel (rectangular) connectors for electronic circuitry	16	4.2	121.8	3.1	5.8	70.3	387.8	197.5	579.9	32.8
36784	Printed circuit connectors for electronic circuitry	47	6.8	206.8	4.6	9.0	115.9	548.5	389.0	931.0	38.1
36785	Other connectors for electronic circuitry, including parts	58	8.3	245.5	5.6	11.2	135.4	784.1	423.7	1 210.8	50.3
3679	**Electronic components, n.e.c.:**										
	All establishments in industry	3 295	182.4	5 180.5	109.2	238.8	2 225.1	11 925.9	11 842.4	23 869.9	740.8
	Establishments with this product class primary:										
36791	Crystals, filters, piezoelectric, and other related devices	102	7.3	172.9	5.2	10.0	87.7	371.1	170.6	543.5	20.1
36793	Microwave components and devices, except antennae, tubes, and semiconductors	134	13.8	447.2	9.0	38.2	240.8	820.6	446.8	1 295.4	38.5
36795	Transducers, electrical/ electronic input or output, n.e.c.	75	8.7	249.0	5.5	10.5	122.6	504.6	213.0	725.7	19.4
36796	Switches, mechanical, for electronic circuitry	46	5.8	151.9	3.8	7.6	72.5	331.0	178.9	521.2	15.3
36798	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	377	66.6	2 079.1	34.4	69.8	761.3	5 442.5	7 255.0	12 722.2	355.9
36799	Electronic components, n.e.c.	414	41.4	1 118.9	27.5	55.3	544.2	2 606.5	1 948.1	4 581.9	177.7

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3671, ELECTRON TUBES			
Total value of shipments	3 144.9	2 735.4	(NA)
Primary products value of shipments	2 847.7	2 174.4	(NA)
Secondary products value of shipments	135.4	432.9	(NA)
Total miscellaneous receipts	161.8	128.1	(NA)
Value of resales	(D)	75.8	(NA)
Contract receipts	(D)	(D)	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Primary products specialization ratio	95	83	(NA)
Value of primary products shipments made in all industries	3 357.3	2 329.3	(NA)
Value of primary products shipments made in this industry	2 847.7	2 174.4	(NA)
Value of primary products shipments made in other industries	509.6	154.9	(NA)
Coverage ratio	85	93	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3672, PRINTED CIRCUIT BOARDS			
Total value of shipments	7 311.8	4 672.6	(NA)
Primary products value of shipments	5 852.0	4 413.9	(NA)
Secondary products value of shipments	1 188.9	143.6	(NA)
Total miscellaneous receipts	271.0	115.1	(NA)
Value of resales	40.1	65.7	(NA)
Contract receipts	212.8	23.4	(NA)
Printed circuit (wiring) boards	48.1	(NA)	(NA)
Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	60.0	(NA)	(NA)
Receipts for work done for others on their materials	.8	(NA)	(NA)
Receipts for work done for others on their materials, n.s.k.	103.9	(NA)	(NA)
Other miscellaneous receipts	18.0	26.0	(NA)
Primary products specialization ratio	83	97	(NA)
Value of primary products shipments made in all industries	6 289.2	4 813.9	[1](NA)
Value of primary products shipments made in this industry	5 852.0	4 413.9	(NA)
Value of primary products shipments made in other industries	437.2	400.0	(NA)
Coverage ratio	93	92	(NA)
INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES			
Total value of shipments	32 157.0	19 794.9	12 429.9
Primary products value of shipments	28 392.9	17 117.5	10 782.6
Secondary products value of shipments	1 226.8	801.4	658.6
Total miscellaneous receipts	2 537.3	1 876.0	988.8
Value of resales	2 143.9	1 625.1	802.2
Contract receipts	38.0	43.7	(D)
Other miscellaneous receipts	355.5	207.2	(D)
Receipts for research and development	62.2	141.9	24.7
Other miscellaneous receipts	292.9	65.3	(D)
Other miscellaneous receipts, n.s.k.	.4	(NA)	(NA)
Primary products specialization ratio	96	96	94
Value of primary products shipments made in all industries	29 352.4	17 928.8	11 215.4
Value of primary products shipments made in this industry	28 392.9	17 117.5	10 782.6
Value of primary products shipments made in other industries	959.5	811.2	432.9
Coverage ratio	97	95	96
INDUSTRY 3675, ELECTRONIC CAPACITORS			
Total value of shipments	1 630.1	1 440.1	1 188.9
Primary products value of shipments	1 329.4	1 265.1	1 087.4
Secondary products value of shipments	95.2	97.9	70.5
Total miscellaneous receipts	205.5	77.2	31.0
Value of resales	200.0	45.5	26.5
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	93	93	94
Value of primary products shipments made in all industries	1 393.1	1 307.2	1 207.1
Value of primary products shipments made in this industry	1 329.4	1 265.1	1 087.4
Value of primary products shipments made in other industries	63.8	42.1	119.7
Coverage ratio	95	97	90
INDUSTRY 3676, ELECTRONIC RESISTORS			
Total value of shipments	827.2	882.7	765.8
Primary products value of shipments	715.9	809.0	668.0
Secondary products value of shipments	45.8	46.6	85.1
Total miscellaneous receipts	65.5	27.2	12.7
Value of resales	64.2	26.5	10.2
Contract receipts	(D)	–	(D)
Other miscellaneous receipts	(D)	.7	(D)
Primary products specialization ratio	94	95	89
Value of primary products shipments made in all industries	753.7	860.2	758.3
Value of primary products shipments made in this industry	715.9	809.0	668.0
Value of primary products shipments made in other industries	37.8	51.2	90.3
Coverage ratio	95	94	88
INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS			
Total value of shipments	1 133.8	1 228.4	863.3
Primary products value of shipments	1 048.9	1 077.8	776.3
Secondary products value of shipments	64.7	123.4	78.5
Total miscellaneous receipts	20.3	27.3	8.4
Value of resales	16.3	19.7	3.5
Contract receipts	2.5	6.2	(D)
Other miscellaneous receipts	1.5	1.4	(D)
Primary products specialization ratio	94	90	91
Value of primary products shipments made in all industries	1 159.0	1 184.9	924.6
Value of primary products shipments made in this industry	1 048.9	1 077.8	776.3
Value of primary products shipments made in other industries	110.1	107.1	148.3
Coverage ratio	90	91	84

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3678, ELECTRONIC CONNECTORS			
Total value of shipments	3 773.5	4 065.0	2 565.0
Primary products value of shipments	3 325.0	3 447.0	2 151.2
Secondary products value of shipments	312.3	522.7	323.3
Total miscellaneous receipts	136.3	95.3	90.5
Value of resales	126.4	60.5	63.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	91	87	87
Value of primary products shipments made in all industries	3 745.7	3 731.4	2 353.3
Value of primary products shipments made in this industry	3 325.0	3 447.0	2 151.2
Value of primary products shipments made in other industries	420.8	284.4	202.1
Coverage ratio	89	92	91
INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.			
Total value of shipments	23 869.9	15 438.5	(NA)
Primary products value of shipments	19 846.9	12 133.1	(NA)
Secondary products value of shipments	2 904.3	2 565.3	(NA)
Total miscellaneous receipts	1 118.8	740.1	(NA)
Value of resales	425.5	287.4	(NA)
Contract receipts	433.8	310.0	(NA)
Printed circuit (wiring) boards	4.2	(NA)	(NA)
Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	243.9	(NA)	(NA)
Receipts for work done for others on their materials	–	(NA)	(NA)
Receipts for work done for others on their materials, n.s.k.	185.7	(NA)	(NA)
Other miscellaneous receipts	259.4	142.7	(NA)
Primary products specialization ratio	87	83	(NA)
Value of primary products shipments made in all industries	25 443.2	14 563.0	(NA)
Value of primary products shipments made in this industry	19 846.9	12 133.1	(NA)
Value of primary products shipments made in other industries	5 596.3	2 429.9	(NA)
Coverage ratio	78	83	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Data are approximately 3% understated because estimates for administrative-record establishments are not available.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3671– —	**ELECTRON TUBES**				
	Total	**(NA)**	**3 357.3**	**(NA)**	**2 329.3**
36713	Transmittal, industrial, and special purpose electron tubes, except x-ray	(NA)	918.1	(NA)	1 114.9
36713 00	Transmittal, industrial, and special purpose electron tubes, except x-ray[2]	41	918.1	42	1 114.9
36714	Receiving-type electron tubes (including cathode ray picture tubes) (new and rebuilt)	(NA)	2 125.0	(NA)	1 012.7
36714 00	Receiving-type (including cathode ray) (new and rebuilt)[2]	16	2 125.0	17	1 012.7
36715	Electron tube parts	(NA)	164.6	(NA)	180.1
36715 00	Electron tube parts[2]	18	164.6	33	180.1
36710	Electron tubes, n.s.k.	(NA)	149.5	(NA)	21.6
36710 00	Electron tubes, n.s.k.[3]	(NA)	125.1	(NA)	7.8
36710 02	Electron tubes, n.s.k.[4]	(NA)	24.4	(NA)	13.8
3672– —	**PRINTED CIRCUIT BOARDS**				
	Total	**(NA)**	**6 289.2**	**(NA)**	**4 813.9**
36720	Printed circuit (wiring) boards	(NA)	6 289.2	(NA)	4 813.9
36720 00	Printed circuit (wiring) boards[2]	748	6 123.8	716	4 662.1
36720 02	Printed circuit boards, n.s.k.[5]	(NA)	165.4	(NA)	151.7

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3674– —	**SEMICONDUCTORS AND RELATED DEVICES**				
	Total	**(NA)**	**29 352.4**	**(NA)**	**17 928.8**
36741	Integrated microcircuits (including semiconductor networks, microprocessors, and MOS memories)	(NA)	20 747.5	(NA)	13 300.1
36741 00	Integrated microcircuits (including semiconductor networks, microprocessors, and MOS memories)[2]	194	20 747.5	197	13 300.1
36742	Transistors	(NA)	709.5	(NA)	755.6
36742 00	Transistors[2]	36	709.5	56	755.6
36743	Diodes and rectifiers	(NA)	712.0	(NA)	692.4
36743 00	Diodes and rectifiers[2]	60	712.0	74	692.4
36749	Other semiconductor devices (including semiconductor parts such as chips, wafers, and heat sinks)	(NA)	6 079.9	(NA)	2 586.4
36749 00	Other semiconductor devices (including semiconductor parts, such as chips, wafers, and heat sinks)[2]	172	6 079.9	188	2 586.4
36740	Semiconductors and related devices, n.s.k.	(NA)	1 103.3	(NA)	594.2
36740 00	Semiconductors and related devices, n.s.k.[6]	(NA)	984.6	(NA)	384.7
36740 02	Semiconductors and related devices, n.s.k.[5]	(NA)	118.8	(NA)	209.5
3675– —	**CAPACITORS FOR ELECTRONIC CIRCUITRY**				
	Total	**(NA)**	**1 393.1**	**(NA)**	**1 307.2**
36750	Capacitors for electonic circuitry	(NA)	1 393.1	(NA)	1 307.2
36750 00	Capacitors for electronic circuitry[2]	90	1 382.5	115	1 293.1
36750 02	Capacitors for electronic circuitry, n.s.k.[4]	(NA)	10.6	(NA)	14.1
3676– —	**RESISTORS FOR ELECTRONIC CIRCUITRY**				
	Total	**(NA)**	**753.7**	**(NA)**	**860.2**
36760	Resistors for electronic circuitry	(NA)	753.7	(NA)	860.2
36760 00	Resistors for electronic circuitry[2]	88	747.5	107	851.7
36760 02	Resistors for electronic circuitry, n.s.k.[4]	(NA)	6.2	(NA)	8.5
3677– —	**COILS, TRANSFORMERS, REACTORS, AND CHOKES FOR ELECTRONIC CIRCUITRY**				
	Total	**(NA)**	**1 159.0**	**(NA)**	**1 184.9**
36770	Coils, transformers, reactors, and chokes for electronic circuitry	(NA)	1 159.0	(NA)	1 184.9
36770 00	Coils, transformers, reactors, and chokes for electronic circuitry[2]	317	1 134.9	307	1 132.9
36770 02	Coils, transformers, reactors, and chokes for electronic circuitry, n.s.k.[5]	(NA)	24.0	(NA)	52.0
3678– —	**CONNECTORS FOR ELECTRONIC CIRCUITRY**				
	Total	**(NA)**	**3 745.7**	**(NA)**	**3 731.4**
36781	Coaxial (RF) connectors for electronic circuitry	(NA)	426.9	(NA)	465.0
36781 00	Coaxial (RF) connectors for electronic circuitry[2]	43	426.9	57	465.0
36782	Cylindrical connectors for electronic circuitry	(NA)	549.5	(NA)	579.3
36782 00	Cylindrical connectors for electronic circuitry[2]	35	549.5	37	579.3
36783	Rack and panel (rectangular) connectors for electronic circuitry	(NA)	523.3	(NA)	493.4
36783 00	Rack and panel (rectangular) connectors for electronic circuitry[2]	33	523.3	39	493.4
36784	Printed circuit connectors for electronic circuitry	(NA)	827.2	(NA)	1 024.9
36784 00	Printed circuit connectors for electronic circuitry[2]	57	827.2	79	1 024.9
36785	Other connectors for electronic circuitry, including parts	(NA)	1 184.4	(NA)	1 057.7
36785 00	Other connectors for electronic circuitry, including parts[2]	88	1 184.4	91	1 057.7
36780	Connectors for electronic circuitry, n.s.k.	(NA)	234.4	(NA)	111.2
36780 00	Connectors for electronic circuitry, n.s.k.[7]	(NA)	212.1	(NA)	49.7
36780 02	Connectors for electronic circuitry, n.s.k.[8]	(NA)	22.2	(NA)	61.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3679– —	**ELECTRONIC COMPONENTS, NOT ELSEWHERE CLASSIFIED**				
	Total	**(NA)**	**25 443.2**	**(NA)**	**14 563.0**
36791	Crystals, filters, piezoelectric, and other related devices	(NA)	516.5	(NA)	623.5
36791 00	Crystals, filters, piezoelectric, and other related electronic devices, except microwave filters[2]	135	516.5	117	623.5
36793	Microwave components and devices, except antennae, tubes, and semiconductors	(NA)	1 323.5	(NA)	1 188.6
36793 00	Microwave components and devices (except antennae, tubes, and semiconductors)[2]	161	1 323.5	158	1 188.6
36795	Transducers, electrical/ electronic input or output, n.e.c.	(NA)	792.3	(NA)	612.9
36795 00	Transducers, electrical/ electronic input or output[2]	115	792.3	104	612.9
36796	Switches, mechanical, for electronic circuitry	(NA)	469.0	(NA)	745.9
36796 00	Switches, mechanical, for electronic circuitry[2]	91	469.0	92	745.9
36798	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	(NA)	14 302.6	(NA)	5 538.8
36798 00	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)[2]	572	14 302.6	206	5 538.8
36799	Electronic components, n.e.c.	(NA)	5 040.2	(NA)	4 261.7
36799 30	Earphones and headsets (except telephone), phonograph cartridges and pickups, and phonograph needle and styli[2]	13	39.4	(NA)	45.5
36799 20	Other electronic components, n.e.c. (including static power supply converters, and cable harness assemblies)[2]	493	4 923.1	488	4 061.4
36799 00	Electronic components, n.e.c., n.s.k.	(NA)	77.7	(NA)	154.8
36790	Electronic components, not elsewhere classified, n.s.k.	(NA)	2 999.1	(NA)	1 591.6
36790 00	Electronic components, not elsewhere classified, n.s.k.[6]	(NA)	2 631.9	(NA)	1 172.8
36790 02	Electronic components, not elsewhere classified, n.s.k.[5]	(NA)	367.2	(NA)	418.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]Typically for establishments with 15 employees or more.
[4]Typically for establishments with less than 15 employees.
[5]Typically for establishments with less than 10 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with 20 employees or more.
[8]Typically for establishments with less than 20 employees.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36713, TRANSMITTAL, INDUSTRIAL, AND SPECIAL PURPOSE ELECTRON TUBES, EXCEPT X-RAY		
United States	**918.1**	**1 114.9**
California	392.0	546.8
Massachusetts	113.1	154.3
New Jersey	32.9	29.6
Pennsylvania	78.3	79.5
36714, RECEIVING-TYPE ELECTRON TUBES (INCLUDING CATHODE RAY PICTURE TUBES) (NEW AND REBUILT)		
United States	**2 125.0**	**1 012.7**
36715, ELECTRON TUBE PARTS		
United States	**164.6**	**180.1**
California	32.2	45.9

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36741, INTEGRATED MICROCIRCUITS (INCLUDING SEMICONDUCTOR NETWORKS, MICROPROCESSORS, AND MOS MEMORIES)		
United States	**20 747.5**	**13 300.1**
Arizona	1 232.6	856.8
California	6 215.1	5 154.3
Colorado	339.2	332.1
Massachusetts	733.2	569.2
Minnesota	74.4	(NA)
New York	286.0	845.9
Texas	4 477.7	(NA)
Washington	67.0	94.0
36742, TRANSISTORS		
United States	**709.5**	**755.6**
California	142.1	204.5
Florida	15.8	(NA)
Massachusetts	9.5	31.6

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36743, DIODES AND RECTIFIERS		
United States	**712.0**	**692.4**
California	120.9	143.3
Massachusetts	91.7	154.2
New York	14.1	28.6
Pennsylvania	27.5	(NA)
Texas	31.4	(NA)
36749, OTHER SEMICONDUCTOR DEVICES (INCLUDING SEMICONDUCTOR PARTS SUCH AS CHIPS, WAFERS, AND HEAT SINKS)		
United States	**6 079.9**	**2 586.4**
California	1 208.9	546.7
Illinois	4.9	21.0
Massachusetts	501.0	99.2
Michigan	7.7	(NA)
New Jersey	57.7	48.7
Ohio	156.9	82.0
Oregon	556.1	(NA)
Pennsylvania	486.1	88.4
Texas	392.9	183.4
Virginia	4.5	(NA)
36781, COAXIAL (RF) CONNECTORS FOR ELECTRONIC CIRCUITRY		
United States	**426.9**	**465.0**
California	21.5	11.9
Connecticut	86.4	75.6
Massachusetts	41.4	36.2
New York	58.9	104.3
36782, CYLINDRICAL CONNECTORS FOR ELECTRONIC CIRCUITRY		
United States	**549.5**	**579.3**
California	249.4	262.3
36783, RACK AND PANEL (RECTANGULAR) CONNECTORS FOR ELECTRONIC CIRCUITRY		
United States	**523.3**	**493.4**
California	107.8	124.2
Pennsylvania	60.0	73.5
36784, PRINTED CIRCUIT CONNECTORS FOR ELECTRONIC CIRCUITRY		
United States	**827.2**	**1 024.9**
California	67.3	79.5
Illinois	45.5	59.1
Missouri	68.2	(NA)
New Jersey	12.6	(NA)
New York	37.6	38.2
36785, OTHER CONNECTORS FOR ELECTRONIC CIRCUITRY, INCLUDING PARTS		
United States	**1 184.4**	**1 057.7**
California	288.4	229.6
Connecticut	16.8	25.9
Illinois	51.9	64.5
Massachusetts	50.8	131.6
Missouri	101.5	(NA)
New Jersey	23.1	17.6
New York	73.3	65.3
Pennsylvania	138.3	143.3
36791, CRYSTALS, FILTERS, PIEZOELECTRIC, AND OTHER RELATED DEVICES		
United States	**516.5**	**623.5**
Arizona	14.4	(NA)
California	86.6	134.6
Connecticut	5.4	(NA)
Florida	20.8	57.4
Illinois	58.5	150.4
36791, CRYSTALS, FILTERS, PIEZOELECTRIC, AND OTHER RELATED DEVICES—Con.		
Indiana	6.4	(NA)
Kansas	23.0	18.8
Maryland	3.8	17.4
Massachusetts	23.4	42.1
New Jersey	7.3	18.3
New York	28.3	25.9
Ohio	29.4	22.2
Pennsylvania	63.7	72.2
Texas	30.2	8.2
36793, MICROWAVE COMPONENTS AND DEVICES, EXCEPT ANTENNAE, TUBES, AND SEMICONDUCTORS		
United States	**1 323.5**	**1 188.6**
California	424.2	511.0
Colorado	13.2	(NA)
Florida	17.0	3.6
Indiana	2.9	(NA)
Maryland	35.2	(NA)
Massachusetts	186.4	197.6
New Hampshire	46.4	36.7
New Jersey	55.0	78.7
New York	142.2	157.7
Pennsylvania	33.6	20.9
36795, TRANSDUCERS, ELECTRICAL/ ELECTRONIC INPUT OR OUTPUT, N.E.C.		
United States	**792.3**	**612.9**
California	253.3	163.0
Connecticut	22.0	(NA)
Indiana	38.3	(NA)
Massachusetts	78.0	41.0
Michigan	9.7	(NA)
New York	58.7	39.8
Ohio	45.0	24.9
Pennsylvania	8.6	10.0
36796, SWITCHES, MECHANICAL, FOR ELECTRONIC CIRCUITRY		
United States	**469.0**	**745.9**
California	20.9	94.2
Connecticut	34.6	89.0
Illinois	87.1	139.2
Indiana	5.6	(NA)
Massachusetts	51.9	64.9
Michigan	2.3	(NA)
New Jersey	10.8	9.7
New York	9.8	16.2
North Carolina	47.5	(NA)
Ohio	7.6	(NA)
Wisconsin	16.9	(NA)
36798, PRINTED CIRCUIT ASSEMBLIES, LOADED BOARDS OR MODULES (PRINTED CIRCUIT BOARDS WITH INSERTED ELECTRONIC COMPONENTS)		
United States	**14 302.6**	**5 538.8**
Arizona	345.3	7.5
California	3 143.0	706.3
Colorado	275.8	(NA)
Connecticut	42.5	11.2
Florida	448.0	(NA)
Illinois	49.1	65.3
Indiana	230.9	26.4
Kansas	3.2	(NA)
Kentucky	14.2	(NA)
Maryland	24.5	(NA)
Massachusetts	670.8	142.8
Michigan	112.8	22.1
Minnesota	456.6	115.7
New Hampshire	101.1	(NA)
New Jersey	84.5	14.2
New Mexico	20.4	(NA)
Ohio	52.2	6.3
Oklahoma	19.3	(NA)
Oregon	122.0	(NA)
Pennsylvania	97.5	16.7
Texas	3 155.7	(NA)
Utah	40.7	(NA)
Virginia	89.6	(NA)
Washington	38.3	(NA)
Wisconsin	237.4	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36799, ELECTRONIC COMPONENTS, N.E.C.			**36799, ELECTRONIC COMPONENTS, N.E.C.—Con.**		
United States	**5 040.2**	**4 261.7**	Minnesota	154.2	49.5
			Missouri	39.7	18.9
Alabama	19.9	7.4	New Hampshire	39.6	25.4
Arizona	117.4	66.2	New Jersey	192.5	254.8
California	1 752.6	997.1	New York	632.6	734.1
Colorado	78.8	50.6			
Connecticut	116.0	93.7	North Carolina	248.1	(NA)
			North Dakota	6.8	(NA)
Florida	84.6	77.4	Ohio	99.6	140.8
Georgia	5.5	(NA)	Oklahoma	73.8	(NA)
Illinois	143.8	82.6	Oregon	83.9	28.7
Indiana	22.4	101.0			
Iowa	48.1	(NA)	Pennsylvania	181.7	112.3
Kansas	9.2	20.2	Tennessee	13.3	22.1
Maine	7.7	(NA)	Texas	232.8	127.8
Massachusetts	325.4	235.5	Virginia	16.2	7.1
Michigan	8.7	38.4	Washington	72.0	8.0
			Wisconsin	68.2	63.9

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3671-	**Electron tubes**	**3 357.3**	**2 658.6**	**2 649.7**	**2 638.2**	**2 464.6**	**2 329.3**	**(NA)**	**(NA)**
36713	Transmittal, industrial, and special purpose electron tubes, except x-ray	918.1	1 017.0	1 071.5	1 128.9	1 175.8	1 114.9	962.1	544.6
36714	Receiving-type electron tubes (including cathode ray picture tubes) (new and rebuilt)	2 125.0	1 486.5	1 364.1	1 330.6	1 111.3	1 012.7	873.0	707.5
36715	Electron tube parts	164.6	124.4	155.8	148.9	153.9	180.1	(NA)	(NA)
36710	Electron tubes, n.s.k.	149.5	30.6	58.4	29.8	23.7	21.6	19.1	17.4
3672-	**Printed circuit boards**	**6 289.2**	**5 899.1**	**7 616.5**	**7 337.9**	**7 358.5**	**4 813.9**	**2 288.9**	**(NA)**
36720	Printed circuit (wiring) boards	6 289.2	5 899.1	7 616.5	7 337.9	7 358.5	4 813.9	2 288.9	(NA)
3674-	**Semiconductors and related devices**	**29 352.4**	**27 437.5**	**23 977.7**	**23 488.3**	**20 332.1**	**17 928.8**	**11 215.4**	**4 532.3**
36741	Integrated microcircuits (including semiconductor networks, microprocessors, and MOS memories)	20 747.5	19 894.2	16 371.8	16 682.5	14 857.1	13 300.1	7 298.4	2 697.1
36742	Transistors	709.5	731.0	696.4	765.2	798.9	755.6	596.1	462.6
36743	Diodes and rectifiers	712.0	630.9	643.0	686.8	793.6	692.4	506.2	414.9
36749	Other semiconductor devices (including semiconductor parts such as chips, wafers, and heat sinks)	6 079.9	5 653.4	5 584.5	4 875.3	3 337.4	2 586.4	2 334.8	835.8
36740	Semiconductors and related devices, n.s.k.	1 103.3	528.0	682.1	478.5	545.1	594.2	479.9	122.0
3675-	**Capacitors for electronic circuitry**	**1 393.1**	**1 373.3**	**1 322.1**	**1 430.7**	**1 555.1**	**1 307.2**	**1 207.1**	**736.1**
36750	Capacitors for electonic circuitry	1 393.1	1 373.3	1 322.1	1 430.7	1 555.1	1 307.2	1 207.1	736.1
3676-	**Resistors for electronic circuitry**	**753.7**	**791.0**	**831.9**	**850.3**	**866.0**	**860.2**	**758.3**	**583.0**
36760	Resistors for electronic circuitry	753.7	791.0	831.9	850.3	866.0	860.2	758.3	583.0
3677-	**Coils, transformers, reactors, and chokes for electronic circuitry**	**1 159.0**	**1 088.5**	**1 055.9**	**1 183.6**	**1 208.2**	**1 184.9**	**924.6**	**605.8**
36770	Coils, transformers, reactors, and chokes for electronic circuitry	1 159.0	1 088.5	1 055.9	1 183.6	1 208.2	1 184.9	924.6	605.8
3678-	**Connectors for electronic circuitry**	**3 745.7**	**3 451.3**	**3 578.4**	**3 789.0**	**3 911.6**	**3 731.4**	**2 353.3**	**986.0**
36781	Coaxial (RF) connectors for electronic circuitry	426.9	422.6	417.1	530.6	534.6	465.0	223.3	
36782	Cylindrical connectors for electronic circuitry	549.5	479.7	529.6	524.2	634.0	579.3	411.7	
36783	Rack and panel (rectangular) connectors for electronic circuitry	523.3	517.2	525.6	552.9	491.2	493.4	401.2	
36784	Printed circuit connectors for electronic circuitry	827.2	831.1	898.6	960.2	1 192.8	1 024.9	464.0	986.0
36785	Other connectors for electronic circuitry, including parts	1 184.4	1 066.8	995.1	1 085.1	942.4	1 057.7	740.0	
36780	Connectors for electronic circuitry, n.s.k.	234.4	134.0	212.4	135.8	116.7	111.2	113.1	
3679-	**Electronic components, not elsewhere classified**	**25 443.2**	**20 066.7**	**18 274.5**	**16 290.9**	**14 991.9**	**14 563.0**	**(NA)**	**(NA)**
36791	Crystals, filters, piezoelectric, and other related devices	516.5	442.6	551.5	507.7	643.7	623.5	429.8	(NA)
36793	Microwave components and devices, except antennae, tubes, and semiconductors	1 323.5	1 434.5	1 364.2	1 262.3	1 233.6	1 188.6	794.5	(NA)
36795	Transducers, electrical/ electronic input or output, n.e.c.	792.3	758.7	741.3	783.0	624.4	612.9	357.0	(NA)
36796	Switches, mechanical, for electronic circuitry	469.0	533.3	614.2	595.8	683.0	745.9	468.6	(NA)
36798	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	14 302.6	10 017.1	7 966.2	7 211.6	6 363.1	5 538.8	2 655.9	(NA)
36799	Electronic components, n.e.c.	5 040.2	5 363.7	5 337.6	4 588.5	3 693.3	4 261.7	(NA)	(NA)
36790	Electronic components, not elsewhere classified, n.s.k.	2 999.1	1 516.7	1 699.6	1 342.0	1 750.8	1 591.6	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3671, ELECTRON TUBES		
	Materials, ingredients, containers, and supplies	**1 710.5**	**1 062.5**
322925	Tube blanks	(D)	362.0
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	5.0	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	(2)	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	3.9	(1)
367501	Capacitors	3.1	(1)
367601	Resistors	2.1	(1)
367990	Other components and accessories, n.e.c.	229.4	157.6
281995	Silicon, hyperpure	(D)	.6
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	8.6	10.0
333951	Doped chemicals, and other doped materials for electronic use	(D)	1.3
339913	Ferrites (powder and paste)	(D)	(3)
339915	Metal powders	7.9	6.6
357001	Electronic computing equipment	(D)	(3)
364300	Current-carrying wiring devices	(D)	4.6
366301	Electronic communication equipment	(D)	(3)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	(D)	9.7
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	(D)	3.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(D)	.8
308006	Fabricated plastics products, except gaskets	1.8	12.6
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	65.6	23.9
346901	Metal stampings	57.9	57.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	5.4	6.7
340063	Other fabricated metal products	28.1	(3)
346000	Forgings	(D)	(3)
330091	Castings (rough and semifinished)	(D)	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	1.3	(3)
335105	Copper and copper-base alloy	2.1	4.9
335001	Aluminum and aluminum-base alloy	.8	(3)
335099	Other nonferrous shapes and forms	3.1	(3)
335796	Insulated wire and cable, including magnet wire	6.6	(3)
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	2.0	5.1
970099	All other materials and components, parts, containers, and supplies	240.2	3330.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	833.8	165.3
	INDUSTRY 3672, PRINTED CIRCUIT BOARDS		
	Materials, ingredients, containers, and supplies	**2 701.8**	**1 813.2**
322925	Tube blanks	(D)	(3)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	293.1	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	(2)	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	67.0	(1)
367501	Capacitors	11.1	(1)
367601	Resistors	6.7	(1)
367990	Other components and accessories, n.e.c.	259.5	151.3
281995	Silicon, hyperpure	(D)	(3)
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	56.7	53.5
333951	Doped chemicals, and other doped materials for electronic use	50.7	13.7
339913	Ferrites (powder and paste)	(D)	(3)
339915	Metal powders	(D)	(3)
357001	Electronic computing equipment	.4	(3)
364300	Current-carrying wiring devices	2.4	(3)
366301	Electronic communication equipment	(D)	(3)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	.5	(3)
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	.3	(3)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	3.8	(3)
308006	Fabricated plastics products, except gaskets	24.0	33.7
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	9.8	3.6
346901	Metal stampings	2.2	2.2
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	5.2	6.2
340063	Other fabricated metal products	91.0	(3)
346000	Forgings	–	(3)
330091	Castings (rough and semifinished)	.2	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	.5	(3)
335105	Copper and copper-base alloy	42.7	77.0
335001	Aluminum and aluminum-base alloy	5.6	(3)
335099	Other nonferrous shapes and forms	6.7	(3)
335796	Insulated wire and cable, including magnet wire	9.8	3.2
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	6.5	7.4
970099	All other materials and components, parts, containers, and supplies	877.8	3705.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	824.9	755.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3674, SEMICONDUCTORS AND RELATED DEVICES		
	Materials, ingredients, containers, and supplies	**6 687.2**	**4 444.9**
322925	Tube blanks	2.5	(3)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	44.5	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	98.0	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	1 341.8	(1)
367501	Capacitors	15.9	(1)
367601	Resistors	4.6	(1)
367990	Other components and accessories, n.e.c.	195.7	[1]832.4
281995	Silicon, hyperpure	675.7	159.9
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	63.7	164.4
333951	Doped chemicals, and other doped materials for electronic use	133.9	43.0
339913	Ferrites (powder and paste)	(D)	.8
339915	Metal powders	6.4	(3)
357001	Electronic computing equipment	38.6	(3)
364300	Current-carrying wiring devices	6.5	(3)
366301	Electronic communication equipment	7.8	(3)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	(D)	(3)
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	(D)	18.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	29.8	24.9
308006	Fabricated plastics products, except gaskets	30.7	15.5
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	10.8	1.3
346901	Metal stampings	49.9	42.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	3.0	9.8
340063	Other fabricated metal products	41.6	(3)
346000	Forgings	(D)	(3)
330091	Castings (rough and semifinished)	1.0	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	4.4	(3)
335105	Copper and copper-base alloy	3.4	(3)
335001	Aluminum and aluminum-base alloy	11.4	17.3
335099	Other nonferrous shapes and forms	7.7	(3)
335796	Insulated wire and cable, including magnet wire	6.3	(3)
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	44.4	6.9
970099	All other materials and components, parts, containers, and supplies	1 508.4	[3]1 237.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	2 233.7	1 870.1
	INDUSTRY 3675, ELECTRONIC CAPACITORS		
	Materials, ingredients, containers, and supplies	**472.9**	**475.8**
322925	Tube blanks	–	(Z)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	.2	(3)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	(2)	(3)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	.7	(3)
367501	Capacitors	20.2	(3)
367601	Resistors	(2)	(3)
367990	Other components and accessories, n.e.c.	[2].9	(3)
281995	Silicon, hyperpure	(D)	–
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	43.0	64.9
333951	Doped chemicals, and other doped materials for electronic use	(D)	.9
339913	Ferrites (powder and paste)	(D)	(Z)
339915	Metal powders	(D)	17.3
357001	Electronic computing equipment	(D)	(3)
364300	Current-carrying wiring devices	–	.4
366301	Electronic communication equipment	(D)	–
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	(D)	.2
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	(D)	(Z)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	13.0	4.9
308006	Fabricated plastics products, except gaskets	2.1	3.9
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	(D)	.3
346901	Metal stampings	(D)	2.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	3.0	2.7
340063	Other fabricated metal products	3.8	(3)
346000	Forgings	–	(3)
330091	Castings (rough and semifinished)	(D)	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	(D)	(3)
335105	Copper and copper-base alloy	(D)	(3)
335001	Aluminum and aluminum-base alloy	17.7	28.2
335099	Other nonferrous shapes and forms	(D)	(3)
335796	Insulated wire and cable, including magnet wire	.8	.3
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	3.9	9.0
970099	All other materials and components, parts, containers, and supplies	114.3	[3]183.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	151.1	157.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3676, ELECTRONIC RESISTORS		
	Materials, ingredients, containers, and supplies	**190.1**	**237.1**
322925	Tube blanks	(D)	.2
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	.5	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	.3	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	(5)	(1)
367501	Capacitors	(5)	(1)
367601	Resistors	8.4	(1)
367990	Other components and accessories, n.e.c.	535.5	120.6
281995	Silicon, hyperpure	(D)	–
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	6.6	13.5
333951	Doped chemicals, and other doped materials for electronic use	(D)	(3)
339913	Ferrites (powder and paste)	2.2	–
339915	Metal powders	.7	1.1
357001	Electronic computing equipment	(D)	(3)
364300	Current-carrying wiring devices	.7	(3)
366301	Electronic communication equipment	–	–
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	(Z)	(Z)
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	.4	–
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	4.7	5.1
308006	Fabricated plastics products, except gaskets	3.8	9.6
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	.2	(3)
346901	Metal stampings	14.2	10.7
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	2.5	4.3
340063	Other fabricated metal products	3.7	(3)
346000	Forgings	–	(3)
330091	Castings (rough and semifinished)	(D)	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	1.5	(3)
335105	Copper and copper-base alloy	1.5	6.6
335001	Aluminum and aluminum-base alloy	.6	(3)
335099	Other nonferrous shapes and forms	(D)	(3)
335796	Insulated wire and cable, including magnet wire	3.7	(3)
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	2.1	2.2
970099	All other materials and components, parts, containers, and supplies	41.4	362.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	46.9	100.7
	INDUSTRY 3677, ELECTRONIC COILS AND TRANSFORMERS		
	Materials, ingredients, containers, and supplies	**413.8**	**438.6**
322925	Tube blanks	.2	–
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	1.2	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	1.4	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	1.4	(1)
367501	Capacitors	1.2	(1)
367601	Resistors	.8	(1)
367990	Other components and accessories, n.e.c.	11.3	132.3
281995	Silicon, hyperpure	1.3	(Z)
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	1.9	(3)
333951	Doped chemicals, and other doped materials for electronic use	.3	1.1
339913	Ferrites (powder and paste)	12.1	8.4
339915	Metal powders	3.4	1.1
357001	Electronic computing equipment	.3	(3)
364300	Current-carrying wiring devices	1.0	1.3
366301	Electronic communication equipment	.1	.1
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	1.5	.4
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	(D)	(Z)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	4.4	4.1
308006	Fabricated plastics products, except gaskets	5.8	7.2
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	7.6	5.4
346901	Metal stampings	14.1	20.1
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	4.1	4.2
340063	Other fabricated metal products	2.4	(3)
346000	Forgings	(D)	(3)
330091	Castings (rough and semifinished)	(D)	2.5
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	8.1	16.2
335105	Copper and copper-base alloy	2.9	3.7
335001	Aluminum and aluminum-base alloy	.6	2.3
335099	Other nonferrous shapes and forms	1.1	(3)
335796	Insulated wire and cable, including magnet wire	36.7	57.0
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	3.9	3.1
970099	All other materials and components, parts, containers, and supplies	79.9	3153.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	202.6	114.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3678, ELECTRONIC CONNECTORS		
	Materials, ingredients, containers, and supplies	**1 206.0**	**1 375.2**
322925	Tube blanks	(D)	.3
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	4.5	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	6.3	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	6.3	(1)
367501	Capacitors	4.9	(1)
367601	Resistors	.2	(1)
367990	Other components and accessories, n.e.c.	17.1	[1]57.7
281995	Silicon, hyperpure	(D)	–
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	135.2	176.1
333951	Doped chemicals, and other doped materials for electronic use	3.8	(3)
339913	Ferrites (powder and paste)	(D)	(3)
339915	Metal powders	(D)	(3)
357001	Electronic computing equipment	(D)	(3)
364300	Current-carrying wiring devices	19.1	12.4
366301	Electronic communication equipment	(D)	(3)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	.4	(3)
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	(D)	(3)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	65.6	71.2
308006	Fabricated plastics products, except gaskets	120.1	118.6
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	5.7	(3)
346901	Metal stampings	140.2	190.8
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	83.5	61.7
340063	Other fabricated metal products	46.7	(3)
346000	Forgings	.1	(3)
330091	Castings (rough and semifinished)	15.6	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	15.7	6.5
335105	Copper and copper-base alloy	40.8	(3)
335001	Aluminum and aluminum-base alloy	21.4	17.3
335099	Other nonferrous shapes and forms	19.0	(3)
335796	Insulated wire and cable, including magnet wire	30.7	17.9
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	14.0	8.4
970099	All other materials and components, parts, containers, and supplies	217.0	[3]389.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	168.0	247.0
	INDUSTRY 3679, ELECTRONIC COMPONENTS, N.E.C.		
	Materials, ingredients, containers, and supplies	**10 892.3**	**6 583.7**
322925	Tube blanks	7.9	.7
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	445.0	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	(2)	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	1 238.1	(1)
367501	Capacitors	177.1	(1)
367601	Resistors	99.8	(1)
367990	Other components and accessories, n.e.c.	[2]2 993.4	[1]1 426.8
281995	Silicon, hyperpure	3.4	1.4
333942	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	43.8	32.6
333951	Doped chemicals, and other doped materials for electronic use	3.1	4.4
339913	Ferrites (powder and paste)	15.3	39.4
339915	Metal powders	22.0	8.8
357001	Electronic computing equipment	(D)	(3)
364300	Current-carrying wiring devices	(D)	39.9
366301	Electronic communication equipment	53.6	24.5
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	31.5	64.2
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	5.9	(3)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	42.3	18.6
308006	Fabricated plastics products, except gaskets	55.2	111.9
	Fabricated metal products (except forgings):		
344401	Sheet metal products, except stampings	76.2	41.6
346901	Metal stampings	68.6	58.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	44.9	67.3
340063	Other fabricated metal products	80.5	(3)
346000	Forgings	1.4	(3)
330091	Castings (rough and semifinished)	33.3	18.6
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	25.1	27.7
335105	Copper and copper-base alloy	21.2	22.1
335001	Aluminum and aluminum-base alloy	30.3	43.3
335099	Other nonferrous shapes and forms	12.5	(3)
335796	Insulated wire and cable, including magnet wire	158.5	84.2
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	73.7	18.4
970099	All other materials and components, parts, containers, and supplies	1 047.8	[3]2 777.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	3 358.0	1 651.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[1]For 1987, data for these material codes were not collected separately but were included with material code 367990.
[2]For 1992, material code 367981 was included with material code 367990 to avoid disclosing data for individual companies.
[3]For 1987, data for these material codes were included with material code 970099 to avoid disclosing data for individual companies.
[4]Total cost of materials of establishmetns that did not report detailed materials data, including establishments that were not mailed a form.
[5]For 1992, data for these material codes are included with material code 367990 to avoid disclosing data for individual companies.

TIPS UPF [APS_PSB,C_BROOKS] 6/ 15/ 95 13:15:42 EPCV23 TLP:36E.BTI;47 6/ 14/ 95 08:31:52 DATA:NONE UPF:92MFFI_PUBS:36EDAT.UPF PAGE: 23
TSF:36E_92.DAT;1 6/ 14/ 95 08:32:17 UTF:36E_93.DAT;3 6/ 15/ 95 13:13:06 META:TIPS96-13141878.DAT;1 6/ 15/ 95 13:15:18

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

[Not applicable for this report]

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

[Not applicable for this report]

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3647000	MA36L, Electric Lighting Fixtures
3613200	MA36A, Switchgear and Industrial Controls	3648500	MA36L, Electric Lighting Fixtures
3613300	MA36A, Switchgear and Industrial Controls	3651100	MA36M, Consumer Electronics
3613400	MA36A, Switchgear and Industrial Controls	3651200	MA36M, Consumer Electronics
3613500	MA36A, Switchgear and Industrial Controls	3651400	MA36M, Consumer Electronics
3613600	MA36A, Switchgear and Industrial Controls		
3613900	MA36A, Switchgear and Industrial Controls	3651500	MA36M, Consumer Electronics
3621100	MA36H, Motors and Generators	3661100	MA36P, Communications Equipment
3621200	MA36H, Motors and Generators	3661300	MA36P, Communications Equipment
3621300	MA36H, Motors and Generators	3661400	MA36P, Communications Equipment
3621400	MA36H, Motors and Generators	3663100	MA36P, Communications Equipment
3621700	MA36H, Motors and Generators		
3621800	MA36H, Motors and Generators	3663200	MA36P, Communications Equipment
3621900	MA36H, Motors and Generators	3669100	MA36P, Communications Equipment
3625100	MA36A, Switchgear and Industrial Controls	3669200	MA36P, Communications Equipment
3625200	MA36A, Switchgear and Industrial Controls	3669300	MA36P, Communications Equipment
3625300	MA36A, Switchgear and Industrial Controls	3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3625400	MA36A, Switchgear and Industrial Controls		
3631110	MA36F, Major Household Appliances	3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631120	MA36F, Major Household Appliances	3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631310	MA36F, Major Household Appliances	3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631320	MA36F, Major Household Appliances	3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631410	MA36F, Major Household Appliances	3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3631420	MA36F, Major Household Appliances		
3632100	MA36F, Major Household Appliances	3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632200	MA36F, Major Household Appliances	3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3632300	MA36F, Major Household Appliances	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633010	MA36F, Major Household Appliances	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3633020	MA36F, Major Household Appliances	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634100	MA36E, Electric Housewares and Fans		
3634500	MA36E, Electric Housewares and Fans	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634911	MA36E, Electric Housewares and Fans	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3634920	MA36E, Electric Housewares and Fans	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639100	MA36F, Major Household Appliances	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639200	MA36F, Major Household Appliances	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639510	MA36F, Major Household Appliances	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3639520	MA36F, Major Household Appliances	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3641100	MQ36B, Electric Lamps	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643100	MA36K, Wiring Devices and Supplies	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643200	MA36K, Wiring Devices and Supplies	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643300	MA36K, Wiring Devices and Supplies	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3643400	MA36K, Wiring Devices and Supplies	3679930	MA36M, Consumer Electronics
3643500	MA36K, Wiring Devices and Supplies	3695000	MA35R, Computers and Office and Accounting Machines
3643600	MA36K, Wiring Devices and Supplies	3699100	MA36P, Communications Equipment
3644100	MA36K, Wiring Devices and Supplies	3699283	MA36P, Communications Equipment
3644200	MA36K, Wiring Devices and Supplies		
3644300	MA36K, Wiring Devices and Supplies	3699284	MA36P, Communications Equipment
3645100	MA36L, Electric Lighting Fixtures	3699285	MA36P, Communications Equipment
3646200	MA36L, Electric Lighting Fixtures	3699500	MA36P, Communications Equipment
3646300	MA36L, Electric Lighting Fixtures	3699900	MA36P, Communications Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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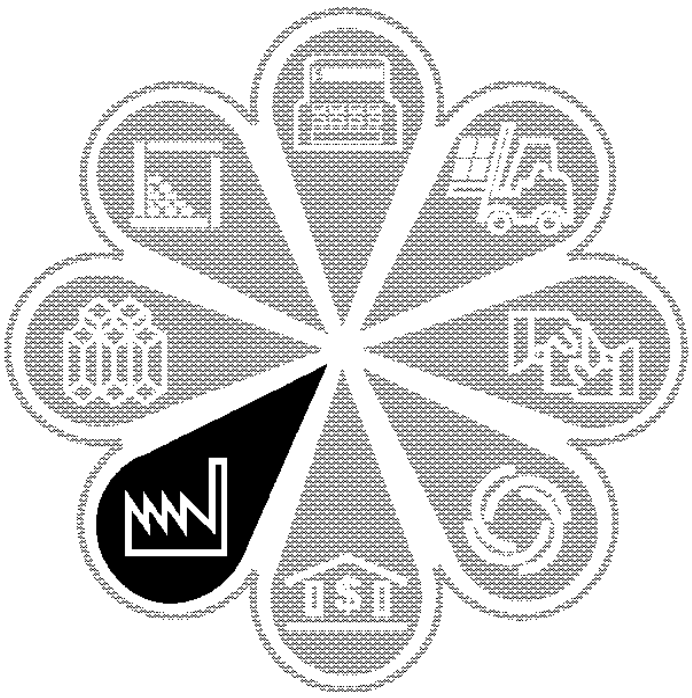
1992 Census of Manufactures

MC92-I-36F

INDUSTRY SERIES

Miscellaneous Electrical Equipment and Supplies

Industries 3691, 3692, 3694, 3695, and 3699



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-36F

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-07372109.DAT;1 5/ 25/ 95 07:37:26 UTF:TIPS93-07372109.DAT;1 5/ 25/ 95 07:37:26 META:TIPS96-07372109.DAT;1 5/ 25/ 95 07:37:38

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3691	Storage Batteries
3692	Primary Batteries, Dry and Wet
3694	Engine Electrical Equipment
3695	Magnetic and Optical Recording Media
3699	Electrical Equipment and Supplies, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3691, STORAGE BATTERIES

This industry is made up of establishments primarily engaged in manufacturing storage batteries.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3691, Storage Batteries, had employment of 21.1 thousand. The employment figure was 13 percent below the 24.2 thousand reported in 1987. Compared with 1991, employment was unchanged. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, California, Florida, and Georgia. This represents a shift from 1987 when Pennsylvania, California, Indiana, and Florida were the leading States.

The total value of shipments for establishments classified in this industry was $3.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3691 shipped $3.3 billion of storage batteries considered primary to the industry, $48.5 million of secondary products, and had $59.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3691, no matter in what industry they were produced, appear in table 6a and aggregate to $3.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the storage batteries industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET

This industry is made up of establishments primarily engaged in manufacturing primary batteries, dry and wet.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3692, Primary Batteries, Dry and Wet, had employment of 10.4 thousand. The employment figure was 3 percent below the 10.7 thousand reported in 1987. Compared with 1991, employment increased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were North Carolina, Missouri, Wisconsin, and South Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3692 shipped $1.7 billion of primary batteries, dry and wet, considered primary to the industry.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 96 percent.

The products primary to industry 3692, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the primary batteries, dry and wet, industry amounted to $933.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing electrical equipment for internal combustion engines. Important products of this industry include armatures, starting motors, alternators, and generators for automobiles and aircraft; and ignition apparatus for internal combustion engines, including spark plugs, magnetos, coils, and distributors.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3694, Engine Electrical Equipment, had employment of 50.0 thousand. The employment figure was 26 percent below the 67.3 thousand reported in 1987. Compared with 1991, employment increased 11 percent. The 1991 data are based on the Bureau's Annual Survey of Manufactures (ASM), which is a sample survey conducted each year between Census.

The leading States in employment in 1992 were Indiana, Alabama, Texas, and California. This represents a shift from 1987 when Indiana, Ohio, Mississippi, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $7.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3694 shipped $5.8 billion of engine electrical equipment considered primary to the industry, $1.1 billion of secondary products, and had $281.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 84 percent (specialization ratio). In 1987, the specialization ratio was 79 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3694, no matter in what industry they were produced, appear in table 6a and aggregate to $6.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the engine electrical equipment industry amounted to $3.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA

This industry is made up of establishments primarily engaged in manufacturing blank tape, disk, and cassette magnetic and optical recording media for use in recording audio, video, and digital signals. Establishments primarily engaged in manufacturing blank or recorded records and prerecorded audio tapes are classified in industry 3652; those manufacturing prepackaged computer software are classified in services, industry 7372; and those manufacturing prerecorded video tape cassettes and disks are classified in services, major group 78. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35R, Computers and Office and Accounting Machines. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3695, Magnetic and Optical Recording Media, had employment of 22.6 thousand. The employment figure was 12 percent below the 25.6 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Alabama, Massachusetts, and Oklahoma. This represents a shift from 1987 when California, Alabama, Massachusetts, and Maine were the leading States.

The total value of shipments for establishments classified in this industry was $4.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3695 shipped $3.7 billion of magnetic and optical recording media considered primary to the industry, $369.9 million of secondary products, and had $540.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 83 percent.

The products primary to industry 3695, no matter in what industry they were produced, appear in table 6a and aggregate to $4.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the magnetic and optical recording media industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing electrical machinery, equipment, and supplies, not elsewhere classified, including high energy particle acceleration systems and equipment, electronic simulators, appliance and extension cords, bells and chimes, and insect traps. Products of this industry also are collected in the Current Industrial Report (CIR) MA-36P, Communication Equipment. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3699, Electrical Equipment and Supplies, N.E.C., had employment of 43.4 thousand. The employment figure was 28 percent below the 60.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Florida, New York, and Ohio accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when California, New York, Florida, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $4.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3699 shipped $4.0 billion of electrical equipment and supplies, not elsewhere classified, considered primary to the industry, $497.7 million of secondary products, and

had $402.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 79 percent.

The products primary to industry 3699, no matter in what industry they were produced, appear in table 6a and aggregate to $4.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electrical equipment and supplies, not elsewhere classified, industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3691, STORAGE BATTERIES															
1992 Census ---	110	154	91	21.1	596.7	16.9	33.5	427.8	1 774.0	1 633.3	3 409.5	120.0	464.3	99	98
1991 ASM------	(NA)	(NA)	(NA)	21.0	579.9	16.6	33.8	424.6	1 577.1	1 740.6	3 313.3	110.1	445.7	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	23.1	623.9	18.4	36.7	459.2	1 718.8	1 947.5	3 625.8	126.5	522.0	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	24.5	622.1	19.5	37.8	462.5	1 580.7	1 767.4	3 358.5	119.4	465.0	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	24.9	632.6	19.8	39.8	472.2	1 743.2	1 775.4	3 484.4	140.8	476.2	(NA)	(NA)
1987 Census ---	125	190	117	24.2	626.4	19.4	38.4	473.4	1 705.1	1 623.9	3 303.1	111.7	450.9	97	99
1986 ASM------	(NA)	(NA)	(NA)	23.2	594.6	18.3	37.1	444.3	1 639.0	1 348.3	2 991.8	109.8	413.8	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	23.5	567.2	18.6	36.1	425.4	1 535.3	1 263.0	2 797.1	118.0	411.6	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	23.7	563.8	19.0	38.5	426.2	1 550.0	1 386.1	2 916.3	132.1	414.0	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	22.4	486.8	18.1	34.9	365.6	1 331.8	1 217.1	2 542.6	98.1	392.9	(NA)	(NA)
1982 Census ---	129	201	123	22.9	473.6	18.0	34.4	347.3	1 203.0	1 196.2	2 431.3	109.7	376.9	97	98
1981 ASM------	(NA)	(NA)	(NA)	24.0	471.9	19.2	38.8	354.4	1 297.8	1 314.8	2 603.2	96.8	398.7	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	24.7	428.0	19.6	38.8	312.6	1 175.7	1 342.9	2 571.5	77.9	393.2	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	27.6	434.4	22.7	47.1	338.6	1 304.9	1 400.3	2 607.1	96.9	458.8	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	27.2	401.6	22.4	46.3	316.4	1 043.7	1 260.4	2 269.6	129.4	351.2	(NA)	(NA)
1977 Census ---	134	218	134	25.9	358.7	21.1	43.4	276.4	927.8	1 103.6	1 982.5	122.2	292.9	97	99
INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET															
1992 Census ---	53	68	32	10.4	271.9	7.9	16.0	179.6	871.0	933.9	1 823.7	52.5	159.0	(D)	96
1991 ASM------	(NA)	(NA)	(NA)	10.3	250.3	7.9	16.6	167.8	787.3	863.7	1 672.3	38.9	177.0	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	10.6	247.6	8.0	15.8	167.2	761.9	817.6	1 580.3	34.9	188.1	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	10.7	243.0	8.2	15.9	159.6	912.8	865.6	1 791.3	31.2	177.2	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	11.1	249.0	8.6	17.2	169.6	1 276.5	808.8	2 079.8	46.0	184.9	(NA)	(NA)
1987 Census ---	59	72	36	10.7	231.6	8.2	16.0	155.5	1 132.0	753.0	1 877.8	60.8	164.1	99	96
1986 ASM------	(NA)	(NA)	(NA)	11.0	218.3	8.3	15.7	139.0	803.3	759.7	1 570.4	47.0	175.8	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	11.4	210.7	8.6	16.2	139.8	778.3	712.0	1 479.1	65.8	157.7	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	11.9	215.0	9.0	16.9	138.5	695.9	731.5	1 426.1	37.7	161.7	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	11.4	194.2	8.7	16.5	133.8	585.1	620.8	1 206.9	23.9	150.8	(NA)	(NA)
1982 Census ---	36	55	35	11.7	192.3	9.1	17.6	137.0	559.2	531.7	1 101.8	42.9	148.5	94	95
1981 ASM------	(NA)	(NA)	(NA)	11.8	174.2	9.4	18.3	130.2	478.0	578.3	1 044.0	59.3	187.2	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	11.8	154.3	9.5	18.2	117.8	469.6	489.3	952.9	68.6	159.5	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	12.1	145.0	9.8	19.1	109.2	417.7	446.9	851.9	48.4	152.2	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	12.3	134.0	10.3	19.7	100.9	389.7	378.3	759.1	71.9	119.8	(NA)	(NA)
1977 Census ---	41	58	33	11.0	118.2	9.0	18.0	87.4	343.2	329.4	666.1	35.4	100.1	96	97
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT															
1992 Census ---	475	522	237	50.0	1 407.7	39.4	77.2	993.5	3 752.7	3 441.4	7 238.7	167.1	726.6	84	88
1991 ASM------	(NA)	(NA)	(NA)	44.9	1 312.9	34.7	69.2	897.3	3 201.5	3 177.9	6 407.8	158.6	788.4	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	46.1	1 258.3	36.2	72.7	854.2	2 846.7	2 975.7	5 810.5	197.2	810.6	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	59.3	1 704.0	45.6	91.4	1 146.6	3 920.3	4 601.3	8 517.0	271.0	1 010.2	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	66.6	1 775.2	52.0	104.0	1 241.5	3 627.5	4 840.3	8 490.6	172.2	1 041.6	(NA)	(NA)
1987 Census ---	432	487	236	67.3	1 718.8	51.9	102.8	1 187.8	3 444.4	4 045.2	7 489.3	238.2	1 121.0	79	90
1986 ASM------	(NA)	(NA)	(NA)	53.2	1 248.8	41.1	80.8	891.2	3 004.0	3 027.8	6 071.1	186.2	779.9	(NA)	(NA)
1985 ASM------	(NA)	(NA)	(NA)	52.9	1 224.7	40.5	78.8	863.8	3 121.0	2 820.9	5 925.3	222.2	768.9	(NA)	(NA)
1984 ASM------	(NA)	(NA)	(NA)	55.3	1 202.8	43.4	85.1	857.3	3 280.3	2 732.7	5 971.3	166.0	713.9	(NA)	(NA)
1983 ASM------	(NA)	(NA)	(NA)	46.6	939.8	36.4	68.8	640.8	2 364.3	1 873.7	4 212.4	112.7	558.7	(NA)	(NA)
1982 Census ---	393	433	196	42.9	820.5	32.3	60.5	534.7	1 851.5	1 582.1	3 464.3	78.4	501.5	85	88
1981 ASM------	(NA)	(NA)	(NA)	53.5	1 022.5	40.5	75.8	691.2	2 168.3	1 943.7	4 071.0	156.8	633.3	(NA)	(NA)
1980 ASM------	(NA)	(NA)	(NA)	54.5	933.5	41.7	76.8	641.3	1 816.4	1 801.2	3 684.3	126.3	574.2	(NA)	(NA)
1979 ASM------	(NA)	(NA)	(NA)	64.4	1 038.3	51.5	97.4	754.6	2 253.1	1 919.7	4 124.3	159.7	620.0	(NA)	(NA)
1978 ASM------	(NA)	(NA)	(NA)	70.1	1 060.7	57.4	110.7	787.8	2 251.7	1 870.3	4 097.9	172.7	550.4	(NA)	(NA)
1977 Census ---	372	409	181	63.8	948.4	51.8	102.6	708.6	2 041.3	1 647.3	3 647.2	146.0	488.3	81	89
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA															
1992 Census ---	239	261	97	22.6	695.0	15.1	32.2	363.9	2 091.5	2 513.6	4 641.3	394.2	403.4	91	85
1991 ASM------	(NA)	(NA)	(NA)	25.4	734.7	16.1	33.2	373.2	1 959.9	2 734.8	4 615.9	305.2	523.1	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	24.0	651.9	16.1	31.4	354.4	1 675.6	2 365.9	4 032.1	286.8	472.1	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	25.3	651.1	16.9	32.6	351.3	1 542.8	2 080.0	3 644.2	219.8	434.3	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	25.1	662.1	16.2	32.6	336.3	1 593.5	2 067.0	3 630.7	269.1	466.2	(NA)	(NA)
1987 Census ---	181	200	92	25.6	638.6	16.3	33.0	323.9	1 687.2	1 836.6	3 504.0	225.6	434.3	96	83
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.															
1992 Census ---	831	892	419	43.4	1 375.6	20.9	39.9	415.7	2 810.1	2 035.2	4 934.0	118.7	1 083.6	89	86
1991 ASM------	(NA)	(NA)	(NA)	52.7	1 622.5	25.9	51.2	562.0	3 500.6	2 468.7	6 015.7	196.8	1 431.9	(NA)	(NA)
1990 ASM------	(NA)	(NA)	(NA)	58.4	1 683.4	28.6	54.9	555.3	3 273.3	2 558.9	5 848.3	178.4	1 538.0	(NA)	(NA)
1989 ASM------	(NA)	(NA)	(NA)	59.1	1 633.1	29.0	56.4	592.2	3 359.3	2 259.4	5 666.5	170.5	1 600.8	(NA)	(NA)
1988 ASM------	(NA)	(NA)	(NA)	60.6	1 557.7	31.9	60.7	568.0	3 208.2	2 227.0	5 328.2	166.6	1 524.4	(NA)	(NA)
1987 Census ---	1 326	1 379	473	60.3	1 466.4	32.4	63.0	547.8	2 901.9	2 198.7	5 056.1	180.6	1 616.1	92	79

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3691, STORAGE BATTERIES								
1992 Census	28 280	80	1 982	12.77	48	65	84 076	34	52.96
1991 ASM	27 614	79	2 036	12.56	53	70	75 100	37	46.66
1990 ASM	27 009	80	1 995	12.51	54	71	74 407	36	46.83
1989 ASM	25 392	80	1 938	12.24	53	71	64 518	39	41.82
1988 ASM	25 406	80	2 010	11.86	51	69	70 008	36	43.80
1987 Census	25 884	80	1 979	12.33	49	68	70 459	37	44.40
1986 ASM	25 629	79	2 027	11.98	45	65	70 647	36	44.18
1985 ASM	24 136	79	1 941	11.78	45	65	65 332	37	42.53
1984 ASM	23 789	80	2 026	11.07	48	67	65 401	36	40.26
1983 ASM	21 732	81	1 928	10.48	48	67	59 455	37	38.16
1982 Census	20 681	79	1 911	10.10	49	69	52 533	39	34.97
1981 ASM	19 663	80	2 021	9.13	51	69	54 075	36	33.45
1980 ASM	17 328	79	1 980	8.06	52	69	47 599	36	30.30
1979 ASM	15 739	82	2 075	7.19	54	70	47 279	33	27.70
1978 ASM	14 765	82	2 067	6.83	56	73	38 371	38	22.54
1977 Census	13 849	81	2 057	6.37	56	74	35 822	39	21.38
	INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET								
1992 Census	26 144	76	2 025	11.23	51	66	83 750	31	54.44
1991 ASM	24 301	77	2 101	10.11	52	67	76 437	32	47.43
1990 ASM	23 358	75	1 975	10.58	52	67	71 877	32	48.22
1989 ASM	22 710	77	1 939	10.04	48	62	85 308	27	57.41
1988 ASM	22 432	77	2 000	9.86	39	51	115 000	20	74.22
1987 Census	21 645	77	1 951	9.72	40	52	105 794	20	70.75
1986 ASM	19 845	75	1 892	8.85	48	62	73 027	27	51.17
1985 ASM	18 482	75	1 884	8.63	48	62	68 272	27	48.04
1984 ASM	18 067	76	1 878	8.20	51	66	58 479	31	41.18
1983 ASM	17 035	76	1 897	8.11	51	68	51 325	33	35.46
1982 Census	16 436	78	1 934	7.78	48	66	47 795	34	31.77
1981 ASM	14 763	80	1 947	7.11	55	72	40 508	36	26.12
1980 ASM	13 076	81	1 916	6.47	51	68	39 797	33	25.80
1979 ASM	11 983	81	1 949	5.72	52	69	34 521	35	21.87
1978 ASM	10 894	84	1 913	5.12	50	67	31 683	34	19.78
1977 Census	10 745	82	2 000	4.86	49	67	31 200	34	19.07
	INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT								
1992 Census	28 154	79	1 959	12.87	48	67	75 054	38	48.61
1991 ASM	29 241	77	1 994	12.97	50	70	71 303	41	46.26
1990 ASM	27 295	79	2 008	11.75	51	73	61 751	44	39.16
1989 ASM	28 735	77	2 004	12.54	54	74	66 110	43	42.89
1988 ASM	26 655	78	2 000	11.94	57	78	54 467	49	34.88
1987 Census	25 539	77	1 981	11.55	54	77	51 180	50	33.51
1986 ASM	23 474	77	1 966	11.03	50	70	56 466	42	37.18
1985 ASM	23 151	77	1 946	10.96	48	68	58 998	39	39.61
1984 ASM	21 750	78	1 961	10.07	46	66	59 318	37	38.55
1983 ASM	20 167	78	1 890	9.31	44	67	50 736	40	34.36
1982 Census	19 126	75	1 873	8.84	46	69	43 159	44	30.60
1981 ASM	19 112	76	1 872	9.12	48	73	40 529	47	28.61
1980 ASM	17 128	77	1 842	8.35	49	74	33 328	51	23.65
1979 ASM	16 123	80	1 891	7.75	47	72	34 986	46	23.13
1978 ASM	15 131	82	1 929	7.12	46	72	32 121	47	20.34
1977 Census	14 865	81	1 981	6.91	45	71	31 995	46	19.90
	INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA								
1992 Census	30 752	67	2 132	11.30	54	69	92 544	33	64.95
1991 ASM	28 925	63	2 062	11.24	59	75	77 161	37	59.03
1990 ASM	27 163	67	1 950	11.29	59	75	69 817	39	53.36
1989 ASM	25 735	67	1 929	10.78	57	75	60 980	42	47.33
1988 ASM	26 378	65	2 012	10.32	57	75	63 486	42	48.88
1987 Census	24 945	64	2 025	9.82	52	71	65 906	38	51.13
	INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.								
1992 Census	31 696	48	1 909	10.42	41	69	64 749	49	70.43
1991 ASM	30 787	49	1 977	10.98	41	68	66 425	46	68.37
1990 ASM	28 825	49	1 920	10.11	44	73	56 050	51	59.62
1989 ASM	27 633	49	1 945	10.50	40	69	56 841	49	59.56
1988 ASM	25 705	53	1 903	9.36	42	71	52 941	49	52.85
1987 Census	24 318	54	1 944	8.70	43	72	48 124	51	46.06

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3691, STORAGE BATTERIES														
United States	–	**154**	**91**	**21.1**	**596.7**	**16.9**	**33.5**	**427.8**	**1 774.0**	**1 633.3**	**3 409.5**	**120.0**	**24.2**	**1 705.1**
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	26	13	2.2	65.2	1.7	3.6	46.6	165.9	181.5	352.2	10.1	G	(D)
Colorado	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	6	3	.4	10.6	.2	.3	2.6	22.2	13.0	36.0	(D)	E	(D)
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	–	8	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	107.3
Georgia	–	8	8	1.4	45.8	1.0	2.2	33.0	133.9	167.6	301.6	11.1	1.5	105.3
Illinois	E1	10	5	1.0	25.9	.8	1.6	18.5	62.5	125.7	186.4	2.9	F	(D)
Indiana	–	5	4	.9	32.3	.8	1.6	28.6	130.3	88.8	217.1	3.0	G	(D)
Iowa	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	112.0
Kentucky	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	5	5	1.3	28.6	1.1	2.0	21.8	68.7	64.9	133.6	(D)	1.1	57.0
New Jersey	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	E1	9	4	.4	10.9	.3	.6	8.0	42.8	29.2	71.5	(D)	E	(D)
North Carolina	–	6	3	1.1	35.3	.8	1.6	21.7	101.1	94.0	189.5	(D)	G	(D)
Ohio	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	78.4
Oregon	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	6	6	3.0	83.9	2.5	4.7	53.9	195.6	159.5	354.3	21.3	3.6	193.5
South Carolina	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E1	7	3	.5	10.9	.4	.7	6.3	13.6	38.2	54.0	1.8	E	(D)
Texas	E1	11	6	1.3	32.9	1.1	2.1	22.1	71.5	84.8	154.8	13.1	G	(D)
Vermont	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET														
United States	–	**68**	**32**	**10.4**	**271.9**	**7.9**	**16.0**	**179.6**	**871.0**	**933.9**	**1 823.7**	**52.5**	**10.7**	**1 132.0**
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	5	2	.4	16.0	.1	.3	3.2	23.0	10.1	33.1	(D)	(NA)	(D)
Missouri	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E6	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New York	–	6	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Carolina	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Vermont	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	8	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT														
United States	–	**522**	**237**	**50.0**	**1 407.7**	**39.4**	**77.2**	**993.5**	**3 752.7**	**3 441.4**	**7 238.7**	**167.1**	**67.3**	**3 444.4**
Alabama	–	9	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arizona	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(D)
Arkansas	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	58	23	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	E2	24	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Georgia	–	19	10	1.6	41.2	1.3	2.6	33.8	140.9	130.9	276.5	2.3	1.6	90.7
Illinois	E1	34	17	2.3	41.4	1.8	3.0	25.0	87.5	85.3	173.9	3.4	1.5	57.2
Indiana	–	24	14	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	10	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	8	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	E5	8	5	.6	10.4	.5	.9	7.3	17.9	17.6	36.2	.6	(NA)	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	14	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	34	12	2.2	77.5	1.9	3.8	65.6	205.7	206.8	412.2	12.1	(NA)	(D)
Minnesota	E2	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Mississippi	E1	16	15	2.6	55.5	2.4	4.1	47.5	131.9	190.8	327.4	(D)	(NA)	(D)
Missouri	E1	17	6	.4	5.5	.3	.5	4.0	12.9	12.8	25.7	1.2	.7	20.9
Nebraska	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	12	3	.3	7.6	.2	.4	4.7	9.9	12.0	23.4	.4	1.4	56.5
New York	–	30	10	2.6	85.5	1.4	2.9	32.2	278.6	115.3	394.2	6.7	3.6	226.3
North Carolina	E5	4	3	.2	4.2	.2	.3	2.7	6.8	7.3	14.2	(D)	E	(D)
North Dakota	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	21	13	2.9	69.9	2.5	4.9	53.5	208.0	129.5	333.1	(D)	4.4	276.9
Oklahoma	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

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TSF:36F_92.DAT;2 5/ 23/ 95 18:20:17 UTF:36F_93.DAT;3 5/ 25/ 95 07:34:43 META:TIPS96-07353439.DAT;1 5/ 25/ 95 07:36:18

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT—Con.														
Oregon	–	9	6	.4	10.2	.3	.6	6.4	25.0	11.7	35.9	.7	(NA)	(NA)
Pennsylvania	–	21	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	4	4	.9	16.5	.9	1.9	13.9	38.4	46.0	83.9	(D)	G	(D)
Tennessee	E5	11	4	.5	7.2	.3	.7	5.3	14.6	31.0	45.9	(D)	.2	4.1
Texas	–	46	19	3.1	68.8	2.2	4.1	33.1	325.9	320.8	641.8	26.5	2.2	163.2
Virginia	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	12	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA														
United States	**–**	**261**	**97**	**22.6**	**695.0**	**15.1**	**32.2**	**363.9**	**2 091.5**	**2 513.6**	**4 641.3**	**394.2**	**25.6**	**1 687.2**
Alabama	–	3	3	3.1	86.3	1.9	4.6	52.7	190.0	366.7	560.5	30.9	(NA)	(D)
Arizona	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	88	38	8.7	287.0	5.7	11.3	140.9	796.7	795.4	1 607.8	127.5	9.8	599.2
Colorado	–	8	5	.2	7.5	.1	.1	2.0	8.5	13.8	23.2	.9	.3	21.3
Georgia	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	E1	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	13	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Minnesota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Nebraska	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	10	3	.1	4.3	.1	.3	2.7	13.3	8.6	21.9	.6	E	(D)
New York	E2	16	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	E	(D)
North Carolina	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
North Dakota	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oklahoma	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	E1	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
Pennsylvania	E8	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.														
United States	**–**	**892**	**419**	**43.4**	**1 375.6**	**20.9**	**39.9**	**415.7**	**2 810.1**	**2 035.2**	**4 934.0**	**118.7**	**60.3**	**2 901.9**
Alabama	–	12	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	12	3	.3	6.8	.1	.2	1.9	15.0	6.5	21.3	.4	.2	9.9
Arkansas	E3	9	5	.5	8.5	.2	.4	3.2	12.2	13.8	25.8	.7	.5	19.9
California	E1	158	81	8.3	314.6	3.6	7.4	99.6	642.2	407.3	1 064.5	35.3	12.6	586.8
Colorado	–	15	7	.4	14.6	.2	.5	4.5	29.0	17.2	46.4	1.9	.3	14.9
Connecticut	–	35	14	1.5	48.0	.6	1.2	13.1	97.9	52.9	156.2	4.6	1.5	84.9
Florida	–	62	29	5.1	195.7	1.7	3.1	29.8	415.1	216.9	622.9	15.5	5.3	318.9
Georgia	E1	12	5	.3	8.4	.2	.4	3.0	17.3	10.9	28.0	.3	.3	11.7
Idaho	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	49	21	3.3	81.3	1.6	3.0	27.0	157.8	108.7	266.1	6.9	G	(D)
Indiana	–	37	28	2.2	39.0	1.7	3.1	25.7	102.8	98.8	198.3	(D)	G	(D)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	E6	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Maryland	–	11	3	.5	22.1	.1	.2	2.0	33.4	22.7	56.3	(D)	G	(D)
Massachusetts	–	37	15	1.2	40.1	.6	1.1	12.6	73.1	89.0	162.2	3.6	2.4	111.4
Michigan	–	27	12	1.1	27.8	.6	1.0	10.4	73.4	57.3	129.9	3.4	G	(D)
Minnesota	–	26	13	1.0	25.2	.6	1.2	10.9	54.9	67.7	121.7	3.8	G	(D)
Mississippi	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E3	7	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	G	(D)
New Hampshire	E3	8	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	30	18	1.0	33.5	.5	1.1	12.5	72.2	49.4	121.7	1.8	2.1	88.6
New Mexico	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	59	28	4.3	154.1	1.5	3.0	32.2	252.8	176.6	535.8	8.8	(NA)	(D)
North Carolina	E2	16	5	.3	7.8	.2	.5	3.6	10.7	14.3	26.0	.3	F	(D)
Ohio	–	39	20	3.5	118.2	1.7	3.2	33.5	283.1	202.7	460.7	13.4	2.9	120.3
Oklahoma	–	16	8	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	–	14	7	.6	18.1	.2	.5	5.1	35.3	21.5	58.3	(D)	.9	65.3
Pennsylvania	–	40	14	1.2	29.3	.7	1.1	10.9	53.6	47.9	103.8	(D)	1.2	53.4
Tennessee	E2	16	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Texas	E1	46	17	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.0	348.4
Utah	E3	10	7	.4	10.1	.2	.4	3.0	23.4	14.8	37.0	.6	.3	12.2
Vermont	E6	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	12	5	.7	23.8	.3	.7	6.4	60.2	38.9	98.4	.7	F	(D)
Washington	–	12	6	.2	6.0	.1	.2	2.8	10.2	16.8	26.8	.7	.7	30.7
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	13	11	.5	11.0	.3	.6	5.5	31.3	27.1	58.5	.9	1.3	32.9

See footnotes at end of table.

TIPS UPF [APS_PSB,C_BROOKS] 5/ 25/ 95 07:36:30 EPCV23 TLP:36F.BTI;25 5/ 23/ 95 18:19:58 DATA:NONE UPF:92MFFI_PUBS:36FDAT.UPF PAGE: 4
TSF:36F_92.DAT;2 5/ 23/ 95 18:20:17 UTF:36F_93.DAT;3 5/ 25/ 95 07:34:43 META:TIPS96-07353439.DAT;1 5/ 25/ 95 07:36:18

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Storage batteries (SIC 3691)	Primary batteries, dry and wet (SIC 3692)	Engine electrical equipment (SIC 3694)	Magnetic and optical recording media (SIC 3695)	Electrical equipment and supplies, n.e.c. (SIC 3699)
Companies ---- number	110	53	475	239	831
All establishments ---- number	154	68	522	261	892
With 1 to 19 employees ---- number	63	36	285	164	473
With 20 to 99 employees ---- number	32	9	139	50	326
With 100 employees or more ---- number	59	23	98	47	93
Employment and labor costs:					
Employees ---- 1,000	21.1	10.4	50.0	22.6	43.4
Compensation, total ---- mil dol	781.5	352.5	1 853.4	878.8	1 694.8
Annual payroll ---- mil dol	596.7	271.9	1 407.7	695.0	1 375.6
Fringe benefits ---- mil dol	184.8	80.6	445.7	183.7	319.2
Social Security and other legally required payments ---- mil dol	66.8	26.4	149.3	65.0	122.2
Employer voluntary payments ---- mil dol	118.1	54.2	296.5	118.7	197.1
Production workers:					
Average for year ---- 1,000	16.9	7.9	39.4	15.1	20.9
March ---- 1,000	17.1	8.1	39.1	15.0	21.0
May ---- 1,000	16.6	7.9	39.5	15.2	21.0
August ---- 1,000	17.1	7.7	39.1	15.0	20.9
November ---- 1,000	16.9	7.8	40.1	15.0	20.7
Hours ---- millions	33.5	16.0	77.2	32.2	39.9
Wages ---- mil dol	427.8	179.6	993.5	363.9	415.7
Cost of materials[1] ---- mil dol	1 633.3	933.9	3 441.4	2 513.6	2 035.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 513.4	899.4	3 261.0	1 960.0	1 774.6
Resales ---- mil dol	30.2	12.8	109.8	369.4	141.6
Fuels ---- mil dol	14.0	2.9	10.1	12.2	7.5
Purchased electricity ---- mil dol	70.2	15.5	44.4	55.1	36.5
Contract work ---- mil dol	5.5	3.3	16.2	116.9	75.1
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	1 231.4	295.2	822.6	885.2	505.9
Generated less sold ---- mil kWh	–	–	(D)	(D)	(D)
Total value of shipments ---- mil dol	3 409.5	1 823.7	7 238.7	4 641.3	4 934.0
Value added ---- mil dol	1 774.0	871.0	3 752.7	2 091.5	2 810.1
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	473.7	178.2	766.6	439.3	1 153.6
Finished goods ---- mil dol	160.7	49.9	289.3	181.0	174.9
Work in process ---- mil dol	181.0	58.6	182.0	82.6	666.6
Materials and supplies ---- mil dol	132.0	69.8	295.2	175.8	312.2
End of 1992 ---- mil dol	464.3	159.0	726.6	403.4	1 083.6
Finished goods ---- mil dol	167.5	30.5	236.1	150.2	173.6
Work in process ---- mil dol	172.1	59.2	190.8	77.2	579.2
Materials and supplies ---- mil dol	124.7	69.3	299.8	176.0	330.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Storage batteries (SIC 3691)	Primary batteries, dry and wet (SIC 3692)	Engine electrical equipment (SIC 3694)	Magnetic and optical recording media (SIC 3695)	Electrical equipment and supplies, n.e.c. (SIC 3699)
Gross book value of depreciable assets:					
Total:					
Beginning of year	1 152.4	738.9	1 763.0	2 362.8	1 283.7
New capital expenditures[1]	120.0	52.5	167.1	394.2	118.7
Used capital expenditures	(D)	(D)	9.8	17.9	3.3
Retirements	(D)	(D)	75.6	184.4	52.3
End of year	1 248.8	764.6	1 864.3	2 590.6	1 353.4
Buildings and other structures:					
Beginning of year	265.5	96.0	321.2	407.7	337.9
New capital expenditures	10.5	3.4	13.9	69.8	20.4
Used capital expenditures	(D)	(D)	.6	(D)	.6
Retirements	(D)	(D)	5.4	(D)	4.9
End of year	273.8	99.1	330.2	462.7	354.0
Machinery and equipment:					
Beginning of year	886.9	642.9	1 441.9	1 955.2	945.8
New capital expenditures[1]	109.5	49.1	153.2	324.4	98.3
Used capital expenditures	(D)	(D)	9.2	(D)	2.7
Retirements	(D)	(D)	70.2	(D)	47.4
End of year	975.0	665.5	1 534.1	2 128.0	999.4
Depreciation charges during 1992:					
Total	247.5	62.6	465.3	321.8	126.9
Buildings and other structures	45.1	4.6	65.3	39.0	29.4
Machinery and equipment	202.4	58.0	400.0	282.8	97.5
Rental payments:					
Total	20.7	4.0	53.8	38.8	82.0
Buildings and other structures	11.3	2.3	28.1	26.5	43.3
Machinery and equipment	9.4	1.8	25.7	12.3	38.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Storage batteries (SIC 3691)		Primary batteries, dry and wet (SIC 3692)		Engine electrical equipment (SIC 3694)		Magnetic and optical recording media (SIC 3695)		Electrical equipment and supplies, n.e.c. (SIC 3699)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	2.5	(X)	1.8	(X)	3.3	(X)	12.0	(X)	6.1	(X)
Response coverage ratio (percent)[2]	85.9	(X)	92.2	(X)	76.7	(X)	88.2	(X)	83.1	(X)
Machinery	24.9	(X)	12.3	(X)	23.5	(X)	90.5	(X)	12.5	(X)
Response coverage ratio (percent)[2]	89.0	(X)	92.2	(X)	79.9	(X)	89.9	(X)	83.2	(X)
Other purchased services:										
Communications	3.7	(X)	2.0	(X)	5.0	(X)	6.3	(X)	21.0	(X)
Response coverage ratio (percent)[2]	78.8	(X)	92.2	(X)	64.2	(X)	89.5	(X)	79.9	(X)
Legal	3.8	(X)	.3	(X)	2.7	(X)	2.7	(X)	12.8	(X)
Response coverage ratio (percent)[2]	84.6	(X)	92.2	(X)	77.8	(X)	86.8	(X)	82.5	(X)
Accounting and bookkeeping	.5	(X)	.7	(X)	1.8	(X)	1.1	(X)	7.0	(X)
Response coverage ratio (percent)[2]	82.5	(X)	92.2	(X)	77.8	(X)	84.5	(X)	81.2	(X)
Advertising	11.1	(X)	.4	(X)	4.8	(X)	7.8	(X)	32.7	(X)
Response coverage ratio (percent)[2]	84.6	(X)	92.2	(X)	77.8	(X)	86.8	(X)	83.4	(X)
Software and other data processing	1.1	(X)	1.8	(X)	5.2	(X)	3.1	(X)	7.4	(X)
Response coverage ratio (percent)[2]	85.9	(X)	92.2	(X)	77.8	(X)	84.5	(X)	82.7	(X)
Refuse removal, including hazardous waste	6.4	(X)	4.0	(X)	4.6	(X)	16.0	(X)	2.1	(X)
Response coverage ratio (percent)[2]	89.0	(X)	92.2	(X)	80.3	(X)	83.8	(X)	83.9	(X)
New machinery and equipment expenditures	109.5	(X)	49.1	(X)	153.2	(X)	324.4	(X)	98.3	(X)
Automobiles, trucks, etc., for highway use	6.3	9	.2	5	28.1	4	.4	44	1.8	26
Computers and peripheral data processing equipment	5.8	6	2.2	8	4.8	8	7.6	2	31.6	5
All other	97.5	1	46.7	1	120.3	1	316.4	1	65.0	3
Adjustment ratio[3]	1.3	(X)	1.1	(X)	1.1	(X)	1.4	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	1 513.4	(X)	899.4	(X)	3 261.0	(X)	1 960.0	(X)	1 774.6	(X)
Materials purchased or transferred from foreign sources[4]	21.1	7	67.1	6	197.8	6	579.4	6	(S)	(X)
Materials purchased or transferred from domestic sources	1 492.3	1	832.3	1	3 063.2	1	1 380.6	3	(S)	(X)
Adjustment ratio[3]	1.4	(X)	1.2	(X)	2.0	(X)	1.7	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3691, STORAGE BATTERIES												
Total	**–**	**154**	**21.1**	**596.7**	**16.9**	**33.5**	**427.8**	**1 774.0**	**1 633.3**	**3 409.5**	**120.0**	**464.3**
Establishments with an average of—												
1 to 4 employees	E9	30	.1	1.2	(Z)	.1	.9	3.2	3.6	6.7	.2	.9
5 to 9 employees	E7	16	.1	2.7	.1	.2	1.9	6.4	6.8	13.3	.4	1.7
10 to 19 employees	E5	17	.2	5.4	.2	.3	3.5	12.3	10.7	22.8	1.1	6.6
20 to 49 employees	E3	13	.4	9.6	.3	.7	6.2	24.2	29.1	53.2	.7	6.2
50 to 99 employees	E2	19	1.2	30.0	.9	1.9	18.0	81.5	79.8	158.7	3.8	29.9
100 to 249 employees	–	25	4.2	109.6	3.3	6.8	75.6	376.2	350.1	731.2	20.1	90.9
250 to 499 employees	–	31	10.6	317.6	8.8	17.4	253.8	987.6	959.2	1 940.7	60.6	240.1
500 to 999 employees	–	1	4.3	120.6	3.3	6.1	68.0	282.7	194.1	482.8	33.0	88.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	45	.2	3.4	.1	.3	2.6	7.4	8.4	15.8	.5	2.2
INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET												
Total	**–**	**68**	**10.4**	**271.9**	**7.9**	**16.0**	**179.6**	**871.0**	**933.9**	**1 823.7**	**52.5**	**159.0**
Establishments with an average of—												
1 to 4 employees	E8	24	(Z)	.9	(Z)	.1	.6	1.8	3.7	5.6	.3	.9
5 to 9 employees	E5	6	(Z)	.8	(Z)	.1	.6	3.7	3.6	7.2	.3	1.0
10 to 19 employees	E2	6	.1	1.3	.1	.1	.8	10.3	7.9	17.8	.6	2.8
20 to 49 employees	E6	4	.1	3.8	.1	.2	2.1	6.8	4.6	11.4	.4	1.5
50 to 99 employees	E3	5	.4	7.0	.3	.5	4.4	12.1	18.9	30.6	1.1	4.1
100 to 249 employees	–	5	.8	20.2	.6	1.2	12.4	33.7	75.7	114.8	2.0	13.2
250 to 499 employees	–	11	3.9	112.0	2.9	6.0	68.7	427.9	379.9	817.1	24.5	64.6
500 to 999 employees	–	7	5.0	125.9	4.0	7.9	90.1	374.7	439.7	819.1	23.4	71.0
Covered by administrative records[2]	E9	27	.1	1.4	.1	.1	.9	4.4	4.3	8.8	.3	1.2
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT												
Total	**–**	**522**	**50.0**	**1 407.7**	**39.4**	**77.2**	**993.5**	**3 752.7**	**3 441.4**	**7 238.7**	**167.1**	**726.6**
Establishments with an average of—												
1 to 4 employees	E9	138	.3	4.7	.2	.4	3.3	9.4	10.7	20.1	.4	2.7
5 to 9 employees	E8	80	.5	10.3	.4	.8	7.5	17.8	20.6	38.3	.8	5.3
10 to 19 employees	E4	67	1.0	19.9	.7	1.4	12.3	35.0	38.3	75.4	1.4	10.9
20 to 49 employees	E1	84	2.6	46.9	1.9	3.8	28.4	91.4	104.1	194.7	3.7	33.2
50 to 99 employees	–	55	3.9	74.0	3.0	6.0	47.3	153.9	140.4	297.5	6.5	52.7
100 to 249 employees	E2	54	8.3	161.2	6.8	12.6	111.7	368.7	413.1	780.2	18.5	119.0
250 to 499 employees	–	24	8.6	168.3	7.1	14.5	122.5	407.3	510.0	919.8	18.0	110.7
500 to 999 employees	–	13	8.6	196.8	7.3	13.4	133.6	658.6	497.6	1 149.4	117.8	147.3
1,000 to 2,499 employees	–	5	16.2	725.6	12.1	24.4	527.1	2 010.7	1 706.6	3 763.3	(D)	244.9
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	232	1.2	19.6	1.0	1.8	14.0	32.1	37.6	69.7	1.5	9.4
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA												
Total	**–**	**261**	**22.6**	**695.0**	**15.1**	**32.2**	**363.9**	**2 091.5**	**2 513.6**	**4 641.3**	**394.2**	**403.4**
Establishments with an average of—												
1 to 4 employees	E9	103	.1	4.6	.1	.2	2.6	9.9	14.8	24.8	2.0	2.2
5 to 9 employees	E8	35	.2	6.5	.1	.3	3.5	11.1	15.7	26.8	1.8	2.6
10 to 19 employees	E5	26	.3	9.6	.2	.4	5.0	18.8	25.4	44.4	2.5	5.7
20 to 49 employees	E2	39	1.2	34.3	.7	1.4	14.4	67.2	90.4	160.1	7.0	17.3
50 to 99 employees	E1	11	.8	20.9	.6	1.2	12.9	39.0	45.4	84.7	4.0	12.1
100 to 249 employees	–	20	3.4	95.2	2.5	5.1	55.2	258.7	568.0	828.9	56.6	71.1
250 to 499 employees	–	13	4.4	138.9	3.0	6.2	71.7	356.1	570.0	918.1	121.0	101.5
500 to 999 employees	–	10	7.0	220.2	4.7	11.3	117.7	911.7	755.3	1 708.1	138.0	138.6
1,000 to 2,499 employees	–	4	5.1	164.8	3.1	6.1	80.9	418.8	428.5	845.6	61.4	52.3
Covered by administrative records[2]	E9	106	.2	6.3	.2	.3	3.5	11.7	17.5	29.2	2.4	2.9
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.												
Total	**–**	**892**	**43.4**	**1 375.6**	**20.9**	**39.9**	**415.7**	**2 810.1**	**2 035.2**	**4 934.0**	**118.7**	**1 083.6**
Establishments with an average of—												
1 to 4 employees	E6	171	.3	8.7	.1	.2	3.1	17.9	13.7	31.5	1.1	7.1
5 to 9 employees	E2	126	.8	25.7	.4	.8	8.8	57.7	42.3	98.1	1.4	23.7
10 to 19 employees	E1	176	2.5	67.6	1.3	2.5	24.6	129.7	91.1	223.2	5.0	44.9
20 to 49 employees	E1	215	6.8	188.3	3.9	7.5	72.9	399.2	300.8	696.5	15.3	143.1
50 to 99 employees	E1	111	7.8	222.8	4.4	8.7	83.6	444.9	343.4	790.4	15.0	157.2
100 to 249 employees	E1	63	8.6	204.1	5.5	10.0	91.9	433.9	418.3	852.4	18.8	182.6
250 to 499 employees	–	18	6.4	216.7	2.9	5.8	65.0	375.1	353.1	757.4	20.1	114.2
500 to 999 employees	–	9	5.8	220.2	1.8	3.5	51.6	510.2	233.0	731.1	21.6	184.0
1,000 to 2,499 employees	–	3	4.6	221.5	.6	.9	14.2	441.5	239.5	753.2	20.4	226.7
Covered by administrative records[2]	E9	157	.4	9.8	.2	.3	2.8	18.4	14.4	32.8	.8	8.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3691	**Storage batteries:**										
	All establishments in industry	154	21.1	596.7	16.9	33.5	427.8	1 774.0	1 633.3	3 409.5	120.0
	Establishments with this product class primary:										
36913	Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller)	52	13.6	404.0	11.4	22.5	313.1	1 245.8	1 116.0	2 359.6	71.5
36914	Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m)	19	3.2	79.9	2.4	5.0	51.7	262.1	237.1	494.5	18.3
36915	Storage batteries, except lead acid, including parts for all storage batteries	15	3.3	86.8	2.2	4.2	43.0	214.7	224.2	447.9	22.5
3692	**Primary batteries, dry and wet:**										
	All establishments in industry	68	10.4	271.9	7.9	16.0	179.6	871.0	933.9	1 823.7	52.5
3694	**Engine electrical equipment:**										
	All establishments in industry	522	50.0	1 407.7	39.4	77.2	993.5	3 752.7	3 441.4	7 238.7	167.1
	Establishments with this product class primary:										
36941	Ignition harness and cable sets	66	10.9	169.3	9.2	16.9	121.0	397.5	483.5	888.8	17.1
36942	Battery charging alternators, generators, and regulators	41	5.5	117.7	4.5	9.0	79.7	315.3	277.6	593.2	13.3
36943	Cranking motors (starters)	53	6.1	165.7	5.2	10.3	135.8	410.2	440.0	851.2	15.1
36944	Spark plugs	5	2.0	68.4	1.7	3.7	55.2	182.3	83.2	262.2	(D)
36947	Complete engine electrical equipment, n.e.c.	26	18.3	738.8	13.4	26.4	506.9	2 108.9	1 857.2	4 009.9	98.7
36949	Parts for engine electrical and/or electronic equipment	21	3.5	82.9	2.5	5.3	50.0	219.8	173.9	388.7	9.8
3695	**Magnetic and optical recording media:**										
	All establishments in industry	261	22.6	695.0	15.1	32.2	363.9	2 091.5	2 513.6	4 641.3	394.2
3699	**Electrical equipment and supplies, n.e.c.:**										
	All establishments in industry	892	43.4	1 375.6	20.9	39.9	415.7	2 810.1	2 035.2	4 934.0	118.7
	Establishments with this product class primary:										
36991	Electronic teaching machines, teaching aids, trainers, and simulators, including kits	50	10.2	423.3	2.1	3.9	57.4	843.2	413.6	1 335.7	29.2
36992	Laser systems and equipment, except communication	100	6.0	233.1	2.9	6.0	84.6	411.2	347.7	768.8	30.6
36995	Ultrasonic equipment (except medical and dental)	19	1.7	55.8	.8	1.4	17.0	119.2	65.3	186.7	3.8
36996	Apparatus wire and cordage manufactured from purchased insulated wire	61	3.6	60.9	3.0	5.7	42.3	136.1	153.3	287.2	4.0
36999	Electronic systems and equipment, n.e.c. (including automatic garage door openers, and amplifiers)	108	9.1	287.7	4.5	8.6	85.5	666.8	471.0	1 136.8	24.7
3699A	Electrical products, n.e.c. (excluding garage door openers)	92	4.4	102.1	2.7	5.1	45.4	225.0	284.6	512.0	10.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. **Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years**

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3691, STORAGE BATTERIES			
Total value of shipments	3 409.5	3 303.1	2 431.3
Primary products value of shipments	3 301.5	3 177.4	2 303.7
Secondary products value of shipments	48.5	88.9	81.0
Total miscellaneous receipts	59.5	36.8	46.6
Value of resales	31.7	28.5	30.7
Contract receipts	(D)	(D)	.7
Other miscellaneous receipts	(D)	(D)	15.2
Primary products specialization ratio	99	97	97
Value of primary products shipments made in all industries	3 351.9	3 194.7	2 347.4
Value of primary products shipments made in this industry	3 301.5	3 177.4	2 303.7
Value of primary products shipments made in other industries	50.4	17.3	43.7
Coverage ratio	98	99	98

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET			
Total value of shipments	1 823.7	1 877.8	1 101.8
Primary products value of shipments	1 704.8	1 848.8	1 014.0
Secondary products value of shipments	(D)	14.8	63.7
Total miscellaneous receipts	(D)	14.2	24.2
Value of resales	(D)	(D)	16.6
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	99	94
Value of primary products shipments made in all industries	1 778.8	1 919.3	1 066.4
Value of primary products shipments made in this industry	1 704.8	1 848.8	1 014.0
Value of primary products shipments made in other industries	73.9	70.5	52.4
Coverage ratio	96	96	95
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT			
Total value of shipments	7 238.7	7 489.3	3 464.3
Primary products value of shipments	5 810.8	5 699.6	2 638.1
Secondary products value of shipments	1 146.2	1 491.2	483.7
Total miscellaneous receipts	281.6	298.5	342.5
Value of resales	(D)	280.0	325.1
Contract receipts	2.2	3.6	4.4
Other miscellaneous receipts	(D)	14.9	13.0
Primary products specialization ratio	84	79	85
Value of primary products shipments made in all industries	6 592.5	6 337.9	3 007.8
Value of primary products shipments made in this industry	5 810.8	5 699.6	2 638.1
Value of primary products shipments made in other industries	781.6	638.3	369.7
Coverage ratio	88	90	88
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA			
Total value of shipments	4 641.3	3 504.0	(NA)
Primary products value of shipments	3 730.6	3 125.4	(NA)
Secondary products value of shipments	369.9	144.9	(NA)
Total miscellaneous receipts	540.8	233.7	(NA)
Value of resales	467.8	195.3	(NA)
Contract receipts	4.8	(D)	(NA)
Other miscellaneous receipts	68.2	(D)	(NA)
Primary products specialization ratio	91	96	(NA)
Value of primary products shipments made in all industries	4 406.9	3 778.8	(NA)
Value of primary products shipments made in this industry	3 730.6	3 125.4	(NA)
Value of primary products shipments made in other industries	676.4	653.4	(NA)
Coverage ratio	85	83	(NA)
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.			
Total value of shipments	4 934.0	5 056.1	(NA)
Primary products value of shipments	4 034.0	4 360.6	(NA)
Secondary products value of shipments	497.7	397.9	(NA)
Total miscellaneous receipts	402.3	297.6	(NA)
Value of resales	293.3	188.3	(NA)
Contract receipts	35.0	51.9	(NA)
Other miscellaneous receipts	74.0	57.4	(NA)
Primary products specialization ratio	89	92	(NA)
Value of primary products shipments made in all industries	4 705.0	5 525.1	(NA)
Value of primary products shipments made in this industry	4 034.0	4 360.6	(NA)
Value of primary products shipments made in other industries	671.0	1 164.5	(NA)
Coverage ratio	86	79	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a–1. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3691– —	**STORAGE BATTERIES**				
	Total	**(NA)**	**3 351.9**	**(NA)**	**3 194.7**
36913	Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller)	(NA)	2 181.6	(NA)	2 259.5
	Starting, lighting, and ignition (SLI) type:				
36913 11	For original equipment	11	398.4	14	[2]508.6
36913 12	For replacement	21	1 760.4	18	1 722.1
36913 17	Other than SLI type	3	9.4	2	([2])
36913 00	Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller), n.s.k.	(NA)	13.4	(NA)	28.8
36914	Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m)	(NA)	578.5	(NA)	418.4
	Motive power type:				
36914 11	Industrial truck	12	175.3	10	91.8
36914 19	Other (including mining and industrial locomotive)	7	56.6	7	15.5
36914 21	Communication (for central office telephone supervisory equipment, telemetering, and microwave)[3]	6	92.9	(NA)	294.4
36914 22	Standby emergency power	5	195.4		
36914 79	Other, including starting, lighting, and ignition (SLI type) for aircraft, marine, fire alarms, and railroad signaling[3]	4	45.3		
36914 00	Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m), n.s.k.	(NA)	13.0	(NA)	16.7
36915	Storage batteries, except lead acid, including parts for all storage batteries	(NA)	475.7	(NA)	340.4
36915 01	Nickel cadmium (sealed or vented)	13	427.7	8	254.7
36915 02	Other than nickel cadmium	8	38.5	(NA)	81.3
36915 91	Parts for storage batteries (excluding cases and containers)	6	8.2		
36915 00	Storage batteries, except lead acid, including parts for all storage batteries, n.s.k.	(NA)	1.4	(NA)	4.5
36910	Storage batteries, n.s.k.	(NA)	116.1	(NA)	176.3
36910 00	Storage batteries, n.s.k.[4]	(NA)	100.3	(NA)	147.1
36910 02	Storage batteries, n.s.k.[5]	(NA)	15.8	(NA)	29.2
3692– —	**PRIMARY BATTERIES, DRY AND WET**				
	Total	**(NA)**	**1 778.8**	**(NA)**	**1 919.3**
36920	Primary batteries, dry and wet	(NA)	1 778.8	(NA)	1 919.3
	Primary cells and batteries having an external volume not exceeding 300 cc:				
36920 01	Manganese dioxide	3	836.9	4	([6])
36920 03	Silver oxide	5	52.4	6	76.4
36920 04	Mercuric oxide	3	9.1	4	63.3
36920 05	Other	10	275.7	11	106.0
36920 07	Primary cells and batteries having an external volume exceeding 300 cc (18.3 cu in)	9	418.7	6	[6]1 524.5
36920 09	Parts for primary batteries (excluding cases and containers)	10	92.0	8	37.7
36920 00	Primary batteries, dry and wet, n.s.k.[4]	(NA)	85.4	(NA)	100.2
36920 02	Primary batteries, dry and wet, n.s.k.[5]	(NA)	8.8	(NA)	11.1
3694– —	**ENGINE ELECTRICAL EQUIPMENT**				
	Total	**(NA)**	**6 592.5**	**(NA)**	**[r]6 337.9**
36941	Ignition harness and cable sets	(NA)	936.3	(NA)	755.4
	Ignition harness sets:				
36941 01	Automotive type	28	639.2	26	548.3
36941 02	Other (including tractor, stationary engine, and aircraft)	17	73.7	11	21.0
	Cable sets:				
36941 03	Automotive type	18	155.9	15	86.3
36941 04	Aircraft and other type	6	23.4	6	52.7
36941 00	Ignition harness and cable sets, n.s.k.	(NA)	44.0	(NA)	47.1
36942	Battery charging alternators, generators, and regulators	(NA)	1 149.0	(NA)	[r]868.0
	Battery charging alternators and generators for internal combustion engines:				
36942 01	Automotive types, new	11	622.3	13	583.7
36942 02	Other types, new	11	44.3	7	39.5
36942 03	Rebuilt, all types	74	405.6	55	173.3
36942 04	Regulators for battery charging alternators and generators (new and rebuilt)	7	15.7	9	33.6
36942 00	Battery charging alternators, generators, and regulators, n.s.k.	(NA)	61.0	(NA)	[r]37.9
36943	Cranking motors (starters)	(NA)	902.3	(NA)	717.9
	Starting (engine cranking) motors:				
36943 01	Automotive types, new	13	484.4	11	507.7
36943 02	Other types, new	11	75.8		
36943 03	Rebuilt, all types	68	324.7	54	195.4
36943 00	Cranking motors (starters), n.s.k.	(NA)	17.4	(NA)	14.7
36944	Spark plugs	(NA)	411.8	(NA)	650.7
36944 00	Spark plugs (all types)	6	411.8	6	650.7

See footnotes at end of table.

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Table 6a–1. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3694– —	**ENGINE ELECTRICAL EQUIPMENT**—Con.				
36947	Complete engine electrical equipment, n.e.c.	(NA)	2 516.9	(NA)	2 516.5
36947 01	Ignition coils (all types)	13	335.8	16	219.1
36947 02	Distributors (all types)	15	260.3	12	406.7
36947 04	Magnetos, magneto-dynamos, magnetic flywheels	6	60.6	5	58.8
36947 05	Other complete ignition equipment (including electronic ignitions)	14	252.2	10	190.2
36947 11	Electronic systems for complete engine control, using computers or microprocessors[3]	11	1 590.6	11	1 526.9
36947 19	Other complete electrical and/or electronic equipment for internal combustion engines[3]	6			
36947 00	Complete engine electrical equipment, n.e.c., n.s.k.	(NA)	17.4	(NA)	114.7
36949	Parts for engine electrical and/or electronic equipment	(NA)	430.2	(NA)	471.7
36949 01	Armatures, field coils, and drive-end housings for cranking motors	12	41.3	6	80.1
36949 07	Armatures and field coils for alternators and generators	9	31.5	8	41.9
	Parts for ignition distributors:				
36949 11	Distributor heads and rotors	8	116.9	8	60.9
36949 12	Breaker point sets	4	26.9	7	34.2
36949 13	Condensers (capacitors)	4		7	12.0
36949 19	Other parts for engine electrical and/or electronic equipment	21	213.1	17	223.1
36949 00	Parts for engine electrical and/or electronic equipment, n.s.k.	(NA)	.5	(NA)	19.4
36940	Engine electrical equipment, n.s.k.	(NA)	246.0	(NA)	357.7
36940 00	Engine electrical equipment, n.s.k.[7]	(NA)	176.3	(NA)	236.6
36940 02	Engine electrical equipment, n.s.k.[8]	(NA)	69.7	(NA)	121.1
3695– —	**MAGNETIC RECORDING MEDIA**				
	Total	**(NA)**	**4 406.9**	**(NA)**	**3 778.8**
36950	Magnetic and optical recording media (unrecorded)	(NA)	4 406.9	(NA)	3 778.8
36950 00	Magnetic and optical recording media (unrecorded)[9 10]	147	4 377.7	108	3 739.6
36950 02	Magnetic recording media, n.s.k.[11]	(NA)	29.2	(NA)	39.2
3699– —	**ELECTRONIC AND ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.**				
	Total	**(NA)**	**4 705.0**	**(NA)**	**5 525.1**
36991	Electronic teaching machines, teaching aids, trainers, and simulators, including kits	(NA)	1 243.8	(NA)	1 210.2
36991 00	Electronic teaching machines, teaching aids, trainers, and simulators, including kits[9]	65	1 243.8	53	1 210.2
36992	Laser systems and equipment, except communication	(NA)	764.2	(NA)	907.1
36992 00	Laser systems and equipment, except communication[9]	123	764.2	91	907.1
36995	Ultrasonic equipment (except medical and dental)	(NA)	131.6	(NA)	88.0
36995 00	Ultrasonic equipment (except medical and dental)[9]	21	131.6	16	88.0
36996	Apparatus wire and cordage manufactured from purchased insulated wire	(NA)	293.5	(NA)	246.7
36996 00	Apparatus wire and cordage (manufactured primarily from purchased insulated wire)[12]	58	293.5	58	246.7
36999	Electronic systems and equipment, n.e.c. (including automatic garage door openers, and amplifiers)	(NA)	1 125.2	(NA)	1 775.3
36999 00	Electronic systems and equipment, n.e.c. (including automatic garage door openers, amplifiers)[3 9]	142	1 125.2	(NA)	1 775.3
3699A	Electrical products, n.e.c. (excluding garage door openers)	(NA)	509.6	(NA)	549.3
3699A 05	Electrical door openers, except garage door openers[3]	15	66.5	10	43.1
3699A 01	Electric gongs, chimes, bells, etc.[3]	8	47.5	6	17.2
3699A 03	Insect killers[3]	5	16.7	7	35.8
3699A 07	Electrical outboard motors for boats (complete propulsion unit)[3]	1	377.5	(NA)	412.0
3699A 21	Other electrical products, n.e.c.[3]	95			
3699A 00	Electrical products, n.e.c. (excluding garage door openers), n.s.k.	(NA)	1.5	(NA)	41.1
36990	Electrical machinery, equipment, and supplies, not elsewhere classified, n.s.k.	(NA)	637.1	(NA)	748.4
36990 00	Electrical machinery, equipment, and supplies, not elsewhere classified, n.s.k.[13]	(NA)	604.5	(NA)	540.8
36990 02	Electrical machinery, equipment, and supplies, not elsewhere classified, n.s.k.[14]	(NA)	32.6	(NA)	207.6

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For 1987, data for product code 36913 17 are combined with product code 36913 11 to avoid disclosing data for individual companies.
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Typically for establishments with 20 employees or more.
[5]Typically for establishments with less than 20 employees.
[6]For 1987, data for product code 36920 01 are combined with product code 36920 07 to avoid disclosing data for individual companies.
[7]Typically for establishments with 15 employees or more.
[8]Typically for establishments with less than 15 employees.
[9]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[10]Typically for establishments with 10 employees or more.
[11]Typically for establishments with less than 10 employees.
[12]This product is primary to more than one industry. For a list of the products-primary codes and descriptions, see appendix C, part 4.
[13]Typically for establishments with 5 employees or more.
[14]Typically for establishments with less than 5 employees.

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Table 6a–2. Selected Products Primary to More Than One Industry—Value of Shipments by Industry: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
	Apparatus wire and cord and flexible cord sets	(NA)	1 111.4	(NA)	1 056.2
33576 00	Made in industry 3357, wiredrawing and insulating plants	43	817.9	51	809.5
36996 00	Made in industry 3699, industries purchasing insulated wire	58	293.5	58	246.7

Note: For qualifications of data, see footnotes on table 6a–1.

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36913, STORAGE BATTERIES, LEAD ACID TYPE, BCI DIMENSIONAL SIZE GROUP 8D (1.5 CU FT OR .042 CU M AND SMALLER)		
United States	**2 181.6**	**2 259.5**
California	260.5	261.4
Missouri	94.9	112.4
Pennsylvania	250.4	309.6
36914, STORAGE BATTERIES, LEAD ACID TYPE, LARGER THAN BCI DIMENSIONAL SIZE GROUP 8D (1.5 CU FT OR .042 CU M)		
United States	**578.5**	**418.4**
Georgia	51.1	(NA)
36915, STORAGE BATTERIES, EXCEPT LEAD ACID, INCLUDING PARTS FOR ALL STORAGE BATTERIES		
United States	**475.7**	**340.4**
Connecticut	18.9	(NA)
36941, IGNITION HARNESS AND CABLE SETS		
United States	**936.3**	**755.4**
Florida	2.2	(NA)
Illinois	46.8	17.4
Indiana	89.0	117.0
Michigan	12.0	35.7
Mississippi	78.5	105.9
Wisconsin	12.4	(NA)
36942, BATTERY CHARGING ALTERNATORS, GENERATORS, AND REGULATORS		
United States	**1 149.0**	**868.0**
California	63.6	40.6
Connecticut	11.6	(NA)
Florida	27.2	(NA)
Georgia	139.5	(NA)
Illinois	33.6	16.6
Kentucky	12.4	(NA)
Oregon	2.5	(NA)
Texas	23.1	25.0
36943, CRANKING MOTORS (STARTERS)		
United States	**902.3**	**717.9**
Alabama	5.8	(NA)
California	36.2	22.3
Illinois	26.4	19.3
Kentucky	20.0	(NA)
New York	8.0	(NA)
Pennsylvania	19.1	16.3
Texas	7.3	9.0
36944, SPARK PLUGS		
United States	**411.8**	**650.7**
36947, COMPLETE ENGINE ELECTRICAL EQUIPMENT, N.E.C.		
United States	**2 516.9**	**2 516.5**
California	4.9	(NA)
Illinois	13.6	(NA)
Ohio	31.5	(NA)
36949, PARTS FOR ENGINE ELECTRICAL AND/ OR ELECTRONIC EQUIPMENT		
United States	**430.2**	**471.7**
California	19.7	(NA)
Illinois	31.9	11.8
36991, ELECTRONIC TEACHING MACHINES, TEACHING AIDS, TRAINERS, AND SIMULATORS, INCLUDING KITS		
United States	**1 243.8**	**1 210.2**
California	205.3	127.3
Florida	198.3	(NA)
Massachusetts	10.9	24.1
New Jersey	23.8	(NA)
Oklahoma	86.0	(NA)
36992, LASER SYSTEMS AND EQUIPMENT, EXCEPT COMMUNICATION		
United States	**764.2**	**907.1**
Arkansas	12.4	(NA)
California	408.6	539.1
Colorado	6.7	(NA)
Connecticut	13.0	3.7
Florida	73.5	64.9
Illinois	13.7	(NA)
Massachusetts	31.6	29.4
New Hampshire	8.2	(NA)
New Jersey	12.2	12.3
New York	10.5	94.3
Ohio	4.7	(NA)
Pennsylvania	12.9	9.0
36995, ULTRASONIC EQUIPMENT (EXCEPT MEDICAL AND DENTAL)		
United States	**131.6**	**88.0**
Pennsylvania	4.7	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
36996, APPARATUS WIRE AND CORDAGE MANUFACTURED FROM PURCHASED INSULATED WIRE		
United States	**293.5**	**246.7**
Alabama	15.8	(NA)
California	15.6	(NA)
Illinois	17.1	37.6
Indiana	57.3	36.7
Massachusetts	10.6	(NA)
Minnesota	20.6	(NA)
New York	14.5	22.9
36999, ELECTRONIC SYSTEMS AND EQUIPMENT, N.E.C. (INCLUDING AUTOMATIC GARAGE DOOR OPENERS, AND AMPLIFIERS)		
United States	**1 125.2**	**1 775.3**
California	331.7	(NA)
Connecticut	24.3	(NA)
Florida	49.5	(NA)
Illinois	72.3	(NA)
New Jersey	27.1	(NA)
New York	83.3	(NA)
Oregon	9.2	(NA)
Pennsylvania	25.5	(NA)
Texas	45.8	(NA)
Washington	3.1	(NA)
3699A, ELECTRICAL PRODUCTS, N.E.C. (EXCLUDING GARAGE DOOR OPENERS)		
United States	**509.6**	**549.3**
California	27.3	(NA)
Connecticut	9.9	(NA)
Florida	22.7	(NA)
Illinois	37.4	(NA)
Indiana	54.2	(NA)
Minnesota	52.3	(NA)
New York	46.4	(NA)
Ohio	32.9	(NA)
Pennsylvania	7.8	(NA)
Texas	18.6	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3691-	**Storage batteries**	**3 351.9**	**3 239.2**	**3 555.7**	**3 290.6**	**3 387.9**	**3 194.7**	**2 347.4**	**1 911.0**
36913	Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller)	2 181.6	2 190.9	2 405.9	2 345.7	2 427.3	2 259.5	1 757.8	1 458.1
36914	Storage batteries, lead acid type, larger than BCI dimensional size group 8D (1.5 cu ft or .042 cu m)	578.5	543.0	628.1	442.3	439.3	418.4	301.8	233.8
36915	Storage batteries, except lead acid, including parts for all storage batteries	475.7	381.4	399.0	350.2	334.2	340.4	228.9	164.3
36910	Storage batteries, n.s.k.	116.1	123.8	122.8	152.4	187.1	176.3	58.9	54.8
3692-	**Primary batteries, dry and wet**	**1 778.8**	**1 660.8**	**1 545.6**	**1 739.0**	**2 066.3**	**1 919.3**	**1 066.4**	**623.9**
36920	Primary batteries, dry and wet	1 778.8	1 660.8	1 545.6	1 739.0	2 066.3	1 919.3	1 066.4	623.9
3694-	**Engine electrical equipment**	**6 592.5**	**5 880.4**	**5 665.2**	**5 744.4**	**5 980.3**	**6 337.9**	**3 007.8**	**2 748.8**
36941	Ignition harness and cable sets	936.3	684.3	627.8	673.0	803.2	755.4	319.0	252.8
36942	Battery charging alternators, generators, and regulators	1 149.0	978.8	960.4	964.4	955.0	868.0	584.9	631.7
36943	Cranking motors (starters)	902.3	746.5	799.1	785.9	766.4	717.9	483.5	464.3
36944	Spark plugs	411.8	534.6	584.5	488.4	458.8	650.7	525.8	419.6
36947	Complete engine electrical equipment, n.e.c.	2 516.9	2 105.4	1 896.4	2 089.6	2 104.7	2 516.5	633.8	594.7
36949	Parts for engine electrical and/ or electronic equipment	430.2	506.1	475.4	408.1	478.7	471.7	324.1	310.0
36940	Engine electrical equipment, n.s.k.	246.0	324.8	321.6	335.0	413.5	357.7	136.8	75.6
3695-	**Magnetic recording media**	**4 406.9**	**4 292.4**	**4 275.8**	**4 070.5**	**4 034.2**	**3 778.8**	**(NA)**	**(NA)**
36950	Magnetic and optical recording media (unrecorded)	4 406.9	4 292.4	4 275.8	4 070.5	4 034.2	3 778.8	(NA)	(NA)
3699-	**Electronic and electrical equipment and supplies, n.e.c.**	**4 705.0**	**5 313.9**	**5 479.9**	**6 149.2**	**5 977.5**	**5 525.1**	**(NA)**	**(NA)**
36991	Electronic teaching machines, teaching aids, trainers, and simulators, including kits	1 243.8	1 465.6	1 137.3	1 627.3	1 307.5	1 210.2	(NA)	(NA)
36992	Laser systems and equipment, except communication	764.2	928.9	863.2	988.1	894.0	907.1	(NA)	(NA)
36995	Ultrasonic equipment (except medical and dental)	131.6	107.5	120.1	97.4	138.3	88.0	(NA)	(NA)
36996	Apparatus wire and cordage manufactured from purchased insulated wire	293.5	224.3	213.8	209.9	274.3	246.7	171.0	132.3
36999	Electronic systems and equipment, n.e.c. (including automatic garage door openers, and amplifiers)	1 125.2	(NA)	(NA)	(NA)	(NA)	1 775.3	(NA)	(NA)
3699A	Electrical products, n.e.c. (excluding garage door openers)	509.6	(NA)	(NA)	(NA)	(NA)	549.3	(NA)	(NA)
36990	Electrical machinery, equipment, and supplies, not elsewhere classified, n.s.k.	637.1	371.0	763.2	770.1	1 016.4	748.4	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3691, STORAGE BATTERIES		
	Materials, ingredients, containers, and supplies	**1 513.4**	**1 509.4**
	Fabricated metal products (except forgings):		
346901	Metal stampings	55.0	11.8
340085	All other fabricated metal products		(1)
346000	Forgings		(1)
	Castings (rough and semifinished):		
332001	Iron and steel	(D)	(1)
336010	Nonferrous (aluminum, copper, etc.)	(D)	(1)
	Lead and lead alloys:		
333986	Refined unalloyed lead	277.2	189.8
333988	Antimonial lead	177.3	153.2
333989	Lead-calcium alloyed	86.3	112.7
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	(D)	(1)
331085	All other steel shapes and forms	(D)	(1)
	Nonferrous:		
335697	Zinc and zinc-base alloy	(D)	.2
335030	Other nonferrous shapes and forms	(D)	(1)
	Industrial organic chemicals:		
281634	Litharge	43.1	138.6
281930	Sulfuric acid	24.8	25.3
281914	Other industrial inorganic chemicals (including mercury oxide and silver oxide)	22.2	(1)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	(D)	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	38.6	18.1
308006	Fabricated plastics products (except gaskets, hoses, and belting)	235.0	147.2
265001	Paperboard containers, boxes, and corrugated paperboard	20.4	13.5
362406	Carbon and graphite electrodes, and other carbon and graphite products for electrical use	(D)	(Z)
970099	All other materials and components, parts, containers, and supplies	289.6	[1]410.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	166.1	288.8
	INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET		
	Materials, ingredients, containers, and supplies	**899.4**	**727.3**
	Fabricated metal products (except forgings):		
346901	Metal stampings	69.9	50.3
340085	All other fabricated metal products	(D)	(3)
346000	Forgings	(D)	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	–	(3)
336010	Nonferrous (aluminum, copper, etc.)	(D)	(3)
	Lead and lead alloys:		
333986	Refined unalloyed lead	(D)	(3)
333988	Antimonial lead	–	–
333989	Lead-calcium alloyed	–	–
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	38.5	16.2
331085	All other steel shapes and forms	34.4	(3)
	Nonferrous:		
335697	Zinc and zinc-base alloy	56.0	39.6
335030	Other nonferrous shapes and forms	(D)	(3)
	Industrial organic chemicals:		
281634	Litharge	–	(3)
281930	Sulfuric acid	(D)	(3)
281914	Other industrial inorganic chemicals (including mercury oxide and silver oxide)	70.1	28.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	10.2	(3)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	30.3	26.4
308006	Fabricated plastics products (except gaskets, hoses, and belting)	6.1	.7
265001	Paperboard containers, boxes, and corrugated paperboard	43.5	30.4
362406	Carbon and graphite electrodes, and other carbon and graphite products for electrical use	(D)	37.4
970099	All other materials and components, parts, containers, and supplies	455.5	[3]422.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	39.9	75.2
	INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT		
	Materials, ingredients, containers, and supplies	**3 261.0**	**r3 695.9**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	123.1	28.8
340098	All other fabricated metal products		(4)
346000	Forgings		(4)
	Castings (rough and semifinished):		
332001	Iron and steel	13.9	5.5
336005	Aluminum and aluminum-base alloy	37.3	86.1
336003	Other nonferrous	1.3	.7

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT—Con.		
	Shapes and forms (except castings and forgings):		
331002	Steel	156.9	193.0
335105	Copper and copper-base alloy	18.1	79.5
335090	Other nonferrous shapes and forms	30.4	27.8
335790	Insulated wire and cable (except magnet wire)	108.7	80.4
335770	Magnet wire	48.4	38.8
356200	Ball and roller bearings (mounted and unmounted)	37.2	24.4
356601	Speed changers, gears, and industrial high-speed drives	34.1	(4)
265001	Paperboard boxes and containers, and corrugated paperboard	35.2	23.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	29.8	19.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	15.6	42.8
308004	Fabricated plastics products (except gaskets, hoses, and belting)	60.7	28.8
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	46.4	16.9
364300	Current-carrying wiring devices	35.8	120.4
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards		(4)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)		(4)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	592.6	(4)
367501	Capacitors		(4)
367601	Resistors		(4)
367990	Other components and accessories, n.e.c.	327.9	221.7
190033	Used engine electrical equipment for rebuilding, or to be used in rebuilding (starting motors, generators, etc.)	79.0	61.1
970099	All other materials and components, parts, containers, and supplies	1 038.3	[4]1 843.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	390.2	r753.3
	INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA		
	Materials, ingredients, containers, and supplies	**1 960.0**	**1 580.8**
265001	Paperboard containers, boxes, and corrugated paperboard	113.7	31.9
308007	Plastics products consumed in the form of sheets, rods, tubes, film, and other shapes	346.3	(5)
308004	Fabricated plastics products (except gaskets, hoses, and belting)	151.0	71.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	200.1	(5)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products		17.3
340098	Other fabricated metal products	111.2	(5)
346000	Forgings		(5)
330091	Castings (rough and semifinished)	(D)	5.6
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	34.8	(5)
335010	Aluminum and aluminum-base alloy	91.3	64.0
335091	Other nonferrous shapes and forms	(D)	(5)
339913	Ferrites (powder and paste)	41.1	(5)
331910	Other metal powders, including chromium	(D)	(5)
364300	Current-carrying wiring devices	(D)	(5)
970099	All other materials and components, parts, containers, and supplies	693.9	[5]927.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	176.1	462.9
	INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 774.6**	**1 929.5**
	Fabricated metal products (except forgings):		
344401	Sheet metal products (except stampings)	41.5	(4)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	21.5	(4)
346901	Metal stampings	18.1	(4)
340063	All other fabricated metal products	74.4	(4)
346000	Forgings	.1	(4)
330091	Castings (rough and semifinished)	15.5	(4)
	Shapes amd forms (except castings and forgings):		
331002	Steel	6.9	29.9
335105	Copper and copper-base alloy	32.4	30.7
335001	Aluminum and aluminum-base alloy	23.7	24.1
335099	Other nonferrous shapes and forms	7.3	(4)
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	52.7	(4)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	56.8	(4)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	64.3	(4)
367501	Capacitors	16.4	(4)
367601	Resistors	10.8	(4)
367990	Other components and accessories, n.e.c.	71.5	(4)
335796	Insulated wire and cable (including magnet wire)	101.3	63.5
364300	Current-carrying wiring devices	24.2	18.5
362111	Fractional horsepower electric motors (less than 1 hp)	(D)	(4)
366301	Electronic communication equipment	18.1	(4)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	14.7	(4)
357010	Electronic computing equipment	64.5	(4)
382700	Optical instruments and lenses (except sighting, tracking, and fire control)	25.7	(4)
369981	Automatic garage door controllers	(D)	(4)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.—Con.		
308004	Fabricated plastics products (except gaskets, hoses, and belting)	34.2	(4)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	19.6	14.6
970099	All other materials and components, parts, containers, and supplies	389.3	4810.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	530.4	938.1

[1]For 1987, data for material codes 340085, 346000, 332001, 331085, and 335030 were not collected separately but were included with material code 970099; data for material codes 336010, 331022, 281914, and 282104 were combined with material code 970099 to avoid disclosing data for individual companies.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, data for material codes 340085, 346000, 332001, 331085, and 335030 were not collected separately but were included with material code 970099; data for material codes 336010, 333986, 281634, 281930, and 282104 were combined with material code 970099 to avoid disclosing data for individual companies.
[4]For 1987, data were included with material code 970099 to avoid disclosing data for individual companies.
[5]For 1987, data for material codes 308007, 282104, 346000, 335091, 339913, 331910, and 3643000 were not collected separately but were included with material code 970099; data for material codes 340098 and 331002 were combined with material code 970099 to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987	1992	1987	1992	1987	1992	1987
36123 08	36123 03	36293 11	36293 05	36947 11	36947 09	36999	36997
36123 08	36123 04	36293 11	36293 09	36947 19	36947 09		
36123 08	36123 05					36999	36998
		36520 02	36520 01	36992 83	36992 00	36999 00	36997 00
36127 01	36127 11	36520 02	36520 03	36992 84	36992 00	36999 00	36998 04
36127 01	36127 31	36520 06	36520 07	36992 87	36992 00		
		36520 08	36520 07	36992 91	36992 00	3699A	36998
36291 04	36291 03	36520 12	36520 11	36992 92	36992 00	3699A 01	36998 01
36291 04	36291 05	36520 13	36520 11	36992 93	36992 00	3699A 03	36998 03
36291 04	36291 09			36992 94	36992 00	3699A 05	36998 05
				36992 95	36992 00	3699A 07	36998 07
		36914 21	36914 25	36992 96	36992 00	3699A 21	36998 02
36292 51	36292 31	36914 79	36914 07	36992 98	36992 00	3699A 21	36998 06
36292 51	36292 49	36914 79	36914 25	36992 99	36992 00	3699A 21	36998 19

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992	1987	1992	1987	1992	1987	1992
36123 03	36123 08	36293 05	36293 11	36947 09	36947 11	36997	36999
36123 04	36123 08	36293 09	36293 11	36947 09	36947 19	36997 00	36999 00
36123 05	36123 08						
		36520 01	36520 02	36992 00	36992 83	36998	36999
36127 11	36127 01	36520 03	36520 02	36992 00	36992 84		
36127 31	36127 01	36520 07	36520 06	36992 00	36992 87	36998	3699A
		36520 07	36520 08	36992 00	36992 91	36998 01	3699A 01
36291 03	36291 04	36520 11	36520 12	36992 00	36992 92	36998 02	3699A 21
36291 05	36291 04	36520 11	36520 13	36992 00	36992 93	36998 03	3699A 03
36291 09	36291 04			36992 00	36992 94	36998 04	36999 00
				36992 00	36992 95	36998 05	3699A 05
		36914 07	36914 79	36992 00	36992 96	36998 06	3699A 21
36292 31	36292 51	36914 25	36914 21	36992 00	36992 98	36998 07	3699A 07
36292 49	36292 51	36914 25	36914 79	36992 00	36992 99	36998 19	3699A 21

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3612400	MQ36C, Flourescent Lamp Ballasts	3632200	MA36F, Major Household Appliances
3613200	MA36A, Switchgear and Industrial Controls	3632300	MA36F, Major Household Appliances
3613300	MA36A, Switchgear and Industrial Controls	3633010	MA36F, Major Household Appliances
3613400	MA36A, Switchgear and Industrial Controls	3633020	MA36F, Major Household Appliances
3613500	MA36A, Switchgear and Industrial Controls	3634100	MA36E, Electric Housewares and Fans
3613600	MA36A, Switchgear and Industrial Controls	3634500	MA36E, Electric Housewares and Fans
3613900	MA36A, Switchgear and Industrial Controls	3634911	MA36E, Electric Housewares and Fans
3621100	MA36H, Motors and Generators	3634920	MA36E, Electric Housewares and Fans
3621200	MA36H, Motors and Generators	3639100	MA36F, Major Household Appliances
3621300	MA36H, Motors and Generators	3639200	MA36F, Major Household Appliances
3621400	MA36H, Motors and Generators	3639510	MA36F, Major Household Appliances
3621700	MA36H, Motors and Generators	3639520	MA36F, Major Household Appliances
3621800	MA36H, Motors and Generators	3641100	MQ36B, Electric Lamps
3621900	MA36H, Motors and Generators	3643100	MA36K, Wiring Devices and Supplies
3625100	MA36A, Switchgear and Industrial Controls	3643200	MA36K, Wiring Devices and Supplies
3625200	MA36A, Switchgear and Industrial Controls	3643300	MA36K, Wiring Devices and Supplies
3625300	MA36A, Switchgear and Industrial Controls	3643400	MA36K, Wiring Devices and Supplies
3625400	MA36A, Switchgear and Industrial Controls	3643500	MA36K, Wiring Devices and Supplies
3631110	MA36F, Major Household Appliances	3643600	MA36K, Wiring Devices and Supplies
3631120	MA36F, Major Household Appliances	3644100	MA36K, Wiring Devices and Supplies
3631310	MA36F, Major Household Appliances	3644200	MA36K, Wiring Devices and Supplies
3631320	MA36F, Major Household Appliances	3644300	MA36K, Wiring Devices and Supplies
3631410	MA36F, Major Household Appliances	3645100	MA36L, Electric Lighting Fixtures
3631420	MA36F, Major Household Appliances	3646200	MA36L, Electric Lighting Fixtures
3632100	MA36F, Major Household Appliances	3646300	MA36L, Electric Lighting Fixtures

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Part 3. Current Industrial Reports by Product Code—Con.

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3647000	MA36L, Electric Lighting Fixtures	3675000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3648500	MA36L, Electric Lighting Fixtures	3676000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651100	MA36M, Consumer Electronics	3677000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651200	MA36M, Consumer Electronics	3678100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651400	MA36M, Consumer Electronics	3678200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3651500	MA36M, Consumer Electronics	3678300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661100	MA36P, Communications Equipment	3678400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661300	MA36P, Communications Equipment	3678500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3661400	MA36P, Communications Equipment	3679100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663100	MA36P, Communications Equipment	3679300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3663200	MA36P, Communications Equipment	3679500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669100	MA36P, Communications Equipment	3679600	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669200	MA36P, Communications Equipment	3679800	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3669300	MA36P, Communications Equipment	3679920	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment
3671300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3679930	MA36M, Consumer Electronics
3671400	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3695000	MA35R, Computers and Office and Accounting Machines
3671500	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699100	MA36P, Communications Equipment
3672000	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699283	MA36P, Communications Equipment
3674100	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699284	MA36P, Communications Equipment
3674200	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699285	MA36P, Communications Equipment
3674300	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699500	MA36P, Communications Equipment
3674900	MA36Q, Semiconductors, Printed Circuit Boards, and Related Equipment	3699900	MA36P, Communications Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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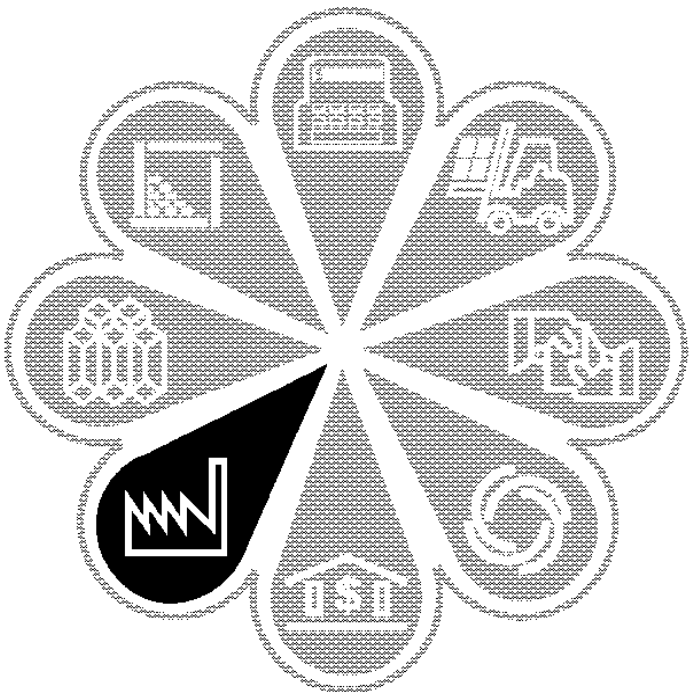
1992 Census of Manufactures

MC92-I-37A

INDUSTRY SERIES

Motor Vehicles and Equipment

Industries 3711, 3713, 3714, 3715, and 3716



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3711	Motor Vehicles and Car Bodies
3713	Truck and Bus Bodies
3714	Motor Vehicle Parts and Accessories
3715	Truck Trailers
3716	Motor Homes

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES

This industry is made up of establishments primarily engaged in manufacturing or assembling complete passenger automobiles, trucks, commercial cars and buses, and special-purpose motor vehicles which are for highway use. This industry also includes establishments primarily engaged in manufacturing chassis and passenger car bodies. Such establishments may also manufacture motor vehicle parts, but establishments primarily engaged in manufacturing motor vehicle parts except chassis and passenger car bodies are classified in industry 3714. Establishments primarily engaged in manufacturing truck and bus bodies and in assembling them on purchased chassis are classified in industry 3713; those manufacturing motor homes on purchased chassis are classified in industry 3716; those manufacturing motorcycles are classified in industry 3751; those manufacturing industrial tractors are classified in industry 3537; those manufacturing other wheel tractors, except contractors off-highway types, are classified in industry 3523; those manufacturing tracklaying and contractors' off-highway type tractors are classified in industry 3531; those manufacturing combat tanks and self-propelled weapons are classified in industry 3795; and those manufacturing stamped body parts for passenger cars are classified in industry 3465.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3711, Motor Vehicles and Car Bodies, had employment of 228.4 thousand. The employment figure was 19 percent below the 281.3 thousand reported in 1987. Compared with 1991, employment increased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Missouri, Ohio, and Tennessee. This represents a shift from 1987 when Michigan, Ohio, Missouri, and Wisconsin were the leading States.

The total value of shipments for establishments classified in this industry was $152.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3711 shipped $147.3 billion of motor vehicles and car bodies considered primary to the industry, $4.0 billion of secondary products, and had $1.7 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio also was 97 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3711, no matter in what industry they were produced, appear in table 6a and aggregate to $147.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the motor vehicles and car bodies industry amounted to $107.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3713, TRUCK AND BUS BODIES

This industry is made up of establishments primarily engaged in manufacturing truck and bus bodies and cabs for sale separately or for assembly on purchased chassis, or in assembling truck and bus bodies on purchased chassis. Establishments primarily engaged in manufacturing complete trucks and buses are classified in industry 3711; those manufacturing stamped body parts for trucks and buses are classified in industry 3465; those manufacturing truck trailers and demountable cargo containers are classified in industry 3715; those manufacturing cabs for agricultural tractors are classified in industry 3523; those manufacturing cabs for industrial trucks are classified in industry 3537; and those manufacturing cabs for off-highway construction trucks are classified in industry 3531.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3713, Truck and Bus Bodies, had employment of 35.9 thousand. The employment figure was 5 percent below the 37.8 thousand reported in 1987. Compared with 1991, employment increased 15 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, Pennsylvania, California, and Wisconsin, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Indiana, Ohio, and California were the leading States.

The total value of shipments for establishments classified in this industry was $4.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3713 shipped $4.0 billion of truck and bus bodies considered primary to the industry, $275.5 million of secondary products, and had $306.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3713, no matter in what industry they were produced, appear in table 6a and aggregate to $4.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the truck and bus body industry amounted to $2.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES

This industry is made up of establishments primarily engaged in manufacturing motor vehicle parts and accessories, but not engaged in manufacturing complete motor vehicles or passenger car bodies. Establishments primarily engaged in manufacturing or assembling complete automobiles and trucks are classified in industry 3711; those manufacturing tire and tubes are classified in industry 3011; those manufacturing automobile glass are classified in major group 32; those manufacturing automobile stampings are classified in industry 3465; those manufacturing

vehicular lighting equipment are classified in industry 3647; those manufacturing ignition systems are classified in industry 3694; those manufacturing storage batteries are classified in industry 3691; and those manufacturing carburetors, piston rings, and engine intake and exhaust valves are classified in industry 3592.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3714, Motor Vehicle Parts and Accessories, had employment of 400.2 thousand. The employment figure was 3 percent above the 389.6 thousand reported in 1987. Compared with 1991, employment increased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, Michigan, Ohio, and Tennessee. This represents a shift from 1987 when Michigan, Ohio, Indiana, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $75.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3714 shipped $69.3 billion of motor vehicle parts and accessories considered primary to the industry, $2.2 billion of secondary products, and had $3.5 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3714, no matter in what industry they were produced, appear in table 6a and aggregate to $74.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the motor vehicle parts and accessories industry amounted to $44.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3715, TRUCK TRAILERS

This industry is made up of establishments primarily engaged in manufacturing truck trailers, truck trailer chassis for sale separately, detachable trailer bodies (cargo containers) for sale separately, and detachable trailer (cargo container) chassis, for sale separately.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3715, Truck Trailers, had employment of 23.4 thousand. The employment figure was 15 percent below the 27.5 thousand reported in 1987. Compared with 1991, employment increased 6 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama, Illinois, Indiana, and Wisconsin. This represents a shift from 1987 when Texas, Indiana, California, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $3.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3715 shipped $3.1 billion of truck trailers considered primary to the industry, $226.1 million of secondary products, and had $220.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3715, no matter in what industry they were produced, appear in table 6a and aggregate to $3.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the truck trailer industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3716, MOTOR HOMES

This industry is made up of establishments primarily engaged in manufacturing self-contained motor homes on purchased chassis. Establishments primarily engaged in manufacturing self-contained motor homes on chassis manufactured in the same establishment are classified in industry 3711. Establishments primarily engaged in manufacturing mobile homes are classified in industry 2451; and those manufacturing travel trailers and pickup campers are classified in industry 3792. Establishments primarily engaged in van conversion on a custom basis are classified in services, industry 7532.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3716, Motor Homes, had employment of 16.1 thousand. The employment figure was 7 percent above the 15.1 thousand reported in 1987. Compared with 1991, employment increased 36 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Iowa, Indiana, and Florida. This represents a shift from 1987 when Indiana, Iowa, California, and Michigan were the leading States.

The total value of shipments for establishments classified in this industry was $3.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3716 shipped $2.7 billion of motor homes considered primary to the industry, $126.6 million of secondary products, and had $138.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3716, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the motor homes industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES															
1992 Census	400	456	161	228.4	10 438.8	193.3	397.3	8 606.8	45 262.2	107 636.6	152 948.5	2 989.5	4 101.3	97	99
1991 ASM	(NA)	(NA)	(NA)	218.1	9 802.5	178.5	367.8	7 841.8	45 146.9	88 403.2	133 861.2	3 261.9	4 207.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	239.5	10 060.0	200.0	399.7	8 118.3	39 504.4	101 130.8	140 417.0	3 004.4	4 528.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	249.9	10 390.9	212.5	440.2	8 541.2	46 873.4	102 345.2	149 315.2	2 373.9	4 116.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	250.3	10 121.2	213.6	448.2	8 373.6	39 762.2	102 364.8	142 059.6	1 136.6	4 255.9	(NA)	(NA)
1987 Census	352	413	174	281.3	10 213.7	235.5	472.7	8 192.3	36 117.7	97 520.4	133 345.6	4 121.4	4 621.6	97	98
1986 ASM	(NA)	(NA)	(NA)	280.5	10 261.7	233.8	479.5	8 257.1	31 846.0	93 965.0	125 869.6	3 912.8	4 402.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	295.8	10 670.3	249.7	522.4	8 724.1	28 061.1	94 220.6	122 327.4	2 904.7	4 941.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	296.2	10 192.2	247.6	564.4	8 159.6	27 668.1	90 435.0	118 066.0	2 420.9	5 083.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	260.7	8 266.6	216.5	446.2	6 583.6	22 608.0	73 818.2	95 930.8	1 106.4	4 558.7	(NA)	(NA)
1982 Census	284	355	152	240.1	6 821.9	193.5	364.2	5 261.5	15 455.8	55 520.0	70 739.7	2 368.3	3 621.2	95	99
1981 ASM	(NA)	(NA)	(NA)	271.9	7 599.8	223.4	430.8	6 007.5	15 620.6	58 326.4	74 273.1	4 697.2	3 578.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	274.2	6 904.0	220.6	427.4	5 399.6	13 817.4	52 297.2	66 257.4	2 290.4	4 123.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	348.5	8 149.5	292.0	590.9	6 496.8	20 752.7	64 226.7	85 147.4	1 905.6	4 491.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	359.1	7 845.7	303.5	628.4	6 358.3	20 490.6	64 614.6	84 900.9	1 876.9	4 410.4	(NA)	(NA)
1977 Census	254	322	119	343.6	7 077.6	289.9	620.4	5 724.9	18 723.7	58 131.6	76 517.8	1 706.1	4 010.8	95	99
INDUSTRY 3713, TRUCK AND BUS BODIES															
1992 Census	622	676	301	35.9	868.6	26.2	52.4	564.6	1 791.9	2 817.5	4 594.7	71.2	757.4	94	97
1991 ASM	(NA)	(NA)	(NA)	31.1	719.1	23.5	47.7	472.7	1 598.9	2 214.4	3 867.7	58.1	533.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	37.2	839.2	28.3	56.1	560.4	1 809.3	2 525.2	4 382.2	62.8	649.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	37.5	812.1	28.6	56.0	552.9	1 760.5	2 426.3	4 236.4	117.1	675.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	36.2	809.4	27.9	55.3	549.2	1 767.6	2 333.9	4 076.1	68.9	878.5	(NA)	(NA)
1987 Census	657	716	325	37.8	851.3	28.9	58.3	584.3	1 978.4	2 672.2	4 588.7	88.5	859.5	96	93
1986 ASM	(NA)	(NA)	(NA)	33.2	709.7	24.8	50.0	485.0	1 715.0	2 031.8	3 686.3	82.3	685.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	31.7	642.3	24.0	46.5	444.3	1 597.4	1 904.2	3 473.2	63.3	594.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	32.8	624.6	25.1	49.9	441.9	1 498.5	1 807.7	3 255.7	71.1	562.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.6	490.3	20.1	39.8	345.6	1 515.7	1 327.2	2 833.6	49.8	427.5	(NA)	(NA)
1982 Census	636	680	277	28.1	497.2	21.1	40.0	344.2	1 176.9	1 304.3	2 463.6	49.2	412.1	95	94
1981 ASM	(NA)	(NA)	(NA)	29.6	487.3	22.9	43.6	343.8	1 005.5	1 313.9	2 314.9	44.1	393.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	33.5	491.2	26.2	49.3	344.7	963.2	1 181.4	2 123.1	33.0	408.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.5	506.2	28.4	54.9	367.7	1 104.6	1 279.9	2 355.4	48.0	400.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	36.4	477.8	28.8	55.3	338.1	996.1	1 283.6	2 292.5	39.3	361.2	(NA)	(NA)
1977 Census	769	820	313	34.8	428.6	27.4	53.9	307.6	946.3	1 076.2	2 003.3	44.2	352.1	94	93
INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES															
1992 Census	2 713	3 246	1 454	400.2	13 955.6	313.4	647.0	10 255.1	30 927.9	43 951.9	75 070.7	3 647.6	7 122.6	97	93
1991 ASM	(NA)	(NA)	(NA)	369.9	12 586.6	290.5	586.5	9 280.2	25 212.9	38 284.2	63 604.2	3 403.1	6 976.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	388.7	13 037.0	308.4	624.1	9 789.9	26 871.4	38 354.5	64 875.4	3 446.0	7 054.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	393.3	12 856.5	315.7	648.8	9 852.3	26 458.4	39 177.0	65 682.8	2 964.0	6 194.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	400.8	13 228.6	321.3	673.3	10 108.6	28 731.4	40 664.7	69 048.5	1 932.0	6 102.7	(NA)	(NA)
1987 Census	2 306	2 807	1 323	389.6	11 957.9	309.2	637.3	9 027.4	26 451.6	35 607.0	62 068.4	2 304.1	5 638.7	91	90
1986 ASM	(NA)	(NA)	(NA)	376.6	11 537.3	298.7	622.6	8 755.0	24 373.5	33 019.5	57 393.9	2 644.0	5 428.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	385.4	11 649.6	308.7	645.2	8 935.4	26 093.7	31 551.5	57 931.0	2 962.0	5 443.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	381.6	10 649.9	306.3	645.2	8 185.5	23 887.7	28 986.1	52 583.1	1 725.0	5 272.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	338.0	8 876.2	267.3	549.0	6 728.4	21 592.6	23 092.6	44 415.4	1 056.2	4 424.0	(NA)	(NA)
1982 Census	2 000	2 420	1 111	321.4	7 614.0	251.1	481.8	5 614.2	16 764.6	19 007.0	36 293.1	1 791.7	3 945.2	93	86
1981 ASM	(NA)	(NA)	(NA)	359.4	8 412.6	285.2	548.5	6 332.6	17 253.6	19 847.1	37 080.9	3 309.4	4 450.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	369.1	7 886.4	287.2	549.3	5 869.0	14 719.3	17 974.3	32 881.2	3 060.1	4 565.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	459.1	9 087.0	372.9	745.7	7 008.8	18 033.5	22 062.3	39 807.2	2 750.7	5 091.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	475.8	9 099.3	391.1	811.3	7 145.4	18 377.0	22 193.2	40 283.3	2 457.8	4 537.3	(NA)	(NA)
1977 Census	2 194	2 623	997	450.7	8 004.0	372.5	777.2	6 284.9	16 263.8	19 749.7	35 750.8	1 833.2	4 124.1	94	87
INDUSTRY 3715, TRUCK TRAILERS															
1992 Census	310	339	157	23.4	565.9	18.7	38.4	397.2	1 093.5	2 459.0	3 545.5	30.9	438.1	93	98
1991 ASM	(NA)	(NA)	(NA)	22.1	515.2	16.9	34.5	343.8	742.0	2 066.4	2 832.4	45.6	454.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.8	548.2	19.4	38.7	379.1	869.0	2 248.7	3 122.0	37.7	474.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.6	594.1	22.0	43.1	418.8	1 070.6	2 747.6	3 828.8	45.2	513.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.7	573.0	21.8	42.5	402.8	1 069.7	2 566.1	3 634.8	57.2	539.8	(NA)	(NA)
1987 Census	308	337	182	27.5	570.2	21.7	43.1	406.4	1 130.8	2 314.3	3 433.5	45.7	474.1	96	99
1986 ASM	(NA)	(NA)	(NA)	23.6	492.4	18.1	36.0	347.6	786.8	1 898.8	2 714.3	31.6	370.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.4	533.1	20.4	39.6	376.0	817.1	2 116.8	2 931.8	66.1	447.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.9	524.0	22.1	43.5	378.6	1 036.5	2 302.6	3 311.1	35.8	452.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	21.6	394.0	16.4	32.3	272.0	670.9	1 508.3	2 171.6	38.8	454.6	(NA)	(NA)
1982 Census	286	325	154	18.8	339.6	14.0	27.1	223.2	592.2	1 193.6	1 820.6	39.7	342.8	92	95
1981 ASM	(NA)	(NA)	(NA)	25.6	410.4	20.0	39.2	288.8	653.9	1 523.5	2 206.2	55.3	369.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.7	412.2	21.1	39.4	280.5	834.3	1 580.7	2 435.8	55.2	440.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.7	476.4	28.3	53.8	341.7	1 134.9	1 993.3	3 088.2	37.1	493.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.0	403.0	25.7	49.5	286.8	939.4	1 604.0	2 498.0	39.0	448.1	(NA)	(NA)
1977 Census	316	353	165	28.1	322.0	22.5	43.1	229.9	645.9	1 285.3	1 910.1	36.2	355.0	94	96
INDUSTRY 3716, MOTOR HOMES															
1992 Census	122	145	83	16.1	367.3	13.1	24.9	246.2	842.9	2 063.3	2 960.9	19.0	367.1	96	97
1991 ASM	(NA)	(NA)	(NA)	11.8	259.9	9.5	18.4	171.2	631.9	1 334.3	1 935.4	17.2	332.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.1	308.0	11.0	21.0	201.7	594.5	1 571.8	2 167.2	24.9	319.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.5	336.0	12.3	24.2	225.1	699.4	1 853.5	2 562.7	24.2	331.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.0	357.1	13.5	25.9	236.9	755.1	2 032.1	2 756.4	23.6	361.2	(NA)	(NA)
1987 Census	144	165	81	15.1	316.9	11.8	23.4	211.9	688.6	1 811.4	2 486.8	18.7	315.0	95	96
1986 ASM	(NA)	(NA)	(NA)	12.0	232.4	9.5	18.2	154.0	492.0	1 382.3	1 887.2	22.3	212.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.2	223.2	9.7	18.9	149.8	558.1	1 337.1	1 872.2	41.8	236.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.2	244.4	11.7	22.4	162.4	613.9	1 446.7	2 080.1	28.3	192.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	11.7	246.8	9.2	19.1	139.9	582.2	1 388.4	1 934.3	13.9	191.2	(NA)	(NA)
1982 Census	79	87	55	7.2	120.6	5.7	10.2	79.3	304.0	653.1	952.7	15.5	131.9	97	88
1981 ASM	(NA)	(NA)	(NA)	9.1	117.6	6.0	10.2	74.2	299.8	815.7	1 105.7	8.7	102.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.8	137.7	5.9	11.9	68.5	188.1	660.0	863.0	8.8	101.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.4	174.9	8.4	15.9	106.8	186.0	752.6	981.4	14.3	204.1	(NA)	(NA)

See footnotes at end of table.

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TSF:37A_92.DAT;2 3/13/95 13:04:29 UTF:37A_93.DAT;2 3/13/95 13:04:29 META:TIPS96-13041978.DAT;1 3/13/95 13:05:26

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3716, MOTOR HOMES—Con.														
1978 ASM	(NA)	(NA)	(NA)	21.6	260.9	17.4	33.8	170.5	650.6	1 396.3	2 024.2	19.8	300.1	(NA)	(NA)
1977 Census	79	116	114	19.2	205.4	15.4	29.6	135.1	443.3	1 132.5	1 564.5	16.4	220.6	92	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES								
1992 Census	45 704	85	2 055	21.66	70	77	198 171	23	113.92
1991 ASM	44 945	82	2 061	21.32	66	73	207 001	22	122.75
1990 ASM	42 004	84	1 999	20.31	72	79	164 945	25	98.84
1989 ASM	41 580	85	2 072	19.40	69	76	187 569	22	106.48
1988 ASM	40 436	85	2 098	18.68	72	79	158 858	25	88.72
1987 Census	36 309	84	2 007	17.33	73	81	128 396	28	76.41
1986 ASM	36 584	83	2 051	17.22	75	83	113 533	32	66.42
1985 ASM	36 073	84	2 092	16.70	77	86	94 865	38	53.72
1984 ASM	34 410	84	2 279	14.46	77	85	93 410	37	49.02
1983 ASM	31 709	83	2 061	14.75	77	86	86 720	37	50.67
1982 Census	28 413	81	1 882	14.45	78	88	64 372	44	42.44
1981 ASM	27 951	82	1 928	13.94	79	89	57 450	49	36.26
1980 ASM	25 179	80	1 937	12.63	79	89	50 392	50	32.33
1979 ASM	23 385	84	2 024	10.99	75	85	59 549	39	35.12
1978 ASM	21 848	85	2 071	10.12	76	85	57 061	38	32.61
1977 Census	20 598	84	2 140	9.23	76	85	54 493	38	30.18
	INDUSTRY 3713, TRUCK AND BUS BODIES								
1992 Census	24 195	73	2 000	10.77	61	80	49 914	48	34.20
1991 ASM	23 122	76	2 030	9.91	57	76	51 412	45	33.52
1990 ASM	22 559	76	1 982	9.99	58	77	48 637	46	32.25
1989 ASM	21 656	76	1 958	9.87	57	76	46 947	46	31.44
1988 ASM	22 359	77	1 982	9.93	57	77	48 829	46	31.96
1987 Census	22 521	76	2 017	10.02	58	77	52 339	43	33.93
1986 ASM	21 377	75	2 016	9.70	55	74	51 657	41	34.30
1985 ASM	20 262	76	1 938	9.55	55	73	50 391	40	34.35
1984 ASM	19 043	77	1 988	8.86	56	75	45 686	42	30.03
1983 ASM	18 432	76	1 980	8.68	47	64	56 981	32	38.08
1982 Census	17 694	75	1 896	8.61	53	73	41 883	42	29.42
1981 ASM	16 463	77	1 904	7.89	57	78	33 970	48	23.06
1980 ASM	14 663	78	1 882	6.99	56	79	28 752	51	19.54
1979 ASM	14 259	80	1 933	6.70	54	76	31 115	46	20.12
1978 ASM	13 126	79	1 920	6.11	56	77	27 365	48	18.01
1977 Census	12 316	79	1 967	5.71	54	75	27 193	45	17.56
	INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES								
1992 Census	34 880	78	2 064	15.85	59	77	77 300	45	47.80
1991 ASM	34 027	79	2 019	15.82	60	80	68 161	50	42.99
1990 ASM	33 540	79	2 024	15.69	59	79	69 131	49	43.06
1989 ASM	32 689	80	2 055	15.19	60	79	67 273	49	40.78
1988 ASM	33 005	80	2 096	15.01	59	78	71 685	46	42.67
1987 Census	30 693	79	2 061	14.17	57	77	67 894	45	41.51
1986 ASM	30 635	79	2 084	14.06	58	78	64 720	47	39.15
1985 ASM	30 227	80	2 090	13.85	54	75	67 706	45	40.44
1984 ASM	27 909	80	2 106	12.69	55	75	62 599	45	37.02
1983 ASM	26 261	79	2 054	12.26	52	72	63 883	41	39.33
1982 Census	23 690	78	1 919	11.65	52	73	52 161	45	34.80
1981 ASM	23 407	79	1 923	11.55	54	76	48 007	49	31.46
1980 ASM	21 367	78	1 913	10.68	55	79	39 879	54	26.80
1979 ASM	19 793	81	2 000	9.40	55	78	39 280	50	24.18
1978 ASM	19 124	82	2 074	8.81	55	78	38 623	50	22.65
1977 Census	17 759	83	2 086	8.09	55	78	36 086	49	20.93

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3715, TRUCK TRAILERS								
1992 Census	24 184	80	2 053	10.34	69	85	46 731	52	28.48
1991 ASM	23 312	76	2 041	9.97	73	91	33 575	69	21.51
1990 ASM	22 105	78	1 995	9.80	72	90	35 040	63	22.45
1989 ASM	21 525	80	1 959	9.72	72	87	38 790	55	24.84
1988 ASM	20 686	79	1 950	9.48	71	86	38 617	54	25.17
1987 Census	20 735	79	1 986	9.43	67	84	41 120	50	26.24
1986 ASM	20 864	77	1 989	9.66	70	88	33 339	63	21.86
1985 ASM	20 193	77	1 941	9.49	72	90	30 951	65	20.63
1984 ASM	18 781	79	1 968	8.70	70	85	37 151	51	23.83
1983 ASM	18 241	76	1 970	8.42	69	88	31 060	59	20.77
1982 Census	18 064	74	1 936	8.24	66	84	31 500	57	21.85
1981 ASM	16 031	78	1 960	7.37	69	88	25 543	63	16.68
1980 ASM	14 881	76	1 867	7.12	65	82	30 119	49	21.18
1979 ASM	13 345	79	1 901	6.35	65	80	31 790	42	21.09
1978 ASM	12 594	80	1 926	5.79	64	80	29 356	43	18.98
1977 Census	11 459	80	1 916	5.33	67	84	22 986	50	14.99
	INDUSTRY 3716, MOTOR HOMES								
1992 Census	22 814	81	1 901	9.89	70	82	52 354	44	33.85
1991 ASM	22 025	81	1 937	9.30	69	82	53 551	41	34.34
1990 ASM	21 844	78	1 909	9.60	73	87	42 163	52	28.31
1989 ASM	21 677	79	1 967	9.30	72	85	45 123	48	28.90
1988 ASM	21 006	79	1 919	9.15	74	87	44 418	47	29.15
1987 Census	20 987	78	1 983	9.06	73	86	45 603	46	29.43
1986 ASM	19 367	79	1 916	8.46	73	86	41 000	47	27.03
1985 ASM	18 295	80	1 948	7.93	71	83	45 746	40	29.53
1984 ASM	17 211	82	1 915	7.25	70	81	43 232	40	27.41
1983 ASM	21 094	79	2 076	7.32	72	85	49 761	42	30.48
1982 Census	16 750	79	1 789	7.77	69	81	42 222	40	29.80
1981 ASM	12 923	66	1 700	7.27	74	84	32 945	39	29.39
1980 ASM	14 051	60	2 017	5.76	76	92	19 194	73	15.81
1979 ASM	13 052	63	1 893	6.72	77	95	13 881	94	11.70
1978 ASM	12 079	81	1 943	5.04	69	82	30 120	40	19.25
1977 Census	10 698	80	1 922	4.56	72	86	23 089	46	14.98

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES														
United States	–	**456**	**161**	**228.4**	**10 438.8**	**193.3**	**397.3**	**8 606.8**	**45 262.2**	**107 636.6**	**152 948.5**	**2 989.5**	**281.3**	**36 117.7**
Alabama	E8	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	E7	6	1	.1	2.7	.1	.2	2.2	11.1	28.4	39.6	(D)	.3	7.9
California	–	57	14	8.0	349.8	7.1	15.2	309.9	645.0	2 337.7	2 980.1	(D)	(NA)	(D)
Colorado	E9	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Delaware	–	2	2	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E7	22	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	49.7
Georgia	–	14	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	19	5	8.5	384.2	7.4	15.5	320.4	1 854.8	5 885.5	7 766.8	(D)	(NA)	(D)
Indiana	–	34	13	5.8	242.2	4.9	9.1	201.1	1 826.4	3 188.2	4 983.1	23.0	(NA)	(D)
Kansas	–	8	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	9	4	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	4	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	49	26	76.9	3 657.7	63.9	130.9	2 975.6	12 695.5	29 257.2	42 091.3	474.0	105.3	11 552.1
Minnesota	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	–	14	6	15.2	732.0	13.9	27.9	647.1	4 663.3	11 456.3	16 070.7	(D)	21.8	3 829.5
New Jersey	–	10	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Mexico	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	12	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
North Carolina	–	12	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Dakota	E2	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	29	20	35.7	1 565.3	30.7	60.4	1 326.2	7 849.2	15 277.7	23 032.0	320.4	36.7	5 650.7
Oklahoma	–	7	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	–	8	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E3	16	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES—Con.														
South Carolina	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	5	3	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	20	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	8	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	–	15	5	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.7	1 087.5
INDUSTRY 3713, TRUCK AND BUS BODIES														
United States	**E1**	**676**	**301**	**35.9**	**868.6**	**26.2**	**52.4**	**564.6**	**1 791.9**	**2 817.5**	**4 594.7**	**71.2**	**37.8**	**1 978.4**
Alabama	E2	18	6	.6	13.9	.5	1.3	10.5	44.3	65.6	107.5	.3	.5	28.7
Arizona	–	11	6	.4	8.6	.3	.7	5.9	28.5	39.9	66.1	(D)	(NA)	(NA)
Arkansas	E2	5	3	1.0	18.3	.8	1.1	12.8	6.3	74.4	82.6	(D)	G	(D)
California	–	95	32	2.8	68.1	2.2	4.3	44.8	258.6	322.0	578.8	(D)	(NA)	(D)
Florida	–	25	13	2.3	52.8	1.8	3.6	34.0	115.7	169.5	283.3	2.5	2.4	120.5
Georgia	E1	25	15	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	1.1	35.8
Illinois	–	19	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	E2	41	28	4.9	106.6	3.1	6.1	66.1	180.5	293.4	469.5	4.4	(NA)	(D)
Iowa	–	14	11	.9	22.4	.7	1.4	16.6	43.3	92.7	135.4	1.2	F	(D)
Kansas	–	16	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	E	(D)
Massachusetts	E7	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	19	5	.8	24.6	.7	1.6	19.5	43.6	45.4	90.4	1.5	G	(D)
Minnesota	E2	17	7	.4	9.6	.3	.5	5.9	16.9	25.8	43.4	.3	E	(D)
Mississippi	E2	9	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	15	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	F	(D)
New Jersey	E1	11	2	.2	6.2	.2	.4	4.2	8.8	9.8	18.6	(D)	E	(D)
New York	–	28	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	G	(D)
North Carolina	–	30	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E1	31	21	2.4	64.7	1.7	3.5	42.0	114.7	136.8	249.6	2.5	(NA)	(D)
Oklahoma	–	13	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	E1	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E1	50	27	3.5	85.9	2.6	4.9	53.7	218.1	358.8	582.3	5.7	4.5	243.5
South Carolina	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	14	3	.4	10.6	.3	.6	6.3	23.9	27.3	50.2	(D)	F	(D)
Texas	E2	37	14	1.6	31.4	1.2	2.3	21.0	58.3	109.2	171.9	(D)	G	(D)
Utah	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	14	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	37.5
Washington	E1	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Wisconsin	–	19	9	2.4	75.1	1.7	3.6	49.1	117.9	187.2	300.7	(D)	1.9	91.1
INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES														
United States	**–**	**3 246**	**1 454**	**400.2**	**13 955.6**	**313.4**	**647.0**	**10 255.1**	**30 927.9**	**43 951.9**	**75 070.7**	**3 647.6**	**389.6**	**26 451.6**
Alabama	–	41	16	5.8	215.9	4.8	9.7	173.8	437.7	480.3	937.6	15.4	9.1	528.1
Arizona	–	50	9	2.0	48.9	1.2	2.4	20.1	133.5	189.4	329.1	13.5	1.0	36.6
Arkansas	–	38	20	4.9	108.1	4.1	9.2	82.1	326.2	356.4	688.7	17.1	3.3	272.4
California	E2	451	146	15.9	382.0	11.6	24.2	239.9	823.0	866.4	1 680.8	(D)	18.3	892.0
Colorado	–	46	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	56.3
Connecticut	E2	28	14	2.4	63.7	1.9	3.4	42.1	125.8	127.6	251.3	(D)	(NA)	(D)
Florida	E1	103	19	2.5	48.5	1.9	3.7	30.1	147.1	143.8	289.2	(D)	1.9	74.6
Georgia	–	73	27	4.7	111.6	3.6	7.0	71.5	304.1	318.4	626.0	21.4	(NA)	(D)
Illinois	–	133	70	14.1	349.6	10.7	21.4	228.1	981.4	1 017.9	1 998.6	(D)	(NA)	(D)
Indiana	–	194	125	50.3	1 961.1	36.6	76.7	1 276.4	4 080.1	4 403.0	8 416.9	455.8	34.4	2 497.5
Iowa	–	49	27	4.7	122.3	3.9	7.7	93.8	414.8	338.2	757.4	16.9	4.1	356.4
Kansas	–	23	8	2.0	44.6	1.8	3.7	37.1	122.3	135.8	259.0	(D)	G	(D)
Kentucky	–	55	39	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	E5	19	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	E8	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	26	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	G	(D)
Massachusetts	E1	34	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	434	255	104.9	4 448.2	86.0	180.6	3 549.1	8 345.4	13 447.9	21 907.3	898.7	(NA)	(D)
Minnesota	E1	43	16	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	40	22	5.7	134.6	4.8	9.2	97.9	344.3	558.4	940.0	13.7	(NA)	(D)
Missouri	–	97	53	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	52.3	(NA)	(D)
Nebraska	–	15	7	2.4	54.9	2.1	4.1	41.8	239.5	159.5	399.8	(D)	2.1	194.6
Nevada	–	12	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	4	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	E2	66	23	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	109	39	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	77.4	25.0	1 836.6
North Carolina	–	83	50	12.6	359.2	10.1	20.6	252.3	1 061.3	1 501.9	2 553.8	92.5	(NA)	(D)
Ohio	–	247	146	55.4	2 236.4	44.0	92.4	1 710.4	5 107.2	8 356.7	13 591.2	1 205.2	(NA)	(D)
Oklahoma	–	52	15	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.4	(NA)	(D)
Oregon	–	48	12	1.6	49.3	1.1	2.1	31.1	85.0	129.7	212.4	(D)	1.3	55.1

See footnotes at end of table.

TIPS [UPF] BATCH_1658 [EISS,BA_TAYLOR] EISS 3/13/95 1:05 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 4
TSF:37A_92.DAT;2 3/13/95 13:04:29 UTF:37A_93.DAT;2 3/13/95 13:04:29 META:TIPS96-13041978.DAT;1 3/13/95 13:05:26

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES—Con.														
Pennsylvania	–	88	35	8.5	293.5	6.0	11.9	205.0	690.7	556.8	1 245.6	31.9	8.1	558.2
Rhode Island	–	8	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	32	19	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Dakota	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.9
Tennessee	–	111	67	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E1	173	55	5.6	137.9	4.0	8.3	82.8	230.1	426.0	652.4	28.7	4.1	226.5
Utah	–	18	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Vermont	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	34	18	5.9	168.6	4.7	9.7	119.9	390.7	540.9	930.6	27.7	(NA)	(D)
Washington	E3	56	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	66	36	9.7	318.2	8.0	14.8	246.2	787.9	1 140.2	1 927.4	49.3	8.5	772.9
INDUSTRY 3715, TRUCK TRAILERS														
United States	**–**	**339**	**157**	**23.4**	**565.9**	**18.7**	**38.4**	**397.2**	**1 093.5**	**2 459.0**	**3 545.5**	**30.9**	**27.5**	**1 130.8**
Alabama	–	13	8	1.4	33.2	1.2	2.5	24.3	65.8	145.4	210.9	.6	1.4	61.0
Arkansas	E5	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
California	E2	28	13	.9	27.4	.5	1.0	13.2	23.0	80.3	103.2	1.0	2.1	102.2
Colorado	–	4	4	.3	7.3	.2	.4	3.8	17.0	15.3	33.2	(D)	E	(D)
Florida	E2	16	4	.6	12.4	.4	.9	8.2	17.3	40.1	55.7	(D)	E	(D)
Georgia	–	10	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Idaho	–	4	3	.2	2.8	.1	.2	1.9	7.2	10.8	18.1	.1	(NA)	(NA)
Illinois	–	10	8	2.3	48.2	2.0	3.8	37.2	171.4	224.3	397.5	1.2	G	(D)
Indiana	–	19	8	4.1	107.9	3.6	7.6	89.8	213.3	578.9	793.6	9.9	G	(D)
Iowa	–	11	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	21.9
Kansas	E2	8	5	.2	4.9	.2	.4	3.8	10.0	10.6	21.1	(D)	E	(D)
Kentucky	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E1	11	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	57.4
Nebraska	–	7	4	.9	19.7	.7	1.4	13.5	44.0	89.0	132.9	(D)	F	(D)
New Jersey	E7	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Carolina	E1	9	2	.3	8.3	.2	.5	5.0	16.0	24.6	40.8	.5	E	(D)
North Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	12	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	–	11	4	.4	8.1	.3	.6	5.5	10.6	19.8	30.3	.2	.4	14.7
Oregon	E3	10	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	19	11	1.2	28.9	.9	1.8	20.2	53.6	211.3	260.5	(D)	2.0	91.1
South Carolina	–	6	3	.1	2.5	.1	.2	1.6	3.9	5.3	9.3	.1	(NA)	(NA)
South Dakota	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	9.6
Tennessee	–	7	3	.6	13.6	.4	.9	9.3	26.5	46.3	72.6	(D)	F	(D)
Texas	E2	33	14	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	3.1	91.4
Utah	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	9	6	.4	9.7	.3	.7	6.4	19.9	31.5	51.6	(D)	F	(D)
Wisconsin	–	16	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.8	1.5	67.9
INDUSTRY 3716, MOTOR HOMES														
United States	**–**	**145**	**83**	**16.1**	**367.3**	**13.1**	**24.9**	**246.2**	**842.9**	**2 063.3**	**2 960.9**	**19.0**	**15.1**	**688.6**
Alabama	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	17	12	2.3	49.6	2.0	3.9	36.0	131.5	315.7	440.5	2.9	2.6	129.6
Florida	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	56	34	5.7	136.7	4.7	9.0	98.4	239.8	930.2	1 233.8	5.7	6.0	296.7
Iowa	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	6	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Minnesota	E7	5	2	.2	3.4	.2	.3	2.3	6.9	14.2	21.3	(D)	(NA)	(NA)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	4	4	1.1	24.8	.9	1.9	15.8	53.5	119.2	171.1	(D)	F	(D)
Pennsylvania	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	9	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Wisconsin	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Motor vehicles and car bodies (SIC 3711)	Truck and bus bodies (SIC 3713)	Motor vehicle parts and accessories (SIC 3714)	Truck trailers (SIC 3715)	Motor homes (SIC 3716)
Companies ---- number	400	622	2 713	310	122
All establishments ---- number	456	676	3 246	339	145
With 1 to 19 employees ---- number	295	375	1 792	182	62
With 20 to 99 employees ---- number	69	210	750	103	46
With 100 employees or more ---- number	92	91	704	54	37
Employment and labor costs:					
Employees ---- 1,000	228.4	35.9	400.2	23.4	16.1
Compensation, total ---- mil dol	15 459.6	1 089.6	18 992.3	711.3	442.3
Annual payroll ---- mil dol	10 438.8	868.6	13 955.6	565.9	367.3
Fringe benefits ---- mil dol	5 020.8	221.0	5 036.8	145.4	75.0
Social Security and other legally required payments ---- mil dol	1 216.9	105.7	1 423.2	70.0	42.6
Employer voluntary payments ---- mil dol	3 804.0	115.3	3 613.6	75.4	32.4
Production workers:					
Average for year ---- 1,000	193.3	26.2	313.4	18.7	13.1
March ---- 1,000	188.5	26.2	309.6	17.7	12.8
May ---- 1,000	198.9	26.9	316.5	18.6	13.4
August ---- 1,000	183.1	26.5	310.7	19.2	13.3
November ---- 1,000	202.8	25.3	317.3	19.3	13.1
Hours ---- millions	397.3	52.4	647.0	38.4	24.9
Wages ---- mil dol	8 606.8	564.6	10 255.1	397.2	246.2
Cost of materials[1] ---- mil dol	107 636.6	2 817.5	43 951.9	2 459.0	2 063.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	105 521.7	2 587.4	40 220.9	2 287.3	2 033.6
Resales ---- mil dol	1 426.5	163.6	2 235.4	139.5	14.9
Fuels ---- mil dol	202.9	15.9	242.7	5.1	4.1
Purchased electricity ---- mil dol	417.1	33.7	730.6	15.2	8.2
Contract work ---- mil dol	68.4	16.8	522.4	11.9	2.5
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	8 448.0	678.8	13 302.0	259.2	120.4
Generated less sold ---- mil kWh	(D)	(D)	(D)	(D)	(D)
Total value of shipments ---- mil dol	152 948.5	4 594.7	75 070.7	3 545.5	2 960.9
Value added ---- mil dol	45 262.2	1 791.9	30 927.9	1 093.5	842.9
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	4 165.4	723.6	7 240.1	403.0	408.7
Finished goods ---- mil dol	683.9	129.4	2 027.6	77.4	166.6
Work in process ---- mil dol	1 503.9	261.7	2 186.4	75.2	52.6
Materials and supplies ---- mil dol	1 977.5	332.5	3 026.1	250.4	189.5
End of 1992 ---- mil dol	4 101.3	757.4	7 122.6	438.1	367.1
Finished goods ---- mil dol	644.5	136.9	1 872.8	77.8	101.9
Work in process ---- mil dol	1 493.6	268.8	2 150.4	81.7	62.6
Materials and supplies ---- mil dol	1 963.2	351.6	3 099.4	278.6	202.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Motor vehicles and car bodies (SIC 3711)	Truck and bus bodies (SIC 3713)	Motor vehicle parts and accessories (SIC 3714)	Truck trailers (SIC 3715)	Motor homes (SIC 3716)
Gross book value of depreciable assets:					
Total:					
Beginning of year	28 364.3	1 174.1	32 427.8	585.8	391.2
New capital expenditures[1]	2 989.5	71.2	3 647.6	30.9	19.0
Used capital expenditures	(D)	2.3	199.3	8.1	2.8
Retirements	(D)	317.0	1 003.5	18.5	16.0
End of year	30 697.4	930.7	35 271.3	606.3	397.0
Buildings and other structures:					
Beginning of year	7 268.4	274.4	5 718.4	186.6	139.6
New capital expenditures	520.4	12.1	667.4	6.2	5.9
Used capital expenditures	(D)	.8	40.4	2.3	1.4
Retirements	(D)	8.3	27.4	3.4	3.4
End of year	7 745.3	278.9	6 398.8	191.8	143.4
Machinery and equipment:					
Beginning of year	21 095.9	899.7	26 709.4	399.2	251.6
New capital expenditures[1]	2 469.1	59.1	2 980.2	24.7	13.2
Used capital expenditures	(D)	1.6	158.8	5.8	1.4
Retirements	(D)	308.6	976.0	15.1	12.6
End of year	22 952.1	651.7	28 872.4	414.6	253.6
Depreciation charges during 1992:					
Total	1 729.4	60.3	2 187.6	48.0	31.3
Buildings and other structures	243.9	11.5	227.3	9.4	6.4
Machinery and equipment	1 485.4	48.8	1 960.3	38.6	24.9
Rental payments:					
Total	387.6	34.8	472.7	22.9	16.9
Buildings and other structures	217.0	22.0	223.7	15.9	13.8
Machinery and equipment	170.7	12.8	249.1	7.0	3.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Motor vehicles and car bodies (SIC 3711)		Truck and bus bodies (SIC 3713)		Motor vehicle parts and accessories (SIC 3714)		Truck trailers (SIC 3715)		Motor homes (SIC 3716)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	64.8	(X)	4.4	(X)	118.5	(X)	2.5	(X)	1.3	(X)
Response coverage ratio (percent)[2]	95.8	(X)	79.8	(X)	92.1	(X)	81.1	(X)	84.7	(X)
Machinery	283.5	(X)	20.3	(X)	738.5	(X)	15.4	(X)	2.8	(X)
Response coverage ratio (percent)[2]	97.3	(X)	77.3	(X)	92.3	(X)	81.9	(X)	85.6	(X)
Other purchased services:										
Communications	15.6	(X)	8.8	(X)	62.9	(X)	4.2	(X)	2.9	(X)
Response coverage ratio (percent)[2]	74.8	(X)	80.6	(X)	85.0	(X)	83.6	(X)	85.3	(X)
Legal	12.7	(X)	8.4	(X)	305.4	(X)	4.9	(X)	3.0	(X)
Response coverage ratio (percent)[2]	93.9	(X)	82.6	(X)	90.7	(X)	83.6	(X)	81.6	(X)
Accounting and bookkeeping	14.0	(X)	54.2	(X)	25.3	(X)	1.7	(X)	1.1	(X)
Response coverage ratio (percent)[2]	91.1	(X)	81.7	(X)	89.6	(X)	83.6	(X)	84.5	(X)
Advertising	225.3	(X)	10.9	(X)	815.6	(X)	5.3	(X)	13.3	(X)
Response coverage ratio (percent)[2]	89.0	(X)	81.2	(X)	89.2	(X)	83.6	(X)	85.6	(X)
Software and other data processing	25.9	(X)	2.1	(X)	83.4	(X)	1.6	(X)	1.6	(X)
Response coverage ratio (percent)[2]	89.0	(X)	72.3	(X)	91.3	(X)	80.8	(X)	84.7	(X)
Refuse removal, including hazardous waste	71.5	(X)	6.2	(X)	216.9	(X)	3.0	(X)	2.6	(X)
Response coverage ratio (percent)[2]	97.0	(X)	78.1	(X)	93.3	(X)	81.9	(X)	78.2	(X)
New machinery and equipment expenditures	2 469.1	(X)	59.1	(X)	2 980.2	(X)	24.7	(X)	13.2	(X)
Automobiles, trucks, etc., for highway use	33.4	1	1.8	36	20.4	8	1.7	19	1.0	19
Computers and peripheral data processing equipment	46.3	1	4.2	19	73.3	3	3.0	5	1.0	19
All other	2 389.5	1	53.1	3	2 886.5	1	20.1	2	11.2	4
Adjustment ratio[3]	1.0	(X)	1.0	(X)	1.0	(X)	1.1	(X)	1.7	(X)
Cost of materials, components, parts, etc., used	105 521.7	(X)	2 587.4	(X)	40 220.9	(X)	2 287.3	(X)	2 033.6	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	46.2	12	4 700.8	3	47.0	5	38.7	3
Materials purchased or transferred from domestic sources	(S)	(X)	2 541.2	1	35 520.1	1	2 240.3	1	1 994.9	1
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.8	(X)	1.4	(X)	1.5	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES												
Total	**–**	**456**	**228.4**	**10 438.8**	**193.3**	**397.3**	**8 606.8**	**45 262.2**	**107 636.6**	**152 948.5**	**2 989.5**	**4 101.3**
Establishments with an average of–												
1 to 4 employees	E9	171	.2	7.4	.2	.5	6.0	25.8	64.0	89.7	1.6	2.9
5 to 9 employees	E8	69	.4	10.7	.4	.7	8.7	38.5	94.9	133.5	2.5	4.4
10 to 19 employees	E7	55	.7	17.7	.6	1.1	13.4	54.3	129.5	183.6	3.2	8.6
20 to 49 employees	E5	41	1.2	32.0	1.0	2.0	23.7	65.5	199.7	261.3	4.5	19.1
50 to 99 employees	E5	28	2.1	54.6	1.7	3.5	39.0	197.9	389.0	583.8	7.6	40.4
100 to 249 employees	E1	16	2.5	68.5	1.8	3.9	48.1	165.6	370.2	526.8	3.5	76.6
250 to 499 employees	E1	8	2.9	101.0	2.0	4.2	64.8	292.6	856.8	1 136.5	74.6	149.9
500 to 999 employees	–	6	4.8	188.2	3.3	6.7	124.7	481.2	1 122.5	1 578.2	(D)	114.8
1,000 to 2,499 employees	–	25	41.0	1 891.7	34.5	70.6	1 543.1	11 495.4	24 098.6	35 623.9	245.1	1 079.6
2,500 employees or more	–	37	172.4	8 067.1	147.9	304.1	6 735.3	32 445.5	80 311.4	112 831.1	2 646.9	2 605.0
Covered by administrative records[2]	E9	138	.2	5.0	.2	.4	4.0	14.7	37.3	52.0	1.0	1.6
INDUSTRY 3713, TRUCK AND BUS BODIES												
Total	**E1**	**676**	**35.9**	**868.6**	**26.2**	**52.4**	**564.6**	**1 791.9**	**2 817.5**	**4 594.7**	**71.2**	**757.4**
Establishments with an average of–												
1 to 4 employees	E9	135	.3	4.8	.2	.4	3.2	11.9	15.0	26.9	.3	4.6
5 to 9 employees	E6	118	.8	15.9	.6	1.2	10.6	34.4	49.5	83.9	.8	14.2
10 to 19 employees	E2	122	1.7	38.6	1.2	2.4	23.3	80.1	97.4	177.6	1.7	26.2
20 to 49 employees	E2	141	4.5	106.6	3.3	6.5	66.7	197.2	294.9	492.9	4.7	80.7
50 to 99 employees	E1	69	4.9	114.7	3.8	7.6	75.0	276.0	317.0	595.4	4.2	103.2
100 to 249 employees	E1	65	10.2	238.0	7.5	14.6	151.6	417.8	731.5	1 142.6	11.9	218.6
250 to 499 employees	–	17	5.9	163.4	4.6	9.5	110.9	453.1	703.4	1 148.9	34.1	193.4
500 to 999 employees	–	6	7.6	186.6	5.1	10.3	123.2	321.6	608.8	926.4	13.6	116.5
1,000 to 2,499 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	226	1.0	16.1	.8	1.4	10.8	35.4	49.4	84.8	1.0	14.3

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES												
Total	**–**	**3 246**	**400.2**	**13 955.6**	**313.4**	**647.0**	**10 255.1**	**30 927.9**	**43 951.9**	**75 070.7**	**3 647.6**	**7 122.6**
Establishments with an average of—												
1 to 4 employees	E6	832	1.4	33.3	1.1	2.2	24.6	85.4	123.1	208.5	10.1	23.2
5 to 9 employees	E7	493	3.3	72.4	2.6	5.2	53.3	137.4	209.7	346.6	15.5	40.0
10 to 19 employees	E3	467	6.5	143.3	4.8	9.6	94.2	269.9	427.8	699.5	37.7	101.4
20 to 49 employees	E1	477	14.9	346.0	10.8	21.6	205.1	776.3	995.7	1 767.6	60.6	262.1
50 to 99 employees	E1	273	19.6	455.0	14.8	30.1	282.8	1 069.2	1 296.9	2 350.5	92.9	334.4
100 to 249 employees	–	348	55.7	1 426.0	42.4	86.1	916.0	3 900.4	5 450.2	9 369.0	558.7	1 041.9
250 to 499 employees	–	200	68.6	1 890.3	53.5	109.1	1 312.3	4 942.9	6 188.6	11 108.5	403.2	1 180.1
500 to 999 employees	–	91	63.5	1 764.0	49.8	102.5	1 250.0	4 714.0	6 580.4	11 313.6	465.3	964.4
1,000 to 2,499 employees	–	43	166.6	7 825.3	133.5	280.5	6 116.8	15 032.4	22 679.4	37 906.9	818.6	3 175.0
2,500 employees or more	–	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1 185.1	(D)
Covered by administrative records[2]	E9	1 247	5.6	100.4	4.5	8.7	76.3	170.9	250.0	420.9	20.8	44.6
INDUSTRY 3715, TRUCK TRAILERS												
Total	**–**	**339**	**23.4**	**565.9**	**18.7**	**38.4**	**397.2**	**1 093.5**	**2 459.0**	**3 545.5**	**30.9**	**438.1**
Establishments with an average of—												
1 to 4 employees	E9	70	.1	2.5	.1	.2	1.6	4.0	10.2	14.0	.1	2.3
5 to 9 employees	E8	58	.4	7.4	.3	.6	4.7	10.0	27.9	37.8	.3	5.5
10 to 19 employees	E3	54	.7	15.0	.6	1.1	9.7	21.3	49.2	70.4	.7	12.3
20 to 49 employees	E2	71	2.3	54.8	1.7	3.5	34.0	89.6	151.5	242.3	2.4	36.4
50 to 99 employees	–	32	2.3	54.9	1.7	3.6	37.3	110.2	196.0	305.2	2.9	49.7
100 to 249 employees	–	28	4.2	103.7	3.2	6.5	66.2	206.5	473.5	683.0	4.7	80.5
250 to 499 employees	–	18	6.0	140.7	4.8	9.0	96.4	259.1	629.5	879.5	6.0	110.9
500 to 999 employees	–	6	7.4	187.0	6.2	13.9	147.3	392.7	921.1	1 313.2	13.8	140.4
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	122	.6	10.4	.5	.9	7.0	12.8	35.1	47.9	.5	7.1
INDUSTRY 3716, MOTOR HOMES												
Total	**–**	**145**	**16.1**	**367.3**	**13.1**	**24.9**	**246.2**	**842.9**	**2 063.3**	**2 960.9**	**19.0**	**367.1**
Establishments with an average of—												
1 to 4 employees	E8	25	(Z)	.7	(Z)	.1	.4	1.5	4.0	5.5	.1	.8
5 to 9 employees	E7	19	.1	2.3	.1	.2	1.5	4.8	12.1	16.9	.2	2.6
10 to 19 employees	E2	18	.2	4.2	.2	.4	2.8	8.8	35.6	44.5	.2	3.3
20 to 49 employees	E3	28	.9	15.7	.7	1.3	9.6	44.9	60.6	109.0	.7	10.3
50 to 99 employees	E2	18	1.2	22.1	.8	1.6	12.4	54.5	73.6	129.1	1.0	14.8
100 to 249 employees	–	19	3.0	67.7	2.3	4.9	40.3	120.5	319.4	438.8	3.5	82.3
250 to 499 employees	–	13	4.5	107.0	4.0	7.5	82.9	227.3	941.5	1 213.9	4.8	130.4
500 to 999 employees	–	3	6.1	147.6	4.9	9.1	96.3	380.5	616.6	1 003.2	8.7	122.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	39	.1	2.1	.1	.2	1.4	4.0	11.0	15.0	.2	2.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3711	**Motor vehicles and car bodies:**										
	All establishments in industry	456	228.4	10 438.8	193.3	397.3	8 606.8	45 262.2	107 636.6	152 948.5	2 989.5
	Establishments with this product class primary:										
37111	Passenger cars, knockdown or assembled, chassis for sale separately and passenger car bodies	58	134.4	6 247.9	115.1	239.6	5 201.7	23 312.9	61 977.6	85 420.8	2 333.7
37113	Buses, including military and firefighting vehicles (chassis of own manufacture)	18	4.9	155.6	3.3	6.2	88.3	396.9	663.3	1 038.2	6.0
37114	Combat vehicles and wheeled tactical vehicles or carriers	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37116	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,000 pounds or less	20	55.5	2 786.0	47.9	101.6	2 363.1	18 661.4	36 141.2	54 709.0	453.4
37117	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,001 to 19,500 pounds	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37118	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 19,501 to 33,000 pounds	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37119	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 pounds or more	17	10.8	401.5	8.4	16.9	292.8	999.4	4 124.2	5 101.3	20.9
3713	**Truck and bus bodies:**										
	All establishments in industry	676	35.9	868.6	26.2	52.4	564.6	1 791.9	2 817.5	4 594.7	71.2
	Establishments with this product class primary:										
37131	Truck, bus, and other vehicle bodies (except passenger car bodies) for sale separately	228	19.1	487.9	14.3	28.9	315.0	1 019.4	1 319.2	2 328.9	49.6
37132	Complete vehicles produced on purchased chassis	97	10.8	251.5	7.4	14.9	165.2	499.6	1 058.1	1 562.4	15.1
3714	**Motor vehicle parts and accessories:**										
	All establishments in industry	3 246	400.2	13 955.6	313.4	647.0	10 255.1	30 927.9	43 951.9	75 070.7	3 647.6
	Establishments with this product class primary:										
37142	Gasoline engines and gasoline engine parts for motor vehicles, new	214	67.6	2 745.3	54.1	115.3	2 117.6	5 885.0	10 494.5	16 453.1	737.5
37144	Filters for internal combustion engines and motor vehicles, new	46	13.9	337.5	10.8	22.1	228.5	1 370.5	980.6	2 352.6	40.2
37145	Exhaust system parts, new	60	16.6	524.1	13.4	25.8	373.6	1 224.6	2 565.6	3 781.2	124.8
37146	Drive train components, new, except wheels and brakes	181	91.5	4 107.9	71.1	152.3	3 077.7	8 200.5	10 965.2	19 124.2	1 358.8
37147	Motor vehicle wheels, new	49	13.1	346.2	10.8	23.8	251.3	900.0	964.0	1 860.3	96.3
37148	Brake parts and assemblies, new	123	27.5	847.3	21.6	43.0	610.9	2 045.0	3 693.4	5 777.1	205.5
37149	All other motor vehicle parts and accessories, new, n.e.c.	509	127.2	4 087.2	99.5	200.8	2 953.5	9 302.0	11 824.5	21 281.9	937.9
3714A	Rebuilt parts for motor vehicles, excluding carburetors and engine electrical equipment	153	15.0	349.0	10.8	21.8	210.2	841.3	820.3	1 639.5	22.2
3715	**Truck trailers:**										
	All establishments in industry	339	23.4	565.9	18.7	38.4	397.2	1 093.5	2 459.0	3 545.5	30.9
	Establishments with this product class primary:										
37151	Truck trailers and chassis, with axle rating of 10,000 pounds or more	134	20.0	494.2	15.9	32.6	344.9	980.9	2 131.1	3 099.9	26.9
37152	Truck trailers and chassis, with axle rating of less than 10,000 pounds	18	1.5	33.2	1.3	2.8	25.7	51.0	188.1	244.6	2.0
3716	**Motor homes:**										
	All establishments in industry	145	16.1	367.3	13.1	24.9	246.2	842.9	2 063.3	2 960.9	19.0

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES			
Total value of shipments	152 948.5	133 345.6	70 739.7
Primary products value of shipments	147 282.7	128 701.2	66 413.7
Secondary products value of shipments	4 015.3	3 893.2	3 836.8
Total miscellaneous receipts	1 650.5	751.2	489.2
Value of resales	1 561.2	654.5	435.5
Contract receipts	3.2	4.9	(D)
Other miscellaneous receipts	86.2	91.8	(D)
Sales of scrap and refuse	(D)	25.7	(D)
Receipts for repair work	(D)	11.6	(D)
Other miscellaneous receipts	(D)	54.5	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	97	97	95
Value of primary products shipments made in all industries	147 515.1	130 856.8	66 705.6
Value of primary products shipments made in this industry	147 282.7	128 701.3	66 413.7
Value of primary products shipments made in other industries	232.4	2 155.5	291.9
Coverage ratio	99	98	99

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3713, TRUCK AND BUS BODIES			
Total value of shipments	4 594.7	4 588.7	2 463.6
Primary products value of shipments	4 012.9	4 181.1	2 176.3
Secondary products value of shipments	275.5	184.7	104.5
Total miscellaneous receipts	306.3	222.9	182.8
Value of resales	195.3	120.4	82.1
Contract receipts	39.1	7.8	8.5
Other miscellaneous receipts	71.9	94.7	92.2
Receipts for repair work	37.2	40.2	40.3
Other miscellaneous receipts	27.5	54.5	51.9
Other miscellaneous receipts, n.s.k.	7.1	(NA)	(NA)
Primary products specialization ratio	94	96	95
Value of primary products shipments made in all industries	4 153.4	4 482.4	2 304.4
Value of primary products shipments made in this industry	4 012.9	4 181.1	2 176.3
Value of primary products shipments made in other industries	140.5	301.3	128.2
Coverage ratio	97	93	94
INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES			
Total value of shipments	75 070.7	62 068.4	36 293.1
Primary products value of shipments	69 344.9	54 972.5	33 111.2
Secondary products value of shipments	2 248.9	5 218.0	2 587.0
Total miscellaneous receipts	3 476.9	1 877.9	594.9
Value of resales	3 060.1	1 557.6	441.7
Contract receipts	86.9	89.9	18.9
Other miscellaneous receipts	329.8	230.4	134.3
Sales of scrap and refuse	230.8	130.8	92.2
Receipts for research and development	25.8	24.5	3.5
Other miscellaneous receipts	(D)	75.1	34.2
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	97	91	93
Value of primary products shipments made in all industries	74 594.0	60 816.0	38 414.2
Value of primary products shipments made in this industry	69 344.9	54 972.5	33 111.2
Value of primary products shipments made in other industries	5 249.1	5 843.5	5 303.0
Coverage ratio	93	90	86
INDUSTRY 3715, TRUCK TRAILERS			
Total value of shipments	3 545.5	3 433.5	1 820.6
Primary products value of shipments	3 089.5	3 102.0	1 585.7
Secondary products value of shipments	226.1	135.8	137.9
Total miscellaneous receipts	230.0	195.7	97.0
Value of resales	165.1	129.0	55.2
Contract receipts	9.4	(D)	(D)
Other miscellaneous receipts	55.5	(D)	(D)
Receipts for repair work	31.7	(D)	(D)
Other miscellaneous receipts	12.0	(D)	(D)
Other miscellaneous receipts, n.s.k.	11.8	(NA)	(D)
Primary products specialization ratio	93	96	92
Value of primary products shipments made in all industries	3 168.1	3 138.1	1 667.5
Value of primary products shipments made in this industry	3 089.5	3 102.0	1 585.7
Value of primary products shipments made in other industries	78.7	36.1	81.7
Coverage ratio	98	99	95
INDUSTRY 3716, MOTOR HOMES			
Total value of shipments	2 960.9	2 486.8	952.7
Primary products value of shipments	2 696.3	2 282.9	908.6
Secondary products value of shipments	126.6	124.7	25.9
Total miscellaneous receipts	138.1	79.2	18.1
Value of resales	66.4	41.6	1.3
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	96	95	97
Value of primary products shipments made in all industries	2 772.5	2 373.5	1 035.7
Value of primary products shipments made in this industry	2 696.3	2 282.9	908.6
Value of primary products shipments made in other industries	76.2	90.6	127.1
Coverage ratio	97	96	88

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3711– —	**MOTOR VEHICLES AND CAR BODIES**						
	Total	**(NA)**	**(X)**	**147 515.1**	**(NA)**	**(X)**	**130 856.8**
37111	Passenger cars, knockdown or assembled, chassis for sale separately and passenger car bodies	(NA)	(X)	84 064.3	(NA)	(X)	79 853.3
37111 11	Complete vehicles, knockdown or assembled thousands	25			20	[3]7 258.3	[3]79 835.3
37111 51	Chassis for sale separately thousands	11	(S)	84 019.9	5	([3])	([3])
37111 71	Passenger car bodies[4] thousands	4			4	(D)	([5])
37111 00	Passenger cars, knockdown or assembled, chassis for sale separately and passenger car bodies, n.s.k.	(NA)	(X)	44.4	(NA)	(X)	17.9
37113	Buses, including military and firefighting vehicles (chassis of own manufacture)	(NA)	(X)	1 073.4	(NA)	(X)	1 198.2
37113 04	Buses, including military (except trolley buses)[4] thousands	11	(S)	920.2	(NA)	21.8	1 066.4
37113 03	Firefighting vehicles thousands	11	(S)	115.4	8	(S)	79.2
37113 00	Buses, including military and firefighting vehicles (chassis of own manufacture), n.s.k.	(NA)	(X)	37.8	(NA)	(X)	52.6
37114	Combat vehicles and wheeled tactical vehicles or carriers	(NA)	(X)	(D)	(NA)	(X)	([5])
37114 00	Military vehicles, wheeled tactical vehicles or carriers, excluding tanks and self-propelled weapons thousands	4	(D)	(D)	6	(D)	([5])
37116	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,000 pounds or less	(NA)	(X)	49 234.4	(NA)	(X)	[6]47 701.1
37116 00	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,000 pounds or less[4] thousands	9	(S)	49 234.4	(NA)	(NA)	[6]47 701.1
37117	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,001 to 19,500 pounds	(NA)	(X)	([7])	(NA)	(X)	([6])
37117 00	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,001 to 19,500 pounds[4] thousands	6	(D)	([8])	(NA)	(NA)	([6])
37118	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 19,501 to 33,000 pounds	(NA)	(NA)	[7]4 685.6	(NA)	(X)	([6])
37118 00	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 19,501 to 33,000 pounds[4] thousands	6	(NA)	[8]4 685.6	(NA)	(NA)	([6])
37119	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 pounds or more	(NA)	(X)	6 321.8	(NA)	(X)	([6])
37119 00	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 pounds or more[4] thousands	16	(S)	6 321.8	(NA)	(NA)	([6])
37110	Motor vehicles and car bodies, n.s.k.	(NA)	(X)	(D)	(NA)	(X)	[5]2 104.2
37110 00	Motor vehicles and car bodies, n.s.k.[9]	(NA)	(X)	(D)	(NA)	(X)	[5]1 972.4
37110 02	Motor vehicles and car bodies, n.s.k.[10]	(NA)	(X)	52.0	(NA)	(X)	131.8
3713– —	**TRUCK AND BUS BODIES**						
	Total	**(NA)**	**(X)**	**4 153.4**	**(NA)**	**(X)**	**4 482.4**
37131	Truck, bus, and other vehicle bodies (except passenger car bodies) for sale separately	(NA)	(X)	2 150.6	(NA)	(X)	2 735.4
37131 01	Bus bodies thousands	13	*22.1	346.1	11	*29.0	316.6
37131 02	Truck cabs thousands	21	(S)	523.7	12	(S)	158.9
	Truck and other vehicle bodies:						
37131 12	Vans with unit body-cab[4] thousands	16	(S)	116.2	(NA)	(D)	(D)
	Vans with separate cab:						
37131 15	Refrigerated (except food service) thousands	7	(S)	24.1	15	*3.9	48.0
37131 16	Food service thousands	10	(S)	48.5	10	*4.3	39.0
37131 17	Other thousands	28	28.7	133.0	35	*22.6	108.0
37131 21	Tank thousands	15	(S)	18.1	12	**9.6	69.0
	Garbage and refuse (packer-types):						
37131 31	Front loading thousands	5	(D)	([11])	5	.9	31.2
37131 32	Rear loading thousands	4	*2.0	46.7	9	4.2	80.5
37131 35	Side loading thousands	4	(S)	27.2	7	(S)	20.4
37131 39	Other thousands	9	(NA)	[11]84.5	7	(S)	6.0
37131 43	Beverage thousands	6	(S)	39.8	7	*1.8	22.9
37131 53	Dump thousands	52	(S)	112.2	50	(S)	140.8
37131 55	Stake and platform thousands	42	(S)	43.0	43	**28.7	45.6
37131 61	Utility line service thousands	36	(S)	102.9	38	(S)	76.1
37131 62	Other mobile service types thousands	15	(S)	18.2	10	(S)	86.4
37131 63	Wrecker thousands	12	(S)	70.3	5	1.4	13.9
37131 71	Other truck and vehicle bodies, except passenger cars[4] thousands	68	(S)	271.9	(NA)	(D)	(D)
37131 00	Truck, bus, and other vehicle bodies (except passenger car bodies) for sale separately, n.s.k.	(NA)	(X)	124.3	(NA)	(X)	133.4
37132	Complete vehicles produced on purchased chassis	(NA)	(X)	1 521.0	(NA)	(X)	1 158.5
37132 01	Buses thousands	13	(S)	315.0	9	(S)	151.8
	Trucks and other vehicles:						
37132 11	Ambulance and rescue vehicles[4] thousands	17	(S)	145.4	(NA)	(NA)	([12])
37132 13	Vans[4] thousands	10	(S)	14.9	(NA)	(NA)	([12])
37132 15	Tank thousands	11	(S)	50.9	8	(S)	42.9
37132 17	Beverage thousands	3	(D)	(D)	4	(S)	26.2
37132 18	Dump thousands	6	**.9	11.5	6	*1.7	20.8
37132 25	Firefighting thousands	28	(S)	331.0	25	(S)	306.9
37132 26	Utility line service thousands	9	(D)	(D)	11	*1.4	62.0
37132 27	Other mobile service types thousands	14	(S)	73.8	6	(S)	73.9
37132 39	Other trucks and complete vehicles produced on purchased chassis[4] thousands	30	(S)	395.1	(NA)	(NA)	[12]382.6
37132 00	Complete vehicles produced on purchased chassis, n.s.k.	(NA)	(X)	171.3	(NA)	(X)	91.4

See footnotes at end of table.

TIPS [UPF] BATCH_1658 [EISS,BA_TAYLOR] EISS 3/13/95 1:05 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 11
TSF:37A_92.DAT;2 3/13/95 13:04:29 UTF:37A_93.DAT;2 3/13/95 13:04:29 META:TIPS96-13041978.DAT;1 3/13/95 13:05:26

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3713– —	**TRUCK AND BUS BODIES**—Con.						
37130	Truck and bus bodies, n.s.k.	(NA)	(X)	481.8	(NA)	(X)	588.5
37130 00	Truck and bus bodies, n.s.k.[9]	(NA)	(X)	397.1	(NA)	(X)	387.5
37130 02	Truck and bus bodies, n.s.k.[10]	(NA)	(X)	84.8	(NA)	(X)	201.1
3714– —	**MOTOR VEHICLE PARTS AND ACCESSORIES**						
	Total	**(NA)**	**(X)**	**74 594.0**	**(NA)**	**(X)**	**60 816.0**
37142	Gasoline engines and gasoline engine parts for motor vehicles, new	(NA)	(X)	17 157.0	(NA)	(X)	14 550.5
37142 01	Gasoline engines, new (with or without cylinder heads, fuel pumps, water pumps, and other standard accessories) millions	18	10.0	10 501.4	10	8.0	8 979.0
37142 06	Intake manifolds millions	12	(S)	148.5	8	*1.4	58.7
37142 07	Exhaust manifolds millions	15	6.4	148.3	12	8.8	172.5
37142 08	Crankshafts, engine millions	10	(S)	60.2	17	(S)	61.2
37142 09	Camshafts, engine millions	11	**4.8	131.3	12	6.1	169.7
37142 15	Rocker arms and parts	13	(X)	55.7	8	(X)	43.8
37142 16	Valve guides, seats, and tappets	15	(X)	219.0	8	(X)	157.6
37142 18	Fuel injection systems millions	24	38.2	1 055.2	10	19.0	775.7
37142 17	Flywheels and flexplates[4] millions	10	(S)	36.1	(NA)	(NA)	(13)
37142 22	Timing gears, sprockets, and chains[4] millions	12	(S)	87.7	(NA)	(NA)	(13)
	Engine bearings (halves):						
37142 24	Main	8	(X)	96.7	4	(X)	(13)
37142 25	Connecting rod	7	(X)	90.2	10	(X)	67.6
37142 26	Other (balance shaft, camshaft, etc.)	11	(X)	(D)	6	(X)	15.6
	Oil pumps, new:						
37142 27	Engine millions	12	(S)	83.4	14	**9.0	87.1
37142 28	Power steering millions	5	(D)	(D)	4	(D)	(13)
37142 31	Fuel pump assemblies (excluding kits) millions	12	(S)	640.1	18	175.5	614.3
37142 32	Water pump assemblies (excluding kits) millions	14	(S)	137.8	9	(D)	(13)
37142 34	Engine cooling fans (including hubs and clutches) millions	10	(S)	140.4	9	6.2	48.6
37142 35	Radiators, complete millions	25	(S)	780.1	17	**16.1	851.2
37142 36	Radiator shells and cores	15	(X)	70.4	12	(X)	112.8
37142 37	Thermostats (engine cooling system)[4] millions	4	(D)	(D)	(NA)	(D)	(13)
37142 41	PCV (positive crankcase ventilation) valves millions	7	23.8	18.0	9	*41.3	21.0
37142 49	All other parts and accessories for gasoline automotive engines[4]	107	(X)	1 797.5	(NA)	(X)	13 2 183.8
37142 00	Gasoline engines and gasoline engine parts for motor vehicles, new, n.s.k.	(NA)	(X)	120.8	(NA)	(X)	130.3
37144	Filters for internal combustion engines and motor vehicles, new	(NA)	(X)	2 154.2	(NA)	(X)	1 684.7
	Oil:						
37144 01	Light-duty (car and light truck) millions	13	*404.8	664.8	15	**317.8	586.9
37144 02	Heavy-duty millions	9	(S)	289.0	10	**70.4	183.8
	Fuel:						
37144 04	Light-duty (car and light truck) millions	17	135.6	205.9	17	**63.1	80.8
37144 05	Heavy-duty millions	9	(S)	157.3	9	**70.6	81.0
	Air:						
37144 07	Light-duty (car and light truck) millions	18	240.3	267.5	12	293.8	442.0
37144 08	Heavy-duty millions	12	(S)	330.1	11	(S)	195.6
37144 09	Other filters, including coolant and hydraulic	13	(X)	234.9	11	(X)	66.9
37144 00	Filters for internal combustion engines and motor vehicles, new, n.s.k.	(NA)	(X)	4.6	(NA)	(X)	47.8
37145	Exhaust system parts, new	(NA)	(X)	3 187.6	(NA)	(X)	2 579.1
37145 01	Mufflers, including standard, sports or glass pack, and resonators millions	27	(S)	924.1	23	(S)	661.4
37145 02	Pipes, including exhaust, intermediate, connecting, crossover, tail, and side pipes	32	(X)	627.6	19	(X)	481.6
37145 03	Catalytic converters millions	15	(S)	1 622.6	13	97.6	1 384.5
37145 00	Exhaust system parts, new, n.s.k.	(NA)	(X)	13.3	(NA)	(X)	51.7
37146	Drive train components, new, except wheels and brakes	(NA)	(X)	19 632.6	(NA)	(X)	15 820.6
	Transmissions (except auxiliary and parts):						
	Car and light truck type:						
37146 03	Manual	11	(X)	329.1	6	(X)	350.0
37146 05	Automatic	16	(X)	4 435.3	13	(X)	(D)
	Heavy truck and bus type:						
37146 13	Manual	10	(X)	560.0	10	(X)	558.8
37146 15	Automatic	6	(X)	(D)	4	(X)	(D)
37146 23	Parts for manual transmissions	22	(X)	194.6	5	(X)	127.5
37146 25	Parts for automatic transmissions	33	(X)	1 807.6	23	(X)	1 492.0
37146 28	Transaxles	14	(X)	(D)	3	(X)	(D)
37146 31	Clutch disc and facing assemblies	22	(X)	389.6	14	(X)	176.6
37146 33	Gear shifters	13	(X)	268.6	6	(X)	21.0
37146 35	Drive shafts	19	(X)	851.5	8	(X)	423.4
37146 37	Universal joints	10	(X)	(D)	11	(X)	389.2
37146 41	Axles and axle parts	43	(X)	5 828.3	35	(X)	4 485.1
37146 43	Wheel hubs, sold separately	11	(X)	128.5	8	(X)	117.4
37146 49	Other	58	(X)	1 937.5	27	(X)	921.9
37146 00	Drive train components, new, except wheels and brakes, n.s.k.	(NA)	(X)	108.3	(NA)	(X)	r90.8

See footnotes at end of table.

TIPS [UPF] BATCH_1658 [EISS,BA_TAYLOR] EISS 3/13/95 1:05 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 12
TSF:37A_92.DAT;2 3/13/95 13:04:29 UTF:37A_93.DAT;2 3/13/95 13:04:29 META:TIPS96-13041978.DAT;1 3/13/95 13:05:26

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3714– –	**MOTOR VEHICLE PARTS AND ACCESSORIES**—Con.						
37147	Motor vehicle wheels, new	(NA)	(X)	1 943.2	(NA)	(X)	1 372.8
	Car and light truck type:						
37147 01	Steel millions	14	(D)	(14)	16	49.9	642.5
37147 05	Aluminum millions	20	**16.7	847.9	9	*9.6	340.7
37147 07	Other, including combination millions	3	(NA)	14731.4	8	(X)	87.0
37147 14	Heavy truck and bus type, including those for truck trailers and trailer coaches millions	10	(S)	331.1	13	*21.3	288.1
37147 00	Motor vehicle wheels, new, n.s.k.	(NA)	(X)	32.8	(NA)	(X)	14.5
37148	Brake parts and assemblies, new	(NA)	(X)	6 010.6	(NA)	(X)	3 876.6
	Brake cylinders, new:						
37148 01	Wheel, sold separately millions	8	(S)	94.7	7	(S)	124.3
37148 02	Master, sold separately millions	8	(S)	315.6	7	(S)	251.2
37148 03	Brake valves millions	7	(D)	(D)	4	**9.9	115.9
37148 07	Brake assemblies (drum), including backing plates, shoes, linings (except asbestos), cylinders, etc., if sold together millions	24	(S)	429.9	14	(S)	338.6
37148 09	Brake assemblies (disc/ caliper), including rotors, calipers, pads (except asbestos), cylinders, etc., if sold together millions	30	(S)	1 356.1	15	32.1	1 223.4
37148 11	Brake drums (with or without hub), sold separately millions	15	(S)	358.5	18	21.5	353.6
37148 13	Brake rotors/ discs (with or without hub), sold separately millions	19	(S)	347.4	10	15.0	207.8
37148 15	Brake shoes (with or without lining), sold separately millions	19	(S)	161.1	12	24.5	151.8
37148 17	Metallic or semimetallic brake linings, except asbestos millions	25	(S)	417.3	14	(S)	61.0
	Brake power actuation units:						
37148 21	Air millions	7	(S)	102.7	8	(S)	(15)
37148 23	Hydraulic millions	6	(D)	(D)	3	(S)	15111.0
37148 25	Vacuum millions	6	(D)	(D)	5	11.3	235.5
37148 27	Other brake parts	53	(X)	1 389.9	32	(X)	574.3
37148 00	Brake parts and assemblies, new, n.s.k.	(NA)	(X)	273.8	(NA)	(X)	r128.2
37149	All other motor vehicle parts and accessories, new, n.e.c.	(NA)	(X)	20 509.5	(NA)	(X)	16 928.6
37149 01	Bumper assemblies, bumpers, and parts	43	(X)	912.2	31	(X)	764.1
37149 02	Automotive frames millions	18	(S)	887.6	8	(D)	(16)
37149 03	Fuel tanks millions	15	24.9	407.8	10	9.7	251.9
37149 04	Heaters, heater cores, and other heater parts millions	21	(X)	320.8	21	(X)	599.2
37149 05	Shock absorbers millions	17	(S)	753.5	9	(S)	681.8
37149 06	Tie rod ends	13	(X)	185.1	8	(X)	222.7
37149 07	Steering idler arms, drag links, and control arms	21	(X)	407.2	18	(X)	511.4
37149 08	Ball joints millions	14	(S)	179.8	10	(S)	189.7
37149 09	Automotive air-conditioning hose assemblies millions	18	(S)	437.3	11	(S)	214.1
37149 11	Automotive power steering hose assemblies millions	10	(S)	91.5	6	(S)	97.0
37149 12	Automotive brake hose assemblies millions	4	(S)	73.7	5	(S)	103.7
37149 13	Cruise control units millions	13	*14.2	229.3	8	9.1	151.6
37149 16	Windshield wiper blades millions	6	(S)	196.6	7	60.2	113.6
37149 17	Windshield washer pumps millions	7	(S)	40.2	5	5.9	25.3
37149 20	Steering wheels, columns, and gearboxes	24	(X)	1 330.4	16	(X)	982.3
37149 22	Convertible tops millions	12	(S)	191.5	12	(S)	76.2
37149 23	Sunroofs and parts	10	(X)	38.4	8	(X)	46.1
37149 25	Fifth wheels millions	6	(S)	109.2	8	**130.7	71.3
37149 31	Automotive air bag assemblies and parts thereof[4] millions	22	(S)	1 582.1	(NA)	(NA)	(16)
37149 41	All other motor vehicle parts and accessories for cars, trucks, and buses[4]	365	(X)	11 281.0	(NA)	(X)	16111 101.4
37149 00	All other motor vehicle parts and accessories, new, n.e.c., n.s.k.	(NA)	(X)	854.1	(NA)	(X)	r725.2
3714A	Rebuilt parts for motor vehicles, excluding carburetors and engine electrical equipment	(NA)	(X)	1 379.8	(NA)	(X)	1 156.5
3714A 02	Fuel pumps millions	6	(S)	1.9	7	.7	8.6
3714A 03	Water pumps millions	35	**7.2	105.8	35	6.1	95.1
3714A 04	Clutch discs and pressure plates millions	31	(S)	119.6	23	(S)	121.3
	Engines, gasoline (rebuilt):						
3714A 23	Car and light truck type[4] millions	43	(S)	216.2	51	*.4	268.5
3714A 25	Heavy truck and bus type[4] millions	4	(S)	27.8			
	Transmissions (rebuilt), including drive lines and axles:						
	Car and light truck type:						
3714A 27	Automatic[4] millions	21	(S)	65.2	(NA)	(NA)	(17)
3714A 29	Manual (standard)[4] millions	5	(S)	4.9	(NA)	(NA)	(17)
3714A 31	Heavy truck and bus[4] millions	6	(S)	3.8	(NA)	(NA)	(17)
3714A 09	Brake shoe assemblies (drum brake) millions	22	(S)	107.7	16	(S)	74.1
3714A 10	Brake caliper assemblies (disc brake) millions	27	(S)	101.8	10	1.3	15.9
3714A 11	Brake master cylinders millions	12	(S)	44.4	10	(S)	47.6
	Brake power actuation units:						
3714A 33	Air[4] millions	5	(D)	(D)	(NA)	(NA)	(17)
3714A 35	Vacuum[4] millions	5	(D)	(D)	(NA)	(NA)	(17)
3714A 37	Hydraulic[4] millions	3	(S)	2.8	(NA)	(NA)	(17)
3714A 06	Power steering pumps millions	20	(S)	52.3	13	(S)	23.0
3714A 39	Rack and pinion steering assemblies[4] millions	20	(S)	55.7	(NA)	(NA)	(17)
3714A 41	Other[4]	49	(X)	306.4	(NA)	(X)	17378.8
3714A 00	Rebuilt parts for motor vehicles, excluding carburetors and engine electrical equipment, n.s.k.	(NA)	(X)	109.7	(NA)	(X)	123.6
37140	Motor vehicle parts and accessories, n.s.k.	(NA)	(X)	2 619.5	(NA)	(X)	2 846.6
37140 00	Motor vehicle parts and accessories, n.s.k.[9]	(NA)	(X)	2 198.6	(NA)	(X)	r1 927.6
37140 02	Motor vehicle parts and accessories, n.s.k.[10]	(NA)	(X)	420.9	(NA)	(X)	919.0

See footnotes at end of table.

TIPS [UPF] BATCH_1658 [EISS,BA_TAYLOR] EISS 3/ 13/ 95 1:05 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 13
TSF:37A_92.DAT;2 3/ 13/ 95 13:04:29 UTF:37A_93.DAT;2 3/ 13/ 95 13:04:29 META:TIPS96-13041978.DAT;1 3/ 13/ 95 13:05:26

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Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3715– —	**TRUCK TRAILERS**						
	Total	**(NA)**	**(X)**	**3 168.1**	**(NA)**	**(X)**	**3 138.1**
37151	Truck trailers and chassis, with axle rating of 10,000 pounds or more	(NA)	(X)	2 724.2	(NA)	(X)	2 821.4
37151 00	Truck trailers and chassis, 10,000 pounds (4.54 metric tons) maximum load rating per axle or more[18]	133	(X)	2 724.2	141	(X)	2 821.4
37152	Truck trailers and chassis, with axle rating of less than 10,000 pounds	(NA)	(X)	248.0	(NA)	(X)	132.1
37152 00	Truck trailers and chassis, less than 10,000 pounds (4.54 metric tons) maximum load rating per axle[4] thousands	35	(S)	248.0	(NA)	(NA)	132.1
37150	Truck trailers, n.s.k.	(NA)	(X)	195.9	(NA)	(X)	184.6
37150 00	Truck trailers, n.s.k.[19]	(NA)	(X)	148.0	(NA)	(X)	107.6
37150 02	Truck trailers, n.s.k.[20]	(NA)	(X)	47.9	(NA)	(X)	77.1
3716– —	**MOTOR HOMES PRODUCED ON PURCHASED CHASSIS**						
	Total	**(NA)**	**(X)**	**2 772.5**	**(NA)**	**(X)**	**2 373.5**
37160	Motor homes built on purchased chassis	(NA)	(X)	2 772.5	(NA)	(X)	2 373.5
37160 01	Conventional (Type A) thousands	26	22.7	1 390.0	28	*43.8	1 638.4
37160 05	Chopped van (Type C) thousands	18	*12.1	390.8	22	12.1	289.3
37160 07	Van camper (Type B) thousands	3	(S)	7.7	8	*2.0	21.5
37160 21	Converted vans not qualifying as van campers (Type B) motor homes thousands	12	(S)	827.4	21	**20.6	166.2
37160 00	Motor homes produced on purchased chassis, n.s.k.[9]	(NA)	(X)	141.6	(NA)	(X)	217.4
37160 02	Motor homes produced on purchased chassis, n.s.k.[10]	(NA)	(X)	15.0	(NA)	(X)	40.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1987, data for product code 37111 51 were included with product code 37111 11 to avoid disclosing data for individual companies.
[4]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[5]For 1987, products were combined to avoid disclosing data for individual companies.
[6]For 1987, trucks, truck tractors, and bus chassis were collected as one product class.
[7]For 1992, product classes are combined to avoid disclosing data for individual companies.
[8]For 1992, product codes are combined to avoid disclosing data for individual companies.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]For 1992, products are combined to avoid disclosing data for individual companies.
[12]For 1987, data were not collected separately and were included with product code 37132 39.
[13]For 1987, data for these products were included with product code 37142 49.
[14]For 1992, products are combined to avoid disclosing data for individual companies.
[15]For 1987, data for product code 37148 21 were included with product code 37148 23 to avoid disclosing data for individual companies.
[16]For 1987, data for these products were included with product code 37149 41.
[17]For 1987, data for these products were not collected separately but were included with product code 3714A 41.
[18]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[19]Typically for establishments with 15 employees or more.
[20]Typically for establishments with less than 15 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37111, PASSENGER CARS, KNOCKDOWN OR ASSEMBLED, CHASSIS FOR SALE SEPARATELY AND PASSENGER CAR BODIES		
United States	**84 064.3**	**79 853.3**
Illinois	7 712.5	(NA)
Michigan	26 783.6	31 462.7
Missouri	8 188.2	8 051.1
Ohio	11 268.9	9 393.4
37113, BUSES, INCLUDING MILITARY AND FIREFIGHTING VEHICLES (CHASSIS OF OWN MANUFACTURE)		
United States	**1 073.4**	**1 198.2**
Ohio	223.1	(NA)
37114, COMBAT VEHICLES AND WHEELED TACTICAL VEHICLES OR CARRIERS		
United States	**(D)**	**(NA)**
37116, TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 10,000 POUNDS OR LESS		
United States	**49 234.4**	**(NA)**
Michigan	10 184.8	(NA)
37117, TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 10,001 TO 19,500 POUNDS		
United States	**(D)**	**(NA)**
37118, TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 19,501 TO 33,000 POUNDS		
United States	**(D)**	**(NA)**
37119, TRUCKS, TRUCK TRACTORS, AND BUS CHASSIS (CHASSIS OF OWN MANUFACTURE) 33,001 POUNDS OR MORE		
United States	**6 321.8**	**(NA)**
Ohio	1 407.3	(NA)
37131, TRUCK, BUS, AND OTHER VEHICLE BODIES (EXCEPT PASSENGER CAR BODIES) FOR SALE SEPARATELY		
United States	**2 150.6**	**2 735.4**
California	476.1	191.6
Georgia	77.4	43.9
Illinois	37.7	36.1
Indiana	224.8	333.6
Iowa	66.8	61.1
Kansas	32.4	9.8
Kentucky	12.6	18.2
Michigan	66.9	76.4
Minnesota	15.3	10.0
Mississippi	42.0	23.4
Missouri	26.9	10.4
New Jersey	3.4	3.8
New York	21.5	58.9
North Carolina	203.7	111.9
Ohio	170.1	1 021.5
Oklahoma	12.4	34.6
Pennsylvania	158.5	194.1
Tennessee	39.7	58.1
Texas	45.5	51.9
Virginia	40.1	24.5
Washington	4.9	3.6
Wisconsin	68.2	158.6
37132, COMPLETE VEHICLES PRODUCED ON PURCHASED CHASSIS		
United States	**1 521.0**	**1 158.5**
Arizona	9.8	(NA)
California	23.9	61.5
Florida	124.0	200.0
Georgia	69.0	106.0
Indiana	86.9	55.5
Iowa	55.4	(NA)
Kansas	97.0	41.6
Missouri	4.2	31.1
North Carolina	14.3	58.9
Ohio	73.1	49.7
Tennessee	4.4	(NA)
Texas	57.0	4.3
37142, GASOLINE ENGINES AND GASOLINE ENGINE PARTS FOR MOTOR VEHICLES, NEW		
United States	**17 157.0**	**14 550.5**
Arkansas	68.4	(NA)
California	114.9	154.9
Colorado	3.3	(NA)
Connecticut	86.7	47.0
Florida	74.3	44.6
Georgia	16.6	(NA)
Illinois	202.3	210.4
Indiana	878.5	662.4
Iowa	131.8	168.2
Massachusetts	22.3	37.2
Michigan	7 484.9	6 968.3
Missouri	99.0	93.8
New Jersey	16.8	21.9
North Carolina	120.8	(NA)
Ohio	4 115.9	(NA)
Pennsylvania	28.3	31.9
South Carolina	262.8	(NA)
Tennessee	227.8	80.4
37144, FILTERS FOR INTERNAL COMBUSTION ENGINES AND MOTOR VEHICLES, NEW		
United States	**2 154.2**	**1 684.7**
California	58.9	37.6
Iowa	185.5	(NA)
Michigan	204.6	(NA)
Missouri	118.2	76.0
Tennessee	258.2	(NA)
37145, EXHAUST SYSTEM PARTS, NEW		
United States	**3 187.6**	**2 579.1**
California	18.9	30.4
Indiana	370.4	(NA)
Michigan	633.8	(NA)
Ohio	252.7	178.3
37146, DRIVE TRAIN COMPONENTS, NEW, EXCEPT WHEELS AND BRAKES		
United States	**19 632.6**	**15 820.6**
Arkansas	121.9	(NA)
California	48.2	34.9
Connecticut	15.7	(NA)
Georgia	84.1	35.5
Illinois	258.0	238.4
Indiana	4 206.6	2 646.8
Michigan	7 242.0	(NA)
Nebraska	16.2	(NA)
New York	990.3	1 454.7
North Carolina	828.6	549.7
Ohio	3 508.3	2 460.7
Oklahoma	42.7	(NA)
Pennsylvania	258.6	(NA)
South Carolina	34.4	60.7
Tennessee	425.9	356.7
Virginia	359.1	(NA)
37147, MOTOR VEHICLE WHEELS, NEW		
United States	**1 943.2**	**1 372.8**
California	471.7	488.2
Indiana	204.5	69.5
Kentucky	286.3	(NA)
Michigan	333.5	328.3
Ohio	172.8	141.2

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37148, BRAKE PARTS AND ASSEMBLIES, NEW		
United States	**6 010.6**	**3 876.6**
Alabama	82.3	67.0
California	28.9	107.6
Georgia	27.3	(NA)
Indiana	238.7	88.0
Kentucky	356.1	(NA)
Michigan	1 789.0	1 225.8
Mississippi	15.9	(NA)
Missouri	101.0	(NA)
New Jersey	32.8	26.1
New York	50.9	(NA)
North Carolina	579.0	(NA)
Ohio	1 009.6	852.0
Pennsylvania	35.8	(NA)
South Carolina	383.0	(NA)
Tennessee	510.1	273.8
Texas	32.4	(NA)
Virginia	187.7	(NA)
Wisconsin	56.4	(NA)
37149, ALL OTHER MOTOR VEHICLE PARTS AND ACCESSORIES, NEW, N.E.C.		
United States	**20 509.5**	**16 928.6**
Alabama	275.9	(NA)
Arkansas	297.8	(NA)
California	404.7	230.0
Colorado	92.3	54.7
Connecticut	101.1	91.3
Florida	68.0	27.0
Georgia	390.7	210.1
Illinois	746.3	557.0
Indiana	1 733.9	1 584.4
Iowa	153.4	111.1
Kansas	13.3	6.0
Kentucky	430.2	72.9
Maryland	32.5	(NA)
Massachusetts	22.1	(NA)
Michigan	5 966.7	5 904.9
Minnesota	79.2	32.4
Mississippi	505.2	532.2
Missouri	555.8	273.1
New Jersey	56.6	53.8
New York	537.5	590.1
North Carolina	329.3	167.5
Ohio	3 968.0	3 181.7
Oregon	137.3	(NA)
Pennsylvania	442.3	482.1
South Carolina	109.0	(NA)
Tennessee	1 144.3	606.7
Texas	184.3	98.6
Virginia	64.4	(NA)
Washington	41.6	27.2
Wisconsin	594.7	(NA)
3714A, REBUILT PARTS FOR MOTOR VEHICLES, EXCLUDING CARBURETORS AND ENGINE ELECTRICAL EQUIPMENT		
United States	**1 379.8**	**1 156.5**
Arkansas	18.4	29.7
California	181.5	178.8
Florida	14.2	(NA)
Georgia	31.3	44.4
Illinois	42.8	56.0
Indiana	35.2	70.8
Iowa	8.8	(NA)
Kentucky	47.6	38.1
Massachusetts	10.4	(NA)
Michigan	85.2	66.8
Minnesota	11.9	8.2
Mississippi	32.2	(NA)
Missouri	55.4	48.6
New Jersey	35.1	35.9
North Carolina	53.9	59.8
Ohio	63.2	47.9
Pennsylvania	158.3	97.9
Tennessee	30.7	23.4
Texas	102.3	58.2
Washington	19.5	(NA)
37151, TRUCK TRAILERS AND CHASSIS, WITH AXLE RATING OF 10,000 POUNDS OR MORE		
United States	**2 724.2**	**2 821.4**
Alabama	192.3	139.8
California	63.6	156.1
Colorado	21.4	(NA)
Florida	41.1	(NA)
Illinois	339.5	262.0
Indiana	735.7	386.8
Missouri	46.2	58.6
Oklahoma	15.3	16.8
Oregon	21.1	21.0
Pennsylvania	122.2	248.1
South Carolina	4.9	(NA)
South Dakota	64.4	(NA)
Tennessee	72.5	114.2
Texas	39.0	309.4
Wisconsin	105.6	180.4
37152, TRUCK TRAILERS AND CHASSIS, WITH AXLE RATING OF LESS THAN 10,000 POUNDS		
United States	**248.0**	**132.1**
South Dakota	6.1	(NA)

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3711-	**Motor vehicles and car bodies**	**147 515.1**	**128 753.7**	**135 740.5**	**144 447.9**	**139 864.0**	**130 856.8**	**66 705.6**	**72 979.1**
37111	Passenger cars, knockdown or assembled, chassis for sale separately and passenger car bodies	84 064.3	78 834.3	81 497.3	86 833.1	84 688.5	79 853.3	42 902.3	47 798.9
37113	Buses, including military and firefighting vehicles (chassis of own manufacture)	1 073.4	1 770.8	1 488.4	1 527.7	1 288.8	1 198.2	893.5	(NA)
37114	Combat vehicles and wheeled tactical vehicles or carriers	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)
37116	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,000 pounds or less	49 234.4	38 751.1	42 776.6	44 647.0	42 219.3			
37117	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 10,001 to 19,500 pounds	(D)	1 086.9	1 218.6	1 604.2	1 113.3	47 701.1	19 295.5	21 543.5
37118	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 19,501 to 33,000 pounds	(D)	1 922.6	2 676.3	2 740.3	3 008.5			
37119	Trucks, truck tractors, and bus chassis (chassis of own manufacture) 33,001 pounds or more	6 321.8	4 689.5	4 970.3	5 977.2	6 236.5			
37110	Motor vehicles and car bodies, n.s.k.	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)
3713-	**Truck and bus bodies**	**4 153.4**	**3 583.6**	**4 136.8**	**3 990.6**	**3 974.5**	**4 482.4**	**2 304.4**	**1 880.9**
37131	Truck, bus, and other vehicle bodies (except passenger car bodies) for sale separately	2 150.6	1 978.2	2 111.4	2 094.5	2 001.2	2 735.4	1 672.6	1 326.5
37132	Complete vehicles produced on purchased chassis	1 521.0	1 271.1	1 458.2	1 394.4	1 394.2	1 158.5	523.8	316.7
37130	Truck and bus bodies, n.s.k.	481.8	334.4	567.2	501.7	579.0	588.5	108.0	237.7
3714-	**Motor vehicle parts and accessories**	**74 594.0**	**62 325.4**	**62 299.5**	**66 459.4**	**68 061.6**	**60 816.0**	**38 414.2**	**37 841.8**
37142	Gasoline engines and gasoline engine parts for motor vehicles, new	17 157.0	15 324.3	14 258.9	15 305.7	15 598.1	14 550.5	8 274.1	
37144	Filters for internal combustion engines and motor vehicles, new	2 154.2	1 767.9	1 573.0	1 595.4	1 707.6	1 684.7	1 028.9	
37145	Exhaust system parts, new	3 187.6	2 852.0	2 781.7	2 861.2	2 752.9	2 579.1	1 672.2	
37146	Drive train components, new, except wheels and brakes	19 632.6	15 548.8	16 405.4	17 508.6	17 852.6	15 820.6	9 798.9	36 735.4
37147	Motor vehicle wheels, new	1 943.2	1 483.2	1 540.5	1 583.6	1 497.5	1 372.8	815.4	
37148	Brake parts and assemblies, new	6 010.6	4 465.5	4 538.3	4 526.5	4 798.2	3 876.6	2 211.0	
37149	All other motor vehicle parts and accessories, new, n.e.c.	20 509.5	17 197.5	17 204.4	19 109.8	19 547.9	16 928.6	12 709.5	
3714A	Rebuilt parts for motor vehicles, excluding carburetors and engine electrical equipment	1 379.8	1 265.5	1 411.8	1 373.1	1 389.9	1 156.5	890.4	592.9
37140	Motor vehicle parts and accessories, n.s.k.	2 619.5	2 420.7	2 585.6	2 595.5	2 916.9	2 846.6	1 013.9	513.5
3715-	**Truck trailers**	**3 168.1**	**2 587.8**	**2 865.9**	**3 435.3**	**3 428.5**	**3 138.1**	**1 667.5**	**1 807.0**
37151	Truck trailers and chassis, with axle rating of 10,000 pounds or more	2 724.2	2 305.7	2 529.3	3 096.6	3 089.6	2 821.4	1 525.5	1 680.9
37152	Truck trailers and chassis, with axle rating of less than 10,000 pounds	248.0	124.2	151.0	152.5	142.1	132.1	78.3	41.3
37150	Truck trailers, n.s.k.	195.9	157.8	185.6	186.2	196.9	184.6	63.7	84.8
3716-	**Motor homes produced on purchased chassis**	**2 772.5**	**1 980.2**	**2 163.8**	**2 478.1**	**2 573.7**	**2 373.5**	**1 035.7**	**1 494.6**
37160	Motor homes built on purchased chassis	2 772.5	1 980.2	2 163.8	2 478.1	2 573.7	2 373.5	1 035.7	1 494.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES		
	Materials, ingredients, containers, and supplies	**105 521.7**	**96 135.7**
371401	Gasoline engines and parts specially designed for gasoline engines	14 661.0	12 334.9
351902	Diesel engines and parts specially designed for diesel engines	1 707.0	2 152.9
	Drive train components and parts:		
371463	Transmissions and parts	(1)	(2)
371462	Axles and axle parts	3 402.2	(2)
371471	Wheels, motor vehicle	(1)	(2)
371481	Brake parts and assemblies	(1)	(2)
371464	Other drive train components	[1]13 421.6	(2)
371110	Car bodies	682.9	(2)
358501	Refrigeration compressors, compressor units, condensing units, and other heat transfer equipment	2 606.3	2 400.4
371402	Shocks, struts, and other suspension equipment and parts	1 809.4	(2)
371451	Exhaust systems and parts	1 376.8	(2)
354500	Machine tool accessories, including cutting tools	(D)	(2)
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors and hydrostatic transmissions	353.2	(2)
349271	Valves	203.6	(2)
359301	Cylinders and rotary actuators	(3)	(2)
349261	Hose or tube fittings and assemblies	123.9	(2)
356921	Filters	16.9	(2)
190089	Other fluid power products	[3]255.3	(2)
	Fabricated metal products, except forgings:		
346501	Automotive stampings (including body parts, hubcaps, fenders, etc.)	11 981.4	9 027.7
349301	Steel springs, except wire	676.8	506.7
342961	Motor vehicle metal hardware (lock units, door and window handles, hinges, etc.)	573.7	605.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	1 071.4	832.4
340071	Other fabricated metal products	972.8	(2)
346000	Forgings	2.6	(2)
330091	Castings (rough and semifinished)	(D)	(4)
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331022	Sheet and strip	(D)	(2)
331085	All other steel shapes and forms	(D)	(2)
336002	Nonferrous shapes and forms	28.2	(4)
356200	Ball and roller bearings (mounted and unmounted)	13.5	35.9

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3711, MOTOR VEHICLES AND CAR BODIES—Con.		
301101	Pneumatic tires and inner tubes	2 461.2	2 560.9
305201	Rubber and plastics hose and belting	209.0	248.9
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	243.8	133.5
305302	Gaskets (all types) and packing and sealing devices	(D)	103.9
308025	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose, and belting)	1 129.9	551.6
320102	Glass and glass products, including windows and mirrors	1 652.7	1 467.7
253121	Seats (purchased separately) for automobiles, trucks, and buses	2 616.6	1 293.7
239901	Seat covers, seat belts, and shoulder harnesses	954.6	738.0
371491	Automotive air bag assemblies and parts thereof	(D)	(2)
239621	Automotive trimmings, textile (panels, headliners, etc.)	3 364.6	824.4
227002	Carpeting	505.4	309.8
320601	Ceramic and ceramic composite parts, components, and accessories	(D)	(2)
289101	Glues and adhesives	841.7	640.7
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	1 280.0	1 040.6
369401	Engine electrical equipment including spark plugs, magnetos, generators, starters, etc.	1 745.5	1 288.4
364701	Motor vehicle lighting fixtures (including headlights, taillights, running lights, and dome fixtures; except auto lamps)	569.2	401.9
364102	Automotive lamps (bulbs and sealed beams)	401.2	161.6
369104	Storage batteries, automotive	270.4	262.9
365101	Automotive radios and loudspeakers	2 046.0	1 692.3
382441	Motor vehicle clusters, meters, and gauges, except electrical (including speedometers, fuel level)	750.0	(4)
970099	All other materials and components, parts, containers, and supplies	25 216.5	[2]51 381.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	1 987.1	3 137.3
	INDUSTRY 3713, TRUCK AND BUS BODIES		
	Materials, ingredients, containers, and supplies	**2 587.4**	**2 507.3**
	Fabricated metal products, except forgings:		
346501	Automotive stampings (including body parts, hubcaps, fenders, etc.)	(6)	(2)
342961	Motor vehicle metal hardware	71.6	85.9
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	24.5	22.7
340096	Other fabricated metal products	[6]72.6	(2)
346000	Forgings	3.9	(2)
330091	Castings (rough and semifinished)	5.5	4.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	40.6	
331022	Sheet and strip	129.0	
331023	Structural shapes and sheet piling	29.9	250.8
331091	All other steel shapes and forms	30.9	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	82.6	99.5
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	54.3	51.8
335008	Other aluminum and aluminum-base alloy shapes and forms	14.5	1.4
335091	Other nonferrous	2.8	(2)
371000	Purchased chassis for vehicles (excluding passenger cars)	333.4	155.5
371301	Truck bodies	38.8	(2)
371463	Transmissions and parts	35.1	(2)
371402	Shocks, struts, and other suspension equipment and parts	11.7	(2)
371412	Axles, brakes, drums, rims, wheels, and other metal motor wheel parts	42.3	32.7
301101	Pneumatic tires and inner tubes	13.4	12.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	43.7	56.9
320102	Glass and glass products, including windows and mirrors	19.5	39.3
242101	Rough and dressed lumber	29.9	20.0
190090	Fluid power products	72.8	(2)
364701	Motor vehicle lighting fixtures (including headlights, taillights, running lights, dome fixtures; except auto lamps)	19.3	(2)
364102	Automotive lamps (bulbs and sealed beams)	1.4	(2)
253121	Seats (purchased separately for automobiles, trucks, and buses)	20.5	(2)
308025	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose, and belting)	20.6	(2)
970099	All other materials and components, parts, containers, and supplies	677.0	[2]1 164.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	645.7	509.0
	INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES		
	Materials, ingredients, containers, and supplies	**40 220.9**	**[r]33 028.2**
	Fluid power products, (hydraulic and pneumatic):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	226.8	(2)
349271	Valves	93.9	(2)
359301	Cylinders and rotary actuators	65.8	(2)
349261	Hose or tube fittings and assemblies	165.0	(2)
356921	Filters	15.3	(2)
190089	Other fluid power products	97.5	(2)
	Fabricated metal products, except forgings:		
346501	Automotive stampings (including body parts, hubcaps, fenders, etc.)	2 159.2	1 144.9
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	983.2	660.4
340056	Other fabricated metal products, except fluid power	4 510.8	(2)
346000	Forgings	1 550.2	1 418.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3714, MOTOR VEHICLE PARTS AND ACCESSORIES—Con.		
	Castings (rough and semifinished):		
332001	Iron and steel	4 266.4	3 443.9
336005	Aluminum and aluminum-base alloy	2 451.0	1 512.8
336003	Other nonferrous	246.7	150.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	1 133.9	
331022	Sheet and strip	1 948.2	3 408.3
331034	Other steel shapes and forms	788.3	
335004	Copper and copper-base alloy	251.2	263.9
335010	Aluminum and aluminum-base alloy	541.8	212.0
335099	Other nonferrous shapes and forms	376.1	(2)
	Bearings (mounted and unmounted):		
356218	Ball bearings	285.9	396.1
356201	Roller bearings	615.3	295.1
308006	Fabricated plastics products, except gaskets	706.6	426.1
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	147.7	100.0
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	481.1	340.9
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	430.1	296.3
305201	Rubber and plastics hose and belting	197.1	133.3
280020	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	332.3	41.3
320601	Ceramic and ceramic composite parts, components, and accessories	124.0	(4)
305302	Gaskets (all types) and packing and sealing devices	232.0	290.9
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	403.5	135.2
289101	Glues and adhesives	41.7	31.9
190003	Flexible packaging materials	59.1	(2)
260051	Paper and paperboard containers	347.8	(2)
369401	Engine electrical equipment, including spark plugs, magnetos, generators, starters, etc.	1 516.8	723.1
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	1 285.9	378.9
970099	All other materials and components, parts, containers, and supplies	9 967.7	213 255.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	1 174.9	r3 968.9
	INDUSTRY 3715, TRUCK TRAILERS		
	Materials, ingredients, containers, and supplies	**2 287.3**	**2 180.1**
	Fabricated metal products, except forgings:		
346501	Automotive stampings (including body parts, hubcaps, fenders, etc.)	(7)	(2)
342961	Motor vehicle metal hardware	10.8	47.8
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	43.0	43.4
340096	Other fabricated metal products	7115.9	(2)
346000	Forgings	2.2	(2)
330091	Castings (rough and semifinished)	5.0	5.7
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	58.4	(2)
331022	Sheet and strip	86.6	(2)
331023	Structural shapes and sheet piling	34.2	(2)
331091	All other steel shapes and forms	21.3	(2)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	183.5	166.7
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	163.1	163.6
335008	Other aluminum and aluminum-base alloy shapes and forms	7.1	4.6
335091	Other nonferrous	.3	(2)
371000	Purchased chassis for vehicles (excluding passenger cars)	16.6	9.5
371301	Truck bodies	(D)	(2)
371463	Transmissions and parts	(D)	(2)
371402	Shocks, struts, and other suspension equipment and parts	86.8	(2)
371412	Axles, brakes, drums, rims, wheels, and other metal motor wheel parts	264.9	280.8
301101	Pneumatic tires and inner tubes	223.5	198.5
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	34.0	22.6
320102	Glass and glass products, including windows and mirrors	(D)	(Z)
242101	Rough and dressed lumber	95.7	66.3
190090	Fluid power products	19.2	(2)
364701	Motor vehicle lighting fixtures (including headlights, taillights, running lights, dome fixtures; except auto lamps)	20.1	(2)
364102	Automotive lamps (bulbs and sealed beams)	(D)	(2)
253121	Seats (purchased separately for automobiles, trucks, and buses)	(D)	(2)
308025	Fabricated plastics products, including components, housings, accessories, etc. (except gaskets, hose, and belting)	12.5	(2)
970099	All other materials and components, parts, containers, and supplies	492.8	2710.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	276.7	460.2

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3716, MOTOR HOMES		
	Materials, ingredients, containers, and supplies	**2 033.6**	**1 750.7**
371411	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	95.9	31.3
301101	Pneumatic tires and inner tubes	(D)	9.0
371121	Purchased chassis for motor homes	518.3	509.8
363001	Household appliances including refrigerators, cooking equipment, and other household appliances; except air-conditioners	71.9	52.4
358503	Air-conditioning equipment	23.6	42.4
	Fabricated metal products, except forgings:		
343301	Heating equipment (except electric)	9.4	16.4
344201	Metal doors and door units; windows and window units	24.3	15.1
343201	Metal plumbing fixtures, fittings, and trim (including enameled)	8.8	12.7
344401	Sheet metal products, except stampings	15.5	24.7
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	9.7	15.6
340092	Other fabricated metal products		(2)
346000	Forgings	–	(2)
330091	Castings (rough and semifinished)	(D)	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	14.8	(2)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	32.5	(4)
335011	All other (except sheet, plate, foil, and welded tubing)		(4)
335091	Other nonferrous		(2)
364300	Current-carrying wiring devices	47.6	51.7
243056	Plywood	40.4	44.9
242103	Dressed lumber	37.9	23.4
243011	Millwork, wood (including wood doors, window sash, moldings, and cabinets)	30.6	32.4
320102	Glass and glass products, including windows and mirrors	15.0	45.3
308006	Fabricated plastics products, except gaskets	22.8	24.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	23.4	12.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	8.7	(4)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	8.9	12.0
227002	Carpeting	21.0	16.9
239101	Curtains and draperies	17.2	16.7
970099	All other materials and components, parts, containers, and supplies	460.2	2454.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[5]	469.5	287.1

[1]For 1992, data are included with material code 371464 to avoid disclosing data for individual companies.
[2]For 1987, data were not collected separately but were included with material code 970099 of the industry in which the material was consumed.
[3]For 1992, data are included with material code 190089 to avoid disclosing data for individual companies.
[4]For 1987, data were included with material code 970099 to avoid disclosing data for individual companies.
[5]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[6]For 1992, data are included with material code 340096 to avoid disclosing data for individual companies.
[7]For 1992, data are included with material code 340096 to avoid disclosing data for individual companies.

Table 8. **Employees Engaged in Construction and Value of Work Done: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	Total		Establishments reporting construction employees[1]					Response coverage ratio (col C ÷ col A)
				Total		Engaged in construction[2]			
		Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Employees (1,000)	Payroll (million dollars)	Value of work done (millions)	
		A	B	C	D	E	F	G	H
3711	Motor vehicles and car bodies	228.4	10 438.8	(D)	(D)	(D)	(D)	(D)	(D)

[1]Data exclude government-owned, contractor-operated plants.
[2]Establishments in selected industries were instructed to report number of employees, included in total employment, that were engaged in construction, maintenance, or repair of the plant and utilized as a separate work force. Coverage ratio (col. H) indicates proportion of industry employment represented by establishments that reported construction employees. Coverage ratio excludes (a) construction workers not employed by establishment (working under contract or provided by another establishment of the company), (b) establishments that reported having no construction employees, (c) establishments that did not respond to inquiry, and (d) establishments that were not mailed a form or from which a form had not been received at the time data were tabulated.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
37111	37115
37111 71	37115 00
37113 04	37113 01
37113 04	37113 02
37116	37112
37116 00	37112 01
37116 00	37112 02
37116 00	37112 03
37116 00	37112 04
37116 00	37112 05
37116 00	37112 06
37116 00	37112 07
37116 00	37112 08
37116 00	37112 09
37116 00	37112 31
37116 00	37112 32
37116 00	37112 33
37116 00	37112 34
37116 00	37112 35
37116 00	37112 36
37116 00	37112 39
37117	37112
37117 00	37112 01
37117 00	37112 02
37117 00	37112 03
37117 00	37112 04
37117 00	37112 05
37117 00	37112 06
37117 00	37112 07
37117 00	37112 08
37117 00	37112 09
37117 00	37112 31
37117 00	37112 32
37117 00	37112 33
37117 00	37112 34
37117 00	37112 35
37117 00	37112 36
37117 00	37112 39
37118	37112
37118 00	37112 01
37118 00	37112 02
37118 00	37112 03
37118 00	37112 04
37118 00	37112 05
37118 00	37112 06
37118 00	37112 07
37118 00	37112 08
37118 00	37112 09
37118 00	37112 31
37118 00	37112 32
37118 00	37112 33
37118 00	37112 34
37118 00	37112 35
37118 00	37112 36
37118 00	37112 39
37119	37112
37119 00	37112 01
37119 00	37112 02
37119 00	37112 03
37119 00	37112 04
37119 00	37112 05
37119 00	37112 06
37119 00	37112 07
37119 00	37112 08
37119 00	37112 09
37119 00	37112 31
37119 00	37112 32
37119 00	37112 33
37119 00	37112 34
37119 00	37112 35
37119 00	37112 36
37119 00	37112 39
37131 12	37131 03
37131 12	37131 04
37131 12	37131 11
37131 12	37131 13
37131 71	37131 06
37131 71	37131 07
37131 71	37131 49
37131 71	37131 57
37131 71	37131 69
37132 11	37132 02
37132 13	37132 05
37132 13	37132 06
37132 13	37132 07
37132 13	37132 08
37132 13	37132 09
37132 39	37132 02
37132 39	37132 03
37132 39	37132 16
37132 39	37132 19
37132 39	37132 21
37132 39	37132 28
37132 39	37132 29
37132 39	37132 31
37142 17	37142 21
37142 22	37142 23
37142 37	37142 38
37142 37	37142 39
37142 49	37142 19
37142 49	37142 21
37142 49	37142 23
37142 49	37142 29
37142 49	37142 48
37149 31	37149 39
37149 41	37149 39
3714A 23	3714A 01
3714A 25	3714A 01
3714A 27	3714A 07
3714A 29	3714A 13
3714A 31	3714A 07
3714A 31	3714A 13
3714A 33	3714A 19
3714A 35	3714A 19
3714A 37	3714A 19
3714A 39	3714A 19
3714A 41	3714A 05
3714A 41	3714A 08
3714A 41	3714A 12
3714A 41	3714A 19
37152 00	37152 01
37152 00	37152 02
37284	37281
37284 73	37281 73
37284 75	37281 75
37284 83	37281 83
37284 85	37281 85
37285	37281
37285 13	37281 13
37285 15	37281 15
37285 94	37281 94
37285 95	37281 95
37285 98	37281 98
37285 99	37281 99
37311 11	37311 01
37311 11	37311 02
37311 11	37311 03
37311 11	37311 04
37311 19	37311 05
37311 19	37311 06
37311 19	37311 09
37313 28	37313 25
37313 28	37313 29
37313 48	37313 41
37313 48	37313 49
37313 57	37313 51
37313 57	37313 53
37313 57	37313 55
37322 19	37322 05
37322 19	37322 09
37322 19	37322 13
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37323 04	37323 05
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37323 11	37323 09
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37323 21	37323 19
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37327 02	37327 03
37327 02	37327 05
37327 02	37327 07
37327 02	37327 09
37327 04	37327 01
37327 04	37327 03
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37327 17	37327 11
37327 17	37327 13
37327 17	37327 15
37431 01	37431 30
37431 01	37431 60
37431 03	37431 11
37431 03	37431 12
37431 03	37431 15
37431 03	37431 17
37431 03	37431 18
37432 35	37432 31
37432 35	37432 33
37432 65	37432 25
37432 65	37432 50
37432 65	37432 52
37432 65	37432 63
37433 05	37433 02
37433 05	37433 03
37433 19	37433 13
37433 19	37433 15
37511 23	37511 19
37511 39	37511 06
37511 41	37511 06
37511 43	37511 06
37511 45	37511 06
37511 47	37511 01
37511 47	37511 02
37511 47	37511 03
37511 47	37511 04
37511 47	37511 05
37511 49	37511 01
37511 49	37511 02
37511 49	37511 03
37511 49	37511 04
37511 49	37511 05
37511 55	37511 06
37512 09	37512 06
37512 09	37512 07
37616	37615
37616 00	37615 01
37617	37615
37617 02	37615 02
37617 03	37615 03
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37999 23	37999 06
37999 23	37999 19
37999 25	37999 02
37999 25	37999 21

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

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37112	37118
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37112 01	37118 00
37112 01	37119 00
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37112 39	37118 00
37112 39	37119 00
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37113 02	37113 04
37115	37111
37115 00	37111 71
37131 03	37131 12
37131 04	37131 12
37131 06	37131 71
37131 07	37131 71
37131 11	37131 12
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37131 49	37131 71
37131 57	37131 71
37131 69	37131 71
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37132 02	37132 39
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37132 06	37132 13
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37999 06	37999 23
37999 19	37999 23
37999 21	37999 25

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3715100	M37L, Truck Trailers
3721500	M37G, Civil Aircraft and Engines
3724200	M37G, Civil Aircraft and Engines

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:55 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08535977.DAT;1 1/ 6/ 95 08:54:08 UTF:TIPS93-08535977.DAT;1 1/ 6/ 95 08:54:08 META:TIPS96-08535977.DAT;1 1/ 6/ 95 08:54:53

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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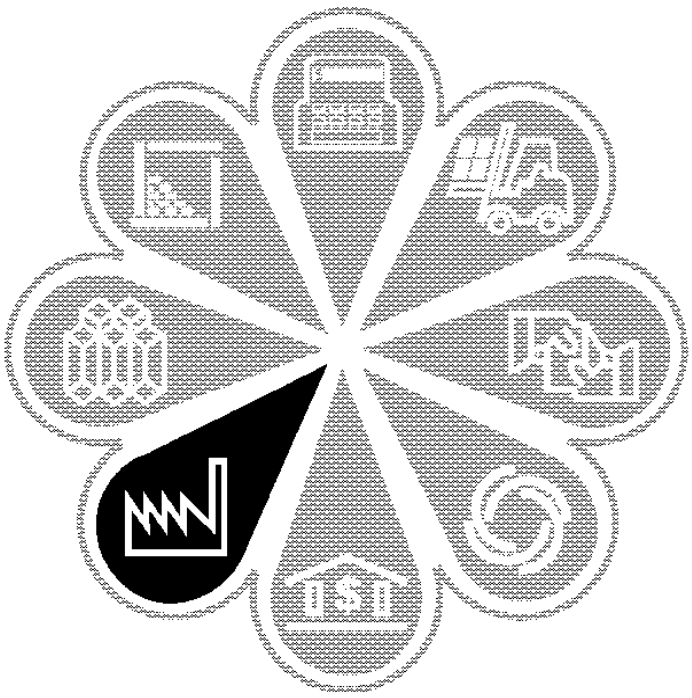
1992 Census of Manufactures

MC92-I-37B

INDUSTRY SERIES

Aerospace Equipment, Including Parts

Industries 3721, 3724, 3728, 3761, 3764, and 3769



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

JOBNAME: No Job Name PAGE: 2 SESS: 4 OUTPUT: Wed Apr 26 09:13:43 1995 / pssw02/ disk2/ economic/ mc92i/ 37b/ 01cvr

1992 Census of Manufactures

MC92-I-37B

INDUSTRY SERIES

Aerospace Equipment, Including Parts

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3721	Aircraft
3724	Aircraft Engines and Engine Parts
3728	Aircraft Parts and Equipment, N.E.C.
3761	Guided Missiles and Space Vehicles
3764	Space Propulsion Units and Parts
3769	Space Vehicle Equipment, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3721, AIRCRAFT

This industry is made up of establishments primarily engaged in manufacturing or assembling complete aircraft. This industry also includes establishments owned by aircraft manufacturers and primarily engaged in research and development on aircraft, whether from enterprise funds or on a contract or fee basis. Also included are establishments engaged in repairing and rebuilding aircraft on a factory basis. Establishments primarily engaged in manufacturing engines and other aircraft parts and auxiliary equipment are classified in industry 3724 and 3728; and those manufacturing guided missiles and space vehicles and parts are classified in industry group 376. Establishments primarily engaged in the repair of aircraft, except on a factory basis, are classified in transportation, industry 4581; and research and development on aircraft by establishments not owned by aircraft manufacturers are classified in services, industry 8731. Products of this industry also are collected in the Current Industrial Report (CIR) M-37G, Civil Aircraft and Aircraft Engines. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3721, Aircraft, had employment of 264.9 thousand. The employment figure was 1 percent below the 268.2 thousand reported in 1987. Compared with 1991, employment increased 3 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Missouri, Texas, and Washington. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $63.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3721 shipped $54.9 billion of aircraft products considered primary to the industry, $7.0 billion of secondary products, and had $1.1 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 95 percent.

The products primary to industry 3721, no matter in what industry they were produced, appear in table 6a and aggregate to $56.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aircraft industry amounted to $36.1 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS

This industry is made up of establishments primarily engaged in manufacturing aircraft engines and engine parts. This industry also includes establishments owned by aircraft engine manufacturers and primarily engaged in research and development on aircraft engines and engine parts whether from enterprise funds or on a contract or fee basis. Also included are establishments engaged in repairing and rebuilding aircraft engines on a factory basis. Establishments primarily engaged in manufacturing guided missile and space vehicle propulsion units and parts are classified in industry 3764; those manufacturing aircraft intake and exhaust valves and pistons are classified in industry 3592; and those manufacturing aircraft internal combustion engine filters are classified in industry 3714. Establishments primarily engaged in the repair of aircraft engines, except on a factory basis, are classified in transportation, industry 4581; and research and development on aircraft engines on a contract or fee basis by establishments not owned by aircraft engine manufacturers are classified in services, industry 8731. Products of this industry also are collected in the Current Industrial Report (CIR) M-37G, Civil Aircraft and Aircraft Engines. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3724, Aircraft Engines and Engine Parts, had employment of 116.7 thousand. The employment figure was 16 percent below the 139.6 thousand reported in 1987. Compared with 1991, employment decreased 5 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Connecticut, Florida, Indiana, and Ohio. This represents a shift from 1987 when Connecticut, Ohio, Massachusetts, and Florida were the leading States.

The total value of shipments for establishments classified in this industry was $22.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3724 shipped $19.5 billion of aircraft engines and engine parts considered primary to the industry, $1.2 billion of secondary products, and had $1.2 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3724, no matter in what industry they were produced, appear in table 6a and aggregate to $20.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aircraft engines and engine parts industry amounted to $9.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing aircraft parts and auxiliary equipment, not elsewhere classified. This industry also includes

establishments owned by manufacturers of aircraft parts and auxiliary equipment and primarily engaged in research and development on aircraft parts, whether from enterprise funds or on a contract or fee basis. Establishments primarily engaged in manufacturing or assembling complete aircraft are classified in industry 3721; those manufacturing aircraft engines and parts are classified in industry 3724; those manufacturing aeronautical instruments are classified in industry 3812; those manufacturing aircraft engine electrical (aeronautical electrical) equipment are classified in industry 3694; and those manufacturing guided missile and space vehicle parts and auxiliary equipment are classified in industry 3769. Establishments not owned by manufacturers of aircraft parts but primarily engaged in research and development on aircraft parts on a contract or fee basis are classified in services, industry 8731.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3728, Aircraft Parts and Equipment, N.E.C., had employment of 165.3 thousand. The employment figure was 12 percent below the 188.2 thousand reported in 1987. Compared with 1991, employment decreased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Connecticut, Kansas, and Texas. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $19.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3728 shipped $16.5 billion of aircraft parts and equipment, not elsewhere classified products considered primary to the industry, $2.9 billion of secondary products, and had $505.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 82 percent.

Establishments in this industry also accounted for 74 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 71 percent.

The products primary to industry 3728, no matter in what industry they were produced, appear in table 6a and aggregate to $22.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the aircraft parts and equipment, not elsewhere classified, industry amounted to $6.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES

This industry is made up of establishments primarily engaged in manufacturing complete guided missiles and space vehicles. This industry also includes establishments owned by guided missile and space vehicle manufacturers and primarily engaged in research and development on these products, whether from enterprise funds or on a contract or fee basis. Establishments primarily engaged in manufacturing guided missile and space vehicle propulsion units and propulsion unit parts are classified in industry 3764; those manufacturing space satellites are classified in industry 3669; those manufacturing guided missile and space vehicle airborne and ground guidance, checkout, and launch electronic systems and components are classified in industry 3812; and those manufacturing guided missile and space vehicle airframes, nose cones, and space capsules are classified in industry 3769. Research and development on guided missiles and space vehicles, on a contract or fee basis, by establishments not owned by guided missile or space vehicle manufacturers are classified in services, industry 8731.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3761, Guided Missiles and Space Vehicles, had employment of 100.1 thousand. The employment figure was 40 percent below the 166.7 thousand reported in 1987. Compared with 1991, employment decreased 26 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arizona, California, Colorado, and Texas. This represents a shift from 1987 when California, Washington, Colorado, and Arizona were the leading States.

The total value of shipments for establishments classified in this industry was $19.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3761 shipped $13.4 billion of guided missiles and space vehicles considered primary to the industry.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3761, no matter in what industry they were produced, appear in table 6a and aggregate to $13.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the guided missiles and space vehicles industry amounted to $6.8 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS

This industry is made up of establishments primarily engaged in manufacturing guided missile propulsion units and propulsion unit parts. This industry also includes establishments owned by manufacturers of guided missile and space vehicle propulsion units and parts and primarily engaged in research and development on such products, whether from enterprise funds or on a contract or fee basis. Research and development on guided missile and space propulsion units, on a contract or fee basis by establishments not owned by manufacturers of guided missile and space vehicle propulsion units and parts, are classified in services, industry 8731.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3764, Space Propulsion Units and Parts, had employment of 32.3 thousand. The employment figure was 2 percent above the 31.8 thousand reported in 1987. Compared with 1991, employment increased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Utah, and Virginia. This represents a shift from 1987 when California, Utah, Michigan, and Alabama were the leading States.

The total value of shipments for establishments classified in this industry was $5.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3764 shipped $4.7 billion of space propulsion units and parts considered primary to the industry, $433.3 million of secondary products, and had $212.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3764, no matter in what industry they were produced, appear in table 6a and aggregate to $5.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the space propulsion units and parts industry amounted to $2.2 billion. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of the total value of shipments.

INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing guided missile and space vehicle parts and auxiliary equipment, not elsewhere classified. This industry also includes establishments owned by manufacturers of guided missile and space vehicle parts and auxiliary equipment, not elsewhere classified, and primarily engaged in research and development on such products, whether from enterprise funds or on a contract or fee basis. Establishments primarily engaged in manufacturing navigational and guidance systems are classified in industry 3812. Research and development on guided missile and space vehicle parts, on a contract or fee basis by establishments not owned by manufacturers of such products, are classified in services, industry 8731.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3769, Space Vehicle Equipment, N.E.C., had employment of 17.2 thousand. The employment figure was 14 percent above the 15.1 thousand reported in 1987. Compared with 1991,

employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Louisiana, Maryland, and Pennsylvania. This represents a shift from 1987 when Washington, Louisiana, California, and Arizona were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3769 shipped $1.8 billion of space vehicle equipment, not elsewhere classified, products considered primary to the industry, $261.3 million of secondary products, and had $21.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 81 percent.

Establishments in this industry also accounted for 40 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was not shown.

The products primary to industry 3769, no matter in what industry they were produced, appear in table 6a and aggregate to $4.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the space vehicle equipment, not elsewhere classified industry amounted to $643.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3721, AIRCRAFT															
1992 Census	151	182	103	264.9	11 498.9	122.1	227.0	4 536.5	25 157.1	36 133.3	62 980.8	1 661.3	31 826.9	89	97
1991 ASM	(NA)	(NA)	(NA)	258.3	10 324.1	125.3	244.8	4 362.8	23 090.6	36 077.2	58 090.2	1 046.1	33 060.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	289.3	11 224.7	139.7	268.1	4 562.4	20 235.4	33 171.2	51 369.6	1 020.9	32 271.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	277.5	10 468.6	140.3	272.0	4 461.9	20 363.6	29 723.8	43 338.9	1 269.6	29 542.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	274.2	10 015.2	140.0	274.3	4 432.0	18 218.6	26 140.8	41 493.7	1 029.6	23 651.4	(NA)	(NA)
1987 Census	137	155	79	268.2	9 679.5	141.5	282.3	4 341.2	17 311.0	23 140.9	39 092.7	1 052.1	19 881.0	90	95
1986 ASM	(NA)	(NA)	(NA)	256.7	8 983.9	135.3	269.5	3 964.3	15 160.7	22 167.9	38 184.3	1 108.2	18 686.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	241.8	8 006.8	121.9	238.6	3 482.5	17 096.3	17 482.1	34 976.5	1 013.3	19 028.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	232.5	7 456.9	115.5	228.2	3 206.4	14 598.2	15 577.2	27 553.2	860.8	19 547.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	250.9	7 562.0	120.6	238.9	3 248.9	14 012.5	14 910.0	30 522.0	621.8	17 869.2	(NA)	(NA)
1982 Census	139	165	86	275.1	7 743.7	138.6	272.2	3 517.9	15 641.9	15 705.4	28 024.3	836.4	19 143.9	87	97
1981 ASM	(NA)	(NA)	(NA)	301.1	7 954.8	156.5	312.0	3 615.6	15 488.8	15 651.8	29 832.8	736.1	15 195.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	281.1	6 667.4	155.0	310.0	3 144.0	14 601.6	14 642.1	26 782.4	687.6	12 974.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	273.4	5 723.4	154.2	310.3	2 807.2	12 173.5	12 382.2	22 521.7	604.1	10 071.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	237.7	4 756.2	134.7	267.7	2 244.4	9 120.5	8 754.5	17 052.1	351.9	7 756.0	(NA)	(NA)
1977 Census	151	176	74	222.7	3 975.9	119.0	232.7	1 765.2	8 134.1	6 742.7	14 834.2	202.4	6 618.5	83	98
INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS															
1992 Census	338	442	281	116.7	4 851.7	64.2	130.8	2 219.6	11 445.4	9 019.2	21 968.5	590.2	4 308.9	94	95
1991 ASM	(NA)	(NA)	(NA)	122.3	4 822.0	67.3	141.6	2 203.4	12 278.1	10 078.5	22 746.2	770.6	6 251.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	129.0	4 829.6	72.6	147.8	2 318.0	12 059.1	10 310.5	22 812.8	784.7	6 554.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	132.0	4 710.0	76.2	155.5	2 302.5	11 808.5	9 648.8	21 565.8	717.6	6 863.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	141.4	4 988.8	76.8	165.3	2 362.5	11 157.4	9 247.4	20 338.7	692.6	6 872.6	(NA)	(NA)
1987 Census	372	453	289	139.6	4 814.0	79.8	166.2	2 364.4	11 700.4	9 096.4	20 262.1	746.8	6 459.8	92	94
1986 ASM	(NA)	(NA)	(NA)	127.5	4 388.2	74.7	156.9	2 174.0	10 791.1	7 960.9	18 214.2	857.6	5 704.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	118.6	3 984.2	70.3	145.8	1 955.0	8 462.1	7 107.3	15 389.9	692.0	5 106.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	109.1	3 388.3	64.0	134.5	1 668.9	7 824.7	6 205.2	13 659.2	632.7	4 384.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	122.0	3 546.4	69.5	142.1	1 816.9	7 720.2	6 204.5	14 112.0	440.2	4 414.1	(NA)	(NA)
1982 Census	281	340	225	130.7	3 544.4	76.5	154.0	1 819.3	7 572.2	6 262.1	13 809.3	441.1	4 691.6	85	96
1981 ASM	(NA)	(NA)	(NA)	140.0	3 562.8	82.9	164.2	1 887.6	6 890.9	6 980.9	13 777.4	504.6	4 101.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	140.6	3 218.5	85.3	174.2	1 723.7	6 957.7	5 734.0	12 027.7	460.1	3 769.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	134.8	2 823.7	81.3	170.7	1 518.1	5 991.3	4 374.8	9 682.4	383.1	2 835.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	115.7	2 305.4	69.6	145.8	1 192.9	4 438.9	3 508.8	7 510.1	266.2	1 947.1	(NA)	(NA)
1977 Census	226	269	177	106.1	1 939.4	62.4	128.7	970.0	3 599.1	2 761.8	6 272.3	174.9	1 440.2	81	95
INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.															
1992 Census	1 030	1 121	461	165.3	6 162.1	93.6	194.3	3 193.6	12 636.6	6 108.4	19 834.6	1 132.1	5 626.8	85	74
1991 ASM	(NA)	(NA)	(NA)	187.3	6 739.7	107.5	225.7	3 397.6	13 677.6	7 295.6	21 544.4	1 006.2	7 923.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	197.5	6 851.9	111.3	225.3	3 354.4	12 608.7	8 091.0	20 457.9	815.4	9 068.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	192.9	6 604.0	103.2	213.7	3 110.0	12 717.3	7 497.0	19 074.9	812.9	8 398.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	181.0	5 964.9	98.3	209.0	2 895.2	11 116.7	6 803.3	17 720.1	639.5	6 392.5	(NA)	(NA)
1987 Census	925	1 014	474	188.2	6 096.7	140.4	218.1	3 006.9	11 791.1	6 518.0	17 949.3	737.2	6 093.1	82	71
1986 ASM	(NA)	(NA)	(NA)	186.4	5 972.3	105.2	218.9	2 955.9	11 804.2	6 312.6	17 904.6	851.9	5 826.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	167.8	5 175.9	96.1	202.0	2 637.2	10 239.9	5 872.7	15 691.6	723.3	5 689.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	175.2	5 244.8	93.9	195.2	2 474.5	10 257.1	6 528.5	16 217.7	597.1	6 132.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	154.1	4 342.1	82.9	166.1	2 041.9	8 366.3	5 441.4	13 477.3	467.9	4 688.4	(NA)	(NA)
1982 Census	912	966	419	132.8	3 429.4	73.5	146.6	1 650.0	6 188.1	3 989.0	10 193.1	402.9	3 805.7	71	65
1981 ASM	(NA)	(NA)	(NA)	140.3	3 252.8	84.2	173.5	1 740.0	5 716.0	3 473.7	8 871.4	396.3	3 349.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	158.9	3 409.5	94.9	193.3	1 797.4	6 062.6	4 016.2	9 229.3	469.8	3 572.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	137.5	2 640.4	84.0	169.1	1 400.6	4 740.7	3 010.8	7 224.3	313.6	2 363.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	110.2	2 016.6	64.2	126.5	995.2	3 540.2	2 141.3	5 414.5	156.5	1 563.2	(NA)	(NA)
1977 Census	681	728	298	102.0	1 705.2	58.7	113.7	828.3	2 998.4	1 747.7	4 760.6	131.1	1 243.1	72	57
INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES															
1992 Census	23	38	31	100.1	4 722.2	31.5	57.8	1 284.8	11 080.9	6 788.9	19 675.1	306.7	2 872.2	(D)	97
1991 ASM	(NA)	(NA)	(NA)	135.8	6 025.5	45.0	91.3	1 740.7	13 550.9	8 219.7	23 399.3	449.9	6 819.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	156.2	6 742.6	54.2	109.2	1 992.5	15 782.5	9 588.1	25 082.6	659.0	8 559.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	172.6	7 131.3	60.1	118.3	2 074.1	15 480.5	9 301.2	23 982.5	794.8	8 641.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	169.0	6 786.9	61.3	120.8	2 076.7	15 099.2	8 261.1	22 512.8	757.5	7 658.1	(NA)	(NA)
1987 Census	19	40	38	166.7	6 414.8	62.7	121.4	2 019.7	15 072.7	6 791.3	21 565.8	818.7	6 306.1	75	93
1986 ASM	(NA)	(NA)	(NA)	174.2	6 301.1	63.5	122.9	1 931.6	14 120.6	7 226.8	21 401.3	977.7	6 049.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	154.3	5 473.3	53.4	105.8	1 491.7	12 576.7	6 098.7	18 087.1	968.8	5 471.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	120.9	4 118.8	43.7	86.6	1 202.8	10 047.0	4 205.6	13 191.5	686.3	3 782.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	110.7	3 469.3	42.7	80.5	1 116.0	8 260.8	4 068.5	11 870.6	437.6	2 306.6	(NA)	(NA)
1982 Census	16	29	28	99.6	3 159.4	35.9	70.5	915.7	7 025.5	3 652.1	10 218.6	293.3	1 685.3	83	86
1981 ASM	(NA)	(NA)	(NA)	106.5	3 082.0	33.8	65.4	795.3	6 092.7	2 853.5	8 873.2	255.0	1 244.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	106.5	2 890.5	36.6	75.1	800.8	5 822.9	2 725.4	8 265.9	234.4	1 189.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	104.6	2 586.2	39.8	77.7	788.9	5 046.0	2 280.4	7 119.7	195.3	968.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	93.8	2 122.2	33.4	65.5	623.3	4 176.6	1 877.2	5 990.2	135.3	673.3	(NA)	(NA)
1977 Census	20	40	37	94.0	1 931.5	35.2	67.0	603.8	3 564.8	1 691.3	5 314.4	125.6	600.2	87	91
INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS															
1992 Census	30	42	33	32.3	1 495.6	13.4	20.9	496.1	2 819.0	2 181.3	5 328.1	128.2	1 259.0	92	86
1991 ASM	(NA)	(NA)	(NA)	27.7	1 166.6	9.5	17.7	337.2	2 345.8	1 230.4	3 657.9	102.3	903.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	29.7	1 169.7	10.6	17.8	335.8	2 412.0	1 339.1	3 755.8	181.9	914.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	30.0	1 183.4	10.6	18.1	353.2	2 452.5	1 423.3	3 746.9	262.0	833.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	35.3	1 351.8	12.6	24.7	423.7	2 564.2	1 424.1	3 881.2	208.9	603.2	(NA)	(NA)
1987 Census	27	35	28	31.8	1 174.7	11.2	22.2	350.0	2 314.2	1 286.1	3 537.1	194.4	473.9	83	82
1986 ASM	(NA)	(NA)	(NA)	31.4	1 089.6	11.2	22.3	340.1	1 974.1	1 200.2	3 125.1	280.4	404.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	29.8	1 034.2	11.3	24.5	339.9	1 879.7	1 205.6	3 110.0	233.5	349.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	28.2	902.3	11.7	25.5	307.2	1 853.9	965.6	2 802.7	148.2	303.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	27.6	848.8	11.7	23.8	306.0	1 694.1	887.8	2 577.3	106.1	304.1	(NA)	(NA)
1982 Census	20	27	25	25.3	737.1	10.8	23.4	263.1	1 534.0	737.2	2 221.2	95.8	276.0	89	89
1981 ASM	(NA)	(NA)	(NA)	26.7	699.8	10.7	23.0	239.3	1 338.8	647.4	1 959.8	73.4	200.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	25.5	607.3	10.8	22.6	220.4	1 150.1	540.6	1 652.7	60.4	171.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.2	493.4	9.6	20.5	169.2	856.5	411.9	1 277.6	43.7	134.2	(NA)	(NA)

See footnotes at end of table.

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TSF:37B_92.DAT;1 5/18/95 16:29:08 UTF:37B_93.DAT;1 5/18/95 16:29:09 META:TIPS96-16290069.DAT;1 5/18/95 16:30:38

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS—Con.														
1978 ASM	(NA)	(NA)	(NA)	20.1	414.1	8.4	17.5	140.1	764.2	343.2	1 113.8	27.6	140.2	(NA)	(NA)
1977 Census	18	25	24	18.6	356.6	7.1	14.9	111.5	620.7	316.4	945.5	25.3	167.5	92	88
	INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.														
1992 Census	54	60	37	17.2	694.5	7.7	15.0	271.4	1 456.4	643.8	2 070.7	41.0	331.5	87	40
1991 ASM	(NA)	(NA)	(NA)	14.2	558.2	7.7	14.5	266.2	1 206.4	752.5	1 907.3	31.4	303.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.4	525.5	8.0	15.3	254.2	1 089.7	612.4	1 715.6	28.0	231.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.4	675.4	9.1	17.8	294.8	1 209.6	560.6	1 768.3	64.2	204.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.4	686.5	9.5	18.8	290.8	1 267.7	540.0	1 799.6	59.8	195.5	(NA)	(NA)
1987 Census	61	66	43	15.1	524.8	7.9	15.6	237.8	869.9	313.7	1 182.2	62.3	133.2	81	(D)
1986 ASM	(NA)	(NA)	(NA)	22.1	763.5	10.4	20.6	290.1	1 686.6	519.3	2 169.7	68.7	212.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	33.7	1 141.8	19.3	39.1	586.1	2 652.0	936.3	3 539.8	153.3	292.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.7	905.6	15.5	34.1	463.1	2 737.5	836.2	3 502.0	125.0	245.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.4	735.4	13.5	27.7	353.2	1 728.3	579.1	2 264.0	85.0	171.2	(NA)	(NA)
1982 Census	45	49	33	21.4	584.6	13.0	26.2	304.5	1 297.1	645.1	1 958.3	72.4	120.4	62	46
1981 ASM	(NA)	(NA)	(NA)	17.9	437.1	9.3	22.0	224.3	992.6	533.1	1 522.0	40.1	88.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.7	200.6	4.4	8.9	79.3	351.3	177.5	525.3	10.7	35.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.5	188.6	5.3	10.6	78.7	309.7	146.1	453.3	10.7	27.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.2	163.3	4.2	8.5	63.5	225.7	143.3	370.6	10.7	27.7	(NA)	(NA)
1977 Census	41	42	25	7.2	139.2	3.9	8.3	55.3	236.3	110.1	339.4	13.3	29.8	85	(D)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3721, AIRCRAFT								
1992 Census	43 408	46	1 859	19.98	57	76	94 968	46	110.82
1991 ASM	39 969	49	1 954	17.82	62	80	89 395	45	94.32
1990 ASM	38 800	48	1 919	17.02	65	86	69 946	55	75.48
1989 ASM	37 725	51	1 939	16.40	69	93	73 382	51	74.87
1988 ASM	36 525	51	1 959	16.16	63	87	66 443	55	66.42
1987 Census	36 091	53	1 995	15.38	59	84	64 545	56	61.32
1986 ASM	34 998	53	1 992	14.71	58	82	59 060	59	56.25
1985 ASM	33 113	50	1 957	14.60	50	73	70 704	47	71.65
1984 ASM	32 073	50	1 976	14.05	57	84	62 788	51	63.97
1983 ASM	30 139	48	1 981	13.60	49	74	55 849	54	58.65
1982 Census	28 149	50	1 964	12.92	56	84	56 859	50	57.46
1981 ASM	26 419	52	1 994	11.59	52	79	51 441	51	49.64
1980 ASM	23 719	55	2 000	10.14	55	80	51 945	46	47.10
1979 ASM	20 934	56	2 012	9.05	55	80	44 526	47	39.23
1978 ASM	20 009	57	1 987	8.38	51	79	38 370	52	34.07
1977 Census	17 853	53	1 955	7.59	45	72	36 525	49	34.96
	INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS								
1992 Census	41 574	55	2 037	16.97	41	63	98 075	42	87.50
1991 ASM	39 428	55	2 104	15.56	44	66	100 393	39	86.71
1990 ASM	37 439	56	2 036	15.68	45	66	93 481	40	81.59
1989 ASM	35 682	58	2 041	14.81	45	67	89 458	40	75.94
1988 ASM	35 281	54	2 152	14.29	45	70	78 907	45	67.50
1987 Census	34 484	57	2 083	14.23	45	69	83 814	41	70.40
1986 ASM	34 417	59	2 100	13.86	44	68	84 636	41	68.78
1985 ASM	33 594	59	2 074	13.41	46	72	71 350	47	58.04
1984 ASM	31 057	59	2 102	12.41	45	70	71 720	43	58.18
1983 ASM	29 069	57	2 045	12.79	44	69	63 280	46	54.33
1982 Census	27 119	59	2 013	11.81	45	71	57 936	47	49.17
1981 ASM	25 449	59	1 981	11.50	51	77	49 221	52	41.97
1980 ASM	22 891	61	2 042	9.89	48	74	49 486	46	39.94
1979 ASM	20 947	60	2 100	8.89	45	74	44 446	47	35.10
1978 ASM	19 926	60	2 095	8.18	47	77	38 366	52	30.45
1977 Census	18 279	59	2 063	7.54	44	75	33 922	54	27.97

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.								
1992 Census	37 278	57	2 076	16.44	31	62	76 446	49	65.04
1991 ASM	35 983	57	2 100	15.05	34	65	73 025	49	60.60
1990 ASM	34 693	56	2 024	14.89	40	73	63 842	54	55.96
1989 ASM	34 235	53	2 071	14.55	39	74	65 927	52	59.51
1988 ASM	32 955	54	2 126	13.85	38	72	61 418	54	53.19
1987 Census	32 395	75	1 553	13.79	36	70	62 652	52	54.06
1986 ASM	32 040	56	2 081	13.50	35	69	63 327	51	53.93
1985 ASM	30 846	57	2 102	13.06	37	70	61 024	51	50.69
1984 ASM	29 936	54	2 079	12.68	40	73	58 545	51	52.55
1983 ASM	28 177	54	2 004	12.29	40	73	54 291	52	50.37
1982 Census	25 824	55	1 995	11.26	39	73	46 597	55	42.21
1981 ASM	23 185	60	2 061	10.03	39	76	40 741	57	32.95
1980 ASM	21 457	60	2 037	9.30	44	80	38 154	56	31.36
1979 ASM	19 203	61	2 013	8.28	42	78	34 478	56	28.03
1978 ASM	18 299	58	1 970	7.87	40	77	32 125	57	27.99
1977 Census	16 718	58	1 937	7.28	37	73	29 396	57	26.37
	INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES								
1992 Census	47 175	31	1 835	22.23	35	59	110 698	43	191.71
1991 ASM	44 370	33	2 029	19.07	35	61	99 786	44	148.42
1990 ASM	43 166	35	2 015	18.25	38	65	101 040	43	144.53
1989 ASM	41 317	35	1 968	17.53	39	69	89 690	46	130.86
1988 ASM	40 159	36	1 971	17.19	37	67	89 344	45	124.99
1987 Census	38 481	38	1 936	16.64	31	61	90 418	43	124.16
1986 ASM	36 172	36	1 935	15.72	34	63	81 060	45	114.90
1985 ASM	35 472	35	1 981	14.10	34	64	81 508	44	118.87
1984 ASM	34 068	36	1 982	13.89	32	63	83 102	41	116.02
1983 ASM	31 340	39	1 885	13.86	34	63	74 623	42	102.62
1982 Census	31 721	36	1 964	12.99	36	67	70 537	45	99.65
1981 ASM	28 939	32	1 935	12.16	32	67	57 208	51	93.16
1980 ASM	27 141	34	2 052	10.66	33	68	54 675	50	77.54
1979 ASM	24 725	38	1 952	10.15	32	68	48 241	51	64.94
1978 ASM	22 625	36	1 961	9.52	31	67	44 527	51	63.76
1977 Census	20 548	37	1 903	9.01	32	68	37 923	54	53.21
	INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS								
1992 Census	46 303	41	1 560	23.74	41	69	87 276	53	134.88
1991 ASM	42 116	34	1 863	19.05	34	66	84 686	50	132.53
1990 ASM	39 384	36	1 679	18.87	36	67	81 212	48	135.51
1989 ASM	39 447	35	1 708	19.51	38	70	81 750	48	135.50
1988 ASM	38 295	36	1 960	17.15	37	72	72 640	53	103.81
1987 Census	36 940	35	1 982	15.77	36	70	72 774	51	104.24
1986 ASM	34 701	36	1 991	15.25	38	73	62 869	55	88.52
1985 ASM	34 705	38	2 168	13.87	39	72	63 077	55	76.72
1984 ASM	31 996	41	2 179	12.05	34	67	65 741	49	72.70
1983 ASM	30 754	42	2 034	12.86	34	67	61 380	50	71.18
1982 Census	29 134	43	2 167	11.24	33	66	60 632	48	65.56
1981 ASM	26 210	40	2 150	10.40	33	69	50 142	52	58.21
1980 ASM	23 816	42	2 093	9.75	33	69	45 102	53	50.89
1979 ASM	22 225	43	2 135	8.25	32	71	38 581	58	41.78
1978 ASM	20 602	42	2 083	8.01	31	68	38 020	54	43.67
1977 Census	19 172	38	2 099	7.48	33	71	33 371	57	41.66
	INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.								
1992 Census	40 378	45	1 948	18.09	31	65	84 674	48	97.09
1991 ASM	39 310	54	1 883	18.36	39	69	84 958	46	83.20
1990 ASM	36 493	56	1 913	16.61	36	66	75 674	48	71.22
1989 ASM	36 707	49	1 956	16.56	32	70	65 739	56	67.96
1988 ASM	35 387	49	1 979	15.47	30	68	65 345	54	67.43
1987 Census	34 755	52	1 975	15.24	27	71	57 609	60	55.76
1986 ASM	34 548	47	1 981	14.08	24	59	76 317	45	81.87
1985 ASM	33 881	57	2 026	14.99	26	59	78 694	43	67.83
1984 ASM	33 918	58	2 200	13.58	24	50	102 528	33	80.28
1983 ASM	30 139	55	2 052	12.75	26	58	70 832	43	62.39
1982 Census	27 318	61	2 015	11.62	33	63	60 612	45	49.51
1981 ASM	24 419	52	2 366	10.20	35	64	55 453	44	45.12
1980 ASM	23 057	51	2 023	8.91	34	72	40 379	57	39.47
1979 ASM	19 853	56	2 000	7.42	32	74	32 600	61	29.22
1978 ASM	19 915	51	2 024	7.47	39	83	27 524	72	26.55
1977 Census	19 333	54	2 128	6.66	32	73	32 819	59	28.47

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3721, AIRCRAFT														
United States	–	**182**	**103**	**264.9**	**11 498.9**	**122.1**	**227.0**	**4 536.5**	**25 157.1**	**36 133.3**	**62 980.8**	**1 661.3**	**268.2**	**17 311.0**
Alabama	–	6	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.1	F	(D)
Arizona	–	8	5	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	6	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	36	19	58.9	2 748.0	30.8	52.8	1 242.5	4 824.1	7 609.0	13 015.6	178.1	62.1	3 596.8
Connecticut	–	7	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	16	9	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.2	149.9
Georgia	–	7	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	7	6	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	3	2	.1	3.7	.1	.2	2.1	1.9	3.5	6.9	(D)	(NA)	(NA)
Missouri	–	1	1	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	3	3	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	6	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	3	3	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	26	13	29.6	1 266.6	13.6	29.7	587.1	3 011.4	1 724.2	4 835.6	35.9	38.4	2 657.9
Utah	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	8	4	L	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS														
United States	–	**442**	**281**	**116.7**	**4 851.7**	**64.2**	**130.8**	**2 219.6**	**11 445.4**	**9 019.2**	**21 968.5**	**590.2**	**139.6**	**11 700.4**
Alabama	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	–	18	11	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	65	38	6.9	264.6	4.3	7.9	147.3	494.6	469.8	976.0	29.0	10.2	687.8
Connecticut	–	63	46	24.0	1 124.3	13.3	28.4	518.4	2 310.6	1 907.8	4 148.6	(D)	(NA)	(D)
Florida	–	34	20	9.3	430.2	3.1	6.3	97.4	1 438.7	917.9	2 380.1	35.1	10.9	527.8
Georgia	–	10	6	1.9	63.7	1.3	2.8	41.3	151.1	123.1	287.3	(D)	G	(D)
Illinois	–	10	6	2.1	97.7	1.1	2.4	37.1	126.4	95.2	230.6	(D)	G	(D)
Indiana	–	12	9	7.9	307.3	4.3	8.9	146.1	537.5	451.0	946.2	(D)	(NA)	(D)
Iowa	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maine	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	23	18	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	26.0	(NA)	(D)
Michigan	E1	26	18	2.4	78.5	1.6	3.3	45.1	150.1	95.9	258.5	6.3	G	(D)
Minnesota	E5	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
New Hampshire	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Jersey	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Mexico	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	–	21	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	12.9	2.4	142.3
North Carolina	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	8.7	G	(D)
Ohio	–	29	23	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	E1	14	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	41.9
Pennsylvania	–	13	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	31	17	3.6	122.8	2.5	5.7	76.7	225.3	321.2	549.2	19.1	2.7	221.5
Vermont	–	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	10	2	.3	12.6	.2	.4	8.0	26.6	20.6	49.6	1.2	.6	44.1
West Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E4	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.														
United States	–	**1 121**	**461**	**165.3**	**6 162.1**	**93.6**	**194.3**	**3 193.6**	**12 636.6**	**6 108.4**	**19 834.6**	**1 132.1**	**188.2**	**11 791.1**
Alabama	–	9	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	26	13	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	15.4	4.2	301.1
Arkansas	–	14	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	F	(D)
California	–	292	129	48.2	1 851.7	24.9	51.6	821.7	3 096.6	1 928.3	5 710.0	160.5	52.7	3 145.4
Colorado	–	15	5	.9	30.2	.6	1.2	17.4	67.9	27.1	91.7	(D)	G	(D)
Connecticut	–	56	29	11.1	463.6	5.1	10.4	189.2	1 024.2	268.9	1 385.3	73.8	(NA)	(D)
Florida	E1	51	16	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.5	194.7
Georgia	–	9	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	14	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	20	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	70	33	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E6	5	1	.1	3.5	.1	.1	1.7	6.6	3.8	10.4	(D)	E	(D)
Michigan	–	34	11	1.8	63.7	1.1	2.1	32.9	127.5	103.0	232.4	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.—Con.														
Minnesota	E2	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
Missouri	E2	25	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	36.1
Nebraska	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	20	14	1.9	61.1	1.0	2.1	28.2	138.8	87.9	229.0	(D)	G	(D)
New Mexico	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	54	24	3.2	116.1	1.7	3.6	46.3	251.0	333.7	589.7	(D)	(NA)	(D)
North Carolina	–	6	3	.3	8.5	.2	.3	3.2	15.5	9.9	27.6	(D)	F	(D)
North Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	–	42	23	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	30	11	4.8	186.3	3.0	6.3	117.2	328.5	131.0	456.0	10.2	(NA)	(D)
Oregon	E1	18	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	16	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	G	(D)
Tennessee	–	10	6	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.0	(NA)	(D)
Texas	–	83	26	18.9	680.7	10.2	17.8	327.2	1 080.6	631.9	1 626.1	48.8	16.5	1 003.7
Utah	–	14	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	52.6
Virginia	E9	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	118	37	18.0	695.3	11.7	29.4	493.5	1 525.4	411.1	2 054.2	(D)	(NA)	(D)
West Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES														
United States	**–**	**38**	**31**	**100.1**	**4 722.2**	**31.5**	**57.8**	**1 284.8**	**11 080.9**	**6 788.9**	**19 675.1**	**306.7**	**166.7**	**15 072.7**
Alabama	–	2	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	–	15	12	63.5	3 065.9	10.7	21.4	410.0	6 448.9	3 708.2	11 587.8	239.5	(NA)	(D)
Colorado	–	1	1	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	2	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Mexico	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(NA)	(D)
Ohio	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	3	2	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS														
United States	**–**	**42**	**33**	**32.3**	**1 495.6**	**13.4**	**20.9**	**496.1**	**2 819.0**	**2 181.3**	**5 328.1**	**128.2**	**31.8**	**2 314.2**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	13	10	16.2	817.7	6.6	7.4	249.7	1 374.4	1 210.9	2 932.0	61.6	(NA)	(D)
Florida	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Utah	–	4	4	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E2	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Washington	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
West Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.														
United States	**–**	**60**	**37**	**17.2**	**694.5**	**7.7**	**15.0**	**271.4**	**1 456.4**	**643.8**	**2 070.7**	**41.0**	**15.1**	**869.9**
Alabama	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arizona	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	21	12	1.8	58.0	1.0	2.2	26.6	125.5	48.0	176.6	5.4	G	(D)
Florida	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Georgia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Indiana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	–	1	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.—Con.														
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	2	2	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	3	2	.2	8.1	(Z)	(Z)	.5	11.2	2.8	14.2	(D)	(NA)	(D)
Utah	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Aircraft (SIC 3721)	Aircraft engines and engine parts (SIC 3724)	Aircraft parts and equipment, n.e.c. (SIC 3728)	Guided missiles and space vehicles (SIC 3761)	Space propulsion units and parts (SIC 3764)	Space vehicle equipment, n.e.c. (SIC 3769)
Companies—number	151	338	1 030	23	30	54
All establishments—number	182	442	1 121	38	42	60
With 1 to 19 employees—number	79	161	660	7	9	23
With 20 to 99 employees—number	40	140	286	3	8	12
With 100 employees or more—number	63	141	175	28	25	25
Employment and labor costs:						
Employees—1,000	264.9	116.7	165.3	100.1	32.3	17.2
Compensation, total—mil dol	14 722.0	6 160.6	8 138.5	5 966.6	1 881.0	909.0
Annual payroll—mil dol	11 498.9	4 851.7	6 162.1	4 722.2	1 495.6	694.5
Fringe benefits—mil dol	3 223.0	1 308.8	1 976.4	1 244.4	385.3	214.5
Social Security and other legally required payments—mil dol	1 072.1	468.3	679.8	419.7	125.3	61.8
Employer voluntary payments—mil dol	2 151.0	840.5	1 296.7	824.7	260.1	152.7
Production workers:						
Average for year—1,000	122.1	64.2	93.6	31.5	13.4	7.7
March—1,000	127.1	66.7	98.2	33.4	14.2	8.0
May—1,000	123.8	65.1	95.4	32.4	13.5	8.0
August—1,000	120.1	62.7	91.9	30.5	13.1	7.6
November—1,000	117.4	62.4	89.2	29.8	12.9	7.2
Hours—millions	227.0	130.8	194.3	57.8	20.9	15.0
Wages—mil dol	4 536.5	2 219.6	3 193.6	1 284.8	496.1	271.4
Cost of materials[1]—mil dol	36 133.3	9 019.2	6 108.4	6 788.9	2 181.3	643.8
Materials, parts, containers, etc., consumed[2]—mil dol	34 477.0	7 712.7	4 988.8	5 240.9	2 020.6	536.8
Resales—mil dol	1 007.4	570.1	64.9	918.8	5.1	.9
Fuels—mil dol	56.1	43.3	43.7	14.1	11.8	7.2
Purchased electricity—mil dol	243.8	161.8	195.5	118.8	43.9	19.8
Contract work—mil dol	349.0	531.3	815.5	496.3	99.9	79.1
Quantity of electric energy used for heat and power:						
Purchased—mil kWh	4 456.0	2 653.1	3 557.9	1 836.8	761.3	283.8
Generated less sold—mil kWh	(D)	(D)	(D)	–	–	(D)
Total value of shipments—mil dol	62 980.8	21 968.5	19 834.6	19 675.1	5 328.1	2 070.7
Value added—mil dol	25 157.1	11 445.4	12 636.6	11 080.9	2 819.0	1 456.4
Inventories by stage of fabrication:						
Beginning of 1992—mil dol	34 665.7	6 129.2	6 885.3	4 969.4	1 563.2	302.2
Finished goods—mil dol	1 719.5	1 842.5	741.3	(D)	(D)	(D)
Work in process—mil dol	28 241.3	2 937.9	5 134.4	4 406.2	1 305.8	275.0
Materials and supplies—mil dol	4 704.9	1 348.8	1 009.6	(D)	(D)	(D)
End of 1992—mil dol	31 826.9	4 308.9	5 626.8	2 872.2	1 259.0	331.5
Finished goods—mil dol	1 564.8	1 399.9	648.0	(D)	(D)	(D)
Work in process—mil dol	26 705.5	1 876.7	4 138.0	2 596.3	946.6	308.6
Materials and supplies—mil dol	3 556.6	1 032.3	840.7	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Aircraft (SIC 3721)	Aircraft engines and engine parts (SIC 3724)	Aircraft parts and equipment, n.e.c. (SIC 3728)	Guided missiles and space vehicles (SIC 3761)	Space propulsion units and parts (SIC 3764)	Space vehicle equipment, n.e.c. (SIC 3769)
Gross book value of depreciable assets:						
Total:						
Beginning of year	14 710.2	8 397.0	8 881.4	5 671.6	2 564.1	901.7
New capital expenditures[1]	1 661.3	590.2	1 132.1	306.7	128.2	41.0
Used capital expenditures	33.6	98.3	47.4	33.0	4.0	.9
Retirements	899.3	216.7	428.6	333.4	108.6	71.4
End of year	15 505.7	8 868.7	9 632.3	5 677.9	2 587.8	872.1
Buildings and other structures:						
Beginning of year	5 669.6	1 764.8	2 666.2	1 837.6	729.1	208.2
New capital expenditures	(D)	97.5	335.8	61.6	35.8	12.3
Used capital expenditures	(D)	31.2	9.9	(D)	1.1	.3
Retirements	(D)	22.2	91.7	(D)	29.3	14.1
End of year	6 289.2	1 871.3	2 920.2	1 780.8	736.6	206.7
Machinery and equipment:						
Beginning of year	9 040.6	6 632.2	6 215.2	3 834.0	1 835.1	693.4
New capital expenditures[1]	(D)	492.7	796.4	245.1	92.4	28.7
Used capital expenditures	(D)	67.1	37.5	(D)	2.9	.6
Retirements	(D)	194.5	337.0	(D)	79.3	57.3
End of year	9 216.5	6 997.5	6 712.1	3 897.1	1 851.1	665.4
Depreciation charges during 1992:						
Total	1 627.5	524.0	823.0	983.9	191.1	85.0
Buildings and other structures	404.5	76.8	162.0	252.7	36.3	15.4
Machinery and equipment	1 223.0	447.2	661.0	731.2	154.9	69.6
Rental payments:						
Total	218.8	169.8	184.4	224.6	37.6	26.0
Buildings and other structures	144.6	65.7	99.5	175.6	26.2	19.0
Machinery and equipment	74.2	104.1	85.0	49.0	11.4	6.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Aircraft (SIC 3721)		Aircraft engines and engine parts (SIC 3724)		Aircraft parts and equipment, n.e.c. (SIC 3728)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	130.5	(X)	191.8	(X)	52.8	(X)
Response coverage ratio (percent)[2]	91.9	(X)	73.7	(X)	90.6	(X)
Machinery	121.3	(X)	629.4	(X)	95.0	(X)
Response coverage ratio (percent)[2]	96.9	(X)	74.4	(X)	91.8	(X)
Other purchased services:						
Communications	55.7	(X)	43.4	(X)	39.3	(X)
Response coverage ratio (percent)[2]	94.4	(X)	74.0	(X)	80.8	(X)
Legal	77.1	(X)	26.8	(X)	22.3	(X)
Response coverage ratio (percent)[2]	96.8	(X)	73.9	(X)	92.2	(X)
Accounting and bookkeeping	35.6	(X)	5.8	(X)	9.3	(X)
Response coverage ratio (percent)[2]	96.6	(X)	69.7	(X)	84.8	(X)
Advertising	47.5	(X)	39.6	(X)	7.6	(X)
Response coverage ratio (percent)[2]	95.7	(X)	93.1	(X)	88.7	(X)
Software and other data processing	156.9	(X)	382.5	(X)	52.1	(X)
Response coverage ratio (percent)[2]	88.0	(X)	72.5	(X)	90.7	(X)
Refuse removal, including hazardous waste	60.4	(X)	50.1	(X)	30.0	(X)
Response coverage ratio (percent)[2]	89.6	(X)	73.3	(X)	88.9	(X)
New machinery and equipment expenditures	(D)	(X)	492.7	(X)	796.4	(X)
Automobiles, trucks, etc., for highway use	(D)	(X)	1.7	13	3.6	15
Computers and peripheral data processing equipment	(D)	(X)	55.8	7	53.9	4
All other	(D)	(X)	435.3	1	738.9	1
Adjustment ratio[3]	(D)	(X)	1.1	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	34 477.0	(X)	7 712.7	(X)	4 988.8	(X)
Materials purchased or transferred from foreign sources[4]	3 791.1	1	827.2	4	397.5	3
Materials purchased or transferred from domestic sources	30 685.9	1	6 885.4	1	4 591.3	1
Adjustment ratio[3]	1.3	(X)	1.2	(X)	1.5	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Guided missiles and space vehicles (SIC 3761)		Space propulsion units and parts (SIC 3764)		Space vehicle equipment, n.e.c. (SIC 3769)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	51.6	(X)	11.9	(X)	1.1	(X)
Response coverage ratio (percent)[2]	98.4	(X)	97.9	(X)	63.5	(X)
Machinery	38.5	(X)	15.2	(X)	2.6	(X)
Response coverage ratio (percent)[2]	93.0	(X)	97.9	(X)	63.5	(X)
Other purchased services:						
Communications	41.5	(X)	16.0	(X)	3.9	(X)
Response coverage ratio (percent)[2]	95.2	(X)	97.5	(X)	63.5	(X)
Legal	25.0	(X)	6.0	(X)	1.4	(X)
Response coverage ratio (percent)[2]	91.9	(X)	97.9	(X)	63.5	(X)
Accounting and bookkeeping	2.7	(X)	1.2	(X)	.7	(X)
Response coverage ratio (percent)[2]	86.5	(X)	96.6	(X)	63.5	(X)
Advertising	4.2	(X)	.8	(X)	.7	(X)
Response coverage ratio (percent)[2]	91.9	(X)	97.9	(X)	63.5	(X)
Software and other data processing	180.5	(X)	15.9	(X)	7.7	(X)
Response coverage ratio (percent)[2]	100.0	(X)	91.5	(X)	63.5	(X)
Refuse removal, including hazardous waste	6.5	(X)	5.3	(X)	.8	(X)
Response coverage ratio (percent)[2]	98.4	(X)	90.0	(X)	63.5	(X)
New machinery and equipment expenditures	245.1	(X)	92.4	(X)	28.7	(X)
Automobiles, trucks, etc., for highway use	24.4	1	16.2	1	.1	1
Computers and peripheral data processing equipment	56.8	1	17.4	1	5.2	4
All other	163.9	1	58.9	1	23.4	1
Adjustment ratio[3]	1.7	(X)	1.1	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	5 240.9	(X)	2 020.6	(X)	536.8	(X)
Materials purchased or transferred from foreign sources[4]	46.8	1	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources	5 194.1	1	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.6	(X)	(S)	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3721, AIRCRAFT												
Total	**–**	**182**	**264.9**	**11 498.9**	**122.1**	**227.0**	**4 536.5**	**25 157.1**	**36 133.3**	**62 980.8**	**1 661.3**	**31 826.9**
Establishments with an average of–												
1 to 4 employees	E5	42	.1	2.1	(Z)	.1	1.0	4.0	4.7	8.2	.3	397.3
5 to 9 employees	E5	18	.1	3.0	.1	.1	1.5	5.2	7.2	12.3	.2	5.9
10 to 19 employees	E2	19	.3	9.0	.1	.3	3.5	28.8	19.1	42.5	.4	16.8
20 to 49 employees	E3	23	.7	20.4	.4	.9	10.5	38.5	39.7	70.1	1.2	35.7
50 to 99 employees	E3	17	1.3	37.1	.7	1.4	18.3	65.9	62.3	129.1	2.9	54.4
100 to 249 employees	–	12	1.7	54.0	1.2	2.0	28.5	104.3	95.3	205.4	2.8	84.2
250 to 499 employees	–	9	3.3	107.5	2.1	4.0	54.8	149.6	131.7	310.1	10.3	134.0
500 to 999 employees	–	12	7.6	284.9	5.0	9.2	148.6	577.4	533.3	1 214.3	16.6	453.7
1,000 to 2,499 employees	–	11	17.3	697.7	10.6	21.7	373.1	676.8	1 211.0	2 545.2	83.9	1 184.6
2,500 employees or more	–	19	232.5	10 283.3	101.8	187.3	3 896.7	23 506.5	34 029.0	58 443.7	1 542.5	29 460.3
INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS												
Total	**–**	**442**	**116.7**	**4 851.7**	**64.2**	**130.8**	**2 219.6**	**11 445.4**	**9 019.2**	**21 968.5**	**590.2**	**4 308.9**
Establishments with an average of–												
1 to 4 employees	E6	65	.1	3.5	.1	.2	1.7	8.8	11.0	20.2	.7	5.5
5 to 9 employees	E8	47	.3	8.6	.2	.4	4.2	20.3	16.5	36.8	1.2	11.1
10 to 19 employees	E4	49	.7	21.2	.4	.9	11.5	42.2	30.5	73.7	2.7	20.0
20 to 49 employees	E2	81	2.7	86.3	1.7	3.7	47.6	186.8	146.4	340.6	7.7	77.3
50 to 99 employees	E1	59	4.3	139.8	2.9	5.9	81.7	270.3	197.5	481.3	11.1	130.4
100 to 249 employees	–	70	11.3	390.0	7.7	16.0	228.6	914.6	523.7	1 459.5	33.9	397.0
250 to 499 employees	–	31	11.0	379.7	7.8	16.2	242.5	640.2	627.5	1 295.9	43.1	374.0
500 to 999 employees	–	21	14.2	533.3	8.7	16.2	290.8	982.8	1 041.7	2 133.2	58.0	576.4
1,000 to 2,499 employees	–	11	72.0	3 289.3	34.8	71.4	1 310.9	8 379.5	6 424.3	16 127.3	431.8	2 717.3
2,500 employees or more	–	8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	98	.4	9.8	.2	.5	4.7	21.4	17.8	39.2	1.3	11.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.												
Total	**–**	**1 121**	**165.3**	**6 162.1**	**93.6**	**194.3**	**3 193.6**	**12 636.6**	**6 108.4**	**19 834.6**	**1 132.1**	**5 626.8**
Establishments with an average of—												
1 to 4 employees	E7	308	.5	14.1	.3	.6	6.8	27.5	23.1	52.5	2.0	18.6
5 to 9 employees	E7	172	1.1	30.6	.6	1.3	14.7	57.5	36.2	93.9	3.5	33.6
10 to 19 employees	E3	180	2.5	69.0	1.5	3.0	35.1	127.9	80.4	210.4	6.5	68.8
20 to 49 employees	E1	191	5.9	177.3	3.7	7.9	93.3	324.4	200.0	525.7	13.2	151.1
50 to 99 employees	E2	95	6.6	201.1	4.4	9.1	111.0	371.1	266.0	661.5	405.4	192.0
100 to 249 employees	–	87	13.9	473.6	8.9	19.0	258.6	1 213.9	496.3	1 754.8	(D)	460.0
250 to 499 employees	–	48	16.5	569.8	10.4	20.6	299.8	1 192.7	833.8	2 026.8	57.7	708.3
500 to 999 employees	–	19	12.5	471.6	7.8	16.0	250.8	1 332.6	604.8	1 989.7	43.6	657.0
1,000 to 2,499 employees	–	11	19.2	755.5	12.3	26.4	474.8	1 394.9	750.2	2 184.7	126.8	716.6
2,500 employees or more	–	10	86.5	3 399.5	43.7	90.5	1 648.8	6 594.0	2 817.7	10 334.5	473.5	2 620.8
Covered by administrative records[2]	E9	502	2.5	56.8	1.4	2.7	27.2	97.0	63.6	160.7	6.7	62.2
INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES												
Total	**–**	**38**	**100.1**	**4 722.2**	**31.5**	**57.8**	**1 284.8**	**11 080.9**	**6 788.9**	**19 675.1**	**306.7**	**2 872.2**
Establishments with an average of—												
1 to 4 employees	E5	4	(Z)	.2	(Z)	(Z)	.1	.7	.3	1.0	.5	.2
10 to 19 employees	E8	3	(Z)	1.7	(Z)	(Z)	.5	4.0	2.2	6.2	(D)	1.2
20 to 49 employees	–	2	.1	3.9	.1	.1	1.7	7.2	3.9	11.4	(D)	2.1
50 to 99 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	E4	4	1.6	46.6	.9	1.8	16.7	11.0	172.5	226.8	.5	52.1
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	10	15.7	615.5	5.8	10.4	190.5	99.9	1 223.7	2 741.3	17.7	710.2
2,500 employees or more	–	12	82.7	4 054.3	24.8	45.4	1 075.3	10 958.1	5 386.3	16 688.4	287.9	2 106.3
INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS												
Total	**–**	**42**	**32.3**	**1 495.6**	**13.4**	**20.9**	**496.1**	**2 819.0**	**2 181.3**	**5 328.1**	**128.2**	**1 259.0**
Establishments with an average of—												
1 to 4 employees	E2	3	.4	17.5	.3	.6	9.5	90.7	96.6	187.1	8.1	10.6
5 to 9 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	E3	5	.8	36.9	.5	1.1	19.9	120.5	64.3	135.5	1.3	188.2
250 to 499 employees	–	6	2.3	91.8	1.4	2.8	54.0	181.0	132.7	316.6	7.2	78.7
500 to 999 employees	–	6	4.1	175.2	2.2	4.1	74.8	326.9	179.7	501.3	25.1	39.7
1,000 to 2,499 employees	–	3	4.3	222.1	1.0	2.1	41.0	414.6	290.3	725.3	(D)	82.4
2,500 employees or more	–	5	20.2	952.0	8.0	10.3	297.0	1 685.2	1 417.7	3 462.3	86.5	859.3
INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.												
Total	**–**	**60**	**17.2**	**694.5**	**7.7**	**15.0**	**271.4**	**1 456.4**	**643.8**	**2 070.7**	**41.0**	**331.5**
Establishments with an average of—												
1 to 4 employees	E8	9	(Z)	.3	(Z)	(Z)	.2	.7	.3	1.0	(Z)	.1
5 to 9 employees	E9	7	.1	1.3	(Z)	.1	.6	2.4	1.1	3.5	.1	.5
10 to 19 employees	E5	7	.1	3.1	.1	.1	1.4	6.0	2.3	8.3	.1	1.0
20 to 49 employees	E1	7	.2	6.0	.1	.2	2.6	11.0	5.6	17.4	.2	2.5
50 to 99 employees	E2	5	.4	15.0	.2	.4	7.1	28.2	13.1	41.6	.2	12.6
100 to 249 employees	–	13	2.0	69.5	1.1	2.4	29.4	136.6	61.2	197.4	4.3	34.0
250 to 499 employees	–	5	2.0	54.3	1.0	1.9	26.3	119.2	40.6	168.6	10.7	26.6
500 to 999 employees	–	3	2.3	115.1	.5	1.0	20.2	226.9	164.7	413.2	(D)	64.1
1,000 to 2,499 employees	–	2	10.3	430.0	4.7	8.9	183.7	925.5	355.0	1 219.8	25.5	190.2
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	17	.1	2.2	(Z)	.1	1.0	4.0	1.9	5.9	.1	.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3721	**Aircraft:**										
	All establishments in industry	182	264.9	11 498.9	122.1	227.0	4 536.5	25 157.1	36 133.3	62 980.8	1 661.3
	Establishments with this product class primary:										
37211	Military aircraft	21	122.4	5 531.1	46.8	91.5	1 829.7	12 919.3	8 766.3	21 808.8	303.5
37215	Civilian aircraft	36	95.8	4 053.3	48.7	87.4	1 763.0	8 273.7	24 600.8	34 392.2	1 126.4
37217	Modification, conversion, and overhaul of previously accepted aircraft	36	20.7	777.5	13.7	26.8	475.2	1 226.3	1 181.2	2 567.7	93.2
37218	Other aeronautical services on complete aircraft, n.e.c.	11	23.9	1 073.5	11.8	19.0	437.5	2 614.4	1 424.6	3 927.8	133.2
3724	**Aircraft engines and engine parts:**										
	All establishments in industry	442	116.7	4 851.7	64.2	130.8	2 219.6	11 445.4	9 019.2	21 968.5	590.2
	Establishments with this product class primary:										
37241	Aircraft engines for military aircraft	11	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37242	Aircraft engines for civilian aircraft	29	47.1	2 151.4	22.9	47.4	855.2	5 435.7	4 426.3	10 872.4	(D)
37243	Aeronautical services on aircraft engines	22	4.9	171.1	2.8	5.3	82.5	260.4	277.7	540.8	22.1
37244	Aircraft engine parts and accessories	189	45.7	1 793.6	28.1	57.7	932.4	4 105.8	2 948.7	7 299.7	153.0
3728	**Aircraft parts and equipment, n.e.c.:**										
	All establishments in industry	1 121	165.3	6 162.1	93.6	194.3	3 193.6	12 636.6	6 108.4	19 834.6	1 132.1
	Establishments with this product class primary:										
37282	Aircraft propellers and helicopter rotors	20	2.9	109.2	1.7	3.6	55.1	205.0	91.3	300.9	14.3
37283	Research and development on aircraft parts (except engines)	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37284	Aircraft hydraulic and pneumatic subassemblies	17	8.9	368.5	4.4	9.5	171.0	940.8	384.8	1 385.6	49.8
37285	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines	332	141.4	5 332.4	79.9	166.0	2 787.9	10 882.0	5 242.6	17 140.5	1 017.3
3761	**Guided missiles and space vehicles:**										
	All establishments in industry	38	100.1	4 722.2	31.5	57.8	1 284.8	11 080.9	6 788.9	19 675.1	306.7
	Establishments with this product class primary:										
37611	Complete missiles	15	24.9	967.6	11.1	21.1	364.5	1 642.7	2 208.0	5 428.5	28.8
37612	Complete space vehicles (excluding propulsion systems)	6	62.9	3 150.7	16.1	27.5	750.8	8 427.3	4 048.0	12 679.3	249.7
37613	Research and development on complete missiles	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37614	Research and development on complete space vehicles	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37616	Other services on complete guided missiles	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37617	All other services on complete space vehicles	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–
3764	**Space propulsion units and parts:**										
	All establishments in industry	42	32.3	1 495.6	13.4	20.9	496.1	2 819.0	2 181.3	5 328.1	128.2
	Establishments with this product class primary:										
37645	Complete missile or space vehicle engines and/or propulsion units	15	24.3	1 130.0	9.1	13.7	333.0	2 250.6	1 214.5	3 564.5	104.2
37646	Research and development on complete missile or space vehicle engines and/or propulsion units	1	(D)	(D)	–	–	–	(D)	(D)	(D)	(D)
37647	Other services on complete missile or space vehicle engines and/or propulsion units	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37648	Missile and space vehicle engine and/or propulsion parts and accessories	14	3.1	126.7	1.8	3.6	68.1	204.2	155.4	375.2	10.9
3769	**Space vehicle equipment, n.e.c.:**										
	All establishments in industry	60	17.2	694.5	7.7	15.0	271.4	1 456.4	643.8	2 070.7	41.0
	Establishments with this product class primary:										
37692	Missile and space vehicle components, parts, and subassemblies	32	16.6	673.5	7.3	14.2	261.4	1 414.1	632.4	2 017.5	39.8
37694	Research and development on missile and space vehicle parts and components, n.e.c.	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3721, AIRCRAFT			
Total value of shipments	62 980.8	39 092.7	28 024.3
Primary products value of shipments	54 877.0	34 204.2	23 609.8
Secondary products value of shipments	6 960.6	3 720.1	3 611.2
Total miscellaneous receipts	1 143.2	1 168.4	803.3
Value of resales	968.2	1 028.7	643.7
Contract receipts	30.5	(D)	(D)
Other miscellaneous receipts	144.6	(D)	(D)
Primary products specialization ratio	89	90	87
Value of primary products shipments made in all industries	56 596.6	36 002.8	24 235.1
Value of primary products shipments made in this industry	54 877.0	34 204.2	23 609.8
Value of primary products shipments made in other industries	1 719.6	1 798.6	625.3
Coverage ratio	97	95	97
INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS			
Total value of shipments	21 968.5	20 262.1	13 809.3
Primary products value of shipments	19 487.3	17 735.7	11 183.4
Secondary products value of shipments	1 239.7	1 483.3	2 009.6
Total miscellaneous receipts	1 241.5	1 043.1	616.3
Value of resales	1 030.1	563.0	428.5
Contract receipts	58.5	42.9	(D)
Other miscellaneous receipts	152.8	437.2	(D)
Primary products specialization ratio	94	92	85
Value of primary products shipments made in all industries	20 579.6	18 821.9	11 640.8
Value of primary products shipments made in this industry	19 487.3	17 735.7	11 183.4
Value of primary products shipments made in other industries	1 092.4	1 086.2	457.5
Coverage ratio	95	94	96
INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.			
Total value of shipments	19 834.6	17 949.3	10 193.1
Primary products value of shipments	16 451.3	13 941.3	7 023.7
Secondary products value of shipments	2 877.5	3 049.0	2 895.5
Total miscellaneous receipts	505.8	959.0	273.9
Value of resales	79.7	(D)	62.9
Contract receipts	88.3	(D)	(D)
Other miscellaneous receipts	337.8	232.0	(D)
Primary products specialization ratio	85	82	71
Value of primary products shipments made in all industries	22 132.7	19 528.9	10 789.1
Value of primary products shipments made in this industry	16 451.3	13 941.3	7 023.7
Value of primary products shipments made in other industries	5 681.3	5 587.6	3 765.4
Coverage ratio	74	71	65
INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES			
Total value of shipments	19 675.1	21 565.8	10 218.6
Primary products value of shipments	13 405.0	14 967.9	7 415.8
Secondary products value of shipments	(D)	4 995.7	1 481.7
Total miscellaneous receipts	(D)	1 602.2	1 321.1
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	75	83
Value of primary products shipments made in all industries	13 829.5	16 012.3	8 585.6
Value of primary products shipments made in this industry	13 405.0	14 967.9	7 415.8
Value of primary products shipments made in other industries	424.6	1 044.5	1 169.8
Coverage ratio	97	93	86
INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS			
Total value of shipments	5 328.1	3 537.1	2 221.2
Primary products value of shipments	4 681.9	2 849.2	1 957.8
Secondary products value of shipments	433.3	590.3	241.3
Total miscellaneous receipts	212.9	97.6	22.1
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	92	83	89
Value of primary products shipments made in all industries	5 413.3	3 464.9	2 199.1
Value of primary products shipments made in this industry	4 681.9	2 849.2	1 957.8
Value of primary products shipments made in other industries	731.3	615.7	241.3
Coverage ratio	86	82	89

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.			
Total value of shipments	2 070.7	1 182.2	1 958.3
Primary products value of shipments	1 788.0	(D)	1 193.5
Secondary products value of shipments	261.3	(D)	736.9
Total miscellaneous receipts	21.4	(D)	27.9
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	87	81	62
Value of primary products shipments made in all industries	4 514.6	3 354.4	2 573.9
Value of primary products shipments made in this industry	1 788.0	(D)	1 193.5
Value of primary products shipments made in other industries	2 726.6	(D)	1 380.4
Coverage ratio	40	(D)	46

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3721– —	**AIRCRAFT**				
	Total	**(NA)**	**56 596.6**	**(NA)**	**36 002.8**
37211	Military aircraft	(NA)	16 483.6	(NA)	16 862.3
37211 00	Military aircraft (including all aircraft for U.S. military and any other aircraft built to military specifications)	27	16 483.6	15	16 862.3
37215	Civilian aircraft	(NA)	31 610.1	(NA)	12 533.7
37215 00	Civilian aircraft[2]	35	31 610.1	27	12 533.7
37217	Modification, conversion, and overhaul of previously accepted aircraft[3]	(NA)	3 727.1	(NA)	3 473.1
37217 11	For U.S. military aircraft and all other aircraft built to military specifications	21	2 521.5	18	2 602.4
37217 51	For civilian customers	33	1 201.6	21	869.4
37217 00	Modification, conversion, and overhaul of previously accepted aircraft, n.s.k.	(NA)	4.1	(NA)	1.3
37218	Other aeronautical services on complete aircraft, n.e.c.[3]	(NA)	4 443.0	(NA)	2 731.8
	For military customers:				
37218 13	Research and development on complete aircraft	5	1 564.0	12	1 441.0
37218 15	All other aeronautical services on complete aircraft	15	2 225.5	11	984.1
	For civilian customers:				
37218 53	Research and development on complete aircraft	3	(4)	3	1.0
37218 55	All other aeronautical services on complete aircraft	14	[4]650.8	10	305.0
37218 00	Other aeronautical services on complete aircraft, n.e.c., n.s.k.	(NA)	2.7	(NA)	.8
37210	Aircraft, n.s.k.	(NA)	332.8	(NA)	401.8
37210 00	Aircraft, n.s.k.	(NA)	332.8	(NA)	401.8
37210 02	Aircraft, n.s.k.[5]	(NA)	–	(NA)	–
3724– —	**AIRCRAFT ENGINES AND ENGINE PARTS**				
	Total	**(NA)**	**20 579.6**	**(NA)**	**18 821.9**
37241	Aircraft engines for military aircraft	(NA)	3 154.8	(NA)	4 205.6
37241 00	Military engines (for U.S. military aircraft and any other aircraft built to military specifications)	27	3 154.8	30	4 205.6
37242	Aircraft engines for civilian aircraft	(NA)	6 689.4	(NA)	2 806.3
37242 00	Aircraft engines for civilian aircraft[2]	36	6 689.4	13	2 806.3
37243	Aeronautical services on aircraft engines[3]	(NA)	2 627.6	(NA)	1 951.0
	Research and development work on aircraft engines:				
37243 21	For U.S. military aircraft engines and all other engines built to military specifications	14	(6)	16	1 008.8
37243 23	For civilian aircraft engines	16	[6]1 180.0	10	58.5
	All other aeronautical services on aircraft engines:				
37243 31	For U.S. military aircraft engines and all other engines built to military specifications	14	710.3	13	372.8
37243 33	For civilian aircraft engines	18	737.3	18	503.0
37243 00	Aeronautical services on aircraft engines, n.s.k.	(NA)	–	(NA)	7.9

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987**—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3724– —	**AIRCRAFT ENGINES AND ENGINE PARTS**—Con.				
37244	Aircraft engine parts and accessories	(NA)	7 725.6	(NA)	9 504.2
	Military:				
37244 01	For spark ignition reciprocating or rotary internal combustion engines	55	1 558.0	62	1 414.3
37244 02	For other engines	69	1 492.8	96	2 826.1
	Civilian:				
37244 05	For spark ignition reciprocating or rotary internal combustion engines	79	1 927.2	70	1 550.3
37244 06	For other engines	78	2 604.1	107	3 519.5
37244 00	Aircraft engine parts and accessories, n.s.k.	(NA)	143.6	(NA)	194.0
37240	Aircraft engines and engine parts, n.s.k.	(NA)	382.1	(NA)	354.9
37240 00	Aircraft engines and engine parts, n.s.k.[7]	(NA)	343.0	(NA)	223.9
37240 02	Aircraft engines and engine parts, n.s.k.[8]	(NA)	39.2	(NA)	131.0
3728– —	**AIRCRAFT PARTS AND AUXILIARY EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**22 132.7**	**(NA)**	**[r]19 528.9**
37282	Aircraft propellers and helicopter rotors	(NA)	517.0	(NA)	724.1
37282 10	Complete propellers, excluding helicopter rotors	9	86.5	5	69.6
37282 31	Propeller blades	9	64.5	(NA)	[9]110.6
37282 51	Propeller parts, except propeller blades	13	82.1	(NA)	([9])
37282 61	Helicopter rotors and parts	30	267.4	22	542.7
37282 00	Aircraft propellers and helicopter rotors, n.s.k.	(NA)	16.6	(NA)	1.2
37283	Research and development on aircraft parts (except engines)	(NA)	1 311.1	(NA)	2 347.5
37283 13	For U.S. military aircraft and all other aircraft built to military specifications	23	([10])	20	2 243.0
37283 15	For civilian aircraft	11	[10]1 310.6	14	104.0
37283 00	Research and development on aircraft parts (except engines), n.s.k.	(NA)	.5	(NA)	.4
37284	Aircraft hydraulic and pneumatic subassemblies	(NA)	1 474.6	(NA)	[11]1 332.1
	Aircraft hydraulic subassemblies:				
37284 73	For U.S. military aircraft and all other aircraft built to military specifications[12]	14	193.6	24	286.9
37284 75	For civilian aircraft[12]	12	774.5	20	622.4
	Aircraft pneumatic subassemblies:				
37284 83	For U.S. military aircraft and all other aircraft built to military specifications[12]	16	131.0	11	193.6
37284 85	For civilian aircraft[12]	15	373.1	11	229.2
37284 00	Aircraft hydraulic and pneumatic subassemblies, n.s.k.	(NA)	2.4	(NA)	([11])
37285	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines	(NA)	17 911.1	(NA)	[11]14 485.7
	Aircraft mechanical power transmission equipment:				
37285 13	For U.S. military aircraft and all other aircraft built to military specifications[12]	27	589.2	17	690.0
37285 15	For civilian aircraft[12]	23	749.8	20	356.1
	Aircraft landing gear:				
37285 94	For U.S. military aircraft and all other aircraft built to military specifications[12]	24	872.6	15	482.8
37285 95	For civilian aircraft[12]	31	630.9	21	381.3
	Other aircraft subassemblies and parts:				
37285 98	For U.S. military aircraft and all other aircraft built to military specifications[12]	209	3 936.1	212	6 892.1
37285 99	For civilian aircraft[12]	239	11 080.5	203	5 365.0
37285 00	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines, n.s.k.	(NA)	52.0	(NA)	318.4
37280	Aircraft parts and auxiliary equipment, n.e.c., n.s.k.	(NA)	919.0	(NA)	639.6
37280 00	Aircraft parts and auxiliary equipment, n.e.c., n.s.k.[7]	(NA)	758.3	(NA)	408.8
37280 02	Aircraft parts and auxiliary equipment, n.e.c., n.s.k.[8]	(NA)	160.7	(NA)	230.8
3761– —	**GUIDED MISSILES AND SPACE VEHICLES**				
	Total	**(NA)**	**13 829.5**	**(NA)**	**16 012.3**
37611	Complete missiles	(NA)	3 906.3	(NA)	3 262.4
37611 00	Complete guided missiles	10	3 906.3	13	3 262.4
37613	Research and development on complete missiles	(NA)	1 351.8	(NA)	3 295.8
37613 00	Research and development on complete guided missiles[3]	12	1 351.8	11	3 295.8
37616	Other services on complete guided missiles[13]	(NA)	1 401.1	(NA)	[13]3 271.4
37616 00	All other services on complete guided missiles[3] [12]	13	1 401.1	10	3 271.4
37612	Complete space vehicles (excluding propulsion systems)	(NA)	5 766.1	(NA)	5 172.0
37612 01	For U.S. Government military customers	7	4 378.3	8	3 671.7
37612 02	For other customers[12]	6	1 387.7	6	1 499.7
37612 00	Complete space vehicles (excluding propulsion systems), n.s.k.	(NA)	–	(NA)	.6
37614	Research and development on complete space vehicles[3]	(NA)	588.2	(NA)	974.6
37614 01	For U.S. Government military customers	8	219.1	(NA)	[14]974.6
37614 02	For other customers	6	369.1	(NA)	([14])
37614 00	Research and development on complete space vehicles, n.s.k.	(NA)	–	(NA)	–
37617	All other services on complete space vehicles[3]	(NA)	814.8	(NA)	([13])
37617 02	For U.S. Government military customers	6	706.2	11	1 429.9
37617 03	For other customers[12]	6	108.6	7	747.5
37617 00	All other services on complete space vehicles, n.s.k.	(NA)	–	(NA)	([13])

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3761– —	**GUIDED MISSILES AND SPACE VEHICLES**—Con.				
37610	Guided missiles and space vehicles, n.s.k.	(NA)	1.2	(NA)	36.2
37610 00	Guided missiles and space vehicles, n.s.k.	(NA)	1.2	(NA)	36.2
37610 02	Guided missiles and space vehicles, n.s.k.[5]	(NA)	–	(NA)	–
3764– —	**SPACE PROPULSION UNITS AND PARTS**				
	Total	**(NA)**	**5 413.3**	**(NA)**	**3 464.9**
37645	Complete missile or space vehicle engines and/or propulsion units	(NA)	2 806.7	(NA)	1 846.0
37645 11	For U.S. Government military customers	10	1 431.3	13	1 392.6
37645 13	For U.S. Government nonmilitary customers	7	1 078.3	6	395.9
37645 15	For other customers	10	297.1	7	57.3
37645 00	Complete missile or space vehicle engines and/or propulsion units, n.s.k.	(NA)	–	(NA)	.2
37646	Research and development on complete missile or space vehicle engines and/or propulsion units[3]	(NA)	620.4	(NA)	615.3
37646 11	For U.S. Government military customers	12	433.3	12	456.4
37646 13	For U.S. Government nonmilitary customers	5	123.1	(NA)	([15])
37646 15	For other customers	8	63.1	(NA)	[15]158.7
37646 00	Research and development on complete missile or space vehicle engines and/or propulsion units, n.s.k.	(NA)	1.0	(NA)	.2
37647	Other services on complete missile or space vehicle engines and/or propulsion units	(NA)	1 304.6	(NA)	149.2
37647 11	For U.S. Government military customers	8	(D)	8	110.7
37647 13	For U.S. Government nonmilitary customers	5	(D)	(NA)	([16])
37647 15	For other customers	4	(D)	(NA)	[16]38.4
37647 00	Other services on complete missile or space vehicle engines and/or propulsion units, n.s.k.	(NA)	–	(NA)	–
37648	Missile and space vehicle engine and/or propulsion parts and accessories	(NA)	626.2	(NA)	816.5
37648 11	For U.S. Government military customers	28	500.2	29	539.9
37648 13	For U.S. Government nonmilitary customers	15	56.6	(NA)	[17]274.3
37648 15	For other customers	19	65.6	(NA)	([17])
37648 00	Missile and space vehicle engine and/or propulsion parts and accessories, n.s.k.	(NA)	3.9	(NA)	2.4
37640	Space propulsion units and parts, n.s.k.	(NA)	55.3	(NA)	38.0
37640 00	Space propulsion units and parts, n.s.k.	(NA)	55.3	(NA)	38.0
37640 02	Space propulsion units and parts, n.s.k.[5]	(NA)	–	(NA)	–
3769– —	**SPACE VEHICLE EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**4 514.6**	**(NA)**	**3 354.4**
37692	Missile and space vehicle components, parts, and subassemblies[3]	(NA)	3 770.4	(NA)	2 329.8
	For U.S. Government military customers:				
37692 11	Airframes	9	123.7	20	313.1
37692 13	Space capsules	10	158.2	(NA)	[18]1 301.3
37692 19	All other	54	2 373.0	(NA)	([18])
37692 25	For U.S. Government nonmilitary customers	17	919.2	28	512.5
37692 35	For other customers	19	173.3	15	180.7
37692 00	Missile and space vehicle components, parts, and subassemblies, n.s.k.	(NA)	23.0	(NA)	22.2
37694	Research and development on missile and space vehicle parts and components, n.e.c.[3]	(NA)	705.6	(NA)	990.2
	For U.S. Government military customers:				
37694 14	Airframes and space capsules	5	87.8	(NA)	[19]711.8
37694 19	All other	20	422.6	(NA)	([19])
37694 25	For U.S. Government nonmilitary customers	9	139.2	9	227.8
37694 35	For other customers	6	38.5	8	41.9
37694 00	Research and development on missile and space vehicle parts and components, n.e.c., n.s.k.	(NA)	17.5	(NA)	8.8
37690	Space vehicle equipment, n.e.c., n.s.k.	(NA)	38.6	(NA)	34.4
37690 00	Space vehicle equipment, n.e.c., n.s.k.[7]	(NA)	32.7	(NA)	26.7
37690 02	Space vehicle equipment, n.e.c., n.s.k.[8]	(NA)	5.9	(NA)	7.7

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]Data for this product represent value of receipts rather than value of shipments.
[4]For 1992, product codes 37218 53 and 37218 55 are combined to avoid disclosing data for individual companies.
[5]There were no administrative-record cases for this industry.
[6]For 1992, product codes 37243 21 and 37243 23 are combined to avoid disclosing data for individual companies.
[7]Typically for establishments with 10 employees or more.
[8]Typically for establishments with less than 10 employees.
[9]For 1987, product code 3728251 was combined with 3728231 to avoid disclosing data for individual companies.
[10]For 1992, product codes 37283 13 and 37283 15 are combined to avoid disclosing data for individual companies.
[11]For 1987, product class 37284 and 37285 did not exist but were broken out from product class 37281; therefore, no historical comparison can be made.
[12]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[13]For 1987, product class 37616 and 37617 did not exist but were broken out from product class 37615; therefore, no historical comparison can be made.
[14]For 1987, product code 3761402 was combined with 3761401 to avoid disclosing data for individual companies.
[15]For 1987, product code 3764613 was combined with code 3764615 to avoid disclosing data for individual companies.
[16]For 1987, product code 3764713 was combined with code 3764715 to avoid disclosing data for individual companies.
[17]For 1987, product code 3764815 was combined with code 3764813 to avoid disclosing data for individual companies.
[18]For 1987, product code 3769219 was combined with code 3769213 to avoid disclosing data for individual companies.
[19]For 1987, product code 3769419 was combined with code 3769414 to avoid disclosing data for individual companies.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37211, MILITARY AIRCRAFT		
United States	**16 483.6**	**16 862.3**
California	5 694.6	4 604.0
37215, CIVILIAN AIRCRAFT		
United States	**31 610.1**	**12 533.7**
Kansas	1 248.2	(NA)
Texas	129.5	(NA)
37217, MODIFICATION, CONVERSION, AND OVERHAUL OF PREVIOUSLY ACCEPTED AIRCRAFT		
United States	**3 727.1**	**3 473.1**
California	458.7	1 088.0
Florida	22.1	60.4
Texas	1 218.3	(NA)
37218, OTHER AERONAUTICAL SERVICES ON COMPLETE AIRCRAFT, N.E.C.		
United States	**4 443.0**	**2 731.8**
California	885.3	172.9
37241, AIRCRAFT ENGINES FOR MILITARY AIRCRAFT		
United States	**3 154.8**	**4 205.6**
37242, AIRCRAFT ENGINES FOR CIVILIAN AIRCRAFT		
United States	**6 689.4**	**2 806.3**
37243, AERONAUTICAL SERVICES ON AIRCRAFT ENGINES		
United States	**2 627.6**	**1 951.0**
California	194.0	190.9
Connecticut	127.1	304.5
Illinois	19.7	(NA)
Texas	38.8	(NA)
37244, AIRCRAFT ENGINE PARTS AND ACCESSORIES		
United States	**7 725.6**	**9 504.2**
California	645.5	773.0
Connecticut	582.6	2 699.6
Florida	1 085.3	452.9
Georgia	95.2	131.5
Illinois	223.5	234.2
Indiana	285.1	763.9
Massachusetts	413.2	422.5
Michigan	227.8	270.8
New York	328.2	276.3
Ohio	1 629.3	1 314.5
Oklahoma	16.8	(NA)
Pennsylvania	189.8	145.4
Texas	144.5	(NA)
37282, AIRCRAFT PROPELLERS AND HELICOPTER ROTORS		
United States	**517.0**	**724.1**
California	57.7	65.0
Connecticut	210.3	157.3
Michigan	6.5	8.6
Ohio	95.8	50.5
Texas	3.9	(NA)
37283, RESEARCH AND DEVELOPMENT ON AIRCRAFT PARTS (EXCEPT ENGINES)		
United States	**1 311.1**	**2 347.5**
37284, AIRCRAFT HYDRAULIC AND PNEUMATIC SUBASSEMBLIES		
United States	**1 474.6**	**(NA)**
California	208.4	(NA)
37285, AIRCRAFT PARTS AND AUXILIARY EQUIPMENT, EXCLUDING HYDRAULIC AND PNEUMATIC SUBASSEMBLIES AND ENGINES		
United States	**17 911.1**	**(NA)**
Arizona	164.0	(NA)
California	3 911.7	(NA)
Colorado	72.1	(NA)
Florida	193.1	(NA)
Illinois	236.8	(NA)
Michigan	143.3	(NA)
New Jersey	162.2	(NA)
New York	1 207.5	(NA)
Ohio	840.2	(NA)
Oklahoma	427.3	(NA)
Pennsylvania	215.9	(NA)
Texas	1 686.4	(NA)
Utah	46.7	(NA)
Wisconsin	4.3	(NA)
37611, COMPLETE MISSILES		
United States	**3 906.3**	**3 262.4**
37612, COMPLETE SPACE VEHICLES (EXCLUDING PROPULSION SYSTEMS)		
United States	**5 766.1**	**5 172.0**
California	4 214.6	4 327.2
37613, RESEARCH AND DEVELOPMENT ON COMPLETE MISSILES		
United States	**1 351.8**	**3 295.8**
37614, RESEARCH AND DEVELOPMENT ON COMPLETE SPACE VEHICLES		
United States	**588.2**	**974.6**
California	454.7	565.3
37616, OTHER SERVICES ON COMPLETE GUIDED MISSILES		
United States	**1 401.1**	**(NA)**
California	955.6	(NA)
37617, ALL OTHER SERVICES ON COMPLETE SPACE VEHICLES		
United States	**814.8**	**(NA)**
37645, COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND/OR PROPULSION UNITS		
United States	**2 806.7**	**1 846.0**
California	1 239.5	907.5
37646, RESEARCH AND DEVELOPMENT ON COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND/OR PROPULSION UNITS		
United States	**620.4**	**615.3**
California	349.5	163.6
37647, OTHER SERVICES ON COMPLETE MISSILE OR SPACE VEHICLE ENGINES AND/OR PROPULSION UNITS		
United States	**1 304.6**	**149.2**
37648, MISSILE AND SPACE VEHICLE ENGINE AND/OR PROPULSION PARTS AND ACCESSORIES		
United States	**626.2**	**816.5**
Arizona	25.7	(NA)
California	179.6	480.8
Texas	17.5	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37692, MISSILE AND SPACE VEHICLE COMPONENTS, PARTS, AND SUBASSEMBLIES			**37694, RESEARCH AND DEVELOPMENT ON MISSILE AND SPACE VEHICLE PARTS AND COMPONENTS, N.E.C.**		
United States	**3 770.4**	**2 329.8**	**United States**	**705.6**	**990.2**
California	1 170.3	446.9			
Texas	22.8	(NA)	California	166.4	142.3

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3721-	**Aircraft**	**56 596.6**	**52 513.5**	**46 885.3**	**39 531.0**	**37 765.1**	**36 002.8**	**24 235.1**	**12 052.6**
37211	Military aircraft	16 483.6	15 622.0	14 108.7	14 832.9	15 044.4	16 862.3	9 834.5	4 579.6
37215	Civilian aircraft	31 610.1	29 201.0	24 605.9	17 257.6	15 856.7	12 533.7	8 769.4	4 706.1
37217	Modification, conversion, and overhaul of previously accepted aircraft	3 727.1	4 277.3	3 712.9	3 829.7	3 692.5	3 473.1	2 783.4	747.2
37218	Other aeronautical services on complete aircraft, n.e.c.	4 443.0	3 346.2	4 370.2	3 452.4	3 070.3	2 731.8	2 817.1	1 988.2
37210	Aircraft, n.s.k.	332.8	67.0	87.6	158.4	101.3	401.8	30.7	31.7
3724-	**Aircraft engines and engine parts**	**20 579.6**	**21 314.9**	**21 580.2**	**19 903.9**	**18 866.7**	**18 821.9**	**11 640.8**	**4 994.6**
37241	Aircraft engines for military aircraft	3 154.8	2 967.6	3 265.8	3 342.0	3 214.2	4 205.6	(D)	1 047.9
37242	Aircraft engines for civilian aircraft	6 689.4	5 986.2	5 365.6	4 376.1	3 983.5	2 806.3	2 142.6	937.0
37243	Aeronautical services on aircraft engines	2 627.6	2 901.4	2 818.9	3 094.8	2 276.4	1 951.0	(D)	660.8
37244	Aircraft engine parts and accessories	7 725.6	9 165.1	9 796.4	8 765.0	9 038.7	9 504.2	5 725.5	2 308.5
37240	Aircraft engines and engine parts, n.s.k.	382.1	294.6	333.5	326.0	353.9	354.9	79.4	40.4
3728-	**Aircraft parts and auxiliary equipment, n.e.c.**	**22 132.7**	**25 288.2**	**23 081.8**	**21 294.5**	**20 545.4**	**19 528.9**	**10 789.1**	**5 761.5**
37282	Aircraft propellers and helicopter rotors	517.0	951.4	881.1	746.5	676.3	724.1	191.0	(NA)
37283	Research and development on aircraft parts (except engines)	1 311.1	1 402.5	1 810.8	1 712.4	2 848.1	2 347.5	432.2	161.4
37284	Aircraft hydraulic and pneumatic subassemblies	1 474.6	22 155.1	19 618.1	18 155.9	16 331.0	15 817.8	9 862.4	(NA)
37285	Aircraft parts and auxiliary equipment, excluding hydraulic and pneumatic subassemblies and engines	17 911.1							(NA)
37280	Aircraft parts and auxiliary equipment, n.e.c., n.s.k.	919.0	779.3	771.7	679.7	690.0	639.6	303.5	163.2
3761-	**Guided missiles and space vehicles**	**13 829.5**	**16 074.9**	**16 907.0**	**17 049.1**	**17 459.3**	**16 012.3**	**8 585.6**	**4 848.2**
37611	Complete missiles	3 906.3	3 913.0	3 903.2	3 609.6	3 347.1	3 262.4	2 644.8	1 685.5
37612	Complete space vehicles (excluding propulsion systems)	5 766.1	6 328.7	6 769.7	5 520.0	5 440.3	5 172.0	2 010.7	822.1
37613	Research and development on complete missiles	1 351.8	2 459.6	2 658.3	2 976.7	3 686.9	3 295.8	1 504.0	871.5
37614	Research and development on complete space vehicles	588.2	817.1	1 107.5	1 208.6	1 405.1	974.6	987.2	918.1
37616	Other services on complete guided missiles	1 401.1	2 554.3	2 423.3	3 700.1	3 510.1	3 271.4	1 438.3	549.9
37617	All other services on complete space vehicles	814.8							
37610	Guided missiles and space vehicles, n.s.k.	1.2	2.3	45.1	34.1	69.7	36.2	.5	1.1
3764-	**Space propulsion units and parts**	**5 413.3**	**4 530.3**	**4 662.2**	**4 583.7**	**3 785.3**	**3 464.9**	**2 199.1**	**930.1**
37645	Complete missile or space vehicle engines and/or propulsion units	2 806.7	2 396.4	2 445.9	2 306.5	1 803.6	1 846.0	960.7	370.6
37646	Research and development on complete missile or space vehicle engines and/or propulsion units	620.4	1 017.8	799.3	864.2	704.1	615.3	694.8	345.8
37647	Other services on complete missile or space vehicle engines and/or propulsion units	1 304.6	218.8	282.4	332.7	234.7	149.2	238.0	105.0
37648	Missile and space vehicle engine and/or propulsion parts and accessories	626.2	837.8	1 072.9	1 044.0	1 003.8	816.5	301.5	105.6
37640	Space propulsion units and parts, n.s.k.	55.3	59.5	61.7	36.4	39.1	38.0	4.2	3.1
3769-	**Space vehicle equipment, n.e.c.**	**4 514.6**	**4 387.0**	**5 024.3**	**3 958.0**	**3 819.9**	**3 354.4**	**2 573.9**	**882.4**
37692	Missile and space vehicle components, parts, and subassemblies	3 770.4	3 147.9	3 551.5	3 110.3	2 725.2	2 329.8	1 161.0	420.0
37694	Research and development on missile and space vehicle parts and components, n.e.c.	705.6	1 214.9	1 441.8	815.4	1 049.2	990.2	1 403.3	455.2
37690	Space vehicle equipment, n.e.c., n.s.k.	38.6	24.2	31.0	32.4	45.5	34.4	9.6	7.2

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3721, AIRCRAFT		
	Materials, ingredients, containers, and supplies	**34 477.0**	**21 576.2**
372400	Aircraft engines		3 454.3
372440	Aircraft engine parts (except instruments)		62.9
	Structural components (airframe), excluding instruments:		
372861	Fuselage		(1)
372862	Empennage (tail)	15 637.1	(1)
372863	Wings		(1)
372864	Landing gear		(1)
372865	Other, including engine mounts		(1)
372851	Aircraft propellers and parts thereof	45.0	55.0
253140	Aircraft seats	8.7	(1)
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	655.8	(1)
381260	Navigational systems and equipment (NAV AIDS)	254.1	(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)		(1)
380091	Flight, navigational, airframe, and engine indicators, instruments and clusters, including sensors, displays, etc.	3 356.1	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	285.3	169.5
	Matrix composites:		
190070	Resin	(D)	(1)
190071	Other, including ceramic, carbon, metal, etc.	41.6	(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	163.9	(1)
	Fluid power products, excluding complete subassemblies:		
359412	Fluid power pumps, motors, and hydrostatic transmissions	149.6	141.0
349235	Valves	147.3	106.2
349261	Hose or tube fittings and assemblies	101.4	103.2
359303	Cylinders and rotary actuators	154.7	(1)
356921	Filters	158.1	(1)
190089	Other fluid power products		(1)
356200	Ball and roller bearings (mounted and unmounted)	(D)	(1)
354501	Cutting tools for machine tools	(D)	44.7
	Fabricated metal products, except forgings:		
342973	Aircraft metal hardware	215.7	95.2
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	447.6	360.5
340050	Other fabricated metal products, except fluid power		(1)
	Forgings:		
346200	Iron and steel	(D)	67.6
346310	Aluminum and aluminum-base alloy	(D)	169.9
346326	Titanium and titanium-base alloy	(D)	48.2
346001	Other forgings	(D)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	(D)	(1)
336005	Aluminum and aluminum-base alloy	(D)	115.2
336003	Other nonferrous	21.2	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates		(1)
331022	Sheet and strip	115.1	(1)
331034	Other steel shapes and forms		231.4
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	268.1	197.0
335011	All other (except sheet, plate, foil, and welded tubing)	54.4	(1)
332007	Copper and copper-base alloy shapes and forms	(D)	69.9
335601	Titanium and titanium-base alloy	(D)	107.8
335042	Other nonferrous shapes and forms	(D)	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	32.1	86.1
970099	All other materials and components, parts, containers, and supplies	8 859.9	[2]8 944.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	2 310.8	6 945.8
	INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS		
	Materials, ingredients, containers, and supplies	**7 712.7**	**7 686.2**
372400	Aircraft engines	(D)	42.3
372440	Aircraft engine parts (except instruments)	4 350.2	1 169.5
	Structural components (airframe), excluding instruments:		
372861	Fuselage	(D)	(1)
372862	Empennage (tail)	–	(1)
372863	Wings	–	(1)
372864	Landing gear	(D)	(1)
372865	Other, including engine mounts	8.7	(1)
372851	Aircraft propellers and parts thereof	(D)	(1)
253140	Aircraft seats	–	(1)
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	(D)	(1)
381260	Navigational systems and equipment (NAV AIDS)	(D)	(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	(D)	(1)
380091	Flight, navigational, airframe, and engine indicators, instruments and clusters, including sensors, displays, etc.	–	64.0
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	8.7	26.8
	Matrix composites:		
190070	Resin	6.5	(1)
190071	Other, including ceramic, carbon, metal, etc.	24.1	(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	7.3	(1)
	Fluid power products, excluding complete subassemblies:		

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3724, AIRCRAFT ENGINES AND ENGINE PARTS—Con.		
	Fluid power products, excluding complete subassemblies—Con.		
359412	Fluid power pumps, motors, and hydrostatic transmissions		(1)
349235	Valves		2.7
349261	Hose or tube fittings and assemblies		7.1
359303	Cylinders and rotary actuators	3.0	7.5
356921	Filters		(1)
190089	Other fluid power products		(1)
356200	Ball and roller bearings (mounted and unmounted)	(D)	(1)
354501	Cutting tools for machine tools	(D)	129.2
	Fabricated metal products, except forgings:		
342973	Aircraft metal hardware	104.4	8.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	57.6	34.4
340050	Other fabricated metal products, except fluid power	69.7	(1)
	Forgings:		
346200	Iron and steel	127.9	292.9
346310	Aluminum and aluminum-base alloy	(4)	(5)
346326	Titanium and titanium-base alloy	137.5	433.8
346001	Other forgings	[4]340.4	[5]816.8
	Castings (rough and semifinished):		
332001	Iron and steel	103.4	196.2
336005	Aluminum and aluminum-base alloy	71.4	60.7
336003	Other nonferrous	202.1	190.4
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	53.7	(1)
331022	Sheet and strip	22.0	(1)
331034	Other steel shapes and forms	18.2	154.5
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	5.0	7.3
335011	All other (except sheet, plate, foil, and welded tubing)	13.6	18.9
332007	Copper and copper-base alloy shapes and forms	(6)	.3
335601	Titanium and titanium-base alloy	28.9	86.2
335042	Other nonferrous shapes and forms	[6]52.6	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	.9	3.8
970099	All other materials and components, parts, containers, and supplies	586.2	2 930.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	855.8	1 002.0
	INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**4 988.8**	**[r]4 545.9**
372400	Aircraft engines	80.0	[7]187.6
372440	Aircraft engine parts (except instruments)		(7)
	Structural components (airframe), excluding instruments:		
372861	Fuselage		(1)
372862	Empennage (tail)		(1)
372863	Wings	511.1	(1)
372864	Landing gear		(1)
372865	Other, including engine mounts		(1)
372851	Aircraft propellers and parts thereof	7.7	(2)
253140	Aircraft seats	(D)	(1)
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	24.8	(1)
381260	Navigational systems and equipment (NAV AIDS)	17.0	(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	46.5	(1)
380091	Flight, navigational, airframe, and engine indicators, instruments and clusters, including sensors, displays, etc.		(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	162.9	277.6
	Matrix composites:		
190070	Resin	78.5	(1)
190071	Other, including ceramic, carbon, metal, etc.	84.7	(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	94.5	(1)
	Fluid power products, excluding complete subassemblies:		
359412	Fluid power pumps, motors, and hydrostatic transmissions	15.3	20.5
349235	Valves	57.6	27.5
349261	Hose or tube fittings and assemblies	5.4	4.3
359303	Cylinders and rotary actuators	8.5	39.0
356921	Filters	4.6	(1)
190089	Other fluid power products	47.1	(1)
356200	Ball and roller bearings (mounted and unmounted)	48.9	35.8
354501	Cutting tools for machine tools	41.8	45.3
	Fabricated metal products, except forgings:		
342973	Aircraft metal hardware	285.8	176.4
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	152.5	140.2
340050	Other fabricated metal products, except fluid power	251.2	(1)
	Forgings:		
346200	Iron and steel	46.6	62.2
346310	Aluminum and aluminum-base alloy	79.8	119.1
346326	Titanium and titanium-base alloy	44.5	22.7
346001	Other forgings	37.0	10.1
	Castings (rough and semifinished):		
332001	Iron and steel	45.8	75.3
336005	Aluminum and aluminum-base alloy	51.9	65.4
336003	Other nonferrous	54.7	26.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3728, AIRCRAFT PARTS AND EQUIPMENT, N.E.C.—Con.		
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	38.1	(1)
331022	Sheet and strip	22.6	(1)
331034	Other steel shapes and forms	10.4	178.1
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	138.7	116.9
335011	All other (except sheet, plate, foil, and welded tubing)	75.3	90.5
332007	Copper and copper-base alloy shapes and forms	1.5	2.9
335601	Titanium and titanium-base alloy	151.5	21.7
335042	Other nonferrous shapes and forms		(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(D)	20.8
970099	All other materials and components, parts, containers, and supplies	1 309.5	[2] 2 038.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	817.5	r741.2
	INDUSTRY 3761, GUIDED MISSILES AND SPACE VEHICLES		
	Materials, ingredients, containers, and supplies	**5 240.9**	**5 966.2**
376480	Guided missile and space vehicle engines and parts	624.1	49.1
376450	Guided missile and space vehicle propulsion units and parts	(D)	(1)
376920	Guided missile and space vehicle airframe parts	(D)	674.3
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)		(1)
381260	Navigational systems and equipment (NAV AIDS)		(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	778.4	(1)
380091	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.		(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	(D)	233.6
	Matrix composits:		
190070	Resin	–	(1)
190071	Other, including carbon, ceramic, metal, etc.	8.4	(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	77.5	(1)
190090	Fluid power products	28.7	(1)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	13.7	10.7
340078	Other fabricated metal poducts, except fluid power products	(D)	(1)
	Forgings:		
346200	Iron and steel	(D)	.7
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel		(1)
336005	Aluminum and aluminum-base alloy	13.6	37.1
336003	Other nonferrous		(2)
330090	Metal shapes and forms, except forgings, castings, and fabricated metal products	12.7	(1)
280071	Chemicals, all types (including propellants)	(D)	(1)
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	1 682.8	[2] 4 960.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	816.4	.2
	INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS		
	Materials, ingredients, containers, and supplies	**2 020.6**	**1 146.1**
376480	Guided missile and space vehicle engines and parts	393.5	307.6
376450	Guided missile and space vehicle propulsion units and parts		(1)
376920	Guided missile and space vehicle airframe parts	–	113.7
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	–	(1)
381260	Navigational systems and equipment (NAV AIDS)	(D)	(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	–	(1)
380091	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	(D)	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	5.4	7.7
	Matrix composits:		
190070	Resin	(D)	(1)
190071	Other, including carbon, ceramic, metal, etc.	(D)	(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	(D)	(1)
190090	Fluid power products	(D)	9.9
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	5.7	14.5
340078	Other fabricated metal poducts, except fluid power products	59.5	(1)
	Forgings:		
346200	Iron and steel	26.7	14.3
346300	Nonferrous		(1)
	Castings (rough and semifinished):		
332001	Iron and steel	6.0	11.9
336005	Aluminum and aluminum-base alloy	2.0	(2)
336003	Other nonferrous	2.4	(2)
330090	Metal shapes and forms, except forgings, castings, and fabricated metal products	9.5	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3764, SPACE PROPULSION UNITS AND PARTS—Con.		
280071	Chemicals, all types (including propellants)	(D)	(1)
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	7.2	(1)
970099	All other materials and components, parts, containers, and supplies	372.8	[2]625.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	813.3	41.4
	INDUSTRY 3769, SPACE VEHICLE EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**536.8**	**235.8**
376480	Guided missile and space vehicle engines and parts	–	–
376450	Guided missile and space vehicle propulsion units and parts	(D)	(1)
376920	Guided missile and space vehicle airframe parts	(D)	(1)
	Avionics:		
366303	Radio communication systems and equipment, including airborne transmitters and receivers (microwave, UHF, VHF, etc.)	–	(1)
381260	Navigational systems and equipment (NAV AIDS)	–	(1)
380090	Search, detection, tracking, and electronic communication systems and equipment (RADAR, SONAR, Optical)	–	(1)
380091	Flight, navigational, airframe, and engine indicators, instruments, and clusters, including sensors, displays, etc.	–	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic components	(D)	(1)
	Matrix composits:		
190070	Resin	8.4	(1)
190071	Other, including carbon, ceramic, metal, etc.		(1)
372870	Complete mechanical, hydraulic, and pneumatic subassemblies	(D)	(1)
190090	Fluid power products	(D)	(1)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	3.8	(1)
340078	Other fabricated metal poducts, except fluid power products	9.8	(1)
	Forgings:		
346200	Iron and steel	5.1	(1)
346300	Nonferrous		(1)
	Castings (rough and semifinished):		
332001	Iron and steel	(D)	(1)
336005	Aluminum and aluminum-base alloy	(D)	(2)
336003	Other nonferrous	–	(2)
330090	Metal shapes and forms, except forgings, castings, and fabricated metal products	(D)	(1)
280071	Chemicals, all types (including propellants)	1.1	(1)
354430	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(D)	(1)
970099	All other materials and components, parts, containers, and supplies	238.0	[2]209.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	217.1	26.7

[1]For 1987, data were not collected separately and are included in 970099 of the industry in which the material was consumed.
[2]For 1987, data were included with material code 970099 to avoid disclosing data for individual companies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1992, materials were combined to avoid disclosing data for individual companies.
[5]For 1987, materials were combined to avoid disclosing data for individual companies.
[6]For 1992, materials were combined to avoid disclosing data for individual companies.
[7]For 1987, materials were combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
37111	37115
37111 71	37115 00
37113 04	37113 01
37113 04	37113 02
37116	37112
37116 00	37112 01
37116 00	37112 02
37116 00	37112 03
37116 00	37112 04
37116 00	37112 05
37116 00	37112 06
37116 00	37112 07
37116 00	37112 08
37116 00	37112 09
37116 00	37112 31
37116 00	37112 32
37116 00	37112 33
37116 00	37112 34
37116 00	37112 35
37116 00	37112 36
37116 00	37112 39
37117	37112
37117 00	37112 01
37117 00	37112 02
37117 00	37112 03
37117 00	37112 04
37117 00	37112 05
37117 00	37112 06
37117 00	37112 07
37117 00	37112 08
37117 00	37112 09
37117 00	37112 31
37117 00	37112 32
37117 00	37112 33
37117 00	37112 34
37117 00	37112 35
37117 00	37112 36
37117 00	37112 39
37118	37112
37118 00	37112 01
37118 00	37112 02
37118 00	37112 03
37118 00	37112 04
37118 00	37112 05
37118 00	37112 06
37118 00	37112 07
37118 00	37112 08
37118 00	37112 09
37118 00	37112 31
37118 00	37112 32
37118 00	37112 33
37118 00	37112 34
37118 00	37112 35
37118 00	37112 36
37118 00	37112 39
37119	37112
37119 00	37112 01
37119 00	37112 02
37119 00	37112 03
37119 00	37112 04
37119 00	37112 05
37119 00	37112 06
37119 00	37112 07
37119 00	37112 08
37119 00	37112 09
37119 00	37112 31
37119 00	37112 32
37119 00	37112 33
37119 00	37112 34
37119 00	37112 35
37119 00	37112 36
37119 00	37112 39
37131 12	37131 03
37131 12	37131 04
37131 12	37131 11
37131 12	37131 13
37131 71	37131 06
37131 71	37131 07
37131 71	37131 49
37131 71	37131 57
37131 71	37131 69
37132 11	37132 02
37132 13	37132 05
37132 13	37132 06
37132 13	37132 07
37132 13	37132 08
37132 13	37132 09
37132 39	37132 02
37132 39	37132 03
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37142 22	37142 23
37142 37	37142 38
37142 37	37142 39
37142 49	37142 19
37142 49	37142 21
37142 49	37142 23
37142 49	37142 29
37142 49	37142 48
37149 31	37149 39
37149 41	37149 39
3714A 23	3714A 01
3714A 25	3714A 01
3714A 27	3714A 07
3714A 29	3714A 13
3714A 31	3714A 07
3714A 31	3714A 13
3714A 33	3714A 19
3714A 35	3714A 19
3714A 37	3714A 19
3714A 39	3714A 19
3714A 41	3714A 05
3714A 41	3714A 08
3714A 41	3714A 12
3714A 41	3714A 19
37152 00	37152 01
37152 00	37152 02
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37284 73	37281 73
37284 75	37281 75
37284 83	37281 83
37284 85	37281 85
37285	37281
37285 13	37281 13
37285 15	37281 15
37285 94	37281 94
37285 95	37281 95
37285 98	37281 98
37285 99	37281 99
37311 11	37311 01
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37311 11	37311 03
37311 11	37311 04
37311 19	37311 05
37311 19	37311 06
37311 19	37311 09
37313 28	37313 25
37313 28	37313 29
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37313 48	37313 49
37313 57	37313 51
37313 57	37313 53
37313 57	37313 55
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37322 19	37322 09
37322 19	37322 13
37323 04	37323 03
37323 04	37323 05
37323 11	37323 07
37323 11	37323 09
37323 16	37323 13
37323 16	37323 15
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37323 21	37323 19
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37327 12	37327 09
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37431 03	37431 15
37431 03	37431 17
37431 03	37431 18
37432 35	37432 31
37432 35	37432 33
37432 65	37432 25
37432 65	37432 50
37432 65	37432 52
37432 65	37432 63
37433 05	37433 02
37433 05	37433 03
37433 19	37433 13
37433 19	37433 15
37511 23	37511 19
37511 39	37511 06
37511 41	37511 06
37511 43	37511 06
37511 45	37511 06
37511 47	37511 01
37511 47	37511 02
37511 47	37511 03
37511 47	37511 04
37511 47	37511 05
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37511 55	37511 06
37512 09	37512 06
37512 09	37512 07
37616	37615
37616 00	37615 01
37617	37615
37617 02	37615 02
37617 03	37615 03
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37999 25	37999 02
37999 25	37999 21

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
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37112	37119
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37112 01	37118 00
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37112 36	37116 00
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37112 36	37119 00
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37112 39	37117 00
37112 39	37118 00
37112 39	37119 00
37113 01	37113 04
37113 02	37113 04
37115	37111
37115 00	37111 71
37131 03	37131 12
37131 04	37131 12
37131 06	37131 71
37131 07	37131 71
37131 11	37131 12
37131 13	37131 12
37131 49	37131 71
37131 57	37131 71
37131 69	37131 71
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37996 08	37996 07
37999 01	37999 23
37999 02	37999 25
37999 06	37999 23
37999 19	37999 23
37999 21	37999 25

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report
3715100	M37L, Truck Trailers
3721500	M37G, Civil Aircraft and Engines
3724200	M37G, Civil Aircraft and Engines

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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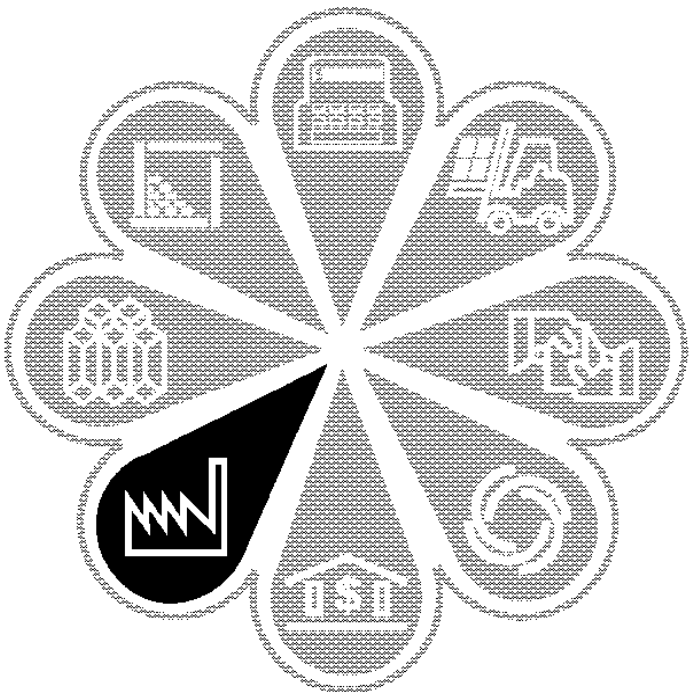
1992 Census of Manufactures

MC92-I-37C

INDUSTRY SERIES

Ship and Boat Building, Railroad and Miscellaneous Transportation Equipment

Industries 3731, 3732, 3743, 3751, 3792, 3795, and 3799



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-37C

INDUSTRY SERIES

Ship and Boat Building, Railroad and Miscellaneous Transportation Equipment

Industries 3731, 3732, 3743, 3751, 3792, 3795, and 3799

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3731	Ship Building and Repairing
3732	Boat Building and Repairing
3743	Railroad Equipment
3751	Motorcycles, Bicycles, and Parts
3792	Travel Trailers and Campers
3795	Tanks and Tank Components
3799	Transportation Equipment, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3731, SHIP BUILDING AND REPAIRING

This industry is made up of establishments primarily engaged in building and repairing ships, barges, and lighters, whether self-propelled or towed by other craft. This industry also includes the conversion and alteration of ships and the manufacture of offshore oil and gas well drilling and production platforms (whether or not self-propelled). Establishments primarily engaged in fabricating structural assemblies or components for ships, or subcontractors engaged in ship painting, joinery, carpentry work, and electrical wiring installation are classified in other industries.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3731, Ship Building and Repairing, had employment of 118.3 thousand. The employment figure was 2 percent below the 120.2 thousand reported in 1987.

The leading States in employment in 1992 were Virginia, Connecticut, Mississippi, and Louisiana. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $10.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3731 shipped $10.3 billion of ship building and repairing products considered primary to the industry, $85.2 million of secondary products, and had $205.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3731, no matter in what industry they were produced, appear in table 6a and aggregate to $10.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ship building and repairing industry amounted to $4.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

INDUSTRY 3732, BOAT BUILDING AND REPAIRING

This industry is made up of establishments primarily engaged in building and repairing boats. Establishments primarily engaged in manufacturing rubber and nonrigid plastics boats are classified in Major Group 30. Establishments primarily engaged in operating marinas and which perform incidental boat repair are classified in Transportation, Industry 4493; membership yacht clubs are classified in Services, Industry 7997; and those performing outboard motor repair are classified in Services, Industry 7699.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3732, Boat Building and Repairing, had employment of 44.5 thousand. The employment figure was 22 percent below the 57.2 thousand reported in 1987. Compared with 1991, employment increased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Tennessee, and Washington. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3732 shipped $4.3 billion of boat building and repairing products considered primary to the industry, $98.4 million of secondary products, and had $244.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 99 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3732, no matter in what industry they were produced, appear in table 6a and aggregate to $4.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the boat building and repairing industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 18 percent of the total value of shipments.

INDUSTRY 3743, RAILROAD EQUIPMENT

This industry is made up of establishments primarily engaged in building and rebuilding locomotives (including frames and parts, not elsewhere classified) of any type or gauge; and railroad, street, and rapid transit cars and car equipment for operation on rails for freight and passenger service. Establishments primarily engaged in manufacturing mining cars are classified in industry 3532. Repair shops, owned and operated by railroads or local transit companies, repairing locomotives or cars for their own use are classified in Transportation, Major Groups 40 and 41. Establishments primarily engaged in repairing railroad cars on a contract or fee basis are classified in Transportation, Industry 4789; and those repairing locomotive engines on a contract or fee basis are classified in Services, Industry 7699.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3743, Railroad Equipment, had employment of 28.2 thousand. The employment figure was 28 percent above the 22.1 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, New York, Pennsylvania, and Texas. This represents a shift from 1987 when Illinois, New York, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $4.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3743 shipped $4.1 billion of railroad equipment products considered primary to the industry, $234.8 million of secondary products, and had $239.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 96 percent.

The products primary to industry 3743, no matter in what industry they were produced, appear in table 6a and aggregate to $4.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the railroad equipment industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS

This industry is made up of establishments primarily engaged in manufacturing motorcycles, bicycles, and similar equipment, and parts. Establishments primarily engaged in manufacturing children's vehicles, except bicycles, are classified in industry 3944. Establishments primarily engaged in manufacturing golf carts and other similar personnel carriers are classified in industry 3799.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3751, Motorcycles, Bicycles, and Parts, had employment of 11.7 thousand. The employment figure was 58 percent above the 7.4 thousand reported in 1987. Compared with 1991, employment increased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Ohio, Pennsylvania, and Wisconsin. This represents a shift from 1987 when California, Connecticut, Ohio, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3751 shipped $1.6 billion of motorcycles, bicycles, and parts considered primary to the industry, $107.4 million of secondary products, and had $190.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3751, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the motorcycles, bicycles, and parts industry amounted to $1.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS

This industry is made up of establishments primarily engaged in manufacturing travel trailers and campers for attachment to passenger cars or other vehicles, pickup coaches (campers) and caps (covers) for mounting on pickup trucks. Travel trailers are generally 35 feet long or less, 8 feet wide or less, and have storage facilities for water and waste. Establishments primarily engaged in manufacturing mobile homes are classified in industry 2451.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3792, Travel Trailers and Campers, had employment of 15.2 thousand. The employment figure was 12 percent below the 17.2 thousand reported in 1987. Compared with 1991, employment increased 28 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Indiana, California, Pennsylvania, and Kansas, accounting for approximately 57 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3792 shipped $1.9 billion of travel trailers and campers products considered primary to the industry, $100.7 million of secondary products, and had $102.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3792, no matter in what industry they were produced, appear in table 6a and aggregate to $2.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the travel trailer and camper industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3795, TANKS AND TANK COMPONENTS

This industry is made up of establishments primarily engaged in manufacturing complete tanks, specialized components for tanks, and self-propelled weapons. Establishments primarily engaged in manufacturing military vehicles, except tanks and self-propelled weapons, are classified in industry group 371, and those manufacturing tank engines are classified in industry group 351.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3795, Tanks and Tank Components, had employment of 9.8 thousand. The employment figure was 41 percent below the 16.7 thousand reported in 1987.

The leading States in employment in 1992 were California, Michigan, Ohio, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3795 shipped $1.9 billion of tanks and tank components products considered primary to the industry, $51.2 million of secondary products, and had $45.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio).

Establishments in this industry also accounted for 77 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio).

The products primary to industry 3795, no matter in what industry they were produced, appear in table 6a and aggregate to $2.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the tanks and tank components industry amounted to $931.3 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing transportation equipment, not elsewhere classified. Establishments primarily engaged in manufacturing industrial trucks, tractors, trailers, and stackers are classified in industry 3537, and those manufacturing children's vehicles except bicycles are classified in industry 3944.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3799, Transportation Equipment, N.E.C., had employment of 19.5 thousand. The employment figure was 27 percent above the 15.4 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Georgia, Michigan, Minnesota, and Oklahoma. This represents a shift from 1987 when Georgia, Minnesota, Nebraska, and Texas were the leading States.

The total value of shipments for establishments classified in this industry was $3.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3799 shipped $2.7 billion of transportation equipment, not elsewhere classified, products considered primary to the industry, $252.3 million of secondary products, and had $167.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 94 percent.

The products primary to industry 3799, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the transportation equipment, not elsewhere classified, industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3731, SHIP BUILDING AND REPAIRING															
1992 Census	562	598	267	118.3	3 624.1	87.1	176.8	2 294.3	6 543.2	4 065.2	10 608.3	128.4	1 293.3	99	99
1991 ASM	(NA)	(NA)	(NA)	120.8	3 679.8	90.1	183.9	2 385.0	6 354.2	4 494.7	10 848.8	172.2	1 603.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	121.2	3 605.8	91.0	184.6	2 325.0	6 362.8	4 492.8	10 855.7	226.8	1 422.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	119.3	3 386.2	87.9	177.4	2 184.6	5 653.7	3 986.6	9 640.2	193.0	1 072.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	120.1	3 254.3	89.5	177.5	2 182.7	5 222.1	3 570.9	8 793.0	237.9	938.6	(NA)	(NA)
1987 Census	547	590	287	120.2	3 217.9	90.5	178.1	2 166.4	5 212.7	3 291.7	8 504.4	273.0	1 054.4	99	99
1986 ASM	(NA)	(NA)	(NA)	120.6	3 181.3	90.3	179.3	2 147.6	5 426.1	3 413.8	8 839.9	214.2	878.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	130.3	3 315.9	99.0	194.0	2 278.0	5 739.8	3 618.0	9 357.7	296.0	956.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	132.7	3 332.0	102.5	203.4	2 329.5	5 867.6	3 778.1	9 643.6	342.8	974.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	141.0	3 294.8	107.0	208.4	2 315.3	5 572.0	3 919.0	9 487.1	304.8	873.5	(NA)	(NA)
1982 Census	617	689	377	166.7	3 737.7	130.7	259.4	2 771.2	6 379.4	4 587.8	10 967.2	438.4	1 353.6	99	99
1981 ASM	(NA)	(NA)	(NA)	178.9	3 766.9	142.2	287.5	2 807.9	6 303.7	4 697.6	11 001.3	379.9	1 516.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	177.3	3 360.4	141.8	281.4	2 467.0	5 337.6	3 930.9	9 268.5	267.5	1 541.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	171.0	2 927.6	136.7	268.1	2 131.8	4 586.9	3 151.6	7 738.5	235.7	1 303.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	174.1	2 647.5	138.4	268.4	1 936.2	4 106.5	2 836.8	6 943.4	189.4	1 269.1	(NA)	(NA)
1977 Census	542	605	314	176.4	2 494.0	139.9	277.2	1 807.4	3 825.0	2 670.1	6 495.1	161.3	1 072.5	97	99
INDUSTRY 3732, BOAT BUILDING AND REPAIRING															
1992 Census	2 376	2 455	413	44.5	1 005.8	34.4	68.7	660.6	1 991.4	2 609.4	4 599.3	63.1	691.6	98	99
1991 ASM	(NA)	(NA)	(NA)	40.8	824.2	31.7	62.2	570.3	1 605.0	2 058.1	3 675.6	38.7	625.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	54.1	1 060.8	42.7	84.8	735.7	2 191.8	2 792.1	4 998.0	83.4	699.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	60.4	1 183.6	49.2	99.3	837.7	2 522.3	3 242.6	5 739.3	120.3	752.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	62.8	1 161.2	51.9	103.0	846.8	2 679.4	3 324.5	5 935.1	140.6	807.3	(NA)	(NA)
1987 Census	2 108	2 176	433	57.2	1 047.7	47.1	94.3	766.6	2 444.1	2 947.3	5 352.5	133.8	694.4	99	99
1986 ASM	(NA)	(NA)	(NA)	48.1	892.4	39.0	78.8	643.5	1 804.2	2 239.7	4 048.7	87.8	547.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	45.1	786.8	35.7	69.3	548.5	1 466.7	2 028.1	3 496.4	79.9	537.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.3	770.4	38.5	73.8	555.1	1 492.8	1 962.9	3 452.4	90.0	553.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	38.9	634.1	32.0	60.4	455.2	1 252.3	1 451.5	2 690.1	40.1	487.2	(NA)	(NA)
1982 Census	1 834	1 877	385	38.3	588.1	30.8	59.9	422.8	1 129.2	1 234.9	2 359.2	57.6	463.5	98	96
1981 ASM	(NA)	(NA)	(NA)	40.7	562.2	33.0	63.2	401.3	1 057.3	1 215.0	2 247.9	65.9	427.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	41.3	517.0	33.1	62.2	369.9	930.4	1 157.2	2 102.2	61.9	377.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	46.5	532.3	37.8	72.0	385.5	998.5	1 251.9	2 233.4	62.5	393.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	49.9	520.7	41.1	77.4	382.8	1 015.8	1 161.5	2 162.1	60.0	380.7	(NA)	(NA)
1977 Census	2 148	2 190	422	43.8	445.8	35.6	68.4	324.7	856.3	984.7	1 822.6	42.3	338.0	98	96
INDUSTRY 3743, RAILROAD EQUIPMENT															
1992 Census	154	206	123	28.2	897.5	20.6	40.3	556.3	1 961.6	2 743.3	4 588.8	94.9	968.4	95	99
1991 ASM	(NA)	(NA)	(NA)	26.4	819.8	19.4	37.7	521.6	1 689.6	2 645.7	4 449.7	96.1	774.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	29.5	870.1	21.0	41.0	532.5	1 839.2	2 763.1	4 693.6	94.5	912.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.4	840.8	19.6	40.4	535.2	1 940.5	2 562.1	4 428.6	67.4	943.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.9	742.1	17.9	36.0	446.4	1 482.8	1 807.3	3 285.9	61.3	803.4	(NA)	(NA)
1987 Census	150	174	93	22.1	630.6	14.3	29.1	349.9	1 295.4	1 237.1	2 470.9	58.9	736.0	88	96
1986 ASM	(NA)	(NA)	(NA)	24.0	687.4	16.1	30.6	421.0	1 198.1	1 256.3	2 613.0	58.4	626.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.6	762.2	18.9	35.9	475.9	1 286.1	1 391.4	2 735.5	79.2	732.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	29.5	789.7	20.5	38.7	492.6	1 485.9	1 595.0	3 021.2	123.4	814.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	25.0	634.8	16.2	29.6	367.7	1 036.5	1 176.1	2 248.1	140.4	703.8	(NA)	(NA)
1982 Census	158	200	107	34.5	790.4	22.8	38.9	478.7	1 491.8	1 770.5	3 456.6	142.3	775.7	85	96
1981 ASM	(NA)	(NA)	(NA)	48.6	1 094.1	34.1	62.1	728.1	2 301.6	2 953.2	5 419.9	139.5	920.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.2	1 365.3	49.0	90.4	985.2	3 217.0	4 384.4	7 808.7	167.8	1 151.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	72.0	1 373.8	56.4	108.4	1 017.3	3 462.2	4 416.3	7 756.4	154.3	1 440.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	62.1	1 074.7	47.8	91.3	768.1	2 480.8	3 135.4	5 459.5	115.5	1 118.6	(NA)	(NA)
1977 Census	145	201	118	56.3	888.6	42.6	79.4	619.9	1 882.8	2 386.2	4 278.3	80.4	850.6	91	94
INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS															
1992 Census	244	248	51	11.7	301.7	9.0	17.1	198.1	744.5	1 146.2	1 878.3	45.6	233.0	94	78
1991 ASM	(NA)	(NA)	(NA)	10.8	276.6	8.5	16.7	195.2	741.0	1 177.6	1 913.9	61.5	266.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.4	213.5	7.6	14.8	151.8	570.8	928.6	1 475.8	24.0	203.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.4	190.6	6.7	13.5	136.7	501.7	884.6	1 369.6	25.9	191.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.5	164.0	5.8	12.0	115.4	385.9	674.4	1 056.8	16.7	136.0	(NA)	(NA)
1987 Census	242	246	56	7.4	158.3	5.8	12.1	110.9	367.8	679.6	1 062.6	30.7	134.5	94	82
1986 ASM	(NA)	(NA)	(NA)	7.9	169.4	6.3	13.7	123.4	430.1	657.0	1 032.0	21.4	164.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	9.2	168.7	7.4	15.3	121.5	402.3	644.6	1 044.0	23.4	152.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.4	187.6	8.5	16.7	134.5	438.7	697.8	1 152.6	20.3	170.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.2	238.9	9.9	20.3	178.0	545.7	874.6	1 436.1	26.5	282.3	(NA)	(NA)
1982 Census	269	273	67	13.0	224.9	10.4	19.0	168.8	402.5	888.9	1 341.1	23.1	285.5	85	96
1981 ASM	(NA)	(NA)	(NA)	13.9	222.5	11.2	21.5	168.1	426.7	904.0	1 344.0	26.8	278.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.2	217.2	12.7	24.0	165.4	475.1	867.5	1 336.7	22.0	280.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.9	225.6	14.4	28.2	178.7	454.3	929.5	1 374.8	29.5	295.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.2	199.8	14.7	26.8	152.9	428.1	824.0	1 224.6	27.2	259.7	(NA)	(NA)
1977 Census	343	350	63	15.6	168.9	13.3	24.6	129.9	369.8	660.1	1 007.6	24.1	226.5	84	97
INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS															
1992 Census	269	302	126	15.2	357.9	12.0	23.4	239.6	774.9	1 326.9	2 082.6	18.0	204.0	95	93
1991 ASM	(NA)	(NA)	(NA)	11.9	271.8	9.2	18.0	173.9	556.5	961.9	1 523.1	7.7	178.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	13.8	284.8	11.0	21.5	193.2	622.8	1 050.2	1 657.5	14.1	196.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	14.6	283.2	11.9	21.6	190.4	604.9	1 053.3	1 657.3	15.3	175.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.9	306.4	12.7	23.7	205.2	637.8	1 091.9	1 730.2	10.9	167.7	(NA)	(NA)
1987 Census	384	427	151	17.2	316.2	13.7	25.2	214.0	696.1	1 183.1	1 868.8	16.0	177.0	94	88
1986 ASM	(NA)	(NA)	(NA)	14.2	257.7	11.0	20.4	166.3	506.7	916.5	1 424.8	18.5	152.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.5	229.2	10.9	20.5	155.7	478.8	874.2	1 354.2	14.5	133.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.7	226.9	11.3	21.1	154.8	460.6	881.2	1 338.0	16.4	129.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.6	274.8	12.7	24.2	185.8	649.6	998.6	1 617.7	20.7	169.1	(NA)	(NA)
1982 Census	446	492	142	13.8	221.6	11.2	20.4	149.8	442.4	837.7	1 281.6	17.0	136.5	88	97
1981 ASM	(NA)	(NA)	(NA)	15.4	212.2	12.5	22.5	139.4	384.7	733.6	1 112.9	12.4	140.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.0	184.8	11.6	21.1	119.6	307.8	605.4	928.8	13.2	141.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.2	222.3	15.0	27.1	147.0	377.1	748.6	1 150.0	26.5	177.5	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS—Con.														
1978 ASM	(NA)	(NA)	(NA)	27.0	306.7	22.4	41.2	216.2	576.7	1 189.3	1 754.2	24.4	215.3	(NA)	(NA)
1977 Census	775	861	266	26.3	275.7	21.8	40.7	197.1	510.3	1 068.4	1 582.4	31.0	193.6	88	90
	INDUSTRY 3795, TANKS AND TANK COMPONENTS														
1992 Census	36	42	31	9.8	362.9	5.7	11.3	189.5	1 157.8	931.3	2 034.7	15.6	336.7	97	77
1991 ASM	(NA)	(NA)	(NA)	8.1	327.5	4.9	9.8	176.6	761.9	864.7	1 749.2	22.0	434.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.3	353.6	5.5	10.7	195.0	694.5	1 015.5	1 846.5	27.4	540.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.9	417.4	7.0	12.8	229.7	875.3	1 122.1	1 947.2	42.5	693.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	16.1	498.2	10.9	20.8	311.3	899.5	1 308.6	2 146.0	47.2	775.1	(NA)	(NA)
1987 Census	50	56	39	16.7	498.7	11.1	22.7	310.0	969.0	1 454.0	2 521.8	39.9	748.3	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	17.8	548.1	11.6	23.6	342.2	1 073.7	1 124.5	2 010.1	28.5	806.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	21.2	578.8	14.1	26.6	344.3	1 055.2	1 761.2	2 887.5	32.4	615.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	19.2	540.6	12.5	24.3	320.3	1 291.4	1 945.9	3 314.0	81.6	660.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.4	579.6	14.7	26.6	344.7	1 397.2	2 133.1	3 418.5	88.3	963.2	(NA)	(NA)
1982 Census	38	44	37	18.2	475.9	12.6	23.3	291.1	1 157.7	1 506.2	2 351.0	114.7	919.6	(D)	(D)
1981 ASM	(NA)	(NA)	(NA)	14.2	328.0	10.5	18.9	221.6	1 043.1	826.7	1 657.6	35.1	588.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	13.3	284.0	10.1	19.3	199.4	647.6	862.4	1 419.2	36.8	373.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	13.4	233.7	10.9	19.3	171.4	531.1	598.1	1 030.3	23.9	296.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	13.4	225.0	10.7	20.8	166.9	379.9	628.2	1 092.5	17.1	190.8	(NA)	(NA)
1977 Census	20	24	18	12.4	208.5	10.0	19.8	156.2	437.6	590.0	934.2	13.2	287.8	92	82
	INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.														
1992 Census	654	685	190	19.5	449.2	13.8	26.7	248.3	1 112.1	1 969.3	3 087.0	61.6	418.3	91	94
1991 ASM	(NA)	(NA)	(NA)	16.1	359.8	11.1	21.0	191.6	788.4	1 577.9	2 425.5	56.4	370.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	16.0	329.7	11.4	21.4	186.1	798.3	1 479.5	2 241.5	43.0	415.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	16.1	314.0	11.2	20.6	170.6	753.9	1 385.3	2 095.4	57.1	316.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	15.2	306.3	10.8	20.9	165.0	682.8	1 121.0	1 779.1	26.5	277.4	(NA)	(NA)
1987 Census	617	635	174	15.4	306.6	11.1	21.4	165.5	664.9	989.6	1 642.1	37.6	261.3	94	94
1986 ASM	(NA)	(NA)	(NA)	12.7	239.2	9.1	17.3	126.8	516.1	784.0	1 306.2	29.0	217.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.6	215.5	8.8	16.6	125.5	490.2	705.8	1 180.2	30.2	219.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	12.1	211.5	8.7	17.1	130.1	538.7	678.8	1 196.9	20.8	213.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	12.8	205.4	9.2	17.2	118.3	438.1	643.8	1 073.0	16.5	201.8	(NA)	(NA)
1982 Census	408	425	120	10.9	181.2	7.5	14.4	103.7	377.0	515.6	895.2	15.0	171.9	93	82
1981 ASM	(NA)	(NA)	(NA)	8.6	124.0	5.9	11.8	72.5	224.9	402.0	620.7	15.1	109.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.3	124.1	6.6	13.0	74.4	208.0	397.4	607.9	18.0	105.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.7	129.0	8.0	15.5	83.2	211.8	472.5	683.0	15.2	107.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.4	122.7	8.4	15.1	79.3	248.8	441.8	687.0	19.6	112.2	(NA)	(NA)
1977 Census	408	429	109	10.3	106.6	7.4	13.3	62.6	232.7	384.9	620.9	9.8	109.4	94	79

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3731, SHIP BUILDING AND REPAIRING								
1992 Census	30 635	74	2 030	12.98	38	72	55 310	55	37.01
1991 ASM	30 462	75	2 041	12.97	41	75	52 601	58	34.55
1990 ASM	29 751	75	2 029	12.59	41	75	52 498	57	34.47
1989 ASM	28 384	74	2 018	12.31	41	76	47 391	60	31.87
1988 ASM	27 097	75	1 983	12.30	41	78	43 481	62	29.42
1987 Census	26 771	75	1 968	12.16	39	77	43 367	62	29.27
1986 ASM	26 379	75	1 986	11.98	39	75	44 993	59	30.26
1985 ASM	25 448	76	1 960	11.74	39	74	44 051	58	29.59
1984 ASM	25 109	77	1 984	11.45	39	74	44 217	57	28.85
1983 ASM	23 367	76	1 948	11.11	41	76	39 518	59	26.74
1982 Census	22 422	78	1 985	10.68	42	76	38 269	59	24.59
1981 ASM	21 056	79	2 022	9.77	43	77	35 236	60	21.93
1980 ASM	18 953	80	1 984	8.77	42	79	30 105	63	18.97
1979 ASM	17 120	80	1 961	7.95	41	79	26 824	64	17.11
1978 ASM	15 207	79	1 939	7.21	41	79	23 587	64	15.30
1977 Census	14 138	79	1 981	6.52	41	80	21 684	65	13.80

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3732, BOAT BUILDING AND REPAIRING									
1992 Census	22 602	77	1 997	9.62	57	79	44 751	51	28.99
1991 ASM	20 201	78	1 962	9.17	56	78	39 338	51	25.80
1990 ASM	19 608	79	1 986	8.68	56	77	40 514	48	25.85
1989 ASM	19 596	81	2 018	8.44	56	77	41 760	47	25.40
1988 ASM	18 490	83	1 985	8.22	56	76	42 666	43	26.01
1987 Census	18 316	82	2 002	8.13	55	75	42 729	43	25.92
1986 ASM	18 553	81	2 021	8.17	55	77	37 509	49	22.90
1985 ASM	17 446	79	1 941	7.91	58	81	32 521	54	21.16
1984 ASM	16 639	83	1 917	7.52	57	79	32 242	52	20.23
1983 ASM	16 301	82	1 888	7.54	54	78	32 193	51	20.73
1982 Census	15 355	80	1 945	7.06	52	77	29 483	52	18.85
1981 ASM	13 813	81	1 915	6.35	54	79	25 978	53	16.73
1980 ASM	12 518	80	1 879	5.95	55	80	22 528	56	14.96
1979 ASM	11 447	81	1 905	5.35	56	80	21 473	53	13.87
1978 ASM	10 435	82	1 883	4.95	54	78	20 357	51	13.12
1977 Census	10 178	81	1 921	4.75	54	78	19 550	52	12.52
INDUSTRY 3743, RAILROAD EQUIPMENT									
1992 Census	31 826	73	1 956	13.80	60	79	69 560	46	48.67
1991 ASM	31 053	73	1 943	13.84	59	78	64 000	49	44.82
1990 ASM	29 495	71	1 952	12.99	59	77	62 346	47	44.86
1989 ASM	30 686	72	2 061	13.25	58	77	70 821	43	48.03
1988 ASM	28 653	69	2 011	12.40	55	78	57 251	50	41.19
1987 Census	28 534	65	2 035	12.02	50	76	58 615	49	44.52
1986 ASM	28 642	67	1 901	13.76	48	74	49 921	57	39.15
1985 ASM	27 616	68	1 899	13.26	51	79	46 598	59	35.82
1984 ASM	26 769	69	1 888	12.73	53	79	50 369	53	38.40
1983 ASM	25 392	65	1 827	12.42	52	81	41 460	61	35.02
1982 Census	22 910	66	1 706	12.31	51	74	43 241	53	38.35
1981 ASM	22 512	70	1 821	11.72	54	75	47 358	48	37.06
1980 ASM	20 940	75	1 845	10.90	56	74	49 340	42	35.59
1979 ASM	19 081	78	1 922	9.38	57	75	48 086	40	31.94
1978 ASM	17 306	77	1 910	8.41	57	77	39 948	43	27.17
1977 Census	15 783	76	1 864	7.81	56	77	33 442	47	23.71
INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS									
1992 Census	25 786	77	1 900	11.58	61	77	63 632	41	43.54
1991 ASM	25 611	79	1 965	11.69	62	76	68 611	37	44.37
1990 ASM	22 713	81	1 947	10.26	63	77	60 723	37	38.57
1989 ASM	22 690	80	2 015	10.13	65	79	59 726	38	37.16
1988 ASM	21 867	77	2 069	9.62	64	79	51 453	42	32.16
1987 Census	21 392	78	2 086	9.17	64	79	49 703	43	30.40
1986 ASM	21 443	80	2 175	9.01	64	80	54 443	39	31.39
1985 ASM	18 337	80	2 068	7.94	62	78	43 728	42	26.29
1984 ASM	18 038	82	1 965	8.05	61	77	42 183	43	26.27
1983 ASM	19 582	81	2 051	8.77	61	78	44 730	44	26.88
1982 Census	17 300	80	1 827	8.88	66	83	30 962	56	21.18
1981 ASM	16 007	81	1 920	7.82	67	84	30 698	52	19.85
1980 ASM	14 289	84	1 890	6.89	65	81	31 257	46	19.80
1979 ASM	13 349	85	1 958	6.34	68	84	26 882	50	16.11
1978 ASM	11 616	85	1 823	5.71	67	84	24 890	47	15.97
1977 Census	10 827	85	1 850	5.28	66	82	23 705	46	15.03
INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS									
1992 Census	23 546	79	1 950	10.24	64	81	50 980	46	33.12
1991 ASM	22 840	77	1 957	9.66	63	81	46 765	49	30.92
1990 ASM	20 638	80	1 955	8.99	63	81	45 130	46	28.97
1989 ASM	19 397	82	1 815	8.81	64	81	41 432	47	28.00
1988 ASM	19 270	80	1 866	8.66	63	81	40 113	48	26.91
1987 Census	18 384	80	1 839	8.49	63	80	40 471	45	27.62
1986 ASM	18 148	77	1 855	8.15	64	82	35 683	51	24.84
1985 ASM	16 978	81	1 881	7.60	65	81	35 467	48	23.36
1984 ASM	16 562	82	1 867	7.34	66	83	33 620	49	21.83
1983 ASM	17 615	81	1 906	7.68	62	79	41 641	42	26.84
1982 Census	16 058	81	1 821	7.34	65	83	32 058	50	21.69
1981 ASM	13 779	81	1 800	6.20	66	85	24 981	55	17.10
1980 ASM	12 320	77	1 819	5.67	65	85	20 520	60	14.59
1979 ASM	11 578	78	1 807	5.42	65	84	19 641	59	13.92
1978 ASM	11 359	83	1 839	5.25	68	85	21 359	53	14.00
1977 Census	10 483	83	1 867	4.84	68	85	19 403	54	12.54
INDUSTRY 3795, TANKS AND TANK COMPONENTS									
1992 Census	37 031	58	1 982	16.77	46	64	118 143	31	102.46
1991 ASM	40 432	60	2 000	18.02	49	68	94 062	43	77.74
1990 ASM	38 022	59	1 945	18.22	55	74	74 677	51	64.91
1989 ASM	35 076	59	1 829	17.95	58	79	73 555	48	68.38
1988 ASM	30 944	68	1 908	14.97	61	84	55 870	55	43.25
1987 Census	29 862	66	2 045	13.66	58	77	58 024	51	42.69
1986 ASM	30 792	65	2 034	14.50	56	83	60 320	51	45.50
1985 ASM	27 302	67	1 887	12.94	61	81	49 774	55	39.67
1984 ASM	28 156	65	1 944	13.18	59	75	67 260	42	53.14
1983 ASM	25 875	66	1 810	12.96	62	79	62 375	41	52.53
1982 Census	26 148	69	1 849	12.49	64	84	63 610	41	49.69
1981 ASM	23 099	74	1 800	11.72	50	70	73 458	31	55.19
1980 ASM	21 353	76	1 911	10.33	61	81	48 692	44	33.55
1979 ASM	17 440	81	1 771	8.88	58	81	39 634	44	27.52
1978 ASM	16 791	80	1 944	8.02	58	78	28 351	59	18.26
1977 Census	16 815	81	1 980	7.89	63	85	35 290	48	22.10

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.								
1992 Census	23 036	71	1 935	9.30	64	78	57 031	40	41.65
1991 ASM	22 348	69	1 892	9.12	65	80	48 969	46	37.54
1990 ASM	20 606	71	1 877	8.70	66	81	49 894	41	37.30
1989 ASM	19 503	70	1 839	8.28	66	81	46 826	42	36.60
1988 ASM	20 151	71	1 935	7.89	63	80	44 921	45	32.67
1987 Census	19 909	72	1 928	7.73	60	79	43 175	46	31.07
1986 ASM	18 835	72	1 901	7.33	60	78	40 638	46	29.83
1985 ASM	17 103	70	1 886	7.56	60	78	38 905	44	29.53
1984 ASM	17 479	72	1 966	7.61	57	74	44 521	39	31.50
1983 ASM	16 047	72	1 870	6.88	60	79	34 227	47	25.47
1982 Census	16 624	69	1 920	7.20	58	78	34 587	48	26.18
1981 ASM	14 419	69	2 000	6.14	65	85	26 151	55	19.06
1980 ASM	13 344	71	1 970	5.72	65	86	22 366	60	16.00
1979 ASM	12 056	75	1 938	5.37	69	88	19 794	61	13.66
1978 ASM	10 763	74	1 798	5.25	64	82	21 825	49	16.48
1977 Census	10 350	72	1 797	4.71	62	79	22 592	46	17.50

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3731, SHIP BUILDING AND REPAIRING														
United States	**–**	**598**	**267**	**118.3**	**3 624.1**	**87.1**	**176.8**	**2 294.3**	**6 543.2**	**4 065.2**	**10 608.3**	**128.4**	**120.2**	**5 212.7**
Alabama	E4	23	11	1.7	46.5	1.4	2.8	31.8	85.4	95.9	181.4	3.2	1.8	84.7
California	–	67	27	9.8	280.7	7.9	14.7	194.7	493.5	358.4	851.9	8.6	(NA)	(D)
Connecticut	–	9	2	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E5	69	20	3.6	91.7	3.2	5.7	70.0	136.5	144.0	280.4	6.7	4.6	172.1
Hawaii	E8	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	E9	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	E1	66	45	13.2	317.1	10.7	21.9	220.9	620.8	619.8	1 240.6	13.1	(NA)	(D)
Maine	–	15	3	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	12	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Massachusetts	E1	15	6	.4	13.6	.3	.7	9.1	30.6	19.2	49.7	(D)	F	(D)
Mississippi	–	17	12	J	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	E6	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	12.2
New Jersey	E1	20	7	.5	13.4	.4	.9	9.0	22.3	14.9	37.2	.9	G	(D)
New York	E1	28	8	.8	26.7	.5	1.2	17.9	45.7	27.0	72.7	1.2	G	(D)
North Carolina	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	E5	19	9	2.1	69.5	1.6	3.3	48.1	109.0	71.9	180.9	2.3	1.7	58.1
Pennsylvania	–	13	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Rhode Island	E6	7	5	.3	8.7	.2	.5	6.1	13.1	8.6	21.7	(D)	G	(D)
South Carolina	–	9	4	.9	24.6	.7	1.4	15.7	44.6	29.6	74.1	(D)	1.0	35.2
Tennessee	–	6	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E2	48	21	2.3	59.8	1.9	3.6	42.3	106.3	71.7	178.0	4.5	2.2	70.8
Virginia	–	41	21	28.6	1 001.8	24.5	49.7	707.8	1 781.0	932.5	2 713.6	30.9	(NA)	(D)
Washington	–	46	29	3.0	94.4	2.2	4.6	70.5	172.1	97.4	269.5	4.0	(NA)	(D)
Wisconsin	E7	9	5	1.6	45.4	1.4	2.6	30.3	81.6	126.9	208.5	2.8	3.3	113.4
INDUSTRY 3732, BOAT BUILDING AND REPAIRING														
United States	**E1**	**2 455**	**413**	**44.5**	**1 005.8**	**34.4**	**68.7**	**660.6**	**1 991.4**	**2 609.4**	**4 599.3**	**63.1**	**57.2**	**2 444.1**
Alabama	E3	49	6	.4	7.3	.3	.6	5.6	13.9	15.4	29.3	.3	.4	11.7
Alaska	E3	20	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Arizona	–	24	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	F	(D)
Arkansas	–	38	13	1.2	21.4	1.0	1.8	13.9	54.4	57.1	111.1	.9	G	(D)
California	E1	231	37	2.9	67.7	2.3	4.5	46.8	119.0	137.3	255.6	2.9	(NA)	(D)
Connecticut	E1	31	2	.2	5.5	.1	.3	3.8	7.2	7.9	15.2	.4	E	(D)
Florida	E3	465	77	9.0	213.2	6.9	14.3	140.7	400.6	490.2	878.8	11.1	12.0	519.0
Georgia	–	41	10	1.7	41.9	1.2	2.6	23.8	78.4	139.9	218.4	(D)	G	(D)
Hawaii	E3	15	5	.2	7.1	.2	.4	4.1	16.7	13.7	29.9	(D)	(NA)	(NA)
Illinois	–	30	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Indiana	–	27	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kentucky	E1	20	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Louisiana	E1	86	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	E1	82	11	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.1	F	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3732, BOAT BUILDING AND REPAIRING—Con.														
Maryland	–	71	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	E6	74	7	.7	19.3	.5	.9	11.1	30.9	35.1	65.9	1.8	G	(D)
Michigan	E2	84	12	1.7	38.8	1.3	2.7	25.0	109.5	97.4	209.3	(D)	(NA)	(D)
Minnesota	E1	36	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	–	24	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	36	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	36.8
New Jersey	–	52	7	.7	18.7	.5	1.2	13.1	36.4	32.5	70.6	1.8	G	(D)
New York	E4	82	7	.6	14.5	.5	1.0	10.0	21.4	24.8	46.2	.4	F	(D)
North Carolina	E1	85	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E1	41	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oklahoma	–	18	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Oregon	–	52	10	.7	14.7	.6	1.1	10.9	27.6	51.8	81.2	(D)	.5	15.2
Pennsylvania	E8	19	2	.1	2.1	.1	.1	1.4	2.5	3.4	6.0	(Z)	F	(D)
Rhode Island	E4	33	10	.7	16.0	.5	1.0	10.8	29.2	35.1	63.7	1.1	F	(D)
South Carolina	–	37	10	.8	18.2	.6	1.3	9.9	36.4	55.7	100.3	(D)	1.2	44.3
Tennessee	E1	54	20	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	E4	116	15	1.2	23.6	.9	1.8	14.9	48.2	70.6	118.0	1.1	1.7	42.7
Virginia	E1	65	13	.8	19.0	.6	1.1	12.0	29.2	27.2	56.2	.7	F	(D)
Washington	E1	186	28	3.2	85.1	2.3	4.4	47.6	134.5	119.4	252.0	4.0	(NA)	(D)
Wisconsin	E2	34	5	.9	21.6	.7	1.5	14.3	43.0	52.9	95.5	1.2	1.7	82.3
INDUSTRY 3743, RAILROAD EQUIPMENT														
United States	**–**	**206**	**123**	**28.2**	**897.5**	**20.6**	**40.3**	**556.3**	**1 961.6**	**2 743.3**	**4 588.8**	**94.9**	**22.1**	**1 295.4**
Alabama	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E7	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	24.7
Idaho	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	38	21	5.4	205.6	3.6	7.0	126.1	458.7	629.5	1 100.7	3.8	(NA)	(D)
Indiana	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	E2	4	2	.1	2.2	.1	.2	1.3	4.4	4.0	8.4	(D)	(NA)	(NA)
Missouri	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	11	8	1.8	56.8	1.2	2.4	30.3	137.2	178.7	267.2	(D)	G	(D)
North Carolina	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	E1	11	7	.9	20.1	.7	1.4	14.0	61.5	69.0	124.3	.8	.8	41.5
Oklahoma	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	3	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	28	22	9.7	353.7	6.8	14.2	219.2	755.3	916.7	1 609.5	44.6	8.6	546.1
South Carolina	E6	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	19	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	12.4
Vermont	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	5	3	.2	4.2	.1	.2	2.5	8.1	15.2	23.5	(D)	(NA)	(D)
INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS														
United States	**–**	**248**	**51**	**11.7**	**301.7**	**9.0**	**17.1**	**198.1**	**744.5**	**1 146.2**	**1 878.3**	**45.6**	**7.4**	**367.8**
California	E2	107	23	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.9	1.5	64.1
Connecticut	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	10	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Minnesota	–	7	1	.1	3.1	.1	.2	2.2	6.9	5.7	12.4	(D)	(NA)	(NA)
New York	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	8	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	E1	12	3	.5	14.2	.3	.5	5.0	30.8	67.1	87.3	(D)	(NA)	(D)
Wisconsin	–	9	5	1.5	37.5	1.1	2.2	21.4	95.6	178.0	272.2	6.1	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS														
United States	**–**	**302**	**126**	**15.2**	**357.9**	**12.0**	**23.4**	**239.6**	**774.9**	**1 326.9**	**2 082.6**	**18.0**	**17.2**	**696.1**
Alabama	–	7	1	.2	3.9	.2	.3	2.1	10.0	7.3	17.3	(D)	.4	6.3
California	E1	44	15	1.5	33.0	1.2	2.3	21.5	59.8	119.3	179.3	1.3	G	(D)
Florida	–	9	2	.2	4.5	.2	.3	2.9	9.4	15.2	24.6	(Z)	.2	4.0
Georgia	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Idaho	–	6	3	.4	6.5	.4	.7	5.3	13.1	24.6	37.9	(D)	E	(D)
Indiana	–	53	39	5.1	138.5	4.0	8.0	92.5	292.6	546.5	833.7	8.0	4.8	223.3
Iowa	–	7	3	.2	4.9	.1	.3	2.4	16.6	15.0	31.5	(D)	(NA)	(NA)
Kansas	–	10	7	.9	17.0	.7	1.4	12.0	49.4	60.3	108.8	(D)	1.3	55.7
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	–	10	5	.5	12.8	.4	.7	8.3	20.3	30.6	50.9	.2	F	(D)
Minnesota	–	8	3	.1	2.7	.1	.2	1.9	6.2	6.6	12.9	(D)	E	(D)
Missouri	E1	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.7
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	–	6	5	.8	20.9	.7	1.4	16.3	41.8	68.4	110.4	(D)	F	(D)
Oklahoma	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	E1	13	6	.9	20.8	.7	1.4	14.3	50.5	84.0	129.4	(D)	F	(D)
Pennsylvania	–	16	7	1.1	25.4	.8	1.4	15.6	64.3	69.3	132.5	.6	1.4	63.0
Tennessee	E3	6	3	.2	2.8	.1	.2	1.5	5.9	7.7	13.5	(D)	(NA)	(NA)
Texas	E2	18	6	.7	15.1	.6	1.2	10.6	32.2	64.0	91.8	(D)	F	(D)
Utah	E5	7	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Virginia	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wyoming	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3795, TANKS AND TANK COMPONENTS														
United States	**–**	**42**	**31**	**9.8**	**362.9**	**5.7**	**11.3**	**189.5**	**1 157.8**	**931.3**	**2 034.7**	**15.6**	**16.7**	**969.0**
California	–	4	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Indiana	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Michigan	–	14	12	1.3	54.4	.7	1.7	26.1	72.8	86.8	146.2	3.9	3.1	291.7
Missouri	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	4	2	.1	4.9	.1	.1	1.7	8.3	5.4	14.5	.1	(NA)	(NA)
Ohio	–	7	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	3	3	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
South Carolina	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	E	(D)
INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.														
United States	**E1**	**685**	**190**	**19.5**	**449.2**	**13.8**	**26.7**	**248.3**	**1 112.1**	**1 969.3**	**3 087.0**	**61.6**	**15.4**	**664.9**
Alabama	E1	14	4	.2	3.4	.2	.3	2.0	6.8	10.3	17.2	(D)	(NA)	(NA)
Arizona	E2	14	3	.2	5.4	.2	.3	2.7	12.7	22.1	34.4	(D)	(NA)	(NA)
Arkansas	E3	20	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	66	14	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	E2	42	4	.4	7.3	.3	.5	4.3	17.4	23.9	41.0	(D)	.5	15.0
Georgia	E1	18	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Idaho	E1	9	4	.3	4.9	.3	.4	3.6	6.2	16.6	23.0	(D)	(NA)	(D)
Illinois	E3	22	2	.1	3.4	.1	.2	1.8	8.4	11.4	19.7	1.0	(NA)	(D)
Indiana	E1	33	18	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	16	9	1.1	24.4	.8	1.7	14.5	27.2	75.7	103.8	(D)	F	(D)
Kansas	–	10	3	.2	3.4	.2	.3	2.8	4.8	11.0	15.5	(D)	(NA)	(NA)
Michigan	E1	26	12	1.4	33.6	1.0	1.9	17.4	83.7	80.4	164.1	9.1	1.0	30.4
Minnesota	E2	15	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Mississippi	E7	8	3	.2	3.2	.1	.3	1.8	7.2	14.0	21.2	(D)	(NA)	(NA)
Missouri	E1	40	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	15.3
Nebraska	–	8	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Mexico	E1	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	15	3	.4	10.4	.3	.6	6.1	30.8	31.6	62.2	.9	F	(D)
North Carolina	E2	14	3	.1	3.3	.1	.2	2.5	4.7	9.1	13.7	.1	E	(D)
Ohio	–	20	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	E1	26	12	1.3	24.0	1.0	2.2	16.6	43.6	64.8	107.3	(D)	F	(D)
Oregon	E1	22	3	.3	5.5	.2	.4	3.5	15.4	13.1	27.9	(D)	(NA)	(NA)
Pennsylvania	E3	33	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E4	19	10	.6	13.1	.4	.7	7.1	26.4	31.0	57.8	(D)	.3	11.1
Texas	E2	63	12	1.1	21.4	.7	1.6	11.9	46.2	63.9	109.1	1.4	G	(D)
Utah	E2	11	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	–	14	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	21	12	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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TSF:37C_92.DAT;1 3/27/95 11:11:19 UTF:37C_93.DAT;2 3/28/95 08:42:48 META:TIPS96-08470325.DAT;1 3/28/95 08:47:50

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Ship building and repairing (SIC 3731)	Boat building and repairing (SIC 3732)	Railroad equipment (SIC 3743)	Motorcycles, bicycles, and parts (SIC 3751)	Travel trailers and campers (SIC 3792)	Tanks and tank components (SIC 3795)	Transportation equipment, n.e.c. (SIC 3799)
Companies ---- number	562	2 376	154	244	269	36	654
All establishments ---- number	598	2 455	206	248	302	42	685
With 1 to 19 employees ---- number	331	2 042	83	197	176	11	495
With 20 to 99 employees ---- number	154	313	81	33	80	17	153
With 100 employees or more ---- number	113	100	42	18	46	14	37
Employment and labor costs:							
Employees ---- 1,000	118.3	44.5	28.2	11.7	15.2	9.8	19.5
Compensation, total ---- mil dol	4 792.4	1 214.7	1 222.0	386.5	425.3	514.8	544.3
Annual payroll ---- mil dol	3 624.1	1 005.8	897.5	301.7	357.9	362.9	449.2
Fringe benefits ---- mil dol	1 168.2	208.9	324.4	84.8	67.4	151.9	95.1
Social Security and other legally required payments ---- mil dol	584.6	113.2	117.6	33.9	38.6	43.2	46.9
Employer voluntary payments ---- mil dol	583.7	95.6	206.8	50.9	28.8	108.7	48.2
Production workers:							
Average for year ---- 1,000	87.1	34.4	20.6	9.0	12.0	5.7	13.8
March ---- 1,000	91.3	34.7	20.3	8.9	11.8	5.9	13.2
May ---- 1,000	87.9	35.6	19.3	8.9	12.2	5.8	14.2
August ---- 1,000	84.1	34.0	21.0	8.7	11.9	5.6	14.2
November ---- 1,000	85.1	33.5	21.8	9.4	12.2	5.3	13.7
Hours ---- millions	176.8	68.7	40.3	17.1	23.4	11.3	26.7
Wages ---- mil dol	2 294.3	660.6	556.3	198.1	239.6	189.5	248.3
Cost of materials[1] ---- mil dol	4 065.2	2 609.4	2 743.3	1 146.2	1 326.9	931.3	1 969.3
Materials, parts, containers, etc., consumed[2] ---- mil dol	3 525.6	2 383.5	2 591.0	977.0	1 227.8	898.9	1 823.8
Resales ---- mil dol	13.3	133.8	69.8	145.2	76.1	8.7	92.7
Fuels ---- mil dol	21.4	11.7	21.9	3.7	3.5	2.2	7.0
Purchased electricity ---- mil dol	98.2	26.9	41.9	6.9	6.9	8.4	13.0
Contract work ---- mil dol	406.8	53.5	18.7	13.5	12.6	13.1	32.8
Quantity of electric energy used for heat and power:							
Purchased ---- mil kWh	1 751.5	422.3	650.9	135.9	107.9	136.0	239.2
Generated less sold ---- mil kWh	(D)	(D)	(D)	(D)	(D)	–	(D)
Total value of shipments ---- mil dol	10 608.3	4 599.3	4 588.8	1 878.3	2 082.6	2 034.7	3 087.0
Value added ---- mil dol	6 543.2	1 991.4	1 961.6	744.5	774.9	1 157.8	1 112.1
Inventories by stage of fabrication:							
Beginning of 1992 ---- mil dol	1 528.6	663.1	870.4	217.5	183.6	307.4	396.1
Finished goods ---- mil dol	31.1	241.0	302.6	88.7	73.7	3.2	125.6
Work in process ---- mil dol	1 281.0	164.1	303.0	39.7	21.9	251.2	69.5
Materials and supplies ---- mil dol	216.4	258.0	264.8	89.1	88.0	53.0	201.0
End of 1992 ---- mil dol	1 293.3	691.6	968.4	233.0	204.0	336.7	418.3
Finished goods ---- mil dol	34.0	235.2	291.6	93.0	92.7	9.0	121.6
Work in process ---- mil dol	1 030.7	171.3	430.1	47.8	22.0	299.8	68.0
Materials and supplies ---- mil dol	228.6	285.1	246.7	92.2	89.3	28.0	228.7

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Ship building and repairing (SIC 3731)	Boat building and repairing (SIC 3732)	Railroad equipment (SIC 3743)	Motorcycles, bicycles, and parts (SIC 3751)	Travel trailers and campers (SIC 3792)	Tanks and tank components (SIC 3795)	Transportation equipment, n.e.c. (SIC 3799)
Gross book value of depreciable assets:							
Total:							
Beginning of year	4 037.8	982.0	1 441.9	289.2	185.5	369.7	469.8
New capital expenditures[1]	128.4	63.1	94.9	45.6	18.0	15.6	61.6
Used capital expenditures	32.4	19.7	5.7	4.0	2.6	1.7	7.8
Retirements	61.7	19.3	31.4	4.1	9.9	17.2	9.7
End of year	4 136.9	1 045.5	1 511.0	334.7	196.3	369.8	529.5
Buildings and other structures:							
Beginning of year	2 043.8	409.0	439.5	63.8	67.3	78.6	140.8
New capital expenditures	39.5	17.5	17.1	8.3	(D)	(D)	13.4
Used capital expenditures	(D)	6.2	.5	.1	(D)	(D)	2.4
Retirements	(D)	4.2	2.4	.2	1.4	.8	.8
End of year	2 030.5	428.5	454.6	71.9	73.4	82.7	155.8
Machinery and equipment:							
Beginning of year	1 994.0	573.0	1 002.4	225.5	118.2	291.1	329.1
New capital expenditures[1]	88.9	45.6	77.7	37.2	(D)	(D)	48.2
Used capital expenditures	(D)	13.6	5.2	4.0	(D)	(D)	5.4
Retirements	(D)	15.2	28.9	3.9	8.4	16.4	8.9
End of year	2 106.4	617.0	1 056.4	262.8	122.9	287.1	373.7
Depreciation charges during 1992:							
Total	201.8	115.4	98.9	16.3	20.4	25.1	39.7
Buildings and other structures	68.7	46.0	23.5	2.7	5.9	4.5	9.4
Machinery and equipment	133.1	69.4	75.5	13.6	14.5	20.6	30.4
Rental payments:							
Total	79.2	59.7	39.2	10.0	14.1	11.0	32.2
Buildings and other structures	46.2	34.4	22.9	5.3	9.9	8.5	20.0
Machinery and equipment	33.0	25.3	16.3	4.7	4.2	2.6	12.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/28/95 8:48 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 7
TSF:37C_92.DAT;1 3/27/95 11:11:19 UTF:37C_93.DAT;2 3/28/95 08:42:48 META:TIPS96-08470325.DAT;1 3/28/95 08:47:50

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Ship building and repairing (SIC 3731)		Boat building and repairing (SIC 3732)		Railroad equipment (SIC 3743)		Motorcycles, bicycles, and parts (SIC 3751)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	19.7	(X)	3.2	(X)	29.4	(X)	1.3	(X)
Response coverage ratio (percent)[2]	86.8	(X)	50.6	(X)	83.4	(X)	73.9	(X)
Machinery	36.8	(X)	8.6	(X)	16.7	(X)	5.0	(X)
Response coverage ratio (percent)[2]	73.0	(X)	50.7	(X)	83.4	(X)	73.9	(X)
Other purchased services:								
Communications	15.4	(X)	6.8	(X)	7.1	(X)	3.2	(X)
Response coverage ratio (percent)[2]	87.3	(X)	50.4	(X)	70.8	(X)	73.9	(X)
Legal	20.3	(X)	6.0	(X)	4.1	(X)	3.0	(X)
Response coverage ratio (percent)[2]	87.4	(X)	50.2	(X)	83.0	(X)	73.9	(X)
Accounting and bookkeeping	8.8	(X)	(S)	(X)	2.2	(X)	.9	(X)
Response coverage ratio (percent)[2]	87.4	(X)	(S)	(X)	83.0	(X)	73.9	(X)
Advertising	6.1	(X)	25.5	(X)	4.3	(X)	14.8	(X)
Response coverage ratio (percent)[2]	87.3	(X)	51.3	(X)	83.4	(X)	73.9	(X)
Software and other data processing	64.2	(X)	(S)	(X)	6.1	(X)	1.5	(X)
Response coverage ratio (percent)[2]	86.8	(X)	(S)	(X)	83.0	(X)	68.2	(X)
Refuse removal, including hazardous waste	15.5	(X)	(S)	(X)	5.9	(X)	1.7	(X)
Response coverage ratio (percent)[2]	87.1	(X)	(S)	(X)	79.9	(X)	73.9	(X)
New machinery and equipment expenditures	88.9	(X)	45.6	(X)	77.7	(X)	37.2	(X)
Automobiles, trucks, etc., for highway use	3.0	10	2.5	24	1.4	9	.3	16
Computers and peripheral data processing equipment	25.9	1	3.1	10	10.1	8	3.4	6
All other	60.0	1	40.0	3	66.3	2	33.6	1
Adjustment ratio[3]	1.3	(X)	1.8	(X)	1.0	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	3 525.6	(X)	2 383.5	(X)	2 591.0	(X)	977.0	(X)
Materials purchased or transferred from foreign sources[4]	33.5	6	(S)	(X)	(S)	(X)	225.8	5
Materials purchased or transferred from domestic sources	3 492.0	1	(S)	(X)	(S)	(X)	751.2	2
Adjustment ratio[3]	1.6	(X)	(S)	(X)	(S)	(X)	1.4	(X)

Item	Travel trailers and campers (SIC 3792)		Tanks and tank components (SIC 3795)		Transportation equipment, n.e.c. (SIC 3799)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.7	(X)	2.2	(X)	2.4	(X)
Response coverage ratio (percent)[2]	79.5	(X)	93.5	(X)	53.7	(X)
Machinery	4.2	(X)	10.8	(X)	7.4	(X)
Response coverage ratio (percent)[2]	79.2	(X)	93.5	(X)	54.5	(X)
Other purchased services:						
Communications	4.1	(X)	1.1	(X)	(S)	(X)
Response coverage ratio (percent)[2]	78.0	(X)	62.3	(X)	(S)	(X)
Legal	1.4	(X)	.8	(X)	24.6	(X)
Response coverage ratio (percent)[2]	78.8	(X)	65.4	(X)	53.5	(X)
Accounting and bookkeeping	2.1	(X)	1.1	(X)	24.4	(X)
Response coverage ratio (percent)[2]	76.5	(X)	65.4	(X)	55.0	(X)
Advertising	17.5	(X)	8.4	(X)	7.5	(X)
Response coverage ratio (percent)[2]	78.8	(X)	65.4	(X)	55.0	(X)
Software and other data processing	.7	(X)	3.8	(X)	1.3	(X)
Response coverage ratio (percent)[2]	73.2	(X)	93.5	(X)	52.7	(X)
Refuse removal, including hazardous waste	3.1	(X)	3.1	(X)	1.6	(X)
Response coverage ratio (percent)[2]	79.5	(X)	93.5	(X)	55.0	(X)
New machinery and equipment expenditures	(D)	(X)	(D)	(X)	48.2	(X)
Automobiles, trucks, etc., for highway use	(D)	(X)	(D)	(X)	1.9	26
Computers and peripheral data processing equipment	(D)	(X)	(D)	(X)	2.5	4
All other	(D)	(X)	(D)	(X)	43.8	2
Adjustment ratio[3]	(D)	(X)	(D)	(X)	1.0	(X)
Cost of materials, components, parts, etc., used	1 227.8	(X)	898.9	(X)	1 823.8	(X)
Materials purchased or transferred from foreign sources[4]	11.3	7	109.8	3	713.3	4
Materials purchased or transferred from domestic sources	1 216.5	1	789.1	1	1 110.5	3
Adjustment ratio[3]	1.7	(X)	1.4	(X)	1.8	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3731, SHIP BUILDING AND REPAIRING												
Total	**–**	**598**	**118.3**	**3 624.1**	**87.1**	**176.8**	**2 294.3**	**6 543.2**	**4 065.2**	**10 608.3**	**128.4**	**1 293.3**
Establishments with an average of—												
1 to 4 employees	E7	141	.3	7.2	.2	.4	4.5	13.1	9.0	22.2	.4	2.7
5 to 9 employees	E6	89	.6	16.6	.5	.9	10.9	29.8	18.8	48.6	.8	6.4
10 to 19 employees	E4	101	1.4	37.5	1.0	2.0	23.4	63.5	43.8	107.3	2.0	13.8
20 to 49 employees	E2	102	3.3	88.8	2.4	5.1	60.9	169.4	106.4	275.8	5.0	34.8
50 to 99 employees	E1	52	3.5	96.3	2.8	5.9	67.9	178.6	144.5	323.1	6.7	43.6
100 to 249 employees	E1	61	9.4	259.7	7.1	15.0	184.3	490.8	302.7	793.5	13.2	130.9
250 to 499 employees	E1	25	8.2	212.8	6.8	14.1	159.2	373.8	404.2	778.0	13.8	99.7
500 to 999 employees	E3	15	9.3	259.9	7.9	15.1	193.5	495.8	531.8	1 027.6	13.1	102.9
1,000 to 2,499 employees	E1	6	7.8	246.1	6.5	13.6	187.7	470.5	395.9	866.4	8.7	145.5
2,500 employees or more	–	6	74.6	2 399.1	51.9	104.8	1 402.0	4 257.9	2 108.1	6 365.9	64.7	713.0
Covered by administrative records[2]	E9	227	1.2	28.6	.9	1.7	18.3	46.2	30.9	77.0	1.5	9.9
INDUSTRY 3732, BOAT BUILDING AND REPAIRING												
Total	**E1**	**2 455**	**44.5**	**1 005.8**	**34.4**	**68.7**	**660.6**	**1 991.4**	**2 609.4**	**4 599.3**	**63.1**	**691.6**
Establishments with an average of—												
1 to 4 employees	E7	1 377	2.3	42.7	1.8	3.5	29.6	58.7	137.9	194.9	2.2	39.3
5 to 9 employees	E3	379	2.5	45.5	1.9	3.6	31.7	48.0	130.6	177.0	2.3	43.1
10 to 19 employees	E1	286	3.8	82.4	2.9	5.8	54.6	148.7	154.7	300.8	4.4	47.7
20 to 49 employees	E2	234	7.3	157.7	5.5	10.9	105.6	307.3	329.5	637.4	9.6	94.7
50 to 99 employees	E2	79	5.6	129.8	4.4	9.0	86.9	262.7	320.7	586.1	13.4	88.1
100 to 249 employees	E1	70	11.5	270.6	9.0	17.8	179.4	567.4	736.7	1 307.7	16.6	193.9
250 to 499 employees	–	26	8.7	196.7	7.1	14.3	139.5	452.9	618.8	1 067.6	14.6	135.6
500 to 999 employees	–	4	2.8	80.3	1.8	3.8	33.3	145.7	180.4	327.8	(D)	49.2
Covered by administrative records[2]	E9	1 226	2.6	39.6	2.1	3.6	27.3	76.0	102.7	178.8	2.1	24.5
INDUSTRY 3743, RAILROAD EQUIPMENT												
Total	**–**	**206**	**28.2**	**897.5**	**20.6**	**40.3**	**556.3**	**1 961.6**	**2 743.3**	**4 588.8**	**94.9**	**968.4**
Establishments with an average of—												
1 to 4 employees	E7	35	.1	1.5	(Z)	.1	1.0	4.0	5.7	9.7	.2	2.2
5 to 9 employees	E3	17	.1	2.9	.1	.2	1.7	5.0	9.9	15.0	.2	2.3
10 to 19 employees	E4	31	.5	10.9	.4	.7	6.8	36.0	30.7	66.9	1.0	13.7
20 to 49 employees	E1	43	1.4	34.9	.9	1.8	18.5	80.4	114.7	194.1	2.2	33.7
50 to 99 employees	–	38	2.7	74.1	2.0	3.8	41.9	175.3	233.7	402.2	8.3	78.2
100 to 249 employees	E1	18	2.9	71.8	2.2	4.4	46.6	207.4	236.0	437.6	12.0	81.8
250 to 499 employees	E1	12	4.6	130.4	3.5	7.1	86.1	273.0	385.7	663.9	11.4	97.4
500 to 999 employees	–	9	6.7	188.3	4.5	7.7	92.7	377.2	792.9	1 109.1	59.7	295.3
1,000 to 2,499 employees	–	1	9.4	382.7	7.1	14.6	261.1	803.4	934.0	1 690.2	(D)	363.7
2,500 employees or more	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	43	.2	3.7	.1	.2	2.4	5.7	8.9	14.6	.3	2.9
INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS												
Total	**–**	**248**	**11.7**	**301.7**	**9.0**	**17.1**	**198.1**	**744.5**	**1 146.2**	**1 878.3**	**45.6**	**233.0**
Establishments with an average of—												
1 to 4 employees	E8	112	.2	4.3	.1	.3	3.0	11.0	17.7	28.7	.4	4.2
5 to 9 employees	E3	47	.3	6.4	.2	.5	4.0	19.0	17.9	36.7	.9	4.8
10 to 19 employees	E3	38	.5	12.3	.4	.7	7.7	38.1	38.5	77.0	1.2	10.2
20 to 49 employees	E1	23	.9	23.8	.6	1.2	13.5	45.6	53.3	97.8	1.8	15.0
50 to 99 employees	E3	10	.7	15.5	.5	1.0	8.9	42.2	46.9	86.9	2.5	16.5
100 to 249 employees	–	12	1.9	49.3	1.2	2.4	24.8	162.0	140.7	288.6	12.1	49.3
250 to 499 employees	–	1	1.9	34.0	1.5	2.3	18.3	74.9	202.3	277.0	2.7	61.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	3	5.3	156.1	4.4	8.7	117.9	351.7	629.0	985.7	23.9	71.4
Covered by administrative records[2]	E9	96	.2	3.2	.1	.3	2.3	7.6	13.6	21.2	.3	3.0
INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS												
Total	**–**	**302**	**15.2**	**357.9**	**12.0**	**23.4**	**239.6**	**774.9**	**1 326.9**	**2 082.6**	**18.0**	**204.0**
Establishments with an average of—												
1 to 4 employees	E9	89	.1	2.7	.1	.2	1.7	6.0	10.3	16.3	(Z)	1.8
5 to 9 employees	E5	48	.3	5.5	.2	.4	3.3	10.6	21.2	31.9	.1	3.7
10 to 19 employees	E1	39	.5	9.6	.4	.7	6.3	24.5	37.7	61.8	1.1	7.7
20 to 49 employees	E3	46	1.5	29.7	1.1	2.2	18.1	56.9	89.4	146.1	1.2	15.3
50 to 99 employees	E1	34	2.4	54.0	1.9	3.7	35.5	113.5	186.0	300.6	2.4	27.6
100 to 249 employees	–	33	5.2	123.1	4.1	8.0	82.1	243.3	448.4	681.8	8.1	64.0
250 to 499 employees	–	11	5.1	133.3	4.2	8.2	92.7	320.2	533.8	844.2	5.1	83.9
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	115	.4	5.9	.3	.5	3.9	12.2	21.0	33.2	.1	3.8

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3795, TANKS AND TANK COMPONENTS												
Total	**–**	**42**	**9.8**	**362.9**	**5.7**	**11.3**	**189.5**	**1 157.8**	**931.3**	**2 034.7**	**15.6**	**336.7**
Establishments with an average of—												
1 to 4 employees	–	4	(Z)	.3	(Z)	(Z)	.2	1.2	1.6	2.8	.1	.5
5 to 9 employees	–	4	.1	2.0	.1	.1	1.2	4.8	10.9	15.5	(D)	3.5
10 to 19 employees	E5	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(D)
20 to 49 employees	–	12	.4	11.4	.3	.6	6.5	23.4	36.2	56.6	.6	26.6
50 to 99 employees	–	5	.4	14.8	.2	.6	6.8	26.2	26.5	53.9	1.7	12.5
100 to 249 employees	–	7	3.5	132.1	1.8	3.7	56.7	282.0	140.2	417.2	13.3	103.5
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	3	5.5	202.3	3.3	6.3	118.0	820.2	716.0	1 488.8	(D)	190.1
INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.												
Total	**E1**	**685**	**19.5**	**449.2**	**13.8**	**26.7**	**248.3**	**1 112.1**	**1 969.3**	**3 087.0**	**61.6**	**418.3**
Establishments with an average of—												
1 to 4 employees	E8	264	.5	9.9	.3	.7	5.5	25.1	41.6	66.2	.8	9.6
5 to 9 employees	E3	123	.8	17.3	.6	1.1	9.4	46.6	77.9	124.0	1.9	14.2
10 to 19 employees	–	108	1.5	30.2	1.1	2.1	18.0	65.5	100.4	165.1	2.4	25.5
20 to 49 employees	E1	110	3.4	75.7	2.4	4.9	43.0	152.6	188.3	344.8	3.7	51.5
50 to 99 employees	E1	43	3.0	65.1	2.2	4.3	37.1	162.4	179.9	342.3	5.5	47.3
100 to 249 employees	–	28	4.4	95.8	3.3	6.4	55.5	186.9	246.7	434.5	11.8	93.3
250 to 499 employees	–	4	1.6	51.1	1.2	2.5	30.9	107.3	399.9	509.3	15.0	55.0
500 to 999 employees	E4	3	4.3	104.1	2.8	4.9	48.9	365.6	734.6	1 100.9	20.5	121.9
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	258	.6	10.7	.4	.8	5.9	26.1	42.7	68.8	1.0	9.9

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3731	**Ship building and repairing:**										
	All establishments in industry	598	118.3	3 624.1	87.1	176.8	2 294.3	6 543.2	4 065.2	10 608.3	128.4
	Establishments with this product class primary:										
37311	Nonpropelled ships, new construction	25	5.5	122.7	4.7	8.7	93.8	245.3	262.1	507.4	8.0
37312	Self-propelled ships, U.S. military, new construction	15	79.6	2 547.3	55.8	112.4	1 495.0	4 589.3	2 495.5	7 084.8	74.6
37313	Self-propelled ships, nonmilitary, new construction	43	4.8	121.7	3.9	8.2	91.2	243.4	313.5	556.9	5.8
37314	Ship repair, military	52	14.6	446.1	12.0	25.3	341.0	769.6	592.8	1 362.4	20.1
37316	Ship repair, nonmilitary	100	7.9	239.7	6.3	13.3	178.6	439.8	233.9	673.6	11.1
3732	**Boat building and repairing:**										
	All establishments in industry	2 455	44.5	1 005.8	34.4	68.7	660.6	1 991.4	2 609.4	4 599.3	63.1
	Establishments with this product class primary:										
37322	Outboard motorboats, including commercial and military (except sailboats with auxiliary power and lifeboats)	158	9.8	213.7	7.7	14.9	133.3	480.6	644.6	1 126.0	13.3
37323	Inboard motorboats	89	7.1	180.1	5.7	11.7	121.8	347.9	384.2	728.8	11.6
37324	Inboard-outdrive boats	92	9.3	200.0	7.3	14.7	131.6	466.2	709.3	1 183.6	12.3
37327	All other boats (excluding military and commercial)	93	3.2	72.5	2.4	4.8	48.3	130.7	155.5	282.2	7.1
37328	Boat repair, military and nonmilitary	283	4.7	122.6	3.2	6.5	78.0	179.7	176.9	354.4	8.2
3743	**Railroad equipment:**										
	All establishments in industry	206	28.2	897.5	20.6	40.3	556.3	1 961.6	2 743.3	4 588.8	94.9
	Establishments with this product class primary:										
37431	Locomotives, both new and rebuilt, and parts	29	10.7	422.6	7.6	15.7	271.4	885.1	979.3	1 822.9	36.2
37432	Freight train and passenger train cars, new, excluding parts	28	9.5	242.9	7.6	13.7	161.5	484.2	1 107.6	1 564.0	20.4
37433	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars	67	6.5	197.5	4.2	8.6	100.8	516.2	595.7	1 064.0	36.7

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3751	**Motorcycles, bicycles, and parts:**										
	All establishments in industry	248	11.7	301.7	9.0	17.1	198.1	744.5	1 146.2	1 878.3	45.6
	Establishments with this product class primary:										
37511	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires)	46	7.1	163.4	5.5	9.7	100.5	403.1	623.3	1 017.5	21.6
37512	Motorcycles, motorbikes, motor scooters, mopeds, and parts	35	3.4	109.1	2.5	5.4	77.4	262.4	412.9	672.5	21.5
3792	**Travel trailers and campers:**										
	All establishments in industry	302	15.2	357.9	12.0	23.4	239.6	774.9	1 326.9	2 082.6	18.0
	Establishments with this product class primary:										
37921	Travel trailers	66	9.1	221.5	7.5	14.8	156.7	489.3	913.1	1 383.8	10.3
37922	Camping trailers, campers, pickup covers, and parts	70	4.5	103.4	3.3	6.4	61.9	221.2	304.9	524.1	6.6
3795	**Tanks and tank components:**										
	All establishments in industry	42	9.8	362.9	5.7	11.3	189.5	1 157.8	931.3	2 034.7	15.6
3799	**Transportation equipment, n.e.c.:**										
	All establishments in industry	685	19.5	449.2	13.8	26.7	248.3	1 112.1	1 969.3	3 087.0	61.6
	Establishments with this product class primary:										
37993	Golf carts and industrial in-plant personnel carriers, self-propelled, and parts	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
37996	Automobile and light truck trailers	181	6.3	134.2	4.8	9.7	83.3	258.4	375.9	635.3	9.0
37999	Transportation equipment, n.e.c., including all-terrain vehicles	104	7.6	182.9	5.5	10.1	105.7	543.2	1 161.2	1 708.7	39.2

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3731, SHIP BUILDING AND REPAIRING			
Total value of shipments	10 608.3	8 504.4	10 967.2
Primary products value of shipments	10 317.5	8 282.8	10 583.3
Secondary products value of shipments	85.2	90.2	141.2
Total miscellaneous receipts	205.7	131.4	242.7
Value of resales	18.0	64.6	52.5
Contract receipts	12.9	15.3	26.8
Other miscellaneous receipts	174.8	51.6	163.4
Sales of scrap and refuse	3.4	3.6	6.3
Other miscellaneous receipts	154.6	33.4	155.0
Other miscellaneous receipts, n.s.k.	16.8	14.6	2.1
Primary products specialization ratio	99	99	99
Value of primary products shipments made in all industries	10 390.9	8 343.1	10 654.5
Value of primary products shipments made in this industry	10 317.5	8 282.8	10 583.3
Value of primary products shipments made in other industries	73.4	60.3	71.2
Coverage ratio	99	99	99
INDUSTRY 3732, BOAT BUILDING AND REPAIRING			
Total value of shipments	4 599.3	5 352.5	2 359.2
Primary products value of shipments	4 256.2	5 168.2	2 225.0
Secondary products value of shipments	98.4	52.9	56.3
Total miscellaneous receipts	244.7	131.5	77.9
Value of resales	176.7	99.2	40.3
Contract receipts	13.2	(D)	5.5
Other miscellaneous receipts	54.8	(D)	32.1
Primary products specialization ratio	98	99	98
Value of primary products shipments made in all industries	4 272.5	5 218.6	2 307.4
Value of primary products shipments made in this industry	4 256.2	5 168.2	2 225.0
Value of primary products shipments made in other industries	16.2	50.4	82.4
Coverage ratio	99	99	96

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3743, RAILROAD EQUIPMENT			
Total value of shipments	4 588.8	2 470.9	3 456.6
Primary products value of shipments	4 114.9	2 052.9	2 749.6
Secondary products value of shipments	234.8	284.9	481.4
Total miscellaneous receipts	239.1	133.2	225.5
Value of resales	86.6	85.3	77.5
Contract receipts	9.0	9.3	32.6
Other miscellaneous receipts	143.6	38.6	115.4
Sales of scrap and refuse	7.7	(D)	7.7
Receipts for repair work	98.2	19.6	45.1
Other miscellaneous receipts	35.3	(D)	(D)
Other miscellaneous receipts, n.s.k.	2.5	(D)	(D)
Primary products specialization ratio	95	88	85
Value of primary products shipments made in all industries	4 167.3	2 138.6	2 878.9
Value of primary products shipments made in this industry	4 114.9	2 052.9	2 749.6
Value of primary products shipments made in other industries	52.5	85.7	129.3
Coverage ratio	99	96	96
INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS			
Total value of shipments	1 878.3	1 062.6	1 341.1
Primary products value of shipments	1 580.3	939.4	1 095.7
Secondary products value of shipments	107.4	57.2	199.7
Total miscellaneous receipts	190.6	66.0	45.7
Value of resales	186.1	63.2	(D)
Contract receipts	2.1	(D)	(D)
Other miscellaneous receipts	2.4	(D)	(D)
Primary products specialization ratio	94	94	85
Value of primary products shipments made in all industries	2 031.7	1 152.4	1 143.1
Value of primary products shipments made in this industry	1 580.3	939.4	1 095.7
Value of primary products shipments made in other industries	451.4	213.0	47.4
Coverage ratio	78	82	96
INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS			
Total value of shipments	2 082.6	1 868.8	1 281.6
Primary products value of shipments	1 879.3	1 649.2	1 052.4
Secondary products value of shipments	100.7	109.8	147.9
Total miscellaneous receipts	102.6	109.8	81.3
Value of resales	85.1	73.4	50.3
Contract receipts	(D)	(D)	.3
Other miscellaneous receipts	(D)	(D)	30.7
Primary products specialization ratio	95	94	88
Value of primary products shipments made in all industries	2 027.9	1 871.0	1 088.1
Value of primary products shipments made in this industry	1 879.3	1 649.2	1 052.4
Value of primary products shipments made in other industries	148.6	221.8	35.7
Coverage ratio	93	88	97
INDUSTRY 3795, TANKS AND TANK COMPONENTS			
Total value of shipments	2 034.7	2 521.8	2 351.0
Primary products value of shipments	1 938.5	(D)	(D)
Secondary products value of shipments	51.2	(D)	(D)
Total miscellaneous receipts	45.1	(D)	(D)
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	97	(D)	(D)
Value of primary products shipments made in all industries	2 503.1	3 016.9	2 680.5
Value of primary products shipments made in this industry	1 938.5	(D)	(D)
Value of primary products shipments made in other industries	564.6	(D)	(D)
Coverage ratio	77	(D)	(D)
INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.			
Total value of shipments	3 087.0	1 642.1	895.2
Primary products value of shipments	2 667.0	1 479.1	782.5
Secondary products value of shipments	252.3	96.9	74.4
Total miscellaneous receipts	167.7	66.2	38.3
Value of resales	119.6	43.4	28.8
Contract receipts	11.6	4.3	2.5
Other miscellaneous receipts	36.5	18.5	7.0
Primary products specialization ratio	91	94	93
Value of primary products shipments made in all industries	2 826.4	1 576.3	954.3
Value of primary products shipments made in this industry	2 667.0	1 479.1	782.5
Value of primary products shipments made in other industries	159.4	97.2	171.7
Coverage ratio	94	94	82

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3731– —	**SHIP BUILDING AND REPAIRING**				
	Total	**(NA)**	**10 390.9**	**(NA)**	**8 343.1**
37311	Nonpropelled ships, new construction	(NA)	449.3	(NA)	108.1
	Military and nonmilitary:				
37311 11	Barges, all types[3]	23	374.4	(NA)	(D)
37311 07	Drilling/ production platforms	4	60.1	3	(D)
37311 19	Other (including dredges and floating docks)[3]	6		(NA)	(D)
37311 00	Nonpropelled ships, new construction, n.s.k.	(NA)	14.8	(NA)	2.7
37312	Self-propelled ships, U.S. military, new construction	(NA)	6 034.1	(NA)	4 748.5
37312 00	Military, including combat ships, troop transport vessels, fleet auxiliaries, service craft, etc.[4]	21	6 034.1	27	4 748.5
37313	Self-propelled ships, nonmilitary, new construction[4]	(NA)	648.3	(NA)	497.1
37313 15	Yachts, 65 ft or more in length (requires a professional crew as specified by the Coast Guard)	14	107.8	9	140.5
37313 24	Dry bulk carriers	3	2.1	(NA)	–
37313 26	Tankers	3	6	1	(5)
37313 32	Fire, patrol, and pilot vessels	3	(6)	(NA)	–
37313 33	Support vessels for offshore drilling and mining	4	11.3	4	4.4
37313 35	Self-propelled mobile drilling/ production platforms	(NA)	–	(NA)	–
	Commercial fishing vessels:				
37313 43	Trawlers	9	52.3	(NA)	(7)
37313 48	Other (including seiners)[3]	14	24.4	(NA)	7111.0
37313 57	Tugboats and towboats, including integrated tug/ barge combination[3]	8	10.7	(NA)	20.2
37313 21	Ferryboats	8	15.3	9	38.2
37313 28	Other ships (including container and trailer ships)[3]	11	6412.0	(NA)	5163.3
37313 00	Self-propelled ships, nonmilitary, new construction, n.s.k.	(NA)	11.7	(NA)	19.6
37314	Ship repair, military[4]	(NA)	1 968.7	(NA)	1 907.6
37314 41	Conversions and reconversions	25	384.2	34	356.1
37314 49	All other repairs	56	1 575.2	66	1 548.9
37314 00	Ship repair, military, n.s.k.	(NA)	9.3	(NA)	2.6
37316	Ship repair, nonmilitary[4]	(NA)	872.1	(NA)	796.7
37316 01	Conversions and reconversions	30	117.2	33	142.1
37316 02	All other repairs	142	732.3	141	647.7
37316 00	Ship repair, nonmilitary, n.s.k.	(NA)	22.5	(NA)	6.9
37310	Ship building and repairing, n.s.k.	(NA)	418.4	(NA)	285.0
37310 00	Ship building and repairing, n.s.k.[8]	(NA)	341.4	(NA)	175.4
37310 02	Ship building and repairing, n.s.k.[9]	(NA)	77.0	(NA)	109.7

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3732– —	**BOAT BUILDING AND REPAIRING**						
	Total	**(NA)**	**(X)**	**4 272.5**	**(NA)**	**(X)**	**5 218.6**
37322	Outboard motorboats, including commercial and military (except sailboats with auxiliary power and lifeboats)	(NA)	(X)	1 120.4	(NA)	(X)	1 143.6
	Wood or metal:						
37322 01	Runabouts—number	19	**19 919	74.7	15	**17 508	55.8
37322 02	Utility—number	21	**52 222	38.1	12	54 034	32.0
37322 07	Bass boats—number	12	(S)	86.7	11	35 070	78.8
37322 11	Pontoon boats—number	36	**32 730	162.6	22	**18 793	73.8
37322 19	Other (including cabin cruisers and center consoles)[3]	21	(X)	27.4	(NA)	(X)	21.1
	Plastics (reinforced), fiberglass:						
37322 21	Runabouts—number	36	*14 562	119.0	61	*41 187	320.1
37322 23	Utility—number	13	(S)	32.0	8	1 837	15.2
37322 25	Cabin cruisers—number	18	1 188	22.3	28	**5 669	105.9
37322 27	Center consoles—number	45	*9 376	118.9	38	**18 405	152.1
37322 28	Bass boats—number	31	**27 099	227.9	45	**39 959	219.8
37322 29	Other	28	(X)	179.9	12	(X)	27.3
37322 00	Outboard motorboats, including commercial and military (except sailboats with auxiliary power and lifeboats), n.s.k.	(NA)	(X)	30.7	(NA)	(X)	41.7
37323	Inboard motorboats	(NA)	(X)	695.3	(NA)	(X)	1 364.7
37323 04	Runabouts[3]—number	22	9 909	137.9	(NA)	**21 410	379.0
	Cabin cruisers:						
37323 11	Less than 40 ft (12.19 m) in length[3]—number	45	*3 502	250.7	(NA)	**8 385	582.3
37323 16	40 ft (12.19 m) or more in length (professional crew not required by Coast Guard)[3]—number	29	786	177.8	(NA)	1 160	302.7
37323 21	Other (including houseboats)[3]	15	(X)	57.2	(NA)	(X)	39.8
37323 00	Inboard motorboats, n.s.k.	(NA)	(X)	71.7	(NA)	(X)	60.9

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3732– —	**BOAT BUILDING AND REPAIRING**—Con.						
37324	Inboard-outdrive boats	(NA)	(X)	1 039.9	(NA)	(X)	1 481.0
37324 01	Houseboats number	11	*688	32.5	7	2 557	91.7
37324 03	Runabouts number	47	49 724	605.7	53	60 324	632.8
37324 05	Cabin cruisers number	29	10 376	287.8	34	25 758	511.3
37324 07	Center consoles number	8	281	4.1	10	**1 245	23.5
37324 09	Other	25	(X)	73.5	13	(X)	203.3
37324 00	Inboard-outdrive boats, n.s.k.	(NA)	(X)	36.3	(NA)	(X)	18.4
37327	All other boats (excluding military and commercial)	(NA)	(X)	252.1	(NA)	(X)	283.4
37327 02	Sailboats without auxiliary motor, all sizes[3] number	16	**5 760	16.5	(NA)	(NA)	(10)
	Sailboats with auxiliary motor:						
37327 04	Not more than 6.5 m (21.33 ft) in length[3] number	6	**512	10.1	(NA)	(NA)	(10)
37327 06	More than 6.5 m (21.33 ft) but not more than 9.0 m (29.53 ft) in length[3] number	11	690	24.3	(NA)	(NA)	(10)
37327 08	More than 9.0 m (29.53 ft) but not more than 12.0 m (39.03 ft) in length[3] number	17	612	46.5	(NA)	(NA)	(10)
37327 12	More than 12.0 m (39.03 ft) in length[3] number	25	*280	52.4	(NA)	(NA)	(10)
37327 17	Canoes (made from all types of materials)[3] number	12	*54 712	24.5	(NA)	**88 383	31.5
37327 19	All other boats, n.e.c.	50	(X)	77.2	24	(X)	232.4
37327 00	All other boats (excluding military and commercial), n.s.k.	(NA)	(X)	.7	(NA)	(X)	19.5
37328	Boat repair, military and nonmilitary	(NA)	(X)	308.8	(NA)	(X)	209.0
37328 00	Boat repair, military and nonmilitary[11]	319	(X)	308.8	(NA)	(X)	209.0
37320	Boat building and repairing, n.s.k.	(NA)	(X)	855.9	(NA)	(X)	736.8
37320 00	Boat building and repairing, n.s.k.[12]	(NA)	(X)	676.8	(NA)	(X)	550.3
37320 02	Boat building and repairing, n.s.k.[13]	(NA)	(X)	179.2	(NA)	(X)	186.5

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3743– —	**RAILROAD EQUIPMENT**				
	Total	**(NA)**	**4 167.3**	**(NA)**	**2 138.6**
37431	Locomotives, both new and rebuilt, and parts	(NA)	1 540.1	(NA)	818.7
37431 01	Locomotives[3]	13	816.3	(NA)	(D)
37431 03	Parts for locomotives[3]	30	723.6	(NA)	(D)
37431 00	Locomotives, both new and rebuilt, and parts, n.s.k.	(NA)	.3	(NA)	8.0
37432	Freight train and passenger train cars, new, excluding parts	(NA)	1 416.2	(NA)	582.0
37432 11	Box (AAR types A, B)	2	858.5	6	44.8
37432 15	Flat (AAR types F, V)	6		7	101.7
37432 35	Hopper, open and covered (AAR types L, O, H, J)[3]	8		(NA)	210.6
37432 41	Tank (AAR type T)	6		6	110.8
37432 65	Other freight train and passenger train cars, new[3]	10	555.5	(NA)	112.0
37432 00	Freight train and passenger train cars, new, excluding parts, n.s.k.	(NA)	2.2	(NA)	2.1
37433	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars	(NA)	1 122.6	(NA)	661.3
37433 01	Rebuilt passenger and freight train cars	13	103.7	7	115.3
37433 05	Self-propelled and nonself-propelled streetcars, subway cars, rapid transit cars, trolley buses, etc.[3]	9	338.7	(NA)	172.5
37433 04	Other work and service railroad vehicles (excluding locomotive cranes)	10	38.7	6	36.9
	Parts and accessories for railroad and streetcars:				
37433 11	Airbrake equipment	9	153.6	8	65.8
37433 12	Other brake equipment	6	18.5	10	16.3
37433 14	Hooks and other coupling devices, buffers, and parts thereof	5	35.5	9	43.9
37433 19	Other railroad and streetcar parts and accessories, including truck assemblies[3]	45	430.9	(NA)	193.5
37433 00	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars, n.s.k.	(NA)	3.1	(NA)	17.1
37430	Railroad equipment, n.s.k.	(NA)	88.5	(NA)	76.6
37430 00	Railroad equipment, n.s.k.[12]	(NA)	73.9	(NA)	32.8
37430 02	Railroad equipment, n.s.k.[13]	(NA)	14.6	(NA)	43.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3751– —	**MOTORCYCLES, BICYCLES, AND PARTS**						
	Total	**(NA)**	**(X)**	**2 031.7**	**(NA)**	**(X)**	**1 152.4**
37511	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires)	(NA)	(X)	1 022.6	(NA)	(X)	536.1
	Bicycles, complete:						
37511 39	With both wheels 19 inches or less in diameter, all speeds[3] thousands	2	(D)	([14])	(NA)	(NA)	([15])
37511 41	With both wheels 20 inches in diameter, all speeds[3] thousands	4	**1 924.5	110.4	(NA)	(NA)	([15])
	With both wheels 24 inches in diameter, all speeds:						
37511 43	Lightweight, road bicycles[3] thousands	1	(D)	([14])	(NA)	(NA)	([15])
37511 45	Other bicycles, including mountain, all-terrain bicycles, and cruisers[3] thousands	2	(D)	([14])	(NA)	(NA)	([15])
	With both wheels 26 inches or more in diameter, all speeds:						
37511 47	Lightweight, road bicycles[3] thousands	7	81.8	38.0	(NA)	(NA)	([15])
37511 49	Other bicycles, including mountain, all-terrain bicycles, and cruisers[3] thousands	15	2 067.6	300.8	(NA)	(NA)	([15])
37511 55	Other bicycles, complete[3]	3	(X)	([14])	(NA)	(X)	458.4
37511 09	Other cycles, including unicycles and adult tricycles	2	(X)	[14]382.7	3	(X)	1.5
	Parts for bicycles, unicycles, and adult tricycles:						
37511 10	Frames, forks, and parts thereof	20	(X)	44.5	5	(X)	5.0
37511 12	Wheel rims and spokes	10	(X)	18.3	6	(X)	7.2
37511 13	Hubs, other than coaster braking hubs and hub brakes, and freewheel sprocket wheels	1	(X)	([16])	2	(X)	([17])
37511 14	Brakes, including coaster braking hubs and hub brakes, and parts thereof	1	(X)	.5	2	(X)	.7
37511 15	Seats (saddles)	5	(X)	14.4	5	(X)	15.9
37511 16	Pedals and crankgear and parts thereof	7	(X)	([16])	3	(X)	15.7
37511 23	Other[3]	19	(X)	[16]63.4	12	(X)	[17]25.7
37511 00	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires), n.s.k.	(NA)	(X)	49.7	(NA)	(X)	6.0
37512	Motorcycles, motorbikes, motor scooters, mopeds, and parts	(NA)	(X)	836.6	(NA)	(X)	495.3
37512 01	Motorcycles, including three-wheel (excluding sidecars), motor scooters, motorbikes, and mopeds thousands	9	(D)	(D)	6	(D)	(D)
37512 09	Parts for motorcycles (including sidecars), motorbikes, motor scooters, and mopeds (including bicycle engines)[3]	40	(X)	(D)	(NA)	(X)	(D)
37512 00	Motorcycles, motorbikes, motor scooters, mopeds, and parts, n.s.k.	(NA)	(X)	2.1	(NA)	(X)	.2
37510	Motorcycles, bicycles, and parts, n.s.k.	(NA)	(X)	172.5	(NA)	(X)	121.0
37510 00	Motorcycles, bicycles, and parts, n.s.k.[12]	(NA)	(X)	151.3	(NA)	(X)	23.3
37510 02	Motorcycles, bicycles, and parts, n.s.k.[13]	(NA)	(X)	21.2	(NA)	(X)	97.7
3792– —	**TRAVEL TRAILERS AND CAMPERS**						
	Total	**(NA)**	**(X)**	**2 027.9**	**(NA)**	**(X)**	**1 871.0**
37921	Travel trailers	(NA)	(X)	1 330.8	(NA)	(X)	1 182.9
	Conventional travel trailers:						
37921 12	Less than 20 ft (6.096 m) in length thousands	19	*6.9	62.0	18	**4.0	29.2
37921 14	20 ft (6.096 m) to 24 ft 11 inches (7.595 m) in length thousands	19	19.2	251.5	23	(S)	94.0
37921 16	25 ft (7.620 m) to 29 ft 11 inches (9.118 m) in length thousands	23	16.8	181.1	31	(S)	158.4
37921 18	30 ft (9.144 m) or more, including park models thousands	34	*18.0	216.3	40	**46.0	524.5
	Fifth wheel travel trailers:						
37921 25	Less than 30 ft (9.144 m) in length thousands	26	17.0	246.7	30	**11.8	158.0
37921 28	30 ft (9.144 m) or more in length thousands	27	*17.7	333.2	33	(S)	175.3
37921 00	Travel trailers, n.s.k.	(NA)	(X)	39.9	(NA)	(X)	43.5
37922	Camping trailers, campers, pickup covers, and parts	(NA)	(X)	538.6	(NA)	(X)	510.1
37922 42	Folddown camping trailers thousands	10	44.5	157.8	10	(S)	131.1
37922 44	Truck (pickup) campers (for sliding on and off trucks) thousands	20	9.6	50.7	23	(S)	31.8
37922 47	Truck (pickup) caps or box covers thousands	39	(S)	169.8	42	(S)	191.1
37922 61	Bodies for travel and camping trailers	1			3	(X)	2.1
37922 63	Chassis for travel and camping trailers	4			5	(X)	90.3
37922 69	Other parts for travel and camping trailers, pickup campers, and caps, excluding appliances and furnishings	31	(X)	148.0	25	(X)	55.2
37922 00	Camping trailers, campers, pickup covers, and parts, n.s.k.	(NA)	(X)	12.2	(NA)	(X)	8.5
37920	Travel trailers and campers, n.s.k.	(NA)	(X)	158.6	(NA)	(X)	178.1
37920 00	Travel trailers and campers, n.s.k.[12]	(NA)	(X)	125.5	(NA)	(X)	124.5
37920 02	Travel trailers and campers, n.s.k.[13]	(NA)	(X)	33.2	(NA)	(X)	53.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3795– —	**TANKS AND TANK COMPONENTS**						
	Total	**(NA)**	**(X)**	**2 503.1**	**(NA)**	**(X)**	**3 016.9**
37950	Tanks and tank components	(NA)	(X)	2 503.1	(NA)	(X)	3 016.9
37950 01	Tanks and parts	62	(X)	1 422.6	60	(X)	1 794.9
37950 51	Self-propelled weapons and parts	12	(X)	1 058.7	11	(X)	165.3
37950 98	Other full-tracked combat vehicles and parts, including armored utility vehicles	18			24	(X)	1 032.0
37950 00	Tanks and tank components, n.s.k.	(NA)	(X)	21.8	(NA)	(X)	24.6
37950 02	Tanks and tank components, n.s.k.[18]	(NA)	(X)	–	(NA)	(X)	–
3799– —	**TRANSPORTATION EQUIPMENT, N.E.C.**						
	Total	**(NA)**	**(X)**	**2 826.4**	**(NA)**	**(X)**	**1 576.3**
37993	Golf carts and industrial in-plant personnel carriers, self-propelled, and parts	(NA)	(X)	380.0	(NA)	(X)	239.9
37993 82	Self-propelled golf carts (electric and gasoline) for carrying passengers and/or industrial in-plant person carriers thousands	8	144.1	341.5	8	83.4	205.6
37993 84	Parts for self-propelled golf carts and/or industrial in-plant personnel carriers	10	(X)	38.4	6	(X)	34.3
37993 00	Golf carts and industrial in-plant personnel carriers, self-propelled, and parts, n.s.k.	(NA)	(X)	–	(NA)	(X)	(Z)
37996	Automobile and light truck trailers	(NA)	(X)	649.8	(NA)	(X)	454.2
37996 01	Horse trailers, excluding those pulled by truck tractors	39	(X)	146.0	27	(X)	73.5
37996 02	Boat trailers	82	(X)	222.5	75	(X)	224.2
37996 04	Mobile equipment trailers	30	(X)	66.1	16	(X)	42.7
	Other, including general utility, commercial display, etc.:						
37996 07	For transport of goods[3]	48	(X)	118.8	(NA)	(X)	41.9
37996 09	For other uses	42	(X)	78.0	18	(X)	51.6
37996 00	Automobile and light truck trailers, n.s.k.	(NA)	(X)	18.3	(NA)	(X)	20.3
37999	Transportation equipment, n.e.c., including all-terrain vehicles	(NA)	(X)	1 436.5	(NA)	(X)	558.0
37999 03	All-terrain vehicles, gasoline or electric, for transport of people or goods designed to traverse all types of terrain	17	(X)	349.4	8	(X)	60.8
37999 04	Parts for all-terrain vehicles	14	(X)	14.1	8	(X)	8.1
37999 05	Trailer hitches (for travel trailers, automobile trailers, and light duty truck trailers)	22	(X)	138.5	10	(X)	54.7
37999 23	Other miscellaneous transportation equipment, including snowmobiles and wheelbarrows[3]	54	(X)	725.7	(NA)	(X)	295.8
37999 25	Parts for automobile and light truck trailers and other transportation equipment[3]	67	(X)	199.5	(NA)	(X)	123.5
37999 00	Transportation equipment, n.e.c., including all-terrain vehicles, n.s.k.	(NA)	(X)	9.3	(NA)	(X)	15.1
37990	Transportation equipment, n.e.c., n.s.k.	(NA)	(X)	360.2	(NA)	(X)	324.2
37990 00	Transportation equipment, n.e.c., n.s.k.[12]	(NA)	(X)	292.3	(NA)	(X)	228.8
37990 02	Transportation equipment, n.e.c., n.s.k.[13]	(NA)	(X)	67.8	(NA)	(X)	95.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Data for this product represent value of work done rather than value of shipments.
[5]For 1987, products were combined to avoid disclosing data for individual companies.
[6]For 1992, products are combined to avoid disclosing data for individual companies.
[7]For 1987, products were combined to avoid disclosing data for individual companies.
[8]Typically for establishments with 20 employees or more.
[9]Typically for establishments with less than 20 employees.
[10]For 1987, data for sailboats with and without auxiliary motors were not collected separately. Therefore, historical comparisons cannot be made.
[11]Data for this product represent value of receipts rather than value of shipments.
[12]Typically for establishments with 5 employees or more.
[13]Typically for establishments with less than 5 employees.
[14]For 1992, products are combined to avoid disclosing data for individual companies.
[15]For 1987, data for bicycles were collected and published differently. Therefore, historical comparisons cannot be made.
[16]For 1992, products are combined to avoid disclosing data for individual companies.
[17]For 1987, products were combined to avoid disclosing data for individual companies.
[18]There were no administrative-record cases for this industry.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37311, NONPROPELLED SHIPS, NEW CONSTRUCTION		
United States	**449.3**	**108.1**
Louisiana	203.1	54.6
Mississippi	59.1	(NA)
37312, SELF-PROPELLED SHIPS, U.S. MILITARY, NEW CONSTRUCTION		
United States	**6 034.1**	**4 748.5**
Louisiana	696.2	637.4
37313, SELF-PROPELLED SHIPS, NONMILITARY, NEW CONSTRUCTION		
United States	**648.3**	**497.1**
Alabama	56.3	73.4
Florida	19.5	48.2
Louisiana	86.1	40.3
Maine	5.5	7.2
Washington	73.0	29.6
37314, SHIP REPAIR, MILITARY		
United States	**1 968.7**	**1 907.6**
California	437.1	449.7
Florida	112.5	93.8
South Carolina	62.2	52.9
Texas	19.9	(NA)
Virginia	893.5	651.1
Washington	84.6	71.3
37316, SHIP REPAIR, NONMILITARY		
United States	**872.1**	**796.7**
Alabama	71.9	42.0
California	88.3	77.0
Florida	86.5	116.3
Hawaii	8.8	(NA)
Louisiana	134.8	102.6
Massachusetts	12.2	(NA)
New Jersey	6.8	19.3
Oregon	83.4	40.1
Pennsylvania	8.8	7.0
South Carolina	10.4	4.1
Texas	77.2	72.4
Virginia	90.7	73.4
Washington	92.7	111.0
37322, OUTBOARD MOTORBOATS, INCLUDING COMMERCIAL AND MILITARY (EXCEPT SAILBOATS WITH AUXILIARY POWER AND LIFEBOATS)		
United States	**1 120.4**	**1 143.6**
Arkansas	91.1	91.6
California	19.9	25.6
Florida	137.8	167.3
Indiana	147.8	137.7
Iowa	2.0	(NA)
Louisiana	19.1	53.0
Michigan	29.5	98.4
Minnesota	57.9	80.7
Missouri	123.3	44.8
New York	4.0	(NA)
North Carolina	40.1	78.4
Oregon	14.2	11.7
South Carolina	18.8	(NA)
Texas	16.7	64.6
Washington	22.8	28.6
Wisconsin	5.4	8.4
37323, INBOARD MOTORBOATS		
United States	**695.3**	**1 364.7**
California	27.8	28.1
Florida	228.7	348.0
Maine	15.6	5.8
Michigan	35.0	86.0
New Jersey	42.0	146.3
Oregon	4.6	(NA)
Tennessee	168.5	206.3
Washington	53.4	88.5
37324, INBOARD-OUTDRIVE BOATS		
United States	**1 039.9**	**1 481.0**
California	13.9	8.9
Florida	152.2	319.6
Georgia	82.8	90.8
Indiana	113.4	69.0
Kentucky	26.2	18.5
New York	3.2	(NA)
Oregon	38.5	(NA)
South Carolina	35.0	94.1
Tennessee	46.8	120.4
Texas	30.3	16.4
Washington	36.6	(NA)
37327, ALL OTHER BOATS (EXCLUDING MILITARY AND COMMERCIAL)		
United States	**252.1**	**283.4**
California	52.8	59.9
Florida	63.2	87.4
Louisiana	4.8	(NA)
Maine	24.6	26.9
Minnesota	4.2	3.2
North Carolina	6.1	(NA)
Rhode Island	20.0	14.5
South Carolina	23.6	4.4
Washington	5.9	2.9
Wisconsin	3.6	(NA)
37328, BOAT REPAIR, MILITARY AND NONMILITARY		
United States	**308.8**	**209.0**
Alabama	5.2	3.9
California	42.0	29.1
Connecticut	2.4	(NA)
Florida	64.3	25.4
Louisiana	12.5	13.0
Maine	11.1	8.1
Maryland	6.3	5.2
Massachusetts	11.2	6.7
Michigan	3.7	(NA)
New Jersey	11.0	(NA)
New York	8.4	5.9
North Carolina	3.3	(NA)
Ohio	2.2	(NA)
Oregon	7.1	(NA)
Rhode Island	3.3	4.0
Texas	6.9	2.5
Virginia	22.4	19.4
Washington	41.4	10.3
37431, LOCOMOTIVES, BOTH NEW AND REBUILT, AND PARTS		
United States	**1 540.1**	**818.7**
37432, FREIGHT TRAIN AND PASSENGER TRAIN CARS, NEW, EXCLUDING PARTS		
United States	**1 416.2**	**582.0**
Pennsylvania	387.6	158.6
37433, STREET, SUBWAY, TROLLEY, AND RAPID TRANSIT CARS, ALL REBUILT RAILCARS, AND PARTS FOR ALL RAILCARS		
United States	**1 122.6**	**661.3**
Illinois	131.2	112.5
Missouri	28.5	(NA)
New York	225.2	(NA)
Ohio	34.0	26.7
Pennsylvania	337.3	285.1
37511, BICYCLES AND PARTS (EXCLUDING CHILDREN'S TWO-WHEEL SIDEWALK CYCLES WITH SOLID OR SEMIPNEUMATIC TIRES)		
United States	**1 022.6**	**536.1**
California	105.9	36.6
Illinois	88.5	(NA)
Indiana	12.7	(NA)

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
37512, MOTORCYCLES, MOTORBIKES, MOTOR SCOOTERS, MOPEDS, AND PARTS		
United States	**836.6**	**495.3**
California	45.6	25.0
Wisconsin	38.3	26.9
37921, TRAVEL TRAILERS		
United States	**1 330.8**	**1 182.9**
California	98.3	129.4
Indiana	653.4	466.5
Kansas	95.7	139.3
Ohio	52.0	54.5
Pennsylvania	41.0	64.7
37922, CAMPING TRAILERS, CAMPERS, PICKUP COVERS, AND PARTS		
United States	**538.6**	**510.1**
California	52.8	40.9
Indiana	201.2	174.7
Michigan	34.8	36.9
Minnesota	9.7	(NA)
Texas	9.0	8.1
37993, GOLF CARTS AND INDUSTRIAL IN-PLANT PERSONNEL CARRIERS, SELF-PROPELLED, AND PARTS		
United States	**380.0**	**239.9**
California	8.4	12.2
Georgia	329.9	(NA)
37996, AUTOMOBILE AND LIGHT TRUCK TRAILERS		
United States	**649.8**	**454.2**
Alabama	13.6	(NA)
Arizona	6.9	2.4
Arkansas	16.1	21.7
California	38.4	17.5
Florida	23.2	23.3
Georgia	2.4	(NA)
Idaho	22.5	(NA)
Illinois	10.1	3.3
Indiana	50.1	14.8
Iowa	69.0	34.5
Kansas	13.2	(NA)
Louisiana	3.9	(NA)
Michigan	14.5	12.4
Minnesota	11.0	(NA)
Mississippi	4.9	(NA)
Missouri	36.1	6.3
North Carolina	10.2	14.7
Ohio	16.9	33.1
Oklahoma	94.1	32.8
Pennsylvania	13.9	33.8
Tennessee	35.4	21.6
Texas	41.1	34.6
Wisconsin	20.4	9.9
37999, TRANSPORTATION EQUIPMENT, N.E.C., INCLUDING ALL-TERRAIN VEHICLES		
United States	**1 436.5**	**558.0**
Alabama	15.7	11.8
California	39.4	7.7
Florida	5.4	(NA)
Illinois	2.8	5.0
Indiana	61.9	31.7
Iowa	12.6	(NA)
Louisiana	6.8	(NA)
Michigan	125.2	45.3
Missouri	8.8	(NA)
New York	17.4	31.0
Oklahoma	5.1	(NA)
Oregon	17.7	(NA)
Pennsylvania	9.7	(NA)
Texas	25.8	19.5
Washington	2.5	(NA)
Wisconsin	65.9	20.2

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3731-	**Ship building and repairing**	**10 390.9**	**10 699.9**	**10 741.1**	**9 529.7**	**8 629.7**	**8 343.1**	**10 654.5**	**6 270.3**
37311	Nonpropelled ships, new construction	449.3	344.4	279.7	177.9	169.4	108.1	1 336.6	491.1
37312	Self-propelled ships, U.S. military, new construction	6 034.1	6 270.2	6 512.4	5 736.1	4 923.2	4 748.5	4 094.5	2 211.7
37313	Self-propelled ships, nonmilitary, new construction	648.3	663.2	671.3	548.4	530.6	497.1	1 872.0	1 917.3
37314	Ship repair, military	1 968.7	1 865.4	1 835.8	1 870.0	1 949.7	1 907.6	1 571.2	718.0
37316	Ship repair, nonmilitary	872.1	984.2	941.8	786.3	727.9	796.7	1 592.2	789.1
37310	Ship building and repairing, n.s.k.	418.4	572.5	500.1	410.9	329.0	285.0	188.0	143.2
3732-	**Boat building and repairing**	**4 272.5**	**3 517.7**	**4 877.4**	**5 613.2**	**5 895.9**	**5 218.6**	**2 307.4**	**1 822.1**
37322	Outboard motorboats, including commercial and military (except sailboats with auxiliary power and lifeboats)	1 120.4	776.6	1 067.9	1 259.8	1 266.1	1 143.6	345.0	297.7
37323	Inboard motorboats	695.3	857.3	1 188.8	1 356.2	1 500.4	1 364.7	522.3	354.1
37324	Inboard-outdrive boats	1 039.9	781.1	1 279.8	1 747.5	1 839.9	1 481.0	459.9	367.3
37327	All other boats (excluding military and commercial)	252.1	236.5	301.1	295.0	272.7	283.4	368.8	282.1
37328	Boat repair, military and nonmilitary	308.8	222.0	219.2	219.3	200.1	209.0	271.2	173.2
37320	Boat building and repairing, n.s.k.	855.9	644.2	820.6	735.4	816.7	736.9	340.1	347.8
3743-	**Railroad equipment**	**4 167.3**	**4 140.4**	**4 351.9**	**4 057.3**	**2 952.0**	**2 138.6**	**2 878.9**	**4 001.9**
37431	Locomotives, both new and rebuilt, and parts	1 540.1	1 826.3	1 735.8	1 669.2	1 246.6	818.7	2 152.0	3 055.8
37432	Freight train and passenger train cars, new, excluding parts	1 416.2	1 288.1	1 186.1	1 114.1	797.8	582.0		
37433	Street, subway, trolley, and rapid transit cars, all rebuilt railcars, and parts for all railcars	1 122.6	877.3	1 295.0	1 143.8	825.1	661.3	663.7	899.1
37430	Railroad equipment, n.s.k.	88.5	148.8	135.0	130.2	82.6	76.6	63.1	47.0
3751-	**Motorcycles, bicycles, and parts**	**2 031.7**	**2 111.6**	**1 798.9**	**1 514.8**	**1 191.1**	**1 152.4**	**1 143.1**	**847.3**
37511	Bicycles and parts (excluding children's two-wheel sidewalk cycles with solid or semipneumatic tires)	1 022.6	1 109.8	863.3	686.0	531.1	536.1	601.6	490.4
37512	Motorcycles, motorbikes, motor scooters, mopeds, and parts	836.6	776.1	715.3	697.1	529.6	495.3	480.8	286.1
37510	Motorcycles, bicycles, and parts, n.s.k.	172.5	225.8	220.2	131.7	130.3	121.0	60.8	70.7

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3792-	**Travel trailers and campers**	**2 027.9**	**1 540.2**	**1 667.5**	**1 763.8**	**1 820.1**	**1 871.0**	**1 088.1**	**1 477.6**
37921	Travel trailers	1 330.8	932.9	945.9	1 009.1	1 045.7	1 182.9	628.0	882.2
37922	Camping trailers, campers, pickup covers, and parts	538.6	482.3	526.3	601.6	594.3	510.1	340.4	426.2
37920	Travel trailers and campers, n.s.k.	158.6	124.9	195.3	153.1	180.1	178.1	119.7	169.2
3795-	**Tanks and tank components**	**2 503.1**	**2 297.3**	**2 374.2**	**2 437.9**	**2 706.0**	**3 016.9**	**2 680.5**	**1 015.1**
37950	Tanks and tank components	2 503.1	2 297.3	2 374.2	2 437.9	2 706.0	3 016.9	2 680.5	1 015.1
3799-	**Transportation equipment, n.e.c.**	**2 826.4**	**2 129.5**	**2 008.4**	**2 022.6**	**1 870.5**	**1 576.3**	**954.3**	**700.3**
37993	Golf carts and industrial in-plant personnel carriers, self-propelled, and parts	380.0	387.7	359.0	367.8	275.6	239.9	156.8	108.2
37996	Automobile and light truck trailers	649.8	408.8	406.6	497.4	541.0	454.2	272.0	510.7
37999	Transportation equipment, n.e.c., including all-terrain vehicles	1 436.5	1 023.7	941.0	841.0	712.7	558.0	453.2	
37990	Transportation equipment, n.e.c., n.s.k.	360.2	309.2	301.7	316.3	341.2	324.2	72.2	81.4

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3731, SHIP BUILDING AND REPAIRING		
	Materials, ingredients, containers, and supplies	**3 525.6**	**2 660.0**
351920	Diesel and semidiesel engines	97.0	96.5
351121	Steam engines and turbines	(1)	(D)
362120	Integral horsepower motors and generators (1 hp or more)	76.5	17.9
369401	Engine electrical equipment including spark plugs, magnetos, generators, starters, etc.	68.0	(D)
356601	Speed changers, gears, and industrial high-speed drives	88.6	(D)
362520	Industrial controls	11.2	30.5
	Fluid power products (hydraulic and pneumatic):		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	27.5	(2)
349271	Valves	54.6	60.7
359301	Cylinders and rotary actuators	1.8	(2)
349261	Hose or tube fittings and assemblies	35.2	59.4
356921	Filters	11.8	(2)
190089	Other fluid power products	18.7	(2)
	Fabricated metal products, except forgings:		
344131	Fabricated structural metal for ships and barges	113.5	205.8
344331	Boilers, condensers, and parts thereof	11.4	(D)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	41.8	19.7
340074	Other fabricated metal products except fluid power products	23.7	(2)
346000	Forgings	4.1	(2)
330091	Castings (rough and semifinished)	20.7	25.5
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	281.5	(3)
331022	Sheet and strip	26.2	(3)
331023	Structural shapes and sheet piling	64.6	(3)
331091	All other steel shapes and forms	24.9	(3)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	15.9	32.8
335013	Other aluminum and aluminum-base alloy shapes and forms	3.0	4.5
335091	Other nonferrous	26.9	(2)
353101	Construction machinery and parts thereof, including shipwinches, cranes, derricks, and capstans	42.9	90.0
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	61.3	41.2
242103	Dressed lumber	12.6	22.2
970099	All other materials and components, parts, containers, and supplies	[1]1 555.7	[3]1 071.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	704.1	882.2
	INDUSTRY 3732, BOAT BUILDING AND REPAIRING		
	Materials, ingredients, containers, and supplies	**2 383.5**	**2 815.7**
	Engines:		
351920	Diesel and semidiesel engines	70.6	80.5
351909	Gasoline and other internal combustion engines	411.4	511.0
362120	Integral horsepower motors and generators (1 hp or more)	23.0	19.2
190088	Boat propellers	28.4	13.6
	Fabricated metal products, except forgings:		
342971	Marine hardware (including shackles, rope shackles, rope sockets, tackle blocks)	66.4	118.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	26.2	24.3
340077	Other fabricated metal products	25.8	(2)
346000	Forgings	4.9	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3732, BOAT BUILDING AND REPAIRING—Con.		
330091	Castings (rough and semifinished)	6.2	6.0
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	17.8	18.5
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	47.4	27.4
335405	Extruded shapes including extruded rod, bar, pipe, tube, etc.	23.4	28.4
335008	Other aluminum and aluminum-base alloy shapes and forms	2.2	2.6
335091	Other nonferrous	3.7	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	74.4	116.4
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	24.8	25.8
322931	Glass fiber, textile type, bonded mat type, etc.	66.9	110.2
242103	Dressed lumber	20.0	44.6
243056	Plywood	46.9	60.4
227002	Carpeting	24.5	41.4
239401	Canvas products	22.3	28.0
285101	Paints, enamels, japans, shellacs, varnishes, lacquers, stains, and allied products	26.4	29.0
381221	Marine nautical and navigation equipment operating by radio signal	38.7	28.5
356151	Bilge pumps	4.5	11.6
970099	All other materials and components, parts, containers, and supplies	400.7	421.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	876.2	1 049.2
	INDUSTRY 3743, RAILROAD EQUIPMENT		
	Materials, ingredients, containers, and supplies	**2 591.0**	**1 101.8**
361302	Railway electrical control equipment	161.0	220.1
374001	Brake equipment, truck assemblies, hooks and other coupling devices, buffers, and parts	312.7	93.8
362120	Integral horsepower motors and generators (1 hp or more)	(5)	34.3
356201	Roller bearings	87.8	22.9
356810	Plain bearings and bushings		11.9
356601	Speed changers, gears, and industrial high-speed drives	32.1	19.6
190090	Fluid power products	38.3	(2)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	69.6	19.2
340078	Other fabricated metal products, except fluid power products	210.2	(2)
	Iron and steel forgings:		
346202	Wheels and axles	194.9	38.1
346203	Other iron and steel forgings except wheels and axles	46.0	24.4
	Castings (rough and semifinished):		
332001	Iron and steel	227.0	76.7
336010	Nonferrous	5.1	10.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	275.1	(2)
331022	Sheet and strip	87.9	(2)
331023	Structural shapes and sheet piling	30.8	(2)
331091	All other steel shapes and forms	66.9	131.1
335105	Copper and copper-base alloy	54.4	16.5
335090	All other nonferrous shapes and forms		(2)
970099	All other materials and components, parts, containers, and supplies	[5]481.8	195.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	209.5	186.8
	INDUSTRY 3751, MOTORCYCLES, BICYCLES, AND PARTS		
	Materials, ingredients, containers, and supplies	**977.0**	**620.1**
375111	Frames, forks, and parts thereof, bicycle	42.0	29.9
375112	Wheel rims and spokes, bicycle	11.0	7.7
375113	Bicycle hubs (other than coaster braking hubs and hub brakes), and freewheel sprocket wheels	15.1	5.4
375115	Seats (saddles), bicycle	28.7	8.3
375114	Brakes, including coaster braking hubs and hub brakes, and parts thereof, bicycle	(6)	(7)
375116	Pedals and crankgear and parts thereof, bicycle	(6)	(7)
375118	Derailleurs and parts thereof, bicycle	(6)	(2)
301101	Pneumatic tires and inner tubes	(6)	20.8
340091	Fabricated metal products, except forgings	33.2	(2)
346000	Forgings	(6)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	3.5	(2)
336005	Aluminum and aluminum-base alloy	6.7	11.2
336003	Other nonferrous	(6)	(2)
	Shapes and forms, except forgings and fabricated metal products:		
	Steel:		
331022	Sheet and strip	24.3	(2)
331068	Tubing	19.3	(2)
331085	All other steel shapes and forms	7.0	(2)
336002	Nonferrous shapes and forms	(6)	(2)
970099	All other materials and components, parts, containers, and supplies	[6]653.3	[7]413.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	132.8	123.0

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3792, TRAVEL TRAILERS AND CAMPERS		
	Materials, ingredients, containers, and supplies	**1 227.8**	**1 101.7**
371411	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	74.5	83.4
301101	Pneumatic tires and inner tubes	18.5	8.6
371121	Purchased chassis for motor homes	(D)	22.4
363001	Household appliances including refrigerators, cooking equipment, and other household appliances; except air-conditioners	87.5	61.1
358503	Air-conditioning equipment	32.8	16.0
	Fabricated metal products, except forgings:		
343301	Heating equipment (except electric)	21.1	14.0
344201	Metal doors and door units; windows and window units	51.8	49.8
343201	Metal plumbing fixtures, fittings, and trim (including enameled)	14.7	22.2
344401	Sheet metal products, except stampings	22.4	18.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	20.3	16.6
340092	Other fabricated metal products	(D)	(2)
346000	Forgings	(D)	(2)
330091	Castings (rough and semifinished)	14.2	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	31.6	(3)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	31.6	25.7
335011	All other (except sheet, plate, foil, and welded tubing)	10.7	23.3
335091	Other nonferrous	4.1	(2)
364300	Current-carrying wiring devices	27.6	13.0
243056	Plywood	70.3	52.4
242103	Dressed lumber	57.0	42.5
243011	Millwork, wood (including wood doors, window sash, moldings, and cabinets)	27.7	20.7
320102	Glass and glass products including windows and mirrors	50.4	32.9
308006	Fabricated plastics products, except gaskets	18.8	12.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	16.7	11.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	11.8	7.5
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	11.0	13.3
227002	Carpeting	15.7	9.8
239101	Curtains and draperies	22.0	15.5
970099	All other materials and components, parts, containers, and supplies	251.3	3164.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	180.7	343.5
	INDUSTRY 3795, TANKS AND TANK COMPONENTS		
	Materials, ingredients, containers, and supplies	**898.9**	**1 421.5**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(8)	(9)
340098	Other fabricated metal products	(8)	(9)
	Castings (rough and semifinished)		
332001	Iron and steel	19.2	(9)
336005	Aluminum and aluminum-base alloy	21.4	7.4
336003	Other nonferrous		(2)
	Forgings:		
346200	Iron and steel	77.3	(9)
346310	Aluminum and aluminum-base alloy		(9)
346399	Other nonferrous	–	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	63.9	101.5
335105	Copper and copper-base alloy	(8)	1.0
335001	Aluminum and aluminum-base alloy	(8)	(9)
335099	Other nonferrous shapes and forms	(8)	(2)
	Chemicals and allied products:		
289217	Smokeless powder	–	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(8)	(9)
280096	Other chemicals and allied products	(8)	(2)
242101	Rough and dressed lumber	(8)	(9)
265001	Paperboard containers, boxes, and corrugated paperboard	(8)	(9)
308006	Fabricated plastics products, except gaskets	(8)	(9)
354500	Machine tool accessories including cutting tools	6.0	(2)
190055	Electronic, hydraulic, and mechanical subassemblies	(8)	(2)
190085	Radio and electronic communication, navigation, search, detection and tracking systems, instruments and equipment	–	(2)
970099	All other materials and components, parts, containers, and supplies	8694.9	91 285.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	16.2	26.5
	INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 823.8**	**912.2**
371411	Trailer axles, wheels, brakes, undercarriages, and other metal vehicular parts	329.7	159.1
351901	Internal combustion engines, gasoline	270.2	83.2
301101	Pneumatic tires and inner tubes	41.7	26.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	163.6	21.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	29.8	12.1
340091	Fabricated metal products, except forgings	140.5	(2)
346000	Forgings	(D)	(2)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3799, TRANSPORTATION EQUIPMENT, N.E.C.—Con.		
	Castings (rough and semifinished):		
332001	Iron and steel	8.5	[3]
336005	Aluminum and aluminum-base alloy	9.3	7.2
336003	Other nonferrous	(D)	[2]
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	42.2	[3]
331022	Sheet and strip	25.4	[3]
331023	Structural shapes and sheet piling	25.9	[3]
331091	All other steel shapes and forms	19.8	87.2
335001	Aluminum and aluminum-base alloy	24.3	18.3
335091	Other nonferrous	(D)	[2]
970099	All other materials and components, parts, containers, and supplies	368.2	[3]213.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[4]	316.9	283.4

[1]For 1992, materials are combined to avoid disclosing data for individual companies.
[2]For 1987, materials were not collected but were included in code 970099 of the industry in which the material was consumed.
[3]For 1987, materials were collected differently and were combined with code 970099.
[4]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[5]For 1992, materials are combined to avoid disclosing data for individual companies.
[6]For 1992, materials are combined to avoid disclosing data for individual companies.
[7]For 1987, materials were combined to avoid disclosing data for individual companies.
[8]For 1992, materials are combined to avoid disclosing data for individual companies.
[9]For 1987, materials were combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
37111	37115
37111 71	37115 00
37113 04	37113 01
37113 04	37113 02
37116	37112
37116 00	37112 01
37116 00	37112 02
37116 00	37112 03
37116 00	37112 04
37116 00	37112 05
37116 00	37112 06
37116 00	37112 07
37116 00	37112 08
37116 00	37112 09
37116 00	37112 31
37116 00	37112 32
37116 00	37112 33
37116 00	37112 34
37116 00	37112 35
37116 00	37112 36
37116 00	37112 39
37117	37112
37117 00	37112 01
37117 00	37112 02
37117 00	37112 03
37117 00	37112 04
37117 00	37112 05
37117 00	37112 06
37117 00	37112 07
37117 00	37112 08
37117 00	37112 09
37117 00	37112 31
37117 00	37112 32
37117 00	37112 33
37117 00	37112 34
37117 00	37112 35
37117 00	37112 36
37117 00	37112 39
37118	37112
37118 00	37112 01
37118 00	37112 02
37118 00	37112 03
37118 00	37112 04
37118 00	37112 05
37118 00	37112 06
37118 00	37112 07
37118 00	37112 08
37118 00	37112 09
37118 00	37112 31
37118 00	37112 32
37118 00	37112 33
37118 00	37112 34
37118 00	37112 35
37118 00	37112 36
37118 00	37112 39
37119	37112
37119 00	37112 01
37119 00	37112 02
37119 00	37112 03
37119 00	37112 04
37119 00	37112 05
37119 00	37112 06
37119 00	37112 07
37119 00	37112 08
37119 00	37112 09
37119 00	37112 31
37119 00	37112 32
37119 00	37112 33
37119 00	37112 34
37119 00	37112 35
37119 00	37112 36
37119 00	37112 39
37131 12	37131 03
37131 12	37131 04
37131 12	37131 11
37131 12	37131 13
37131 71	37131 06
37131 71	37131 07
37131 71	37131 49
37131 71	37131 57
37131 71	37131 69
37132 11	37132 02
37132 13	37132 05
37132 13	37132 06
37132 13	37132 07
37132 13	37132 08
37132 13	37132 09
37132 39	37132 02
37132 39	37132 03
37132 39	37132 16
37132 39	37132 19
37132 39	37132 21
37132 39	37132 28
37132 39	37132 29
37132 39	37132 31
37142 17	37142 21
37142 22	37142 23
37142 37	37142 38
37142 37	37142 39
37142 49	37142 19
37142 49	37142 21
37142 49	37142 23
37142 49	37142 29
37142 49	37142 48
37149 31	37149 39
37149 41	37149 39
3714A 23	3714A 01
3714A 25	3714A 01
3714A 27	3714A 07
3714A 29	3714A 13
3714A 31	3714A 07
3714A 31	3714A 13
3714A 33	3714A 19
3714A 35	3714A 19
3714A 37	3714A 19
3714A 39	3714A 19
3714A 41	3714A 05
3714A 41	3714A 08
3714A 41	3714A 12
3714A 41	3714A 19
37152 00	37152 01
37152 00	37152 02
37284	37281
37284 73	37281 73
37284 75	37281 75
37284 83	37281 83
37284 85	37281 85
37285	37281
37285 13	37281 13
37285 15	37281 15
37285 94	37281 94
37285 95	37281 95
37285 98	37281 98
37285 99	37281 99
37311 11	37311 01
37311 11	37311 02
37311 11	37311 03
37311 11	37311 04
37311 19	37311 05
37311 19	37311 06
37311 19	37311 09
37313 28	37313 25
37313 28	37313 29
37313 48	37313 41
37313 48	37313 49
37313 57	37313 51
37313 57	37313 53
37313 57	37313 55
37322 19	37322 05
37322 19	37322 09
37322 19	37322 13
37323 04	37323 03
37323 04	37323 05
37323 11	37323 07
37323 11	37323 09
37323 16	37323 13
37323 16	37323 15
37323 21	37323 17
37323 21	37323 19
37327 02	37327 01
37327 02	37327 03
37327 02	37327 05
37327 02	37327 07
37327 02	37327 09
37327 04	37327 01
37327 04	37327 03
37327 06	37327 05
37327 08	37327 07
37327 12	37327 09
37327 17	37327 11
37327 17	37327 13
37327 17	37327 15
37431 01	37431 30
37431 01	37431 60
37431 03	37431 11
37431 03	37431 12
37431 03	37431 15
37431 03	37431 17
37431 03	37431 18
37432 35	37432 31
37432 35	37432 33
37432 65	37432 25
37432 65	37432 50
37432 65	37432 52
37432 65	37432 63
37433 05	37433 02
37433 05	37433 03
37433 19	37433 13
37433 19	37433 15
37511 23	37511 19
37511 39	37511 06
37511 41	37511 06
37511 43	37511 06
37511 45	37511 06
37511 47	37511 01
37511 47	37511 02
37511 47	37511 03
37511 47	37511 04
37511 47	37511 05
37511 49	37511 01
37511 49	37511 02
37511 49	37511 03
37511 49	37511 04
37511 49	37511 05
37511 55	37511 06
37512 09	37512 06
37512 09	37512 07
37616	37615
37616 00	37615 01
37617	37615
37617 02	37615 02
37617 03	37615 03
37996 07	37996 03
37996 07	37996 08
37999 23	37999 01
37999 23	37999 06
37999 23	37999 19
37999 25	37999 02
37999 25	37999 21

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Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
37112	37116
37112	37117
37112	37118
37112	37119
37112 01	37116 00
37112 01	37117 00
37112 01	37118 00
37112 01	37119 00
37112 02	37116 00
37112 02	37117 00
37112 02	37118 00
37112 02	37119 00
37112 03	37116 00
37112 03	37117 00
37112 03	37118 00
37112 03	37119 00
37112 04	37116 00
37112 04	37117 00
37112 04	37118 00
37112 04	37119 00
37112 05	37116 00
37112 05	37117 00
37112 05	37118 00
37112 05	37119 00
37112 06	37116 00
37112 06	37117 00
37112 06	37118 00
37112 06	37119 00
37112 07	37116 00
37112 07	37117 00
37112 07	37118 00
37112 07	37119 00
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37112 08	37117 00
37112 08	37118 00
37112 08	37119 00
37112 09	37116 00
37112 09	37117 00
37112 09	37118 00
37112 09	37119 00
37112 31	37116 00
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37112 31	37118 00
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37112 32	37116 00
37112 32	37117 00
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37112 34	37119 00
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37112 35	37119 00
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37112 39	37117 00
37112 39	37118 00
37112 39	37119 00
37113 01	37113 04
37113 02	37113 04
37115	37111
37115 00	37111 71
37131 03	37131 12
37131 04	37131 12
37131 06	37131 71
37131 07	37131 71
37131 11	37131 12
37131 13	37131 12
37131 49	37131 71
37131 57	37131 71
37131 69	37131 71
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37132 02	37132 39
37132 03	37132 39
37132 05	37132 13
37132 06	37132 13
37132 07	37132 13
37132 08	37132 13
37132 09	37132 13
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37132 21	37132 39
37132 28	37132 39
37132 29	37132 39
37132 31	37132 39
37142 19	37142 49
37142 21	37142 17
37142 21	37142 49
37142 23	37142 22
37142 23	37142 49
37142 29	37142 49
37142 38	37142 37
37142 39	37142 37
37142 48	37142 49
37149 39	37149 31
37149 39	37149 41
3714A 01	3714A 23
3714A 01	3714A 25
3714A 05	3714A 41
3714A 07	3714A 27
3714A 07	3714A 31
3714A 08	3714A 41
3714A 12	3714A 41
3714A 13	3714A 29
3714A 13	3714A 31
3714A 19	3714A 33
3714A 19	3714A 35
3714A 19	3714A 37
3714A 19	3714A 39
3714A 19	3714A 41
37152 01	37152 00
37152 02	37152 00
37281	37284
37281	37285
37281 13	37285 13
37281 15	37285 15
37281 73	37284 73
37281 75	37284 75
37281 83	37284 83
37281 85	37284 85
37281 94	37285 94
37281 95	37285 95
37281 98	37285 98
37281 99	37285 99
37311 01	37311 11
37311 02	37311 11
37311 03	37311 11
37311 04	37311 11
37311 05	37311 19
37311 06	37311 19
37311 09	37311 19
37313 25	37313 28
37313 29	37313 28
37313 41	37313 48
37313 49	37313 48
37313 51	37313 57
37313 53	37313 57
37313 55	37313 57
37322 05	37322 19
37322 09	37322 19
37322 13	37322 19
37323 03	37323 04
37323 05	37323 04
37323 07	37323 11
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37323 13	37323 16
37323 15	37323 16
37323 17	37323 21
37323 19	37323 21
37327 01	37327 02
37327 01	37327 04
37327 03	37327 02
37327 03	37327 04
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37431 15	37431 03
37431 17	37431 03
37431 18	37431 03
37431 30	37431 01
37431 60	37431 01
37432 25	37432 65
37432 31	37432 35
37432 33	37432 35
37432 50	37432 65
37432 52	37432 65
37432 63	37432 65
37433 02	37433 05
37433 03	37433 05
37433 13	37433 19
37433 15	37433 19
37511 01	37511 47
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37511 02	37511 47
37511 02	37511 49
37511 03	37511 47
37511 03	37511 49
37511 04	37511 47
37511 04	37511 49
37511 05	37511 47
37511 05	37511 49
37511 06	37511 39
37511 06	37511 41
37511 06	37511 43
37511 06	37511 45
37511 06	37511 55
37511 19	37511 23
37512 06	37512 09
37512 07	37512 09
37615	37616
37615	37617
37615 01	37616 00
37615 02	37617 02
37615 03	37617 03
37996 03	37996 07
37996 08	37996 07
37999 01	37999 23
37999 02	37999 25
37999 06	37999 23
37999 19	37999 23
37999 21	37999 25

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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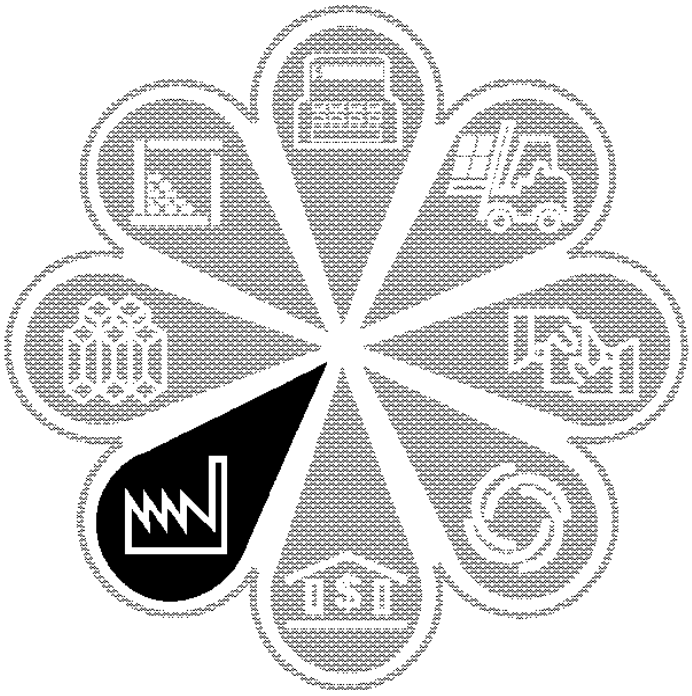
1992 Census of Manufactures

MC92-I-38A

INDUSTRY SERIES

Search and Navigation Equipment and Engineering, Measuring, Controlling, and Optical Instruments

Industries 3812, 3821, 3822, 3823, 3824, 3825, 3826, 3827, and 3829



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-38A

INDUSTRY SERIES

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

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Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Bruce M. Goldhirsch,** Chief, Electrical and Transportation Branch, assisted by **Raphael S. Corrado**, Section Chief, with primary staff assistance by **Indrek S. Grabbi.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Thomas L. Mesenbourg, Acting Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Search and Navigation Equipment and Engineering, Measuring, Controlling, and Optical Instruments

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3812	Search and Navigation Equipment
3821	Laboratory Apparatus and Furniture
3822	Environmental Controls
3823	Process Control Instruments
3824	Fluid Meters and Counting Devices
3825	Instruments to Measure Electricity
3826	Analytical Instruments
3827	Optical Instruments and Lenses
3829	Measuring and Controlling Devices, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing search, detection, navigation, guidance, aeronautical, and nautical systems and instruments. Important products of this industry are radar systems and equipment; sonar systems and equipment; navigation systems and equipment; countermeasures equipment; aircraft and missile control systems and equipment; flight and navigation sensors, transmitters, and display; gyroscopes; airframe equipment instruments; and speed, pitch, and roll navigational instruments and systems. Establishments primarily engaged in manufacturing aircraft engine instruments or meteorological systems and equipment, including weather tracking equipment, are classified in industry 3829. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3812, Search and Navigation Equipment, had employment of 255.0 thousand. The employment figure was 31 percent below the 369.4 thousand reported in 1987. Compared with 1991, employment decreased 9 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Texas, New York, and Florida, accounting for approximately 51 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 53 percent of the industry's employment.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

The total value of shipments for establishments classified in this industry was $35.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3812 shipped $30.0 billion of search and navigation equipment products considered primary to the industry, $2.9 billion of secondary products, and had $2.3 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3812, no matter in what industry they were produced, appear in table 6a and aggregate to $34.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the search and navigation equipment industry amounted to $10.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE

This industry is made up of establishments primarily engaged in manufacturing laboratory apparatus and furniture. Important products of this industry include laboratory balances and scales, laboratory furnaces and ovens, laboratory centrifuges, and various components, parts, and accessories for laboratory apparatus. Laboratory instruments are classified elsewhere, generally in other industries of industry group 382. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3821, Laboratory Apparatus and Furniture, had employment of 17.7 thousand. The employment figure was 4 percent above the 17.1 thousand reported in 1987.

The leading States in employment in 1992 were California, Delaware, New Jersey, and Pennsylvania. This represents a shift from 1987 when California, New Jersey, Wisconsin, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3821 shipped $1.7 billion of laboratory apparatus and furniture products considered primary to the industry, $277.5 million of secondary products, and had $164.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3821, no matter in what industry they were produced, appear in table 6a and aggregate to $1.8 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the laboratory apparatus and furniture industry amounted to $817.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3822, ENVIRONMENTAL CONTROLS

This industry is made up of establishments primarily engaged in manufacturing temperature and related controls for heating and air-conditioning installations and refrigeration applications, which are electrically, electronically, or pneumatically actuated, and which measure and control variables such as temperature and humidity; and automatic regulators used as components of household appliances.

Establishments primarily engaged in manufacturing industrial process controls are classified in industry 3823; those manufacturing motor control switches are classified in industry 3625; those manufacturing switches for household appliances are classified in industry 3643; and those manufacturing appliance timers are classified in industry

3873. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3822, Environmental Controls, had employment of 25.0 thousand. The employment figure was 6 percent below the 26.5 thousand reported in 1987. Compared with 1991, employment increased 11 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Minnesota, and Ohio. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3822 shipped $2.2 billion of environmental controls products considered primary to the industry, $183.1 million of secondary products, and had $261.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio also was 92 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 89 percent.

The products primary to industry 3822, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the environmental control industry amounted to $1.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS

This industry is made up of establishments primarily engaged in manufacturing industrial instruments and related products for measuring, displaying (indicating and/ or recording), transmitting, and controlling process variables in manufacturing, energy conversion, and public service utilities. These instruments operate mechanically, pneumatically, electronically, or electrically to measure process variables, such as temperature, humidity, pressure, vacuum, combustion, flow, level, viscosity, density, acidity, alkalinity, specific gravity, gas and liquid concentration, sequence, time interval, mechanical motion, and rotation. Establishments primarily engaged in manufacturing electrical integrating meters are classified in industry 3825; those manufacturing residential and commercial comfort controls are classified in industry 3822; those manufacturing all liquid-in-glass and bimetal thermometers and glass hydrometers are classified in industry 3829; those manufacturing recorder charts are classified in industry group 275; and those manufacturing analytical and optical instruments are classified in industries 3826 and 3827. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3823, Process Control Instruments, had employment of 50.1 thousand. The employment figure was 6 percent below the 53.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Pennsylvania, Ohio, and Massachusetts, accounting for approximately 47 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, California, Massachusetts, and Illinois accounted for approximately 46 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $6.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3823 shipped $5.3 billion of process control instrument products considered primary to the industry, $403.3 million of secondary products, and had $691.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3823, no matter in what industry they were produced, appear in table 6a and aggregate to $5.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the process control instruments industry amounted to $2.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES

This industry is made up of establishments primarily engaged in manufacturing totalizing (registering) meters monitoring fluid flows, such as watermeters and gasmeters; and producers of mechanical and electromechanical counters and associated metering devices. Establishments primarily engaged in manufacturing electricity integrating meters and electronic frequency counters are classified in industry 3825, and those manufacturing industrial process instruments are classified in industry 2823. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3824, Fluid Meters and Counting Devices, had employment of 16.2 thousand. The employment figure was 60 percent above the 10.1 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Michigan, Pennsylvania, and Wisconsin. This represents a shift from 1987 when Pennsylvania, Connecticut, Wisconsin, and North Carolina were the leading States.

The total value of shipments for establishments classified in this industry was $2.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3824 shipped $2.4 billion of fluid meters and counting device products considered primary to the industry, $175.0 million of secondary products, and had $59.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 76 percent.

The products primary to industry 3824, no matter in what industry they were produced, appear in table 6a and aggregate to $2.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fluid meters and counting devices industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY

This industry is made up of establishments primarily engaged in manufacturing instruments for measuring the characteristics of electricity signals, such as voltmeters, ammeters, wattmeters, watt-hour meters, demand meters, and equipment for testing the electrical characteristics of electrical, radio, and communication circuits and of internal combustion engines. Establishments primarily engaged in the manufacturing of electronic checkout, monitoring, evaluating, and other electronic support equipment for electronic navigational, radar, and sonar systems are classified in industry 3812, and those manufacturing similar equipment for communication systems classified in industry group 366. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3825, Instruments to Measure Electricity, had employment of 68.7 thousand. The employment figure was 19 percent below the 85.2 thousand reported in 1987.

The leading States in employment in 1992 were California, Massachusetts, New York, and Oregon. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $8.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3825 shipped $7.5 billion of electricity measurement instrument products considered primary to the industry, $454.6 million of secondary products, and had $924.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3825, no matter in what industry they were produced, appear in table 6a and aggregate to $8.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electricity measurement instruments industry amounted to $3.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3826, ANALYTICAL INSTRUMENTS

This industry is made up of establishments primarily engaged in manufacturing laboratory instruments and instrument systems for chemical or physical analysis of the composition or concentration of samples of solid, fluid, gaseous, or composite material. Establishments primarily engaged in manufacturing instruments for monitoring and analyzing continuous samples from medical patients are classified in industry 3845, and from industrial process streams are classified in industry 3823. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3826, Analytical Instruments, had employment of 39.7 thousand. The employment figure was 27 percent above the 31.2 thousand reported in 1987. Compared with 1991, employment increased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Massachusetts, Florida, and Texas, accounting for approximately 59 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $5.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3826 shipped $4.2 billion of analytical instrument products considered primary to the industry, $481.6 million of secondary products, and had $502.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3826, no matter in what industry they were produced, appear in table 6a and aggregate to $5.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the analytical instrument industry amounted to $2.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES

This industry is made up of establishments primarily engaged in manufacturing instruments and apparatus that measure an optical property and optically project, measure, or magnify an image, such as binoculars, microscopes, prisms, and lenses. Included are establishments primarily engaged in manufacturing optical sighting and fire control equipment. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3827, Measuring and Controlling Devices, N.E.C., had employment of 18.9 thousand. The employment figure was 6 percent below the 20.1 thousand reported in 1987. Compared with 1991, employment decreased 16 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Massachusetts, Connecticut, and New York, accounting for approximately 62 percent of the industry's employment. This represents a shift from 1987 when California, Massachusetts, New Hampshire, and Connecticut were the leading States.

The total value of shipments for establishments classified in this industry was $2.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3827 shipped $1.9 billion of optical instrument and lense products considered primary to the industry, $230.3 million of secondary products, and had $124.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 89 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 3827, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the optical instruments and lenses industry amounted to $836.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing measuring and controlling devices, not elsewhere classified, including meteorological instruments. Important products of this industry are physical properties testing equipment, nuclear radiation detection and monitoring instrumentation, aircraft engine instruments (except flight), and liquid-in-glass and bimental thermometers. Also included in this industry are establishments primarily engaged in manufacturing surveying and drafting instruments, such a alidades, transits, sextants, theodolites, slide rules, and T-squares. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38B, Selected Instruments and Related Products. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3829, Measuring and Controlling Devices, N.E.C., had employment of 38.1 thousand. The employment figure was 7 percent below the 41.0 thousand reported in 1987.

The leading States in employment in 1992 were California, Texas, Ohio, and Pennsylvania, accounting for approximately 42 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, New York, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $4.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3829 shipped $3.6 billion of measuring and controlling devices, not elsewhere classified, products considered primary to the industry, $351.3 million of secondary products, and had $493.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 91 percent (specialization ratio). In 1987, the specialization ratio was 86 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 3829, no matter in what industry they were produced, appear in table 6a and aggregate to $4.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the measuring and controlling devices, not elsewhere classified, industry amounted to $1.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT															
1992 Census	634	769	409	255.0	11 056.2	103.6	203.1	3 511.8	24 411.1	10 115.8	35 266.1	859.1	7 408.2	91	87
1991 ASM	(NA)	(NA)	(NA)	279.8	11 630.7	112.3	218.0	3 633.3	23 672.3	11 401.5	36 213.4	829.9	7 780.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	313.6	12 257.9	130.3	256.7	4 080.8	24 931.9	11 275.3	36 733.5	1 124.5	8 686.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	339.5	12 445.3	140.8	276.7	4 147.3	23 924.5	10 874.7	35 295.4	1 366.9	9 153.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	361.3	12 547.3	155.3	297.1	4 452.6	24 666.7	11 510.2	36 596.4	1 368.6	9 187.0	(NA)	(NA)
1987 Census	918	1 084	507	369.4	12 368.0	158.8	314.4	4 466.8	24 738.7	12 208.3	36 266.8	1 439.0	9 454.6	89	90
INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE															
1992 Census	330	342	143	17.7	571.6	9.0	18.4	213.9	1 314.9	817.1	2 106.0	55.4	376.2	86	90
1991 ASM	(NA)	(NA)	(NA)	14.8	485.7	6.9	14.6	166.6	1 100.1	650.5	1 782.5	52.7	294.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	17.8	529.4	9.1	19.1	206.2	1 209.7	682.2	1 916.7	59.5	372.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.2	519.0	9.8	20.3	214.6	1 238.7	728.0	1 969.8	58.1	417.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.3	531.5	11.2	23.2	235.3	1 301.9	777.3	2 068.8	66.1	433.9	(NA)	(NA)
1987 Census	246	260	124	17.1	440.9	9.6	19.2	195.2	1 142.4	639.8	1 769.3	52.3	398.3	89	92
INDUSTRY 3822, ENVIRONMENTAL CONTROLS															
1992 Census	294	318	130	25.0	685.4	16.8	32.1	356.0	1 633.0	997.1	2 607.1	81.3	409.9	92	91
1991 ASM	(NA)	(NA)	(NA)	22.5	615.2	14.9	27.7	312.6	1 297.7	892.4	2 243.7	56.0	372.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	26.1	664.8	18.2	35.2	366.9	1 461.6	934.2	2 396.0	61.2	449.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.4	613.7	18.2	35.4	361.6	1 471.5	889.0	2 336.3	66.3	421.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	27.1	643.8	19.5	38.0	383.3	1 444.3	861.4	2 291.1	57.0	402.6	(NA)	(NA)
1987 Census	230	254	106	26.5	602.4	18.6	36.2	357.3	1 302.7	760.0	2 068.8	66.3	374.0	92	89
1986 ASM	(NA)	(NA)	(NA)	25.8	575.6	18.5	35.7	350.3	1 278.2	687.3	1 990.4	49.8	335.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.1	580.9	19.5	36.9	355.9	1 318.2	669.8	1 989.3	63.6	366.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	28.2	574.2	20.9	38.5	359.0	1 303.6	684.2	1 966.1	57.9	377.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	27.9	539.5	20.4	38.1	332.1	1 130.5	616.6	1 745.2	67.7	363.6	(NA)	(NA)
1982 Census	221	245	89	28.8	497.5	20.6	36.2	301.9	1 025.7	514.3	1 549.1	66.8	361.7	92	90
1981 ASM	(NA)	(NA)	(NA)	32.6	527.8	23.9	45.5	337.6	991.1	588.4	1 587.1	72.6	348.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	33.2	502.3	24.8	48.9	338.1	969.5	592.2	1 541.5	60.6	344.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.1	474.8	26.8	52.3	325.0	872.2	511.5	1 366.2	46.3	312.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	40.0	487.1	31.4	61.5	345.0	951.5	568.7	1 492.5	49.4	308.5	(NA)	(NA)
1977 Census	182	201	91	39.0	450.3	30.6	57.9	315.6	859.6	529.4	1 358.7	47.7	285.9	80	92
INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS															
1992 Census	817	885	358	50.1	1 764.8	24.0	47.3	582.9	4 182.9	2 137.7	6 360.4	158.1	1 246.4	93	89
1991 ASM	(NA)	(NA)	(NA)	50.4	1 654.6	23.7	47.2	537.4	3 765.7	2 078.8	5 903.5	346.8	1 133.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	54.7	1 730.5	26.1	52.8	600.6	3 764.7	2 169.7	5 924.0	150.6	1 219.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	55.0	1 672.2	28.0	56.0	625.8	3 700.3	2 060.8	5 693.1	135.8	1 225.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	53.7	1 552.0	26.8	52.9	554.7	3 328.2	1 918.6	5 248.9	129.9	1 176.5	(NA)	(NA)
1987 Census	707	784	343	53.3	1 476.3	26.7	53.3	560.0	3 204.7	1 601.2	4 788.2	129.3	1 094.1	92	92
1986 ASM	(NA)	(NA)	(NA)	52.2	1 350.8	26.2	51.5	530.9	2 924.4	1 575.4	4 535.4	148.0	1 082.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	55.3	1 383.4	28.3	55.3	554.5	3 046.2	1 590.0	4 609.6	149.9	1 170.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	57.4	1 353.0	30.3	59.7	555.0	3 017.6	1 352.3	4 307.9	131.3	1 151.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	55.5	1 213.3	26.9	51.6	472.6	2 611.4	1 113.3	3 781.5	101.6	1 031.8	(NA)	(NA)
1982 Census	586	627	290	60.3	1 256.1	30.0	57.7	482.0	2 826.9	1 175.5	4 037.8	127.4	1 074.4	91	87
1981 ASM	(NA)	(NA)	(NA)	53.6	1 013.4	28.1	55.7	421.0	2 437.7	1 088.4	3 508.6	117.1	934.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	51.2	897.4	26.6	53.1	370.2	2 049.5	986.8	2 991.6	94.2	860.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.4	828.1	27.1	54.5	353.0	1 895.8	875.6	2 682.1	83.5	775.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	50.6	765.6	25.5	50.8	311.0	1 609.6	764.6	2 328.5	74.1	643.6	(NA)	(NA)
1977 Census	382	426	207	46.5	664.8	23.4	47.0	265.9	1 399.4	657.1	2 022.0	52.1	555.9	90	80
INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES															
1992 Census	181	193	74	16.2	533.7	11.3	21.6	331.8	1 469.2	1 117.5	2 601.5	74.1	280.4	93	87
1991 ASM	(NA)	(NA)	(NA)	12.8	388.2	8.3	16.3	214.0	1 260.1	986.9	2 246.8	81.8	264.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.4	278.6	6.6	12.9	138.5	976.7	683.3	1 665.9	57.0	242.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.7	269.4	6.8	12.9	134.6	987.6	672.6	1 656.9	38.2	232.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.9	267.5	7.3	14.0	145.8	976.5	659.8	1 659.0	40.4	233.9	(NA)	(NA)
1987 Census	148	158	61	10.1	237.1	6.5	12.7	119.9	566.5	381.2	938.6	34.9	177.4	95	76
1986 ASM	(NA)	(NA)	(NA)	10.4	237.3	6.2	12.7	113.8	548.3	298.1	858.6	29.0	158.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	10.4	236.6	6.2	11.8	117.4	554.7	310.2	865.3	41.0	171.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	10.9	230.9	6.5	12.2	119.5	529.5	298.2	810.9	26.3	184.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.8	189.7	6.2	11.8	103.9	422.9	259.3	692.4	18.0	154.6	(NA)	(NA)
1982 Census	133	145	70	11.1	198.0	6.9	13.1	109.4	460.2	266.7	728.3	27.6	172.0	94	84
1981 ASM	(NA)	(NA)	(NA)	15.2	256.8	10.3	20.2	153.7	530.0	368.0	901.1	32.2	182.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.5	247.9	11.3	22.2	152.7	533.6	358.6	884.0	27.8	192.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.8	245.5	11.9	23.6	143.2	556.7	315.0	844.2	28.6	203.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.0	221.6	11.8	23.4	138.4	489.4	273.9	749.9	18.0	172.0	(NA)	(NA)
1977 Census	100	111	62	15.9	197.6	11.2	22.5	118.0	429.0	231.3	650.4	19.9	148.8	80	80
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY															
1992 Census	900	964	388	68.7	2 549.0	32.3	63.4	896.8	5 721.1	3 091.2	8 873.3	324.7	1 891.4	94	93
1991 ASM	(NA)	(NA)	(NA)	69.3	2 496.8	34.0	73.9	921.6	5 455.6	2 800.3	8 239.7	257.2	1 922.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	78.4	2 603.9	38.7	77.3	995.3	5 352.4	3 041.0	8 389.7	292.7	1 996.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	78.4	2 485.5	39.6	78.7	962.9	5 206.1	2 798.9	7 919.9	304.7	1 935.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	82.9	2 511.1	42.1	84.7	990.6	5 198.0	2 801.4	7 984.4	214.8	1 918.5	(NA)	(NA)
1987 Census	864	930	412	85.2	2 476.7	43.9	91.4	1 005.4	5 090.9	2 662.4	7 703.3	307.5	1 878.7	95	92
1986 ASM	(NA)	(NA)	(NA)	86.2	2 356.1	44.3	89.2	986.0	4 535.2	2 407.1	6 940.5	290.4	1 739.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	92.4	2 293.6	48.3	93.1	989.6	5 169.8	2 474.0	7 705.2	343.1	1 811.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	95.8	2 356.1	53.0	101.7	987.2	5 371.3	2 589.5	7 810.5	418.0	1 890.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	89.7	2 052.3	49.5	94.1	860.4	4 413.3	2 129.0	6 484.4	272.6	1 586.5	(NA)	(NA)
1982 Census	676	749	352	89.7	1 888.2	48.9	92.5	757.1	4 290.1	1 840.7	6 094.4	308.3	1 469.1	94	91
1981 ASM	(NA)	(NA)	(NA)	94.8	1 852.9	50.2	96.7	736.4	4 074.6	1 780.9	5 744.9	278.6	1 344.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	94.9	1 647.9	52.4	100.7	667.4	3 574.1	1 697.9	5 183.4	260.4	1 229.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	84.6	1 258.9	48.4	96.5	557.1	2 796.0	1 340.4	4 025.0	215.7	1 049.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	76.6	1 072.3	45.6	88.6	503.6	2 162.1	1 286.2	3 368.6	150.0	834.4	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY—Con.															
1977 Census	621	671	279	66.5	889.1	40.4	78.3	414.5	1 807.7	1 026.8	2 761.0	99.1	668.9	90	89
INDUSTRY 3826, ANALYTICAL INSTRUMENTS															
1992 Census	551	593	227	39.7	1 478.1	15.2	29.6	394.3	3 004.8	2 205.5	5 191.3	227.8	992.4	90	83
1991 ASM	(NA)	(NA)	(NA)	37.0	1 343.5	14.7	29.8	366.5	3 134.0	1 965.0	5 070.6	195.3	980.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	37.8	1 285.3	15.1	30.6	360.9	3 018.7	1 875.6	4 906.1	151.9	1 004.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	35.9	1 142.5	15.3	30.8	354.4	2 776.4	1 598.1	4 306.1	163.4	971.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	32.2	1 012.6	13.6	27.6	318.3	2 458.9	1 447.9	3 863.0	167.0	852.5	(NA)	(NA)
1987 Census	528	562	207	31.2	892.9	13.5	26.7	287.3	2 107.1	1 363.2	3 468.2	125.5	781.2	87	90
INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES															
1992 Census	415	425	167	18.9	679.9	9.4	19.8	256.7	1 435.0	836.0	2 262.9	65.0	513.7	89	83
1991 ASM	(NA)	(NA)	(NA)	22.4	829.6	11.1	23.0	301.3	1 342.0	879.7	2 380.4	77.6	568.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	22.0	702.5	12.6	26.2	333.1	1 326.7	874.2	2 217.7	77.2	678.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	21.1	627.4	11.9	23.3	287.6	1 186.3	749.2	1 917.5	72.4	646.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.3	630.1	11.7	22.9	275.7	1 251.7	786.8	2 001.4	83.3	650.6	(NA)	(NA)
1987 Census	236	250	127	20.1	581.6	11.3	21.9	260.8	1 167.8	694.7	1 863.6	83.3	610.2	91	80
INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.															
1992 Census	977	1 006	318	38.1	1 305.4	19.3	38.1	483.6	2 809.5	1 584.2	4 400.1	180.1	1 076.7	91	82
1991 ASM	(NA)	(NA)	(NA)	38.7	1 256.7	19.5	40.1	479.2	2 741.0	1 620.0	4 395.3	131.5	1 076.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	36.3	1 155.4	18.1	36.2	429.3	2 518.7	1 443.1	4 039.7	126.8	1 040.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	38.4	1 117.8	20.4	41.5	447.2	2 404.2	1 394.7	3 828.8	147.2	1 018.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.8	1 102.3	20.7	40.8	432.1	2 368.5	1 349.1	3 698.6	116.8	980.3	(NA)	(NA)
1987 Census	938	970	304	41.0	1 098.8	20.2	39.8	413.9	2 259.0	1 228.1	3 442.0	104.0	928.0	86	80

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT									
1992 Census	43 358	41	1 960	17.29	29	60	95 730	45	120.19
1991 ASM	41 568	40	1 941	16.67	31	64	84 604	49	108.59
1990 ASM	39 088	42	1 970	15.90	31	64	79 502	49	97.12
1989 ASM	36 658	41	1 965	14.99	31	66	70 470	52	86.46
1988 ASM	34 728	43	1 913	14.99	31	66	68 272	51	83.02
1987 Census	33 481	43	1 980	14.21	34	68	66 970	50	78.69
INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE									
1992 Census	32 294	51	2 044	11.63	39	66	74 288	43	71.46
1991 ASM	32 818	47	2 116	11.41	36	64	74 331	44	75.35
1990 ASM	29 742	51	2 099	10.80	36	63	67 961	44	63.34
1989 ASM	28 516	54	2 071	10.57	37	63	68 060	42	61.02
1988 ASM	27 539	58	2 071	10.14	38	63	67 456	41	56.12
1987 Census	25 784	56	2 000	10.17	36	61	66 807	39	59.50
INDUSTRY 3822, ENVIRONMENTAL CONTROLS									
1992 Census	27 416	67	1 911	11.09	38	65	65 320	42	50.87
1991 ASM	27 342	66	1 859	11.29	40	67	57 676	47	46.85
1990 ASM	25 471	70	1 934	10.42	39	67	56 000	45	41.52
1989 ASM	24 161	72	1 945	10.21	38	64	57 933	42	41.57
1988 ASM	23 756	72	1 949	10.09	38	66	53 295	45	38.01
1987 Census	22 732	70	1 946	9.87	37	66	49 158	46	35.99
1986 ASM	22 310	72	1 930	9.81	35	63	49 543	45	35.80
1985 ASM	21 435	72	1 892	9.64	34	63	48 642	44	35.72
1984 ASM	20 362	74	1 842	9.32	35	64	46 227	44	33.86
1983 ASM	19 337	73	1 868	8.72	35	66	40 520	48	29.67
1982 Census	17 274	72	1 757	8.34	33	65	35 615	49	28.33
1981 ASM	16 190	73	1 904	7.42	37	70	30 402	53	21.78
1980 ASM	15 130	75	1 972	6.91	38	71	29 202	52	19.83

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3822, ENVIRONMENTAL CONTROLS—Con.								
1979 ASM	13 527	76	1 951	6.21	37	72	24 849	54	16.68
1978 ASM	12 178	79	1 959	5.61	38	71	23 788	51	15.47
1977 Census	11 546	78	1 892	5.45	39	72	22 041	52	14.85
	INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS								
1992 Census	35 226	48	1 971	12.32	34	61	83 491	42	88.43
1991 ASM	32 829	47	1 992	11.39	35	63	74 716	44	79.78
1990 ASM	31 636	48	2 023	11.38	37	66	68 824	46	71.30
1989 ASM	30 404	51	2 000	11.18	36	66	67 278	45	66.08
1988 ASM	28 901	50	1 974	10.49	37	66	61 978	47	62.91
1987 Census	27 698	50	1 996	10.51	33	64	60 126	46	60.13
1986 ASM	25 877	50	1 966	10.31	35	65	56 023	46	56.78
1985 ASM	25 016	51	1 954	10.03	34	65	55 085	45	55.08
1984 ASM	23 571	53	1 970	9.30	31	63	52 571	45	50.55
1983 ASM	21 861	48	1 918	9.16	29	62	47 052	46	50.61
1982 Census	20 831	50	1 923	8.35	29	60	46 881	44	48.99
1981 ASM	18 907	52	1 982	7.56	31	60	45 479	42	43.76
1980 ASM	17 527	52	1 996	6.97	33	63	40 029	44	38.60
1979 ASM	16 111	53	2 011	6.48	33	64	36 883	44	34.79
1978 ASM	15 130	50	1 992	6.12	33	66	31 810	48	31.69
1977 Census	14 297	50	2 009	5.66	32	65	30 095	48	29.77
	INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES								
1992 Census	32 944	70	1 912	15.36	43	63	90 691	36	68.02
1991 ASM	30 328	65	1 964	13.13	44	61	98 445	31	77.31
1990 ASM	26 788	63	1 955	10.74	41	58	93 913	29	75.71
1989 ASM	25 178	64	1 897	10.43	41	57	92 299	27	76.56
1988 ASM	24 541	67	1 918	10.41	40	56	89 587	27	69.75
1987 Census	23 475	64	1 954	9.44	41	66	56 089	42	44.61
1986 ASM	22 817	60	2 048	8.96	35	62	52 721	43	43.17
1985 ASM	22 750	60	1 903	9.95	36	63	53 337	43	47.01
1984 ASM	21 183	60	1 877	9.80	37	65	48 578	44	43.40
1983 ASM	19 357	63	1 903	8.81	37	65	43 153	45	35.84
1982 Census	17 838	62	1 899	8.35	37	64	41 459	43	35.13
1981 ASM	16 895	68	1 961	7.61	41	69	34 868	48	26.24
1980 ASM	15 024	68	1 965	6.88	41	69	32 339	46	24.04
1979 ASM	13 792	67	1 983	6.07	37	66	31 275	44	23.59
1978 ASM	13 035	69	1 983	5.91	37	66	28 788	45	20.91
1977 Census	12 428	70	2 009	5.24	36	66	26 981	46	19.07
	INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY								
1992 Census	37 103	47	1 963	14.15	35	64	83 277	45	90.24
1991 ASM	36 029	49	2 174	12.47	34	64	78 724	46	73.82
1990 ASM	33 213	49	1 997	12.88	36	67	68 270	49	69.24
1989 ASM	31 703	51	1 987	12.24	35	67	66 404	48	66.15
1988 ASM	30 291	51	2 012	11.70	35	67	62 702	48	61.37
1987 Census	29 069	52	2 082	11.00	35	67	59 752	49	55.70
1986 ASM	27 333	51	2 014	11.05	35	69	52 613	52	50.84
1985 ASM	24 823	52	1 928	10.63	32	62	55 950	44	55.53
1984 ASM	24 594	55	1 919	9.71	33	63	56 068	44	52.82
1983 ASM	22 880	55	1 901	9.14	33	64	49 201	47	46.90
1982 Census	21 050	55	1 892	8.18	30	61	47 827	44	46.38
1981 ASM	19 545	53	1 926	7.62	31	63	42 981	45	42.14
1980 ASM	17 365	55	1 922	6.63	33	65	37 662	46	35.49
1979 ASM	14 881	57	1 994	5.77	33	65	33 050	45	28.97
1978 ASM	13 999	60	1 943	5.68	38	70	28 226	50	24.40
1977 Census	13 370	61	1 938	5.29	37	69	27 183	49	23.09
	INDUSTRY 3826, ANALYTICAL INSTRUMENTS								
1992 Census	37 232	38	1 947	13.32	42	71	75 688	49	101.51
1991 ASM	36 311	40	2 027	12.30	39	65	84 703	43	105.17
1990 ASM	34 003	40	2 026	11.79	38	64	79 860	43	98.65
1989 ASM	31 825	43	2 013	11.51	37	64	77 337	41	90.14
1988 ASM	31 447	42	2 029	11.53	37	64	76 363	41	89.09
1987 Census	28 619	43	1 978	10.76	39	65	67 535	42	78.92
	INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES								
1992 Census	35 974	50	2 106	12.96	37	67	75 926	47	72.47
1991 ASM	37 036	50	2 072	13.10	37	72	59 911	62	58.35
1990 ASM	31 932	57	2 079	12.71	39	71	60 305	53	50.64
1989 ASM	29 735	56	1 958	12.34	39	72	56 223	53	50.91
1988 ASM	29 582	55	1 957	12.04	39	71	58 765	50	54.66
1987 Census	28 935	56	1 938	11.91	37	68	58 100	50	53.32
	INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.								
1992 Census	34 262	51	1 974	12.69	36	66	73 740	46	73.74
1991 ASM	32 473	50	2 056	11.95	37	65	70 827	46	68.35
1990 ASM	31 829	50	2 000	11.86	36	64	69 386	46	69.58
1989 ASM	29 109	53	2 034	10.78	36	66	62 609	46	57.93
1988 ASM	28 410	53	1 971	10.59	36	66	61 044	47	58.05
1987 Census	26 800	49	1 970	10.40	36	68	55 098	49	56.76

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT														
United States	–	**769**	**409**	**255.0**	**11 056.2**	**103.6**	**203.1**	**3 511.8**	**24 411.1**	**10 115.8**	**35 266.1**	**859.1**	**369.4**	**24 738.7**
Alabama	E3	8	4	.9	23.6	.6	1.3	12.0	48.0	76.2	122.2	2.1	1.2	77.5
Arizona	–	12	8	9.0	365.8	3.0	5.9	82.9	1 026.7	484.4	1 545.6	49.7	10.4	556.1
Arkansas	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	164	103	65.4	3 193.9	24.2	51.9	951.0	6 593.4	2 353.2	9 079.2	172.9	99.5	6 730.7
Colorado	–	13	7	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	–	23	11	4.0	174.4	1.7	3.3	45.3	258.1	126.8	370.9	9.5	7.1	331.7
Florida	–	55	21	18.7	727.4	6.4	12.0	146.2	1 831.0	758.3	2 667.3	84.9	25.0	1 984.6
Georgia	E5	12	4	.6	24.0	.2	.3	4.5	34.1	18.3	53.9	(D)	F	(D)
Illinois	–	15	10	4.2	178.4	1.0	2.2	29.2	334.5	145.0	494.5	(D)	7.6	491.9
Indiana	–	4	3	.2	7.6	.1	.2	2.2	13.7	4.1	16.9	(D)	(NA)	(D)
Iowa	–	4	3	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	E1	15	9	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.3	(NA)	(D)
Louisiana	E9	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	19	10	17.7	803.4	6.2	8.8	229.0	1 796.1	703.7	2 572.4	60.9	24.6	1 574.8
Massachusetts	–	49	27	16.3	668.5	10.5	19.3	363.0	1 617.5	928.3	2 490.8	40.3	22.2	1 528.1
Michigan	–	13	9	2.9	109.0	1.6	4.6	69.3	193.7	62.3	262.8	7.5	4.1	184.9
Minnesota	–	7	4	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Mississippi	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	7	5	4.9	174.9	1.3	2.4	36.1	211.4	171.1	392.1	(D)	(NA)	(D)
New Hampshire	–	10	8	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	46	20	15.1	744.9	7.4	14.6	319.4	1 319.5	857.6	2 281.2	52.8	21.1	1 498.8
New Mexico	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	72	38	22.3	1 035.5	8.0	14.9	317.7	2 806.5	967.7	3 873.1	93.3	39.7	2 791.4
North Carolina	–	8	4	1.1	32.5	.8	1.5	17.7	61.8	82.8	140.2	(D)	G	(D)
Ohio	E1	20	5	1.1	38.9	.7	1.5	21.1	91.2	31.9	122.9	2.2	.8	38.1
Oklahoma	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oregon	E1	15	8	1.7	53.8	.8	1.5	16.9	145.1	58.9	202.9	(D)	F	(D)
Pennsylvania	E1	24	11	2.7	92.4	1.4	2.7	37.6	216.0	141.6	353.8	11.3	5.4	281.5
Rhode Island	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	50	27	23.0	925.8	8.5	17.7	253.3	2 001.5	717.9	2 864.5	83.8	33.1	2 000.1
Utah	–	6	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.6	(NA)	(D)
Virginia	–	13	11	8.8	352.5	2.6	5.4	66.3	1 031.7	304.8	1 371.7	54.5	10.4	1 099.8
Washington	E5	27	13	3.5	148.1	1.1	2.6	32.2	316.2	68.2	373.2	11.6	.3	34.6
Wisconsin	–	8	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE														
United States	–	**342**	**143**	**17.7**	**571.6**	**9.0**	**18.4**	**213.9**	**1 314.9**	**817.1**	**2 106.0**	**55.4**	**17.1**	**1 142.4**
Arkansas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	64	30	2.6	89.7	1.3	2.4	29.0	223.7	102.9	328.2	19.3	G	(D)
Colorado	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	7	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	58.4
Delaware	–	5	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	E1	13	6	.3	7.3	.1	.3	2.6	17.8	7.7	25.6	(D)	(NA)	(NA)
Illinois	–	18	10	1.2	38.7	.6	1.4	16.9	77.3	59.2	136.2	2.0	G	(D)
Indiana	E3	9	1	.1	3.0	.1	.1	1.1	6.4	3.4	9.8	.2	(NA)	(NA)
Iowa	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E1	9	5	.2	6.5	.1	.2	2.2	15.1	6.8	21.7	.3	(NA)	(NA)
Massachusetts	–	25	9	.7	22.6	.3	.6	8.3	61.6	32.0	93.0	1.5	F	(D)
Michigan	–	13	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	.8	42.6
Minnesota	–	7	3	.5	17.4	.2	.5	6.2	40.8	16.4	57.5	1.6	F	(D)
Mississippi	E7	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	23	12	1.5	46.3	.7	1.5	20.0	86.2	54.5	141.9	1.6	1.7	85.9
New York	–	24	7	1.0	33.5	.5	1.1	10.5	85.1	48.7	133.6	3.0	F	(D)
North Carolina	–	7	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	14	5	.8	28.4	.4	.9	12.9	56.5	36.8	93.1	(D)	F	(D)
Oregon	E1	6	1	.1	2.8	.1	.2	1.8	4.6	4.2	8.7	(Z)	(NA)	(D)
Pennsylvania	–	28	16	1.6	49.4	.9	1.8	23.9	85.4	62.7	149.0	3.3	1.2	68.7
Texas	E1	12	7	.5	13.4	.3	.7	6.7	30.4	21.3	52.1	1.0	E	(D)
Wisconsin	–	9	5	1.4	41.3	.9	2.0	23.2	89.2	60.9	150.4	4.7	1.4	57.3

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/20/95 1:16 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 4
TSF:38A_92.DAT;2 3/20/95 13:14:58 UTF:38A_93.DAT;2 3/20/95 13:14:58 META:TIPS96-13144746.DAT;1 3/20/95 13:16:19

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3822, ENVIRONMENTAL CONTROLS														
United States	–	**318**	**130**	**25.0**	**685.4**	**16.8**	**32.1**	**356.0**	**1 633.0**	**997.1**	**2 607.1**	**81.3**	**26.5**	**1 302.7**
Alabama	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	–	42	13	1.7	49.5	1.2	2.3	26.5	132.0	85.3	214.1	(D)	3.7	141.4
Connecticut	–	8	2	.2	5.5	.1	.2	2.7	13.4	4.2	17.2	.3	E	(D)
Florida	E3	19	5	.5	12.1	.4	.7	6.2	33.3	22.0	53.6	1.8	.4	17.3
Georgia	E1	7	2	.3	5.5	.2	.4	3.5	17.3	7.3	26.0	.1	F	(D)
Illinois	–	18	12	4.1	119.5	2.4	4.6	61.5	274.2	223.8	492.8	19.2	3.9	230.2
Indiana	–	9	6	1.8	44.8	1.4	2.5	27.7	116.1	78.2	193.4	5.5	1.9	83.5
Iowa	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	4	4	1.3	27.6	1.0	1.9	15.0	72.2	38.5	111.0	2.3	E	(D)
Maine	E4	4	3	.2	4.1	.1	.2	1.6	5.5	8.9	15.2	.2	(NA)	(D)
Massachusetts	E1	12	4	.7	19.1	.4	.7	6.9	39.8	21.3	60.4	1.0	E	(D)
Michigan	–	18	4	.6	14.0	.5	.7	7.0	48.0	35.8	83.7	(D)	E	(D)
Minnesota	–	13	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	–	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Hampshire	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E4	9	3	.2	7.0	.1	.2	3.0	15.6	8.1	22.6	.5	.2	6.2
New Mexico	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	–	17	6	.5	12.9	.3	.6	5.8	26.7	18.8	44.5	(D)	(NA)	(D)
North Carolina	–	8	4	.2	5.5	.1	.2	2.0	10.8	4.3	14.6	.3	(NA)	(NA)
Ohio	–	21	9	2.6	56.1	2.0	3.9	33.9	121.9	47.1	170.6	5.8	3.8	137.2
Oklahoma	E9	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	18	6	.8	22.7	.5	1.0	11.3	26.9	29.2	57.0	5.2	1.0	11.0
Rhode Island	E1	5	4	.7	17.4	.4	.8	6.0	38.0	11.5	49.6	.8	F	(D)
Tennessee	–	8	4	1.2	28.3	1.0	1.9	21.4	61.5	39.2	100.2	(D)	G	(D)
Texas	E2	13	7	.7	18.4	.5	1.2	11.3	59.4	32.2	91.3	1.6	(NA)	(D)
Virginia	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	14	6	.7	17.6	.5	.9	9.5	31.7	22.7	54.6	(D)	.6	27.4
INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS														
United States	**E1**	**885**	**358**	**50.1**	**1 764.8**	**24.0**	**47.3**	**582.9**	**4 182.9**	**2 137.7**	**6 360.4**	**158.1**	**53.3**	**3 204.7**
Arizona	–	14	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E2	173	71	7.7	286.7	3.7	7.2	91.5	576.2	353.1	946.6	27.0	7.6	479.6
Colorado	–	24	11	1.1	39.7	.6	1.1	13.1	129.2	39.5	168.1	7.2	.6	57.4
Connecticut	–	29	16	2.7	90.8	1.6	3.0	39.1	215.0	117.3	333.7	5.7	2.9	175.6
Florida	E2	23	8	.4	12.7	.2	.3	4.0	31.7	15.8	48.2	(D)	.7	31.6
Georgia	E1	12	1	.2	6.0	.1	.2	2.2	18.7	11.2	30.0	(D)	(NA)	(NA)
Illinois	E1	49	23	2.5	81.4	1.1	2.2	22.9	203.3	104.7	311.2	11.0	3.9	169.1
Indiana	–	18	11	1.0	26.2	.6	1.1	11.8	65.3	33.1	98.1	1.9	.8	38.4
Kansas	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Louisiana	E6	15	6	.9	28.8	.7	1.3	19.5	47.5	26.3	70.2	.9	.3	10.4
Massachusetts	E2	54	32	4.1	133.3	2.3	4.5	53.9	334.0	153.4	484.7	7.8	4.5	373.6
Michigan	E2	38	13	1.0	34.5	.5	1.0	11.9	68.3	38.6	106.4	2.2	1.1	63.5
Minnesota	E1	20	11	3.2	106.3	1.4	3.0	33.4	148.8	131.0	284.6	(D)	(NA)	(D)
Missouri	E1	11	2	.2	3.4	.1	.2	1.6	10.3	6.0	16.5	(D)	(NA)	(NA)
Nebraska	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nevada	–	4	2	.1	3.7	.1	.1	1.2	11.9	4.9	17.0	(D)	(NA)	(NA)
New Jersey	E1	39	11	.8	24.5	.4	.7	8.1	53.3	31.4	84.6	1.4	1.0	51.6
New York	–	38	20	2.3	78.2	1.0	2.2	22.8	167.6	104.3	272.4	15.2	(NA)	(D)
North Carolina	E3	17	5	.3	8.8	.1	.3	2.8	20.6	11.3	31.6	.5	E	(D)
Ohio	–	41	21	4.7	194.5	1.9	3.5	55.2	392.6	228.2	626.6	15.2	3.2	210.8
Oklahoma	–	11	5	1.2	38.9	.6	1.1	18.5	90.2	68.8	159.8	2.5	F	(D)
Oregon	E2	13	1	.2	5.1	.1	.1	1.5	10.0	7.2	17.3	.2	(NA)	(NA)
Pennsylvania	E1	66	29	6.8	252.8	3.2	6.3	82.4	608.8	307.6	941.4	16.6	8.5	497.8
Rhode Island	E1	6	2	.2	5.5	.1	.2	1.4	14.8	3.3	18.1	(D)	(NA)	(NA)
Tennessee	E1	8	3	.5	7.2	.4	.7	4.8	8.6	3.5	10.7	(D)	G	(D)
Texas	E2	64	25	2.9	102.6	1.2	2.4	29.6	211.7	136.5	343.1	8.0	3.7	200.3
Virginia	–	11	2	.2	7.6	.1	.2	1.9	17.9	13.8	31.9	.5	E	(D)
Washington	–	13	4	.3	8.9	.1	.3	3.2	19.3	14.2	33.7	.6	.2	9.8
West Virginia	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	21	6	.9	25.0	.5	1.1	13.7	57.6	31.0	88.9	1.5	E	(D)
INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES														
United States	–	**193**	**74**	**16.2**	**533.7**	**11.3**	**21.6**	**331.8**	**1 469.2**	**1 117.5**	**2 601.5**	**74.1**	**10.1**	**566.5**
Alabama	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arkansas	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	23	7	.7	20.9	.4	.8	12.2	33.4	48.0	95.6	(D)	F	(D)
Colorado	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	9	4	.3	6.7	.2	.4	3.4	10.5	7.0	17.7	.2	.9	27.2
Florida	E3	7	2	.1	2.2	.1	.2	1.0	6.9	7.0	13.8	.2	(NA)	(NA)
Georgia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	12	7	.9	22.7	.5	1.0	9.4	64.1	35.4	100.2	3.0	F	(D)
Kentucky	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	–	10	6	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/20/95 1:16 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 5
TSF:38A_92.DAT;2 3/20/95 13:14:58 UTF:38A_93.DAT;2 3/20/95 13:14:58 META:TIPS96-13144746.DAT;1 3/20/95 13:16:19

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES—Con.														
Nebraska	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	E6	10	3	.3	7.0	.1	.3	1.3	18.3	13.8	32.1	.3	(NA)	(NA)
New York	E1	11	2	.1	2.9	.1	.2	1.8	6.3	2.8	9.1	(D)	(NA)	(NA)
North Carolina	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	9	3	.4	10.8	.3	.8	6.9	27.2	49.0	75.7	(D)	(NA)	(D)
Oregon	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Pennsylvania	–	11	7	2.1	67.5	1.4	2.5	37.0	216.4	112.8	328.3	13.2	2.2	160.9
South Carolina	E7	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	17	6	.5	16.0	.3	.6	8.4	39.8	18.3	60.0	1.0	.3	22.0
Virginia	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	7	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY														
United States	**E1**	**964**	**388**	**68.7**	**2 549.0**	**32.3**	**63.4**	**896.8**	**5 721.1**	**3 091.2**	**8 873.3**	**324.7**	**85.2**	**5 090.9**
Alabama	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	38.4
Arizona	E1	18	4	.3	9.3	.1	.2	2.5	16.6	11.6	28.5	.5	.3	13.8
California	E1	268	110	17.6	761.5	8.5	17.0	289.3	1 653.8	778.2	2 438.0	87.6	19.6	1 375.4
Colorado	–	34	9	4.2	181.1	2.1	4.8	65.7	360.9	219.2	577.2	(D)	(NA)	(D)
Connecticut	E4	26	13	.7	21.8	.3	.7	7.0	49.3	24.3	74.7	1.2	1.0	46.8
Florida	–	28	12	1.8	58.3	.7	1.4	16.4	138.8	82.5	194.5	7.5	1.4	57.1
Georgia	–	11	5	.7	26.8	.3	.6	5.3	74.3	60.4	134.2	2.1	F	(D)
Illinois	E1	41	20	2.9	90.4	1.4	2.6	30.0	402.2	266.4	659.5	64.2	2.3	152.5
Indiana	–	13	5	1.3	35.6	.9	1.7	21.1	66.9	40.8	111.0	3.2	G	(D)
Kansas	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Maryland	E1	14	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	50.3
Massachusetts	E2	55	20	5.2	195.9	2.0	3.6	63.5	498.9	150.2	651.5	26.0	6.8	549.2
Michigan	E3	30	10	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	.9	57.0
Minnesota	–	21	6	.7	24.7	.2	.4	5.4	58.4	25.5	83.4	1.2	F	(D)
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	10	3	.3	9.9	.1	.3	3.3	15.6	8.6	25.5	.7	E	(D)
Nevada	–	4	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	26.4
New Hampshire	–	19	9	2.3	65.6	1.6	3.1	42.7	99.5	79.1	192.7	5.3	3.5	208.4
New Jersey	E3	36	14	2.0	84.9	.7	1.6	24.1	189.9	73.9	258.8	6.6	4.1	242.9
New York	–	56	28	4.6	179.4	2.3	4.5	66.0	306.9	199.7	579.6	14.6	7.5	290.6
North Carolina	–	8	6	1.2	40.4	.8	1.4	20.1	73.4	45.7	121.3	2.7	G	(D)
Ohio	–	35	17	2.0	63.5	.9	1.9	19.2	113.9	81.0	201.2	4.7	2.6	124.0
Oregon	–	27	9	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E1	34	15	1.4	37.1	.8	1.4	15.8	101.7	60.0	162.3	2.3	1.5	103.1
Rhode Island	–	7	2	.2	6.1	.1	.2	2.2	12.3	4.5	17.2	.2	.5	26.1
South Carolina	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E1	50	18	1.5	49.2	.6	1.2	11.1	102.0	63.7	167.5	2.9	G	(D)
Utah	E3	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	11	5	.4	14.8	.2	.5	7.0	31.3	8.9	39.0	.6	G	(D)
Washington	–	35	12	4.2	155.3	1.8	2.5	47.1	420.7	186.1	607.9	21.7	6.2	478.8
Wisconsin	E9	11	5	.9	24.7	.5	1.0	10.7	50.1	36.1	86.5	2.8	F	(D)
INDUSTRY 3826, ANALYTICAL INSTRUMENTS														
United States	**–**	**593**	**227**	**39.7**	**1 478.1**	**15.2**	**29.6**	**394.3**	**3 004.8**	**2 205.5**	**5 191.3**	**227.8**	**31.2**	**2 107.1**
Arizona	E1	11	3	.3	9.3	.1	.1	1.4	20.4	9.7	30.6	.8	.2	13.0
California	–	133	56	10.2	406.2	3.2	5.9	97.7	868.9	630.8	1 488.3	44.9	6.5	523.9
Colorado	–	16	7	1.1	37.0	.5	.9	10.6	51.8	39.5	89.1	5.9	.8	48.6
Connecticut	–	12	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Delaware	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	–	19	7	4.1	167.3	2.0	3.9	56.9	175.5	243.8	424.7	(D)	2.5	156.6
Georgia	–	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	(NA)	(NA)
Illinois	E7	19	5	.4	13.9	.2	.4	4.8	35.4	27.8	61.9	1.0	E	(D)
Indiana	–	5	2	.2	5.3	(Z)	.1	.7	12.2	4.5	16.4	(D)	(NA)	(NA)
Louisiana	E1	3	2	.1	2.7	(Z)	.1	.6	4.9	2.4	7.4	.2	(NA)	(NA)
Maryland	E5	18	4	.2	8.3	.1	.2	2.5	25.8	11.7	35.0	1.1	.8	44.8
Massachusetts	–	62	30	5.6	221.2	1.8	3.6	45.8	578.6	315.6	894.9	15.4	5.9	314.2
Michigan	–	16	5	1.1	31.0	.6	1.3	12.5	60.1	54.1	114.7	2.6	F	(D)
Minnesota	–	10	4	.5	21.4	.2	.4	6.5	43.9	24.7	69.1	(D)	F	(D)
Nebraska	–	5	3	.4	10.7	.2	.4	5.2	22.6	6.9	29.2	(D)	E	(D)
New Hampshire	E1	7	5	.3	10.7	.1	.2	2.1	30.2	19.9	46.1	.7	(NA)	(NA)
New Jersey	–	28	12	1.2	46.8	.5	.9	13.8	96.3	80.6	176.3	3.5	1.1	72.7
New York	–	27	8	1.0	32.6	.3	.7	9.4	66.9	51.0	120.0	4.1	G	(D)
North Carolina	E1	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E1	24	9	1.4	42.8	.6	1.1	10.5	78.4	60.3	139.8	3.9	1.0	49.0

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/20/95 1:16 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 6
TSF:38A_92.DAT;2 3/20/95 13:14:58 UTF:38A_93.DAT;2 3/20/95 13:14:58 META:TIPS96-13144746.DAT;1 3/20/95 13:16:19

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3826, ANALYTICAL INSTRUMENTS—Con.														
Oregon	E4	11	5	.4	13.0	.1	.3	3.6	29.2	22.2	51.6	1.0	.4	12.9
Pennsylvania	E1	36	16	2.4	83.4	1.2	1.8	29.2	144.8	109.6	253.5	7.6	2.0	160.2
Rhode Island	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E9	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	40	15	3.5	116.7	1.4	2.8	25.3	130.0	135.5	258.1	(D)	(NA)	(D)
Vermont	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	9	3	.3	13.0	.1	.2	2.1	25.8	13.7	39.9	1.2	E	(D)
Wisconsin	–	12	5	1.2	50.3	.4	.9	9.7	101.4	59.5	161.0	4.4	G	(D)
INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES														
United States	**–**	**425**	**167**	**18.9**	**679.9**	**9.4**	**19.8**	**256.7**	**1 435.0**	**836.0**	**2 262.9**	**65.0**	**20.1**	**1 167.8**
Arizona	E3	9	1	.1	4.3	(Z)	.1	.9	7.1	4.2	11.2	(D)	(NA)	(NA)
Arkansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	103	45	6.5	257.8	2.8	6.0	77.8	556.7	368.3	933.3	20.4	6.4	438.3
Colorado	–	16	5	.4	9.7	.3	.6	5.2	21.5	13.5	34.6	1.0	E	(D)
Connecticut	–	9	5	1.7	86.3	.7	1.2	25.9	169.9	50.4	212.5	(D)	1.9	157.6
Florida	–	20	8	.8	20.9	.5	.9	9.7	62.5	27.3	86.7	5.4	.5	20.3
Illinois	E3	17	4	.2	5.4	.1	.2	2.6	10.7	4.0	15.3	.3	E	(D)
Maryland	–	7	3	.5	14.2	.3	.6	7.9	24.3	10.0	34.0	(D)	E	(D)
Massachusetts	–	39	18	2.3	82.1	1.1	2.2	32.4	160.0	118.6	274.8	7.3	(NA)	(D)
Michigan	E5	12	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	10	6	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
Mississippi	–	4	3	.2	4.8	.1	.2	2.7	7.2	2.9	10.0	.2	(NA)	(D)
Missouri	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	–	10	6	.3	9.4	.1	.3	4.0	13.1	6.8	19.6	.3	G	(D)
New Jersey	–	20	8	.5	20.5	.2	.5	7.0	37.6	38.1	78.6	1.3	.3	19.1
New Mexico	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	40	17	1.3	42.3	.7	1.6	19.4	86.1	50.0	137.0	3.1	1.3	73.2
Ohio	–	9	4	.8	24.6	.6	1.6	13.2	65.8	28.8	95.8	4.3	F	(D)
Oregon	–	13	4	.9	30.9	.5	1.1	15.6	69.7	34.7	99.0	(D)	F	(D)
Pennsylvania	E1	24	7	.6	15.6	.4	.7	8.8	26.7	17.2	45.5	2.0	.5	21.3
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	9	1	.1	2.6	.1	.2	1.3	6.1	5.2	11.9	(D)	F	(D)
Vermont	E1	6	3	.2	4.5	.1	.2	2.5	11.0	5.3	15.8	.3	(NA)	(NA)
Washington	E5	5	2	.1	3.2	.1	.1	1.3	7.3	3.1	10.4	(D)	(NA)	(NA)
INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.														
United States	**–**	**1 006**	**318**	**38.1**	**1 305.4**	**19.3**	**38.1**	**483.6**	**2 809.5**	**1 584.2**	**4 400.1**	**180.1**	**41.0**	**2 259.0**
Alabama	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Arizona	E3	15	6	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
California	E1	163	62	6.0	223.0	3.0	5.9	81.6	445.5	149.1	596.7	19.5	5.0	289.1
Colorado	E3	29	6	.3	8.4	.2	.3	2.9	16.9	13.5	29.9	.7	E	(D)
Connecticut	E3	38	17	1.8	72.1	.8	1.6	20.3	143.5	41.7	175.9	7.5	2.5	134.2
Florida	–	44	7	1.2	30.0	.8	1.6	14.7	78.8	57.6	135.7	1.5	1.3	72.7
Georgia	–	10	2	.3	7.7	.2	.3	2.9	24.4	13.2	36.2	.6	(NA)	(D)
Illinois	–	44	16	1.4	50.3	.5	1.3	12.9	148.4	79.1	228.4	4.4	2.3	152.8
Indiana	E2	19	4	.3	7.6	.1	.2	2.7	15.9	10.7	28.1	.3	.2	7.0
Louisiana	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E1	19	7	.8	26.9	.4	.8	9.1	54.6	39.3	99.6	1.6	1.1	41.5
Massachusetts	E1	58	18	2.5	97.3	1.3	2.3	42.0	208.0	99.6	308.6	7.6	3.0	198.0
Michigan	–	52	15	1.1	35.3	.5	1.1	13.0	65.2	42.3	111.1	1.6	1.1	43.8
Minnesota	–	26	7	1.6	62.1	.9	1.7	33.3	141.0	60.0	206.2	7.8	1.4	105.7
Missouri	–	9	2	.2	7.3	(Z)	.1	.9	17.2	5.0	22.1	.7	(NA)	(NA)
New Hampshire	–	8	5	.3	10.2	.1	.2	2.9	22.1	11.0	33.7	.7	.2	5.2
New Jersey	–	43	14	1.9	61.5	.9	1.8	20.3	124.0	98.6	226.2	16.5	1.9	113.0
New Mexico	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
New York	E1	51	18	2.2	73.4	1.2	2.3	29.0	109.0	91.1	201.4	8.3	(NA)	(D)
North Carolina	–	23	7	1.0	28.0	.5	.9	9.5	76.9	35.2	111.3	3.6	F	(D)
Ohio	–	67	21	3.2	109.4	1.6	3.1	37.0	285.2	141.4	431.6	10.2	4.0	204.9
Oklahoma	–	10	3	.2	6.6	.1	.2	2.2	9.5	8.4	19.5	(D)	(NA)	(NA)
Pennsylvania	–	50	21	3.0	97.2	1.7	3.6	43.9	151.8	95.8	245.2	7.2	2.9	142.9
Rhode Island	–	7	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	9.6
Tennessee	–	16	5	.7	26.9	.4	.8	11.0	59.6	37.5	95.9	1.9	.6	39.4
Texas	–	73	24	3.7	122.1	2.0	4.0	46.0	317.6	289.0	594.8	69.0	2.3	124.4
Utah	–	6	2	.2	6.8	.1	.2	1.8	16.6	7.5	23.6	.5	(NA)	(NA)
Vermont	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	7	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E1	29	5	.9	27.9	.4	.9	11.4	51.6	18.0	68.5	1.9	2.1	141.0
West Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	17	5	.4	8.9	.3	.5	4.2	28.2	21.7	48.8	1.2	.4	18.4

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/20/95 1:16 PM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 7
TSF:38A_92.DAT;2 3/20/95 13:14:58 UTF:38A_93.DAT;2 3/20/95 13:14:58 META:TIPS96-13144746.DAT;1 3/20/95 13:16:19

Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Search and navigation equipment (SIC 3812)	Laboratory apparatus and furniture (SIC 3821)	Environ-mental controls (SIC 3822)	Process control instruments (SIC 3823)	Fluid meters and counting devices (SIC 3824)	Instruments to measure electricity (SIC 3825)	Analytical instruments (SIC 3826)	Optical instruments and lenses (SIC 3827)	Measuring and controlling devices, n.e.c. (SIC 3829)
Companies ---- number	634	330	294	817	181	900	551	415	977
All establishments ---- number	769	342	318	885	193	964	593	425	1 006
With 1 to 19 employees ---- number	360	199	188	527	119	576	366	258	688
With 20 to 99 employees ---- number	174	98	79	226	37	255	146	132	231
With 100 employees or more ---- number	235	45	51	132	37	133	81	35	87
Employment and labor costs:									
Employees ---- 1,000	255.0	17.7	25.0	50.1	16.2	68.7	39.7	18.9	38.1
Compensation, total ---- mil dol	14 035.7	707.9	891.3	2 197.4	701.1	3 077.9	1 815.7	860.0	1 621.0
Annual payroll ---- mil dol	11 056.2	571.6	685.4	1 764.8	533.7	2 549.0	1 478.1	679.9	1 305.4
Fringe benefits ---- mil dol	2 979.5	136.3	205.8	432.6	167.4	528.9	337.6	180.1	315.6
Social Security and other legally required payments ---- mil dol	965.8	52.2	76.8	170.1	64.7	236.4	126.9	64.5	130.3
Employer voluntary payments ---- mil dol	2 013.7	84.2	129.0	262.5	102.6	292.5	210.8	115.6	185.3
Production workers:									
Average for year ---- 1,000	103.6	9.0	16.8	24.0	11.3	32.3	15.2	9.4	19.3
March ---- 1,000	108.0	8.9	16.6	24.4	11.6	33.3	15.3	9.8	19.8
May ---- 1,000	105.4	9.0	17.1	24.2	11.7	32.7	15.3	9.5	19.5
August ---- 1,000	101.6	9.1	17.0	24.0	10.8	32.0	15.3	9.3	19.1
November ---- 1,000	99.6	9.0	16.7	23.6	11.2	31.1	15.1	9.1	18.7
Hours ---- millions	203.1	18.4	32.1	47.3	21.6	63.4	29.6	19.8	38.1
Wages ---- mil dol	3 511.8	213.9	356.0	582.9	331.8	896.8	394.3	256.7	483.6
Cost of materials[1] ---- mil dol	10 115.8	817.1	997.1	2 137.7	1 117.5	3 091.2	2 205.5	836.0	1 584.2
Materials, parts, containers, etc., consumed[2] ---- mil dol	8 758.8	685.1	805.7	1 918.5	1 039.3	2 578.7	1 899.2	729.7	1 348.7
Resales ---- mil dol	99.6	75.7	122.3	115.2	34.3	349.3	245.9	49.9	154.0
Fuels ---- mil dol	28.4	5.0	4.4	10.5	2.8	14.9	5.2	4.0	5.4
Purchased electricity ---- mil dol	268.1	14.8	21.8	44.0	15.5	60.0	28.9	30.3	35.3
Contract work ---- mil dol	960.9	36.5	43.0	49.6	25.6	88.3	26.3	22.0	40.7
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	4 169.7	220.3	360.9	621.9	269.0	849.8	384.6	393.7	485.3
Generated less sold ---- mil kWh	(D)	–	–	(D)	–	(D)	(D)	–	(D)
Total value of shipments ---- mil dol	35 266.1	2 106.0	2 607.1	6 360.4	2 601.5	8 873.3	5 191.3	2 262.9	4 400.1
Value added ---- mil dol	24 411.1	1 314.9	1 633.0	4 182.9	1 469.2	5 721.1	3 004.8	1 435.0	2 809.5
Inventories by stage of fabrication:									
Beginning of 1992 ---- mil dol	8 296.5	359.3	372.9	1 289.3	290.7	2 022.6	977.1	512.4	1 079.6
Finished goods ---- mil dol	305.3	90.7	110.4	294.7	55.3	419.3	359.1	100.0	222.9
Work in process ---- mil dol	6 787.8	98.7	160.7	453.6	129.5	854.9	227.0	254.4	431.4
Materials and supplies ---- mil dol	1 203.3	170.0	101.7	541.0	105.9	748.4	390.9	157.9	425.2
End of 1992 ---- mil dol	7 408.2	376.2	409.9	1 246.4	280.4	1 891.4	992.4	513.7	1 076.7
Finished goods ---- mil dol	287.3	124.3	134.6	274.1	51.7	409.4	377.1	97.4	252.1
Work in process ---- mil dol	6 066.6	91.1	159.5	434.2	118.3	803.8	228.0	265.2	395.8
Materials and supplies ---- mil dol	1 054.2	160.8	115.8	538.1	110.4	678.2	387.2	151.0	428.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

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Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Search and navigation equipment (SIC 3812)	Laboratory apparatus and furniture (SIC 3821)	Environmental controls (SIC 3822)	Process control instruments (SIC 3823)	Fluid meters and counting devices (SIC 3824)	Instruments to measure electricity (SIC 3825)	Analytical instruments (SIC 3826)	Optical instruments and lenses (SIC 3827)	Measuring and controlling devices, n.e.c. (SIC 3829)
Gross book value of depreciable assets:									
Total:									
Beginning of year	15 149.5	604.8	800.2	1 496.7	804.7	3 300.6	1 496.4	854.8	1 233.6
New capital expenditures[1]	859.1	55.4	81.3	158.1	74.1	324.7	227.8	65.0	180.1
Used capital expenditures	108.7	8.0	1.5	20.8	2.8	89.1	19.3	6.6	21.8
Retirements	895.2	26.5	45.1	53.3	33.4	276.6	92.2	35.0	64.9
End of year	15 222.1	641.7	837.9	1 622.4	848.1	3 437.8	1 651.3	891.4	1 370.6
Buildings and other structures:									
Beginning of year	4 495.6	162.6	198.2	395.8	121.7	1 030.4	394.8	221.8	372.5
New capital expenditures	153.6	15.6	8.8	23.4	6.7	33.0	85.2	7.1	24.4
Used capital expenditures	85.5	(D)	.7	(D)	.5	(D)	3.9	3.9	11.5
Retirements	121.4	(D)	5.6	(D)	1.8	(D)	15.1	5.3	5.1
End of year	4 613.2	178.1	202.1	430.3	127.1	1 076.0	468.7	227.6	403.3
Machinery and equipment:									
Beginning of year	10 653.9	442.2	602.0	1 101.0	683.0	2 270.2	1 101.6	633.0	861.1
New capital expenditures[1]	705.5	39.9	72.5	134.7	67.4	291.7	142.6	57.9	155.7
Used capital expenditures	23.2	(D)	.8	(D)	2.3	(D)	15.4	2.7	10.3
Retirements	773.7	(D)	39.5	(D)	31.6	(D)	77.1	29.8	59.9
End of year	10 608.9	463.6	635.8	1 192.1	721.0	2 361.8	1 182.5	663.8	967.3
Depreciation charges during 1992:									
Total	1 179.8	53.6	60.0	140.7	119.9	279.0	152.7	86.0	117.4
Buildings and other structures	227.0	10.2	7.7	23.9	8.7	46.3	22.0	11.4	19.7
Machinery and equipment	952.7	43.4	52.3	116.8	111.3	232.6	130.7	74.6	97.7
Rental payments:									
Total	336.6	19.6	32.9	80.6	15.4	111.7	61.9	35.2	52.2
Buildings and other structures	236.5	12.0	18.0	50.3	8.4	69.0	41.8	18.2	32.1
Machinery and equipment	100.1	7.6	14.8	30.3	7.0	42.8	20.1	17.0	20.2

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1992

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Search and navigation equipment (SIC 3812)		Laboratory apparatus and furniture (SIC 3821)		Environmental controls (SIC 3822)		Process control instruments (SIC 3823)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	87.9	(X)	2.4	(X)	5.3	(X)	12.4	(X)
Response coverage ratio (percent)[2]	83.1	(X)	92.0	(X)	73.7	(X)	57.0	(X)
Machinery	101.2	(X)	8.3	(X)	12.2	(X)	14.6	(X)
Response coverage ratio (percent)[2]	81.3	(X)	91.8	(X)	76.2	(X)	53.1	(X)
Other purchased services:								
Communications	91.4	(X)	9.5	(X)	10.5	(X)	25.6	(X)
Response coverage ratio (percent)[2]	80.3	(X)	88.7	(X)	78.8	(X)	52.7	(X)
Legal	66.9	(X)	3.9	(X)	3.1	(X)	27.4	(X)
Response coverage ratio (percent)[2]	77.7	(X)	92.0	(X)	61.8	(X)	56.7	(X)
Accounting and bookkeeping	15.7	(X)	2.7	(X)	2.9	(X)	4.4	(X)
Response coverage ratio (percent)[2]	76.9	(X)	92.0	(X)	73.8	(X)	50.9	(X)
Advertising	36.1	(X)	14.3	(X)	6.4	(X)	38.2	(X)
Response coverage ratio (percent)[2]	81.0	(X)	86.6	(X)	73.4	(X)	55.5	(X)
Software and other data processing	152.5	(X)	4.7	(X)	71.5	(X)	16.4	(X)
Response coverage ratio (percent)[2]	81.0	(X)	88.7	(X)	76.8	(X)	54.4	(X)
Refuse removal, including hazardous waste	25.2	(X)	2.6	(X)	1.6	(X)	2.8	(X)
Response coverage ratio (percent)[2]	80.5	(X)	83.3	(X)	81.6	(X)	51.5	(X)
New machinery and equipment expenditures	705.5	(X)	39.9	(X)	72.5	(X)	134.7	(X)
Automobiles, trucks, etc., for highway use	4.0	33	1.0	17	.4	33	4.2	54
Computers and peripheral data processing equipment	201.9	1	10.2	5	11.5	8	44.7	4
All other	499.7	1	28.7	3	60.6	2	85.8	4
Adjustment ratio[3]	1.1	(X)	1.3	(X)	1.1	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	8 758.8	(X)	685.1	(X)	805.7	(X)	1 918.5	(X)
Materials purchased or transferred from foreign sources[4]	268.7	1	37.4	23	59.4	10	(S)	(X)
Materials purchased or transferred from domestic sources	8 490.1	1	647.6	2	746.4	1	(S)	(X)
Adjustment ratio[3]	1.7	(X)	1.6	(X)	1.6	(X)	(S)	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Fluid meters and counting devices (SIC 3824)		Instruments to measure electricity (SIC 3825)		Analytical instruments (SIC 3826)		Optical instruments and lenses (SIC 3827)		Measuring and controlling devices, n.e.c. (SIC 3829)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.8	(X)	22.5	(X)	8.7	(X)	4.9	(X)	5.9	(X)
Response coverage ratio (percent)[2]	78.9	(X)	73.0	(X)	67.7	(X)	82.0	(X)	62.8	(X)
Machinery	7.7	(X)	25.7	(X)	17.8	(X)	8.1	(X)	31.5	(X)
Response coverage ratio (percent)[2]	80.1	(X)	71.6	(X)	69.0	(X)	82.0	(X)	63.1	(X)
Other purchased services:										
Communications	4.5	(X)	37.1	(X)	28.7	(X)	7.3	(X)	15.3	(X)
Response coverage ratio (percent)[2]	80.3	(X)	67.8	(X)	67.4	(X)	81.2	(X)	65.9	(X)
Legal	1.9	(X)	19.8	(X)	15.3	(X)	7.9	(X)	7.9	(X)
Response coverage ratio (percent)[2]	65.6	(X)	71.4	(X)	68.0	(X)	81.3	(X)	67.8	(X)
Accounting and bookkeeping	1.6	(X)	8.2	(X)	10.2	(X)	3.7	(X)	6.1	(X)
Response coverage ratio (percent)[2]	66.0	(X)	70.5	(X)	68.9	(X)	82.0	(X)	67.3	(X)
Advertising	4.8	(X)	54.1	(X)	32.7	(X)	12.8	(X)	22.1	(X)
Response coverage ratio (percent)[2]	64.9	(X)	71.8	(X)	69.0	(X)	82.0	(X)	67.2	(X)
Software and other data processing	1.7	(X)	20.3	(X)	16.7	(X)	5.0	(X)	15.0	(X)
Response coverage ratio (percent)[2]	66.0	(X)	71.1	(X)	67.7	(X)	81.1	(X)	66.5	(X)
Refuse removal, including hazardous waste	3.7	(X)	4.2	(X)	4.3	(X)	2.4	(X)	3.2	(X)
Response coverage ratio (percent)[2]	80.3	(X)	67.9	(X)	67.6	(X)	78.1	(X)	66.9	(X)
New machinery and equipment expenditures	67.4	(X)	291.7	(X)	142.6	(X)	57.9	(X)	155.7	(X)
Automobiles, trucks, etc., for highway use	.4	12	1.8	12	3.7	11	.3	36	20.5	7
Computers and peripheral data processing equipment	7.4	5	99.8	2	23.6	7	9.7	13	51.1	5
All other	59.6	1	190.1	1	115.3	2	47.8	3	84.1	5
Adjustment ratio[3]	1.2	(X)	1.1	(X)	1.1	(X)	1.3	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	1 039.3	(X)	2 578.7	(X)	1 899.2	(X)	729.7	(X)	1 348.7	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	211.9	8	(S)	(X)	44.8	20	60.8	9
Materials purchased or transferred from domestic sources	(S)	(X)	2 366.9	1	(S)	(X)	685.0	2	1 288.0	1
Adjustment ratio[3]	(S)	(X)	2.0	(X)	(S)	(X)	1.6	(X)	2.0	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT												
Total	**–**	**769**	**255.0**	**11 056.2**	**103.6**	**203.1**	**3 511.8**	**24 411.1**	**10 115.8**	**35 266.1**	**859.1**	**7 408.2**
Establishments with an average of–												
1 to 4 employees	E9	152	.3	7.4	.1	.2	2.4	15.8	6.7	22.4	.6	4.6
5 to 9 employees	E6	116	.8	22.3	.3	.6	7.3	46.4	20.3	66.8	1.8	13.0
10 to 19 employees	E3	92	1.3	35.9	.6	1.3	13.4	81.1	30.9	109.9	2.0	23.8
20 to 49 employees	E2	106	3.3	104.2	1.6	3.0	37.7	240.7	133.9	376.3	9.2	70.9
50 to 99 employees	E3	68	4.7	161.0	2.4	4.7	58.2	365.9	214.1	578.3	11.5	148.3
100 to 249 employees	E2	79	12.7	440.3	6.1	12.3	157.3	959.9	474.6	1 458.8	29.5	332.0
250 to 499 employees	E1	50	18.3	674.7	10.2	18.7	283.2	1 397.4	594.3	2 015.6	47.6	375.0
500 to 999 employees	–	40	29.3	1 156.4	13.5	27.6	393.9	2 622.6	1 164.7	3 906.6	83.5	748.9
1,000 to 2,499 employees	–	40	65.5	2 952.5	23.0	44.8	790.6	5 743.2	2 447.5	8 407.5	260.4	1 866.6
2,500 employees or more	–	26	118.8	5 501.5	45.7	89.9	1 767.7	12 938.1	5 028.6	18 323.9	413.0	3 825.1
Covered by administrative records[2]	E9	252	1.3	28.4	.5	1.0	9.3	57.6	24.5	82.1	2.3	16.9
INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE												
Total	**–**	**342**	**17.7**	**571.6**	**9.0**	**18.4**	**213.9**	**1 314.9**	**817.1**	**2 106.0**	**55.4**	**376.2**
Establishments with an average of–												
1 to 4 employees	E8	69	.1	3.5	.1	.2	1.3	7.8	4.7	12.5	.3	2.4
5 to 9 employees	E4	57	.4	10.2	.2	.4	4.1	24.8	13.6	38.1	1.2	6.9
10 to 19 employees	E2	73	1.0	29.6	.5	1.0	11.0	61.8	31.0	92.8	1.8	15.7
20 to 49 employees	E1	74	2.3	66.6	1.2	2.4	26.8	158.0	75.6	230.6	5.2	45.0
50 to 99 employees	–	24	1.7	55.5	.8	1.7	19.4	124.1	72.3	195.2	4.3	34.3
100 to 249 employees	–	28	4.5	137.8	2.4	5.1	58.9	301.9	184.8	487.8	13.7	85.6
250 to 499 employees	–	14	4.7	156.8	2.4	4.9	59.6	381.8	220.5	607.7	20.1	126.1
500 to 999 employees	–	2	3.0	111.5	1.3	2.7	32.7	254.9	214.6	441.2	8.9	60.4
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	105	.4	10.8	.2	.5	4.2	21.3	11.7	33.0	.9	6.6

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3822, ENVIRONMENTAL CONTROLS												
Total	**–**	**318**	**25.0**	**685.4**	**16.8**	**32.1**	**356.0**	**1 633.0**	**997.1**	**2 607.1**	**81.3**	**409.9**
Establishments with an average of—												
1 to 4 employees	E8	71	.1	3.0	.1	.2	1.6	6.2	4.0	10.1	.2	1.7
5 to 9 employees	E6	54	.4	9.2	.2	.5	4.5	18.1	13.4	31.4	.6	5.6
10 to 19 employees	E2	63	.9	21.6	.5	1.1	10.3	48.2	31.2	78.5	1.4	13.5
20 to 49 employees	E1	55	1.7	44.8	1.0	1.9	18.7	109.2	61.7	168.7	4.3	30.7
50 to 99 employees	E2	24	1.7	43.3	1.1	2.2	19.6	91.7	66.7	157.4	3.4	32.5
100 to 249 employees	–	26	4.0	104.2	2.9	5.4	57.2	343.8	192.9	534.8	9.5	83.1
250 to 499 employees	–	11	3.7	79.0	2.9	5.7	49.4	200.1	127.5	327.7	15.1	44.3
500 to 999 employees	–	12	12.5	380.3	8.0	15.1	194.7	815.6	499.8	1 298.5	46.7	198.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	119	.6	11.8	.4	.7	6.3	23.6	15.2	38.9	1.0	6.5
INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS												
Total	**E1**	**885**	**50.1**	**1 764.8**	**24.0**	**47.3**	**582.9**	**4 182.9**	**2 137.7**	**6 360.4**	**158.1**	**1 246.4**
Establishments with an average of—												
1 to 4 employees	E9	204	.4	10.9	.1	.3	3.7	25.0	13.5	38.5	.9	7.3
5 to 9 employees	E6	165	1.1	30.8	.5	1.0	10.8	66.3	37.4	103.8	2.3	19.7
10 to 19 employees	E2	158	2.2	67.6	1.0	2.0	23.3	144.9	88.3	234.3	4.0	42.0
20 to 49 employees	E1	141	4.5	149.4	2.0	4.0	46.6	319.3	163.4	485.3	7.7	87.2
50 to 99 employees	E1	85	5.9	193.9	3.1	6.3	74.8	446.4	250.5	697.9	15.3	133.0
100 to 249 employees	E1	92	13.8	454.5	6.9	13.6	164.1	1 045.2	561.4	1 627.6	35.0	328.4
250 to 499 employees	–	27	9.4	315.6	5.0	10.2	119.4	751.9	403.7	1 153.9	30.8	232.7
500 to 999 employees	E3	8	6.0	227.3	3.1	5.3	74.8	398.2	242.2	653.3	29.0	161.4
1,000 to 2,499 employees	–	5	6.9	314.9	2.3	4.5	65.4	985.7	377.3	1 365.8	33.3	234.7
Covered by administrative records[2]	E9	320	1.4	33.7	.6	1.2	11.3	68.9	37.1	106.0	2.3	20.5
INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES												
Total	**–**	**193**	**16.2**	**533.7**	**11.3**	**21.6**	**331.8**	**1 469.2**	**1 117.5**	**2 601.5**	**74.1**	**280.4**
Establishments with an average of—												
1 to 4 employees	E8	54	.1	2.1	.1	.1	1.1	5.9	4.0	9.9	.3	1.4
5 to 9 employees	E6	39	.3	6.4	.2	.3	3.2	15.4	11.6	26.9	.7	3.8
10 to 19 employees	E2	26	.4	9.5	.3	.6	5.3	20.0	14.4	34.0	1.1	5.4
20 to 49 employees	E3	27	.8	21.0	.5	1.0	9.8	43.7	29.3	74.8	1.7	14.5
50 to 99 employees	E1	10	.7	16.3	.4	.7	6.7	33.9	26.5	61.3	1.1	11.8
100 to 249 employees	–	23	3.8	98.6	2.5	5.3	51.4	253.0	213.5	466.3	15.2	89.0
250 to 499 employees	–	9	3.3	111.1	2.1	4.2	58.4	299.6	198.8	512.8	16.2	61.8
500 to 999 employees	–	3	6.9	268.8	5.3	9.4	195.9	797.6	619.4	1 415.5	37.8	92.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	72	.2	4.5	.2	.3	2.3	10.4	7.1	17.5	.6	2.4
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY												
Total	**E1**	**964**	**68.7**	**2 549.0**	**32.3**	**63.4**	**896.8**	**5 721.1**	**3 091.2**	**8 873.3**	**324.7**	**1 891.4**
Establishments with an average of—												
1 to 4 employees	E8	238	.4	12.8	.1	.4	4.9	24.1	13.9	39.2	1.2	9.1
5 to 9 employees	E7	176	1.2	36.5	.5	1.1	13.9	(Z)	166.3	112.1	3.2	25.8
10 to 19 employees	E3	162	2.2	62.2	1.0	1.9	21.3	120.6	64.5	185.1	4.3	39.3
20 to 49 employees	E1	175	5.4	177.8	2.4	4.8	58.2	374.9	210.7	594.2	15.1	139.2
50 to 99 employees	E2	80	5.6	194.0	2.7	5.7	66.1	429.8	232.2	664.4	19.5	139.7
100 to 249 employees	E1	78	12.5	430.5	5.4	10.7	131.6	1 105.0	501.0	1 600.0	91.6	365.2
250 to 499 employees	–	27	8.6	357.3	3.5	7.0	96.9	891.7	401.9	1 273.3	46.3	353.3
500 to 999 employees	E1	17	11.7	422.8	6.7	11.4	189.4	1 103.7	641.3	1 735.5	36.8	340.1
1,000 to 2,499 employees	–	10	21.2	855.1	9.9	20.5	314.6	1 725.2	859.4	2 669.4	106.7	479.7
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	410	2.1	52.1	.9	1.8	20.4	94.2	51.4	145.6	4.8	34.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3826, ANALYTICAL INSTRUMENTS												
Total	**–**	**593**	**39.7**	**1 478.1**	**15.2**	**29.6**	**394.3**	**3 004.8**	**2 205.5**	**5 191.3**	**227.8**	**992.4**
Establishments with an average of—												
1 to 4 employees	E8	169	.3	8.5	.1	.2	2.5	19.9	12.0	31.6	.8	7.0
5 to 9 employees	E5	112	.8	23.7	.3	.7	7.1	52.9	31.4	81.9	2.7	18.1
10 to 19 employees	E2	85	1.2	38.7	.5	1.1	13.2	80.1	41.6	122.5	3.2	21.2
20 to 49 employees	E1	88	2.8	93.2	1.1	2.3	28.0	186.5	118.1	301.5	6.0	58.3
50 to 99 employees	E1	58	4.1	155.0	1.4	3.0	37.2	341.9	191.2	527.9	13.1	105.4
100 to 249 employees	E1	43	6.6	230.1	2.6	4.9	64.4	567.3	337.0	904.7	31.2	159.9
250 to 499 employees	–	23	7.7	296.9	3.2	5.6	73.9	678.4	508.6	1 183.5	23.6	213.4
500 to 999 employees	–	11	7.5	282.9	3.4	7.1	98.8	607.5	498.5	1 106.4	102.6	240.4
1,000 to 2,499 employees	–	3	8.8	349.1	2.5	4.8	69.2	470.3	467.2	931.2	44.5	168.8
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	231	.8	20.4	.3	.7	5.9	42.0	26.0	68.0	2.0	13.2
INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES												
Total	**–**	**425**	**18.9**	**679.9**	**9.4**	**19.8**	**256.7**	**1 435.0**	**836.0**	**2 262.9**	**65.0**	**513.7**
Establishments with an average of—												
1 to 4 employees	E8	124	.2	6.2	.1	.3	2.9	14.0	7.9	21.8	.6	5.6
5 to 9 employees	E6	67	.5	12.9	.3	.5	5.8	28.1	14.4	42.5	2.0	9.6
10 to 19 employees	E2	67	.9	26.2	.5	1.0	12.0	50.7	23.5	74.7	2.0	12.9
20 to 49 employees	–	88	2.8	88.3	1.5	3.1	38.0	162.2	187.3	334.5	5.7	151.9
50 to 99 employees	–	44	3.1	107.3	1.7	3.8	50.1	221.0	128.4	341.5	11.7	76.5
100 to 249 employees	–	22	3.6	110.3	1.9	3.8	46.5	219.0	172.6	390.4	15.0	86.1
250 to 499 employees	–	7	2.4	86.5	1.1	2.2	34.1	185.5	93.5	284.3	6.3	80.3
500 to 999 employees	–	5	5.4	242.2	2.2	5.1	67.4	554.6	208.4	773.1	21.8	90.7
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	176	.7	16.9	.4	.8	7.7	33.5	18.5	52.0	1.6	13.8
INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.												
Total	**–**	**1 006**	**38.1**	**1 305.4**	**19.3**	**38.1**	**483.6**	**2 809.5**	**1 584.2**	**4 400.1**	**180.1**	**1 076.7**
Establishments with an average of—												
1 to 4 employees	E8	388	.6	16.8	.4	.7	6.8	34.1	21.0	54.9	1.6	14.1
5 to 9 employees	E3	140	.9	22.3	.5	.9	8.8	71.4	27.8	99.3	3.4	16.8
10 to 19 employees	E1	160	2.2	68.5	1.1	2.3	25.2	151.1	101.4	253.2	4.0	42.5
20 to 49 employees	E1	162	5.0	162.5	2.5	5.3	61.2	327.3	194.8	520.5	11.7	113.5
50 to 99 employees	E1	69	5.1	171.1	2.4	4.7	56.4	366.8	239.9	617.7	11.9	142.1
100 to 249 employees	–	59	9.1	310.0	4.2	8.3	95.0	640.3	364.9	980.0	42.5	269.8
250 to 499 employees	–	17	6.1	216.6	3.2	6.4	74.1	559.2	358.4	916.1	23.9	189.0
500 to 999 employees	–	10	9.0	337.7	5.0	9.4	156.2	659.4	276.0	958.5	81.2	288.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	414	1.1	24.0	.7	1.2	9.5	47.7	29.1	76.8	2.5	21.1

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3812	**Search and navigation equipment:**										
	All establishments in industry	769	255.0	11 056.2	103.6	203.1	3 511.8	24 411.1	10 115.8	35 266.1	859.1
	Establishments with this product class primary:										
38121	Aeronautical, nautical, and navigational instruments, not sending or receiving radio signals	75	19.8	717.1	8.4	17.3	215.3	1 659.0	916.7	2 658.7	73.7
38122	Search, detection, navigation, and guidance systems and equipment	273	228.0	10 119.8	92.0	179.3	3 221.3	22 309.1	9 000.4	31 970.1	768.0
3821	**Laboratory apparatus and furniture:**										
	All establishments in industry	342	17.7	571.6	9.0	18.4	213.9	1 314.9	817.1	2 106.0	55.4

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3822	**Environmental controls:**										
	All establishments in industry	318	25.0	685.4	16.8	32.1	356.0	1 633.0	997.1	2 607.1	81.3
3823	**Process control instruments:**										
	All establishments in industry	885	50.1	1 764.8	24.0	47.3	582.9	4 182.9	2 137.7	6 360.4	158.1
3824	**Fluid meters and counting devices:**										
	All establishments in industry	193	16.2	533.7	11.3	21.6	331.8	1 469.2	1 117.5	2 601.5	74.1
	Establishments with this product class primary:										
38242	Integrating and totalizing meters for gas and liquids	40	5.9	181.6	3.7	7.1	94.1	505.9	309.6	817.1	32.7
38243	Counting devices	23	2.1	63.8	1.3	2.8	30.7	147.6	118.8	281.5	6.8
38244	Motor vehicle instruments	19	7.0	262.4	5.5	10.1	193.5	761.9	649.8	1 409.7	32.0
3825	**Instruments to measure electricity:**										
	All establishments in industry	964	68.7	2 549.0	32.3	63.4	896.8	5 721.1	3 091.2	8 873.3	324.7
	Establishments with this product class primary:										
38251	Integrating instruments, electrical	16	4.9	141.0	3.5	6.3	84.3	248.5	226.5	480.7	12.8
38252	Test equipment for testing electrical, radio, and communication circuits, and motors	323	52.3	2 042.2	23.3	45.9	679.8	4 776.3	2 487.7	7 302.6	283.5
38253	Other instruments to measure electricity	63	6.0	203.6	2.9	5.9	70.1	388.9	209.9	614.4	14.7
3826	**Analytical instruments:**										
	All establishments in industry	593	39.7	1 478.1	15.2	29.6	394.3	3 004.8	2 205.5	5 191.3	227.8
3827	**Optical instruments and lenses:**										
	All establishments in industry	425	18.9	679.9	9.4	19.8	256.7	1 435.0	836.0	2 262.9	65.0
	Establishments with this product class primary:										
38271	Sighting, tracking, and fire-control equipment, optical-type	32	4.4	175.8	1.7	3.4	47.3	395.4	347.9	744.0	12.9
38274	Optical instruments and lenses, n.e.c.	174	13.1	469.5	6.9	14.8	193.1	971.4	452.3	1 414.8	48.0
3829	**Measuring and controlling devices, n.e.c.:**										
	All establishments in industry	1 006	38.1	1 305.4	19.3	38.1	483.6	2 809.5	1 584.2	4 400.1	180.1
	Establishments with this product class primary:										
38291	Aircraft engine instruments, except flight	31	5.9	204.9	3.3	6.1	91.4	343.9	205.2	559.6	13.1
38292	Physical properties testing and inspection equipment and kinematic testing and measuring equipment	174	10.7	389.4	5.0	10.1	140.5	806.5	440.9	1 251.4	31.1
38294	Nuclear radiation detection and monitoring instruments	45	4.8	164.8	2.3	4.7	58.0	380.7	203.2	582.1	16.2
38295	Commercial, geophysical, meteorological, and general-purpose instruments	144	10.7	379.6	5.4	11.2	129.2	882.1	498.6	1 370.2	103.5
38296	Survey and drafting instruments and associated equipment	27	2.0	59.1	1.2	2.1	24.7	169.7	85.5	262.4	5.7

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT			
Total value of shipments	35 266.1	36 266.8	(NA)
Primary products value of shipments	29 984.2	30 632.7	(NA)
Secondary products value of shipments	2 944.4	3 909.9	(NA)
Total miscellaneous receipts	2 337.5	1 724.2	(NA)
Value of resales	186.0	89.6	(NA)
Contract receipts	29.3	35.2	(NA)
Other miscellaneous receipts	2 122.1	1 599.4	(NA)
Receipts for research and development	1 064.7	1 172.0	(NA)
Other miscellaneous receipts	1 041.4	427.4	(NA)
Other miscellaneous receipts, n.s.k.	16.0	(NA)	(NA)
Primary products specialization ratio	91	89	(NA)
Value of primary products shipments made in all industries	34 435.0	34 016.9	(NA)
Value of primary products shipments made in this industry	29 984.2	30 632.7	(NA)
Value of primary products shipments made in other industries	4 450.8	3 384.2	(NA)
Coverage ratio	87	90	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE			
Total value of shipments	2 106.0	1 769.3	(NA)
Primary products value of shipments	1 663.8	1 482.9	(NA)
Secondary products value of shipments	277.5	174.8	(NA)
Total miscellaneous receipts	164.7	111.6	(NA)
Value of resales	136.3	73.7	(NA)
Contract receipts	11.6	(D)	(NA)
Other miscellaneous receipts	16.7	(D)	(NA)
Primary products specialization ratio	86	89	(NA)
Value of primary products shipments made in all industries	1 843.9	1 618.8	(NA)
Value of primary products shipments made in this industry	1 663.8	1 482.9	(NA)
Value of primary products shipments made in other industries	180.1	135.9	(NA)
Coverage ratio	90	92	(NA)
INDUSTRY 3822, ENVIRONMENTAL CONTROLS			
Total value of shipments	2 607.1	2 068.8	1 549.1
Primary products value of shipments	2 162.1	1 796.7	1 386.1
Secondary products value of shipments	183.1	147.5	119.1
Total miscellaneous receipts	261.9	124.5	43.9
Value of resales	192.7	73.6	36.2
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	92	92	92
Value of primary products shipments made in all industries	2 377.2	2 024.6	1 544.5
Value of primary products shipments made in this industry	2 162.1	1 796.7	1 386.1
Value of primary products shipments made in other industries	215.1	227.9	158.4
Coverage ratio	91	89	90
INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS			
Total value of shipments	6 360.4	4 788.2	4 037.8
Primary products value of shipments	5 265.3	4 038.5	3 390.4
Secondary products value of shipments	403.3	367.1	379.6
Total miscellaneous receipts	691.8	382.6	267.8
Value of resales	165.9	122.3	95.3
Contract receipts	30.9	10.2	(D)
Other miscellaneous receipts	495.0	250.1	(D)
Receipts for repair work	58.6	26.2	39.4
Other miscellaneous receipts	384.3	223.9	(D)
Other miscellaneous receipts, n.s.k.	52.1	(NA)	.4
Primary products specialization ratio	93	92	91
Value of primary products shipments made in all industries	5 943.1	4 370.9	3 915.1
Value of primary products shipments made in this industry	5 265.3	4 038.5	3 390.4
Value of primary products shipments made in other industries	677.8	332.3	524.7
Coverage ratio	89	92	87
INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES			
Total value of shipments	2 601.5	938.6	728.3
Primary products value of shipments	2 366.8	861.7	663.6
Secondary products value of shipments	175.0	46.7	47.1
Total miscellaneous receipts	59.7	30.3	17.6
Value of resales	40.6	25.0	9.7
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Receipts for repair work	(D)	(D)	4.5
Other miscellaneous receipts	(D)	(D)	(D)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(D)
Primary products specialization ratio	93	95	94
Value of primary products shipments made in all industries	2 734.7	1 133.1	787.1
Value of primary products shipments made in this industry	2 366.8	861.7	663.6
Value of primary products shipments made in other industries	367.9	271.4	123.4
Coverage ratio	87	76	84
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY			
Total value of shipments	8 873.3	7 703.3	6 094.4
Primary products value of shipments	7 494.2	6 972.9	5 058.2
Secondary products value of shipments	454.6	345.6	282.9
Total miscellaneous receipts	924.6	384.8	753.3
Value of resales	605.3	200.3	497.6
Contract receipts	17.9	22.7	(D)
Other miscellaneous receipts	301.3	161.8	(D)
Receipts for repair work	76.6	107.6	37.0
Other miscellaneous receipts	158.8	54.2	(D)
Other miscellaneous receipts, n.s.k.	66.0	(NA)	.9
Primary products specialization ratio	94	95	94
Value of primary products shipments made in all industries	8 066.8	7 612.3	5 575.6
Value of primary products shipments made in this industry	7 494.2	6 972.9	5 058.2
Value of primary products shipments made in other industries	572.6	639.4	517.4

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY—Con.			
Coverage ratio	93	92	91
INDUSTRY 3826, ANALYTICAL INSTRUMENTS			
Total value of shipments	5 191.3	3 468.2	(NA)
Primary products value of shipments	4 207.3	2 844.0	(NA)
Secondary products value of shipments	481.6	441.5	(NA)
Total miscellaneous receipts	502.5	182.8	(NA)
Value of resales	373.7	123.8	(NA)
Contract receipts	34.9	(D)	(NA)
Other miscellaneous receipts	93.9	(D)	(NA)
Receipts for repair work	57.0	22.7	(NA)
Other miscellaneous receipts	34.7	(D)	(NA)
Other miscellaneous receipts, n.s.k.	2.3	(NA)	(NA)
Primary products specialization ratio	90	87	(NA)
Value of primary products shipments made in all industries	5 088.4	3 156.6	(NA)
Value of primary products shipments made in this industry	4 207.3	2 844.0	(NA)
Value of primary products shipments made in other industries	881.1	312.6	(NA)
Coverage ratio	83	90	(NA)
INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES			
Total value of shipments	2 262.9	1 863.6	(NA)
Primary products value of shipments	1 907.8	1 595.7	(NA)
Secondary products value of shipments	230.3	161.7	(NA)
Total miscellaneous receipts	124.7	106.1	(NA)
Value of resales	72.9	79.4	(NA)
Contract receipts	(D)	17.7	(NA)
Other miscellaneous receipts	(D)	90.0	(NA)
Receipts for repair work	(D)	.7	(NA)
Other miscellaneous receipts	(D)	89.3	(NA)
Other miscellaneous receipts, n.s.k.	(D)	(NA)	(NA)
Primary products specialization ratio	89	91	(NA)
Value of primary products shipments made in all industries	2 287.7	1 990.2	(NA)
Value of primary products shipments made in this industry	1 907.8	1 595.7	(NA)
Value of primary products shipments made in other industries	379.8	394.5	(NA)
Coverage ratio	83	80	(NA)
INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.			
Total value of shipments	4 400.1	3 442.0	(NA)
Primary products value of shipments	3 555.3	2 723.5	(NA)
Secondary products value of shipments	351.3	428.7	(NA)
Total miscellaneous receipts	493.5	289.7	(NA)
Value of resales	231.9	119.7	(NA)
Contract receipts	32.9	23.9	(NA)
Other miscellaneous receipts	228.7	146.1	(NA)
Receipts for repair work	46.8	34.8	(NA)
Other miscellaneous receipts	37.2	111.3	(NA)
Other miscellaneous receipts, n.s.k.	144.7	(NA)	(NA)
Primary products specialization ratio	91	86	(NA)
Value of primary products shipments made in all industries	4 337.2	3 389.3	(NA)
Value of primary products shipments made in this industry	3 555.3	2 723.5	(NA)
Value of primary products shipments made in other industries	781.9	665.8	(NA)
Coverage ratio	82	80	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3812– —	**SEARCH, DETECTION, NAVIGATION, GUIDANCE, AERONAUTICAL, AND NAUTICAL SYSTEMS, INSTRUMENTS, AND EQUIPMENT**				
	Total	**(NA)**	**34 435.0**	**(NA)**	**34 016.9**
38121	Aeronautical, nautical, and navigational instruments, not sending or receiving radio signals	(NA)	2 551.3	(NA)	2 267.6
38121 00	Aeronautical, nautical, and navigational instruments, except aircraft engine instruments[2]	110	2 551.3	129	2 267.6
38122	Search, detection, navigation, and guidance systems and equipment	(NA)	31 264.0	(NA)	30 886.3
38122 00	Search, detection, navigation, and guidance systems and equipment[2]	255	31 264.0	244	30 886.3
38120	Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment, n.s.k.	(NA)	619.7	(NA)	863.0
38120 00	Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment, n.s.k.[3]	(NA)	537.2	(NA)	715.2
38120 02	Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment, n.s.k.[4]	(NA)	82.5	(NA)	147.8
3821– —	**LABORATORY APPARATUS AND FURNITURE**				
	Total	**(NA)**	**1 843.9**	**(NA)**	**1 618.8**
38210	Laboratory apparatus and furniture	(NA)	1 843.9	(NA)	1 618.8
38210 10	Laboratory and scientific apparatus[2]	218	1 416.9	208	1 303.0
38210 20	Laboratory furniture and parts sold separately[2]	33	289.0	(NA)	268.6
38210 00	Laboratory apparatus and furniture, n.s.k.[5]	(NA)	105.0	(NA)	15.3
38210 02	Laboratory apparatus and furniture, n.s.k.[6]	(NA)	33.0	(NA)	31.9
3822– —	**ENVIRONMENTAL CONTROLS**				
	Total	**(NA)**	**2 377.2**	**(NA)**	**2 024.6**
38220	Automatic controls for monitoring residential and commercial environments and appliance regulating controls	(NA)	2 377.2	(NA)	2 024.6
38220 00	Controls for monitoring residential and commercial environments and appliance regulating controls[2]	213	2 317.8	129	1 957.4
38220 02	Environmental controls, n.s.k.[6]	(NA)	59.4	(NA)	67.2
3823– —	**PROCESS CONTROL INSTRUMENTS**				
	Total	**(NA)**	**5 943.1**	**(NA)**	**[r]4 370.9**
38230	Process control instruments	(NA)	5 943.1	(NA)	[r]4 370.9
38230 00	Process control instruments[2]	615	5 830.0	475	[r]4 184.6
38230 02	Process control instruments, n.s.k.[4]	(NA)	113.1	(NA)	186.4
3824– —	**FLUID METERS AND COUNTING DEVICES**				
	Total	**(NA)**	**2 734.7**	**(NA)**	**1 133.1**
38242	Integrating and totalizing meters for gas and liquids	(NA)	775.3	(NA)	609.0
38242 00	Integrating and totalizing meters for gas and liquids[2]	57	775.3	54	609.0
38243	Counting devices	(NA)	272.0	(NA)	219.3
38243 00	Counting devices, excluding motor vehicle instruments[2]	41	272.0	51	219.3
38244	Motor vehicle instruments	(NA)	1 593.4	(NA)	241.2
38244 00	Motor vehicle instruments[2]	35	1 593.4	30	241.2
38240	Fluid meters and counting devices, n.s.k.	(NA)	94.0	(NA)	63.6
38240 00	Fluid meters and counting devices, n.s.k.[7]	(NA)	76.5	(NA)	31.7
38240 02	Fluid meters and counting devices, n.s.k.[8]	(NA)	17.5	(NA)	31.9
3825– —	**INSTRUMENTS TO MEASURE ELECTRICITY**				
	Total	**(NA)**	**8 066.8**	**(NA)**	**7 612.3**
38251	Integrating instruments, electrical	(NA)	445.2	(NA)	399.8
38251 00	Integrating instruments, electrical[2]	32	445.2	23	399.8
38252	Test equipment for testing electrical, radio, and communication circuits, and motors	(NA)	6 610.0	(NA)	6 116.8
38252 00	Test equipment for testing electrical, radio, and communication circuits, and motors[2]	374	6 610.0	402	6 116.8
38253	Other instruments to measure electricity	(NA)	559.5	(NA)	671.0
38253 00	Other instruments to measure electricity[2]	92	559.5	98	671.0
38250	Instruments to measure electricity, n.s.k.	(NA)	452.1	(NA)	424.7
38250 00	Instruments to measure electricity, n.s.k.[3]	(NA)	283.5	(NA)	163.1
38250 02	Instruments to measure electricity, n.s.k.[4]	(NA)	168.6	(NA)	261.6

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3826– —	**ANALYTICAL INSTRUMENTS**				
	Total	**(NA)**	**5 088.4**	**(NA)**	**3 156.6**
38260	Analytical and scientific instruments, except optical	(NA)	5 088.4	(NA)	3 156.6
38260 00	Analytical and scientific instruments (except optical)[2]	370	5 019.2	282	3 050.0
38260 02	Analytical instruments, n.s.k.[4]	(NA)	69.2	(NA)	106.6
3827– —	**OPTICAL INSTRUMENTS AND LENSES**				
	Total	**(NA)**	**2 287.7**	**(NA)**	**1 990.2**
38271	Sighting, tracking, and fire-control equipment, optical-type	(NA)	786.5	(NA)	729.4
38271 00	Sighting, tracking, and fire-control equipment, optical-type[2]	60	786.5	59	729.4
38274	Optical instruments and lenses, n.e.c.	(NA)	1 418.8	(NA)	1 205.9
38274 10	Binoculars and astronomical instruments[2 9]	16	68.0	15	36.3
38274 20	Other optical instruments and lenses (except sighting, tracking, and fire-control)[2 9]	193	1 259.5	159	1 169.6
38274 00	Optical instruments and lenses, n.e.c., n.s.k.	(NA)	91.4	(NA)	(NA)
38270	Optical instruments and lenses, n.s.k.	(NA)	82.3	(NA)	54.8
38270 00	Optical instruments and lenses, n.s.k.[3]	(NA)	25.7	(NA)	–
38270 02	Optical instruments and lenses, n.s.k.[4]	(NA)	56.7	(NA)	54.8
3829– —	**MEASURING AND CONTROLLING DEVICES, N.E.C.**				
	Total	**(NA)**	**4 337.2**	**(NA)**	**3 389.3**
38291	Aircraft engine instruments, except flight	(NA)	622.6	(NA)	510.1
38291 00	Aircraft engine instruments, except flight[2]	48	622.6	49	510.1
38292	Physical properties testing and inspection equipment and kinematic testing and measuring equipment	(NA)	1 170.6	(NA)	906.4
38292 00	Physical properties testing and inspection equipment and kinematic testing and measuring equipment[2]	232	1 170.6	196	906.4
38294	Nuclear radiation detection and monitoring instruments	(NA)	579.6	(NA)	645.0
38294 00	Nuclear radiation detection and monitoring instruments[2]	52	579.6	61	645.0
38295	Commercial, geophysical, meteorological, and general-purpose instruments	(NA)	1 409.5	(NA)	891.5
38295 00	Commercial, geophysical, meteorological, and general-purpose instruments[2 9]	187	1 409.5	(NA)	891.5
38296	Survey and drafting instruments and associated equipment	(NA)	243.5	(NA)	230.2
38296 00	Surveying and drafting instruments and apparatus, including photogrammetric equipment[2]	37	243.5	45	230.2
38290	Measuring and controlling devices, n.e.c., n.s.k.	(NA)	311.3	(NA)	206.2
38290 00	Measuring and controlling devices, n.e.c., n.s.k.[7]	(NA)	234.6	(NA)	64.6
38290 02	Measuring and controlling devices, n.e.c., n.s.k.[8]	(NA)	76.8	(NA)	141.6

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Typically for establishments with 15 employees or more.
[6]Typically for establishments with less than 15 employees.
[7]Typically for establishments with 5 employees or more.
[8]Typically for establishments with less than 5 employees.
[9]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
38121, AERONAUTICAL, NAUTICAL, AND NAVIGATIONAL INSTRUMENTS, NOT SENDING OR RECEIVING RADIO SIGNALS		
United States	**2 551.3**	**2 267.6**
California	216.8	261.5
Connecticut	136.0	109.6
Kansas	26.3	17.2
Massachusetts	31.6	192.0
Michigan	119.3	126.5
New York	45.6	64.6
Pennsylvania	187.0	205.1
Texas	24.2	(NA)
Washington	74.7	(NA)
38122, SEARCH, DETECTION, NAVIGATION, AND GUIDANCE SYSTEMS AND EQUIPMENT		
United States	**31 264.0**	**30 886.3**
Alabama	124.4	130.0
Arizona	564.2	575.2
California	7 745.2	9 106.0
Colorado	1 195.2	782.5
Connecticut	271.4	367.4
Florida	2 039.4	1 585.5
Maryland	2 523.3	2 119.0
Massachusetts	2 118.3	1 929.1
Michigan	128.0	(NA)
Missouri	279.0	181.6
New Jersey	2 036.8	2 115.7
New York	3 267.9	3 768.0
North Carolina	147.7	135.5
Ohio	216.5	108.7
Oregon	139.3	(NA)
Pennsylvania	126.8	279.4
Texas	2 500.0	2 396.9
Virginia	1 273.6	1 274.5
38242, INTEGRATING AND TOTALIZING METERS FOR GAS AND LIQUIDS		
United States	**775.3**	**609.0**
California	24.3	14.9
Ohio	14.9	(NA)
Pennsylvania	270.1	219.4
Texas	68.1	32.9
38243, COUNTING DEVICES		
United States	**272.0**	**219.3**
Connecticut	11.6	34.0
Illinois	66.9	59.4
New York	3.5	6.4
38244, MOTOR VEHICLE INSTRUMENTS		
United States	**1 593.4**	**241.2**
Illinois	15.4	21.4
New York	3.8	(NA)
Washington	7.4	(NA)
38251, INTEGRATING INSTRUMENTS, ELECTRICAL		
United States	**445.2**	**399.8**
California	10.2	(NA)
38252, TEST EQUIPMENT FOR TESTING ELECTRICAL, RADIO, AND COMMUNICATION CIRCUITS, AND MOTORS		
United States	**6 610.0**	**6 116.8**
Arizona	28.5	28.9
California	2 096.6	1 626.0
Connecticut	54.8	69.1
Illinois	278.9	184.4
Massachusetts	589.4	571.3
Michigan	18.7	53.5
Minnesota	177.2	(NA)
New Hampshire	14.8	68.4
New Jersey	232.4	370.6
New York	327.1	478.0
Ohio	97.9	113.9
Pennsylvania	78.2	80.6
Texas	112.5	89.2
Virginia	25.7	38.2
Washington	511.0	702.3
Wisconsin	93.8	39.1
38253, OTHER INSTRUMENTS TO MEASURE ELECTRICITY		
United States	**559.5**	**671.0**
California	107.0	165.8
Florida	16.9	10.2
Illinois	14.6	25.5
Massachusetts	50.8	52.5
New Hampshire	56.4	60.8
New York	57.0	21.6
Ohio	62.4	66.6
Pennsylvania	29.2	42.1
Texas	9.6	(NA)
38271, SIGHTING, TRACKING, AND FIRE-CONTROL EQUIPMENT, OPTICAL-TYPE		
United States	**786.5**	**729.4**
California	407.1	(NA)
Florida	42.6	28.3
Massachusetts	81.2	79.6
Michigan	17.6	(NA)
New Jersey	46.4	(NA)
New York	13.8	28.2
38274, OPTICAL INSTRUMENTS AND LENSES, N.E.C.		
United States	**1 418.8**	**1 205.9**
California	427.9	(NA)
Colorado	9.2	(NA)
Connecticut	152.8	(NA)
Florida	44.5	(NA)
Illinois	11.7	(NA)
Maryland	30.6	(NA)
Massachusetts	240.9	(NA)
Michigan	9.1	(NA)
Minnesota	17.7	(NA)
Missouri	14.6	(NA)
New Jersey	51.1	(NA)
New York	149.8	(NA)
Ohio	83.9	(NA)
Oregon	38.8	(NA)
Pennsylvania	42.5	(NA)
Texas	5.6	(NA)
Vermont	12.2	(NA)
38291, AIRCRAFT ENGINE INSTRUMENTS, EXCEPT FLIGHT		
United States	**622.6**	**510.1**
California	50.5	114.2
Minnesota	22.4	(NA)
Texas	8.1	9.4
38292, PHYSICAL PROPERTIES TESTING AND INSPECTION EQUIPMENT AND KINEMATIC TESTING AND MEASURING EQUIPMENT		
United States	**1 170.6**	**906.4**
California	138.5	147.6
Colorado	5.7	(NA)
Connecticut	29.2	26.7
Illinois	45.6	(NA)
Massachusetts	102.6	82.9
Michigan	76.2	74.2
New Jersey	54.8	44.7
New York	75.4	67.0
North Carolina	40.8	(NA)
Ohio	134.8	42.7
Pennsylvania	80.7	75.4
Texas	14.6	17.0
Wisconsin	7.9	7.9
38294, NUCLEAR RADIATION DETECTION AND MONITORING INSTRUMENTS		
United States	**579.6**	**645.0**
California	43.5	68.0
Illinois	97.7	123.8
Massachusetts	2.9	2.9
New Jersey	26.8	(NA)
New York	42.2	64.6
Ohio	134.8	172.3
Pennsylvania	43.2	11.7
Texas	45.3	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
38295, COMMERCIAL, GEOPHYSICAL, METEOROLOGICAL, AND GENERAL-PURPOSE INSTRUMENTS			**38295, COMMERCIAL, GEOPHYSICAL, METEOROLOGICAL, AND GENERAL-PURPOSE INSTRUMENTS**—Con.		
			New York	159.5	65.8
			Ohio	9.0	16.3
United States	**1 409.5**	**891.5**	Oklahoma	21.4	(NA)
			Pennsylvania	38.2	65.2
			Texas	495.3	125.1
			Washington	7.8	(NA)
Arizona	8.2	13.2			
California	174.2	218.5	**38296, SURVEY AND DRAFTING INSTRUMENTS AND ASSOCIATED EQUIPMENT**		
Colorado	11.3	5.6			
Connecticut	70.3	38.7			
Illinois	27.2	5.4	**United States**	**243.5**	**230.2**
Massachusetts	43.7	35.9			
Michigan	19.6	7.9	California	60.5	36.3
New Hampshire	4.1	(NA)	Connecticut	5.5	12.7
New Jersey	50.2	80.2			

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3812-	**Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment**	**34 435.0**	**34 173.3**	**35 249.8**	**33 292.7**	**35 003.5**	**34 016.9**	**(NA)**	**(NA)**
38121	Aeronautical, nautical, and navigational instruments, not sending or receiving radio signals	2 551.3	2 724.6	2 735.7	2 651.4	2 617.0	2 267.6	1 418.7	804.6
38122	Search, detection, navigation, and guidance systems and equipment	31 264.0	31 289.0	32 198.2	30 641.3	31 574.8	30 886.3	(NA)	(NA)
38120	Search, detection, navigation, guidance, aeronautical, and nautical systems, instruments, and equipment, n.s.k.	619.7	159.7	315.9	315.5	811.8	863.0	(NA)	(NA)
3821-	**Laboratory apparatus and furniture**	**1 843.9**	**1 673.0**	**1 779.4**	**1 793.8**	**1 690.9**	**1 618.8**	**(NA)**	**(NA)**
38210	Laboratory apparatus and furniture	1 843.9	1 673.0	1 779.4	1 793.8	1 690.9	1 618.8	(NA)	(NA)
3822-	**Environmental controls**	**2 377.2**	**2 164.2**	**2 311.7**	**2 352.6**	**2 254.8**	**2 024.6**	**1 544.5**	**1 106.4**
38220	Automatic controls for monitoring residential and commercial environments and appliance regulating controls	2 377.2	2 164.2	2 311.7	2 352.6	2 254.8	2 024.6	1 544.5	1 106.4
3823-	**Process control instruments**	**5 943.1**	**5 304.1**	**5 515.0**	**5 218.2**	**4 748.6**	**4 370.9**	**3 915.1**	**2 061.1**
38230	Process control instruments	5 943.1	5 304.1	5 515.0	5 218.2	4 748.6	4 370.9	3 915.1	2 061.1
3824-	**Fluid meters and counting devices**	**2 734.7**	**2 300.1**	**2 470.2**	**1 562.8**	**1 637.3**	**1 133.1**	**787.1**	**634.3**
38242	Integrating and totalizing meters for gas and liquids	775.3	733.5	737.0	650.4	671.6	609.0	519.6	344.0
38243	Counting devices	272.0	163.7	203.3	200.1	211.2	219.3	162.0	147.0
38244	Motor vehicle instruments	1 593.4	1 320.4	1 453.2	632.8	686.0	241.2	76.2	123.2
38240	Fluid meters and counting devices, n.s.k.	94.0	82.5	76.7	79.6	68.5	63.6	29.3	20.1
3825-	**Instruments to measure electricity**	**8 066.8**	**7 803.8**	**7 943.2**	**7 623.3**	**7 682.7**	**7 612.3**	**5 575.6**	**2 566.2**
38251	Integrating instruments, electrical	445.2	410.8	392.1	363.2	407.9	399.8	363.2	223.5
38252	Test equipment for testing electrical, radio, and communication circuits, and motors	6 610.0	6 137.8	6 286.0	6 153.8	6 170.0	6 116.8	4 455.2	1 784.9
38253	Other instruments to measure electricity	559.5	629.2	628.5	604.6	631.1	671.0	556.7	429.9
38250	Instruments to measure electricity, n.s.k.	452.1	626.0	636.5	501.8	473.7	424.7	200.5	127.9
3826-	**Analytical instruments**	**5 088.4**	**4 762.5**	**4 460.7**	**4 019.5**	**3 372.6**	**3 156.6**	**(NA)**	**(NA)**
38260	Analytical and scientific instruments, except optical	5 088.4	4 762.5	4 460.7	4 019.5	3 372.6	3 156.6	(NA)	(NA)
3827-	**Optical instruments and lenses**	**2 287.7**	**2 028.8**	**2 010.5**	**1 976.8**	**2 095.1**	**1 990.2**	**(NA)**	**(NA)**
38271	Sighting, tracking, and fire-control equipment, optical-type	786.5	570.5	629.4	641.3	664.7	729.4	505.4	227.3
38274	Optical instruments and lenses, n.e.c.	1 418.8	1 359.6	1 277.4	1 246.5	1 381.7	1 205.9	922.8	390.0
38270	Optical instruments and lenses, n.s.k.	82.3	98.7	103.8	89.1	48.7	54.8	(NA)	(NA)
3829-	**Measuring and controlling devices, n.e.c.**	**4 337.2**	**4 352.9**	**3 923.8**	**3 778.0**	**3 601.3**	**3 389.3**	**(NA)**	**(NA)**
38291	Aircraft engine instruments, except flight	622.6	585.7	504.8	483.0	539.1	510.1	311.0	120.1
38292	Physical properties testing and inspection equipment and kinematic testing and measuring equipment	1 170.6	1 150.1	1 052.5	1 026.2	913.4	906.4	635.2	276.6
38294	Nuclear radiation detection and monitoring instruments	579.6	617.1	652.3	595.5	609.8	645.0	596.4	344.2
38295	Commercial, geophysical, meteorological, and general-purpose instruments	1 409.5	1 425.5	1 153.6	1 101.1	976.2	891.5	(NA)	(NA)
38296	Survey and drafting instruments and associated equipment	243.5	217.1	251.9	259.4	321.2	230.2	(NA)	(NA)
38290	Measuring and controlling devices, n.e.c., n.s.k.	311.3	357.4	308.7	312.7	241.6	206.2	(NA)	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3812, SEARCH AND NAVIGATION EQUIPMENT		
	Materials, ingredients, containers, and supplies	**8 758.8**	**10 476.5**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	315.5	(1)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	219.3	(1)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	551.9	(1)
367501	Capacitors	93.5	(1)
367601	Resistors	82.9	(1)
367990	Other components and accessories, n.e.c.	948.6	[1]1 897.6
366301	Electronic communication equipment	664.4	(2)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	228.0	208.8
357001	Electronic computing equipment	179.0	(2)
364300	Current-carrying wiring devices	76.5	83.9
335796	Insulated wire and cable (including magnet wire)	91.9	(2)
365150	Loudspeakers, microphones, and tuners (all types)	9.6	(2)
362111	Fractional horsepower electric motors (less than 1 hp)	31.2	(2)
281995	Silicon, hyperpure	1.4	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	12.8	16.0
308004	Fabricated plastics products (except gaskets, hoses, and belting)	36.7	37.6
	Fabricated metal products (except forgings):		
344401	Sheet metal products (except stampings)	188.2	125.2
346901	Metal stampings	27.0	29.2
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	105.3	94.1
340063	Other fabricated metal products	252.2	(2)
346000	Forgings	33.0	(2)
330091	Castings (rough and semifinished)	145.8	129.8
	Shapes and forms (except castings and forgings):		
331002	Steel	80.5	185.9
335001	Aluminum and aluminum-base alloy	75.8	87.2
335091	Other nonferrous shapes and forms	36.7	(2)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	19.8	16.5
970099	All other materials and components, parts, containers, and supplies	2 438.9	5 387.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	1 812.1	2 176.8
	INDUSTRY 3821, LABORATORY APPARATUS AND FURNITURE		
	Materials, ingredients, containers, and supplies	**685.1**	**526.1**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	14.8	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	29.8	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	7.5	(2)
367501	Capacitors	1.9	(2)
367601	Resistors	1.6	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	8.8	(2)
364300	Current-carrying wiring devices	8.8	2.3
360101	Electric transmission, distribution, and control equipment	1.6	3.1
357001	Electronic computing equipment	4.3	7.2
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	3.6	5.5
382591	Electrical measuring instruments and parts, not listed elsewhere	1.7	2.9
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	7.2	5.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	9.2	4.7
308004	Fabricated plastics products (except gaskets, hoses, and belting)	11.8	4.9
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	49.1	11.0
346901	Metal stampings	1.3	1.4
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	1.2	1.0
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	5.4	4.4
340080	Other fabricated metal products	25.4	(2)
346000	Forgings	(D)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	1.6	(4)
336005	Aluminum and aluminum-base alloy	2.6	1.9
336003	Other nonferrous	(D)	.5
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	15.6	(2)
335105	Copper and copper-base alloy	.8	(2)
335010	Aluminum and aluminum-base alloy	3.0	3.7
335099	Other nonferrous shapes and forms	2.1	(2)
320101	Glass and glass products (excluding windows and mirrors)	8.7	3.3
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	.8	3.4
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	6.9	6.2
970099	All other materials and components, parts, containers, and supplies	288.2	[4]293.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	146.0	159.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3822, ENVIRONMENTAL CONTROLS		
	Materials, ingredients, containers, and supplies	**805.7**	**667.0**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	30.4	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	8.7	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	41.6	(2)
367501	Capacitors	9.0	(2)
367601	Resistors	7.6	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	47.5	(2)
364300	Current-carrying wiring devices	12.3	6.4
360101	Electric transmission, distribution, and control equipment	7.4	6.8
357001	Electronic computing equipment	7.2	12.4
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	2.0	5.1
382591	Electrical measuring instruments and parts, not listed elsewhere	(5)	2.2
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	8.4	(4)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	19.4	12.2
308004	Fabricated plastics products (except gaskets, hoses, and belting)	24.2	14.4
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	21.4	5.0
346901	Metal stampings	33.5	27.6
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	11.2	2.3
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	38.2	34.8
340080	Other fabricated metal products	27.1	(2)
346000	Forgings	.1	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	4.7	(4)
336005	Aluminum and aluminum-base alloy	34.0	9.1
336003	Other nonferrous	5.2	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	14.8	29.1
335105	Copper and copper-base alloy	18.3	23.8
335010	Aluminum and aluminum-base alloy	9.5	14.4
335099	Other nonferrous shapes and forms	7.2	(2)
320101	Glass and glass products (excluding windows and mirrors)	2.3	1.5
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	3.1	1.5
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	7.7	7.5
970099	All other materials and components, parts, containers, and supplies	[5]141.3	[4]270.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	200.5	180.8
	INDUSTRY 3823, PROCESS CONTROL INSTRUMENTS		
	Materials, ingredients, containers, and supplies	**1 918.5**	**1 427.5**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	46.9	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	70.5	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	68.9	(2)
367501	Capacitors	13.9	(2)
367601	Resistors	60.9	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	43.7	(2)
364300	Current-carrying wiring devices	15.5	8.6
360101	Electric transmission, distribution, and control equipment	14.9	6.3
357001	Electronic computing equipment	84.8	54.6
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	24.5	49.9
382591	Electrical measuring instruments and parts, not listed elsewhere	66.8	53.6
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	6.0	6.9
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	2.6	(4)
308004	Fabricated plastics products (except gaskets, hoses, and belting)	26.0	23.0
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	62.0	39.3
346901	Metal stampings	22.9	14.2
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	13.4	11.6
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	26.8	17.9
340080	Other fabricated metal products	35.9	(2)
346000	Forgings	4.1	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	32.6	19.4
336005	Aluminum and aluminum-base alloy	19.1	16.4
336003	Other nonferrous	5.1	6.0
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	22.4	51.7
335105	Copper and copper-base alloy	7.1	13.6
335010	Aluminum and aluminum-base alloy	8.6	15.2
335099	Other nonferrous shapes and forms	8.6	(2)
320101	Glass and glass products (excluding windows and mirrors)	7.5	8.1
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	9.5	19.6
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	10.0	8.2
970099	All other materials and components, parts, containers, and supplies	373.7	[4]470.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	703.4	512.5

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3824, FLUID METERS AND COUNTING DEVICES		
	Materials, ingredients, containers, and supplies	**1 039.3**	**346.0**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	42.5	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	19.9	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	79.8	(2)
367501	Capacitors	22.6	(2)
367601	Resistors	7.3	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	3.9	(2)
364300	Current-carrying wiring devices	12.1	(D)
360101	Electric transmission, distribution, and control equipment	5.6	(D)
357001	Electronic computing equipment	11.4	2.6
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	26.5	10.0
382591	Electrical measuring instruments and parts, not listed elsewhere	(D)	12.0
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	7.3	.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	46.5	10.1
308004	Fabricated plastics products (except gaskets, hoses, and belting)	27.7	11.5
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	10.4	1.2
346901	Metal stampings	16.5	9.3
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	7.8	1.8
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	17.9	14.7
340080	Other fabricated metal products	8.4	(2)
346000	Forgings	(D)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	23.9	(D)
336005	Aluminum and aluminum-base alloy	34.4	27.5
336003	Other nonferrous	17.4	(D)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	19.9	4.6
335105	Copper and copper-base alloy	1.2	(D)
335010	Aluminum and aluminum-base alloy	9.0	1.8
335099	Other nonferrous shapes and forms	(D)	(2)
320101	Glass and glass products (excluding windows and mirrors)	2.4	2.8
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	.5	(D)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	9.2	3.1
970099	All other materials and components, parts, containers, and supplies	429.5	184.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	94.7	48.5
	INDUSTRY 3825, INSTRUMENTS TO MEASURE ELECTRICITY		
	Materials, ingredients, containers, and supplies	**2 578.7**	**2 265.3**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	134.3	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	187.0	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	260.9	(2)
367501	Capacitors	58.2	(2)
367601	Resistors	45.4	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	124.0	(2)
364300	Current-carrying wiring devices	60.1	35.1
360101	Electric transmission, distribution, and control equipment	95.3	35.6
357001	Electronic computing equipment	49.8	64.0
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	23.5	74.1
382591	Electrical measuring instruments and parts, not listed elsewhere	107.8	106.8
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	3.8	5.7
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	23.5	25.0
308004	Fabricated plastics products (except gaskets, hoses, and belting)	47.0	17.0
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	83.6	58.8
346901	Metal stampings	13.6	15.4
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	20.8	20.7
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	26.9	25.9
340080	Other fabricated metal products	32.6	(2)
346000	Forgings	.2	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	3.9	(4)
336005	Aluminum and aluminum-base alloy	8.5	8.7
336003	Other nonferrous	.4	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	17.0	20.3
335105	Copper and copper-base alloy	6.8	7.3
335010	Aluminum and aluminum-base alloy	16.7	33.6
335099	Other nonferrous shapes and forms	3.5	(2)
320101	Glass and glass products (excluding windows and mirrors)	18.7	13.5
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	19.8	21.2
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	18.0	13.5
970099	All other materials and components, parts, containers, and supplies	408.2	[4]947.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	659.0	715.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3826, ANALYTICAL INSTRUMENTS		
	Materials, ingredients, containers, and supplies	**1 899.2**	**1 201.5**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	23.8	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	71.0	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	38.8	(2)
367501	Capacitors	7.5	(2)
367601	Resistors	9.3	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	50.6	(2)
364300	Current-carrying wiring devices	21.7	1.9
360101	Electric transmission, distribution, and control equipment	26.2	.6
357001	Electronic computing equipment	65.6	18.4
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	18.5	6.8
382591	Electrical measuring instruments and parts, not listed elsewhere	75.1	38.1
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	11.5	10.3
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	1.9	1.9
308004	Fabricated plastics products (except gaskets, hoses, and belting)	43.1	13.1
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	74.3	15.1
346901	Metal stampings	6.4	4.1
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	7.3	2.8
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	37.3	9.2
340080	Other fabricated metal products	47.9	(2)
346000	Forgings	(6)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	1.6	(4)
336005	Aluminum and aluminum-base alloy	3.3	7.1
336003	Other nonferrous	1.1	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	7.9	16.2
335105	Copper and copper-base alloy	(7)	(4)
335010	Aluminum and aluminum-base alloy	13.2	6.3
335099	Other nonferrous shapes and forms	72.4	(2)
320101	Glass and glass products (excluding windows and mirrors)	47.0	8.6
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	6.5	1.3
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	19.3	3.7
970099	All other materials and components, parts, containers, and supplies	6417.4	4465.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	741.7	570.9
	INDUSTRY 3827, OPTICAL INSTRUMENTS AND LENSES		
	Materials, ingredients, containers, and supplies	**729.7**	**589.2**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	12.1	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	6.0	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	12.2	(2)
367501	Capacitors	3.9	(2)
367601	Resistors	2.9	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	(D)	(2)
364300	Current-carrying wiring devices	1.2	1.2
360101	Electric transmission, distribution, and control equipment	5.2	(D)
357001	Electronic computing equipment	12.0	8.2
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	4.7	(D)
382591	Electrical measuring instruments and parts, not listed elsewhere	1.8	4.6
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	.9	(D)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	5.5	(D)
308004	Fabricated plastics products (except gaskets, hoses, and belting)	5.6	1.9
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	11.3	2.8
346901	Metal stampings	3.9	2.1
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	.8	.5
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	3.4	2.2
340080	Other fabricated metal products	30.0	(2)
346000	Forgings	(D)	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	6.1	.3
336005	Aluminum and aluminum-base alloy	12.0	5.1
336003	Other nonferrous	1.0	.4
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	6.1	(D)
335105	Copper and copper-base alloy	2.2	.7
335010	Aluminum and aluminum-base alloy	7.7	3.1
335099	Other nonferrous shapes and forms	2.2	(2)
320101	Glass and glass products (excluding windows and mirrors)	88.0	35.1
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	.5	.7
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	7.8	8.8
970099	All other materials and components, parts, containers, and supplies	179.4	323.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	281.3	188.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3829, MEASURING AND CONTROLLING DEVICES, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 348.7**	**1 085.2**
	Components for electronic circuitry, except tubes:		
367201	Printed circuit boards	35.8	(2)
367981	Printed circuit assemblies, loaded boards or modules (printed circuit boards with inserted electronic components)	79.6	(2)
367408	Semiconductors, including transistors, diodes, rectifiers, and integrated circuits	38.8	(2)
367501	Capacitors	10.7	(2)
367601	Resistors	8.9	(2)
367990	Other components and accessories, n.e.c., not listed elsewhere	38.9	(2)
364300	Current-carrying wiring devices	15.8	16.4
360101	Electric transmission, distribution, and control equipment	17.6	(2)
357001	Electronic computing equipment	51.1	(8)
382501	Electrical instrument mechanisms and meter movements (including instrument relays)	27.7	20.0
382591	Electrical measuring instruments and parts, not listed elsewhere	12.3	(2)
362119	Fractional horsepower electric motors and generators (less than 1 hp), including timing motors	13.4	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	8.3	6.3
308004	Fabricated plastics products (except gaskets, hoses, and belting)	23.4	7.1
	Fabricated metal products, except forgings:		
344401	Sheet metal products, except stampings	34.2	20.6
346901	Metal stampings	10.1	4.6
349012	Fabricated wire products (including wire rope, cable, springs, etc.)	8.5	(2)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	14.3	15.0
340080	Other fabricated metal products	63.8	(2)
346000	Forgings	1.7	(2)
	Castings (rough and semifinished):		
332001	Iron and steel	23.1	15.6
336005	Aluminum and aluminum-base alloy	15.8	7.9
336003	Other nonferrous	2.8	(2)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	20.2	50.0
335105	Copper and copper-base alloy	7.5	9.2
335010	Aluminum and aluminum-base alloy	13.3	15.2
335099	Other nonferrous shapes and forms	14.7	(2)
320101	Glass and glass products (excluding windows and mirrors)	8.8	8.5
260070	Paper and paperboard products (except paperboard boxes, containers, and corrugated paperboard)	3.8	(2)
260091	Paper and paperboard containers (including shipping sacks and other paper packaging products)	8.5	3.1
970099	All other materials and components, parts, containers, and supplies	321.1	497.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	394.1	388.4

[1]For 1987, materials were not collected separately but were included in code 367990.
[2]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the material was consumed.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1987, materials were combined to avoid disclosing data for individual companies.
[5]For 1992, materials are combined to avoid disclosing data for individual companies.
[6]For 1992, materials are combined to avoid disclosing data for individual companies.
[7]For 1992, materials are combined to avoid disclosing data for individual companies.
[8]For 1987, materials were collected differently and were combined with code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
38274	38272
38274	38273
38274 10	38272 00
38274 20	38273 00
38295 00	38295 10
38295 00	38295 20
38411 23	38411 22
38411 23	38411 24
38411 84	38421 03
38411 96	38411 76
38411 96	38411 81
38411 96	38411 97
38423 73	38423 23
38423 73	38423 24
38423 73	38423 71
38431 04	38431 12
38431 04	38431 13
38432 09	38432 04
38432 09	38432 05
38432 19	38432 06
38432 19	38432 07
38432 19	38432 08
38511 17	38511 12
38511 17	38511 14
38511 17	38511 16
38514 45	38514 41
38514 45	38514 43
38517 09	38517 01
38517 09	38517 05
38517 09	38517 07
38517 09	38517 10
38517 19	38517 01
38517 19	38517 05
38517 19	38517 07
38517 19	38517 11
38611 67	38611 66
38611 67	38611 69
38611 81	38611 75
38611 81	38611 79
38611 81	38611 82
38611 97	38611 63
38611 97	38611 64
38611 97	38611 91
38611 97	38611 98
38612 00	38612 22
38612 00	38612 24
38612 00	38612 25
38612 00	38612 27
38613 11	38613 16
38613 11	38613 17
38613 11	38613 74
38613 21	38613 81
38613 21	38613 85
38613 21	38613 89
38615 06	38615 05
38615 08	38615 05
38615 19	38615 01
38615 19	38615 04
38615 19	38615 05
38617 29	38617 15
38617 29	38617 24
38617 41	38617 49
38617 43	38617 49
38617 45	38617 49
38617 47	38617 49
38617 51	38617 27
38617 51	38617 49
38618 14	38618 13
38618 15	38618 13
38618 19	38618 13
38731 04	38731 01
38731 04	38731 02
38731 04	38731 03
38731 14	38731 05
38731 14	38731 06
38731 14	38731 07
38731 14	38731 11
38731 14	38731 13
38732 59	38732 52
38732 59	38732 56
38732 69	38732 66
38732 69	38732 68

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
38272	38274
38272 00	38274 10
38273	38274
38273 00	38274 20
38295 10	38295 00
38295 20	38295 00
38411 22	38411 23
38411 24	38411 23
38411 76	38411 96
38411 81	38411 96
38411 97	38411 96
38421 03	38411 84
38423 23	38423 73
38423 24	38423 73
38423 71	38423 73
38431 12	38431 04
38431 13	38431 04
38432 04	38432 09
38432 05	38432 09
38432 06	38432 19
38432 07	38432 19
38432 08	38432 19
38511 12	38511 17
38511 14	38511 17
38511 16	38511 17
38514 41	38514 45
38514 43	38514 45
38517 01	38517 09
38517 01	38517 19
38517 05	38517 09
38517 05	38517 19
38517 07	38517 09
38517 07	38517 19
38517 10	38517 09
38517 11	38517 19
38611 63	38611 97
38611 64	38611 97
38611 66	38611 67
38611 69	38611 67
38611 75	38611 81
38611 79	38611 81
38611 82	38611 81
38611 63	38611 97
38611 64	38611 97
38611 91	38611 97
38611 98	38611 97
38612 22	38612 00
38612 24	38612 00
38612 25	38612 00
38612 27	38612 00
38613 16	38613 11
38613 17	38613 11
38613 74	38613 11
38613 81	38613 21
38613 85	38613 21
38613 89	38613 21
38615 01	38615 19
38615 04	38615 19
38615 05	38615 06
38615 05	38615 08
38615 05	38615 19
38617 15	38617 29
38617 24	38617 29
38617 27	38617 51
38617 49	38617 41
38617 49	38617 43
38617 49	38617 45
38617 49	38617 47
38617 49	38617 51
38618 13	38618 14
38618 13	38618 15
38618 13	38618 19
38731 01	38731 04
38731 02	38731 04
38731 03	38731 04
38731 05	38731 14
38731 06	38731 14
38731 07	38731 14
38731 11	38731 14
38731 13	38731 14
38732 52	38732 59
38732 56	38732 59
38732 66	38732 69
38732 68	38732 69

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Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3812100	MA38B, Selected Instruments and Related Products	3812100	MA38B, Selected Instruments and Related Products
3812200	MA38B, Selected Instruments and Related Products	3812200	MA38B, Selected Instruments and Related Products
3821010	MA38B, Selected Instruments and Related Products	3821010	MA38B, Selected Instruments and Related Products
3821020	MA38B, Selected Instruments and Related Products	3821020	MA38B, Selected Instruments and Related Products
3822000	MA38B, Selected Instruments and Related Products	3822000	MA38B, Selected Instruments and Related Products
3823000	MA38B, Selected Instruments and Related Products	3823000	MA38B, Selected Instruments and Related Products
3824200	MA38B, Selected Instruments and Related Products	3824200	MA38B, Selected Instruments and Related Products
3824300	MA38B, Selected Instruments and Related Products	3824300	MA38B, Selected Instruments and Related Products
3824400	MA38B, Selected Instruments and Related Products	3824400	MA38B, Selected Instruments and Related Products
3825100	MA38B, Selected Instruments and Related Products	3825100	MA38B, Selected Instruments and Related Products
3825200	MA38B, Selected Instruments and Related Products	3825200	MA38B, Selected Instruments and Related Products
3825300	MA38B, Selected Instruments and Related Products	3825300	MA38B, Selected Instruments and Related Products
3826000	MA38B, Selected Instruments and Related Products	3826000	MA38B, Selected Instruments and Related Products
3827100	MA38B, Selected Instruments and Related Products	3827100	MA38B, Selected Instruments and Related Products
3827410	MA38B, Selected Instruments and Related Products	3827410	MA38B, Selected Instruments and Related Products
3827420	MA38B, Selected Instruments and Related Products	3827420	MA38B, Selected Instruments and Related Products
3829100	MA38B, Selected Instruments and Related Products	3829100	MA38B, Selected Instruments and Related Products
3829200	MA38B, Selected Instruments and Related Products	3829200	MA38B, Selected Instruments and Related Products
3829400	MA38B, Selected Instruments and Related Products	3829400	MA38B, Selected Instruments and Related Products
3829500	MA38B, Selected Instruments and Related Products	3829500	MA38B, Selected Instruments and Related Products
3829600	MA38B, Selected Instruments and Related Products	3829600	MA38B, Selected Instruments and Related Products
3844000	MA36R, Electromedical and Irradiation Equipment	3844000	MA36R, Electromedical and Irradiation Equipment
3845000	MA36R, Electromedical and Irradiation Equipment	3845000	MA36R, Electromedical and Irradiation Equipment

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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1992 Census of Manufactures

MC92-I-38B

INDUSTRY SERIES

Medical Instruments; Ophthalmic Goods; Photographic Equipment; Clocks, Watches, and Watchcases

Industries 3841, 3842, 3843, 3844, 3845, 3851, 3861, and 3873

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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Economics and Statistics Administration
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BUREAU OF THE CENSUS
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The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
David W. Cartwright, Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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TSF:TIPS92-14540267.DAT;1 6/ 7/95 14:54:09 UTF:TIPS93-14540267.DAT;1 6/ 7/95 14:54:09 META:TIPS96-14540267.DAT;1 6/ 7/95 14:54:23

Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3841	Surgical and Medical Instruments
3842	Surgical Appliances and Supplies
3843	Dental Equipment and Supplies
3844	X-Ray Apparatus and Tubes
3845	Electromedical Equipment
3851	Ophthalmic Goods
3861	Photographic Equipment and Supplies
3873	Watches, Clocks, Watchcases, and Parts

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS

This industry is made up of establishments primarily engaged in manufacturing medical, surgical, ophthalmic, and veterinary instruments and apparatus. Establishments primarily engaged in manufacturing surgical and orthopedic appliances are classified in industry 3842; those manufacturing electrotherapeutic and electromedical apparatus are classified in industry 3845; and those manufacturing X-ray apparatus are classified in industry 3844.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3841, Surgical and Medical Instruments, had employment of 98.2 thousand. The employment figure was 34 percent above the 73.1 thousand reported in 1987. Compared with 1991, employment increased 12 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Massachusetts, New York, and Connecticut accounting for approximately 42 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 41 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $13.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3841 shipped $12.3 billion of surgical and medical instruments considered primary to the industry, $518.1 million of secondary products, and had $539.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

primary products shipped by establishments in this industry was 96 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3841, no matter in what industry they were produced, appear in table 6a and aggregate to $13.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the surgical and medical instruments industry amounted to $4.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES

This industry is made up of establishments primarily engaged in manufacturing orthopedic, prosthetic, and surgical appliances and supplies, arch supports and other foot appliances; fracture appliances, elastic hosiery, abdominal supporters, braces, and trusses; bandages; surgical gauze and dressings; sutures; adhesive tapes and medicated plasters; and personal safety appliances and equipment. Establishments primarily engaged in manufacturing surgical and medical instruments are classified in industry 3841. Establishments primarily engaged in manufacturing orthopedic or prosthetic appliances and in the personal fitting to the individual prescription by a physician are classified in retail trade, industry 5999.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3842, Surgical Appliances and Supplies, had employment of 96.8 thousand. The employment figure was 23 percent above the 78.5 thousand reported in 1987.

The leading States in employment in 1992 were California, New Jersey, Ohio, and Texas, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, New Jersey, Pennsylvania, and Ohio accounted for approximately 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $13.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3842 shipped $11.7 billion of surgical appliances and supplies considered primary to the industry, $1.1 billion of secondary products, and had $1.0 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3842, no matter in what industry they were produced, appear in table 6a and aggregate to $12.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the surgical appliances and supplies industry amounted to $5.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES

This industry is made up of establishments primarily engaged in manufacturing artificial teeth, dental metals, alloys, and amalgams, and a wide variety of equipment, instruments, and supplies used by dentists, dental laboratories, and dental colleges. Dental laboratories constructing artificial dentures, bridges, inlays, and other dental restorations on specifications from dentists are classified in services, industry 8072.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3843, Dental Equipment and Supplies, had employment of 15.1 thousand. The employment figure was 3 percent above the 14.6 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3843 shipped $1.6 billion of dental equipment and supplies considered primary to the industry, $123.5 million of secondary products, and had $218.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3843, no matter in what industry they were produced, appear in table 6a and aggregate to $1.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the dental equipment and supplies industry amounted to $731.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3844, X-RAY APPARATUS AND TUBES

This industry is made up of establishments primarily engaged in manufacturing radiographic X-ray, fluoroscopic X-ray, and therapeutic X-ray apparatus and tubes for medical, industrial, research, and control applications, or in manufacturing other irradiation equipment, including gamma- and beta-ray equipment. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38R, Electromedical Equipment and Irradiation Equipment. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3844, X-Ray Apparatus and Tubes, had employment of 14.3 thousand. The employment figure was 64 percent above the 8.7 thousand reported in 1987. Compared with 1991, employment increased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Massachusetts, and Wisconsin. This represents a shift from 1987 when Wisconsin, New York, Ohio, and Utah were the leading States.

The total value of shipments for establishments classified in this industry was $3.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3844 shipped $2.4 billion of X-ray apparatus and tubes considered primary to the industry, $464.1 million of secondary products, and had $363.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 84 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 86 percent.

The products primary to industry 3844, no matter in what industry they were produced, appear in table 6a and aggregate to $2.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the X-ray apparatus and tubes industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing electromedical and electrotherapeutic apparatus. Establishments primarily engaged in manufacturing electrotherapeutic lamp units for ultraviolet and infrared radiation are classified in industry 3641. Products of this industry also are collected in the Current Industrial Report (CIR) MA-38R, Electromedical Equipment and Irradiation Equipment. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3845, Electromedical Equipment, had employment of 40.0 thousand. The employment figure was 37 percent above the 29.2 thousand reported in 1987. Compared with 1991, employment increased 20 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Washington, Colorado, and Massachusetts, accounting for approximately 46 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $7.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3845 shipped $5.9 billion of electromedical equipment considered primary to the industry, $366.7 million of secondary products, and had $898.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 88 percent.

The products primary to industry 3845, no matter in what industry they were produced, appear in table 6a and aggregate to $6.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the electromedical equipment industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3851, OPHTHALMIC GOODS

This industry is made up of establishments primarily engaged in manufacturing ophthalmic frames, lenses, and sunglass lenses. Establishments primarily engaged in manufacturing molded glass blanks are classified in industry 3229. Establishments primarily engaged in grinding lenses and fitting glasses to prescription are classified in retail trade, industry 5995.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3851, Ophthalmic Goods, had employment of 29.6 thousand. The employment figure was 22 percent above the 24.2 thousand reported in 1987. Compared with 1991, employment increased 13 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Florida, Georgia, and New York. This represents a shift from 1987 when New York, Florida, Massachusetts, and California were the leading States.

The total value of shipments for establishments classified in this industry was $2.7 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3851 shipped $2.3 billion of ophthalmic goods considered primary to the industry, $37.9 million of secondary products, and had $335.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3851, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the ophthalmic goods industry amounted to $748.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES

This industry is made up of establishments primarily engaged in manufacturing: (1) photographic apparatus, equipment, parts, attachments, and accessories, such as still and motion picture camera and projection apparatus;

photocopy and microfilm equipment; blueprinting and diazotype (white printing) apparatus and equipment; and other photographic equipment; and (2) sensitized film, paper, cloth, and plates, and prepared photographic chemicals for use therewith. Establishments primarily engaged in manufacturing photographic paper stock (unsensitized), and paper mats, mounts, easels, and folders for photographic use, are classified in major group 26; those manufacturing photographic lenses are classified in industry 3827; those manufacturing photographic glass are classified in major group 32; those manufacturing chemicals for technical purposes, not specifically prepared and packaged for use in photography, are classified in major group 28; and those manufacturing photographic flash, flood, enlarger, and projection lamp bulbs are classified in industry 3641.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3861, Photographic Equipment and Supplies, had employment of 77.5 thousand. The employment figure was 12 percent below the 88.0 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, Massachusetts, and New York. This represents a shift from 1987 when New York, Massachusetts, Colorado, and New Jersey were the leading States.

The total value of shipments for establishments classified in this industry was $22.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3861 shipped $18.4 billion of photographic equipment and supplies considered primary to the industry, $1.9 billion of secondary products, and had $1.8 billion of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3861, no matter in what industry they were produced, appear in table 6a and aggregate to $18.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the photographic equipment and supplies industry amounted to $7.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS

This industry is made up of establishments primarily engaged in manufacturing clocks (including electric), watches, watchcases, mechanisms for clockwork operated devices, and clock and watch parts. This industry includes establishments primarily engaged in assembling clocks and watches from purchased movements and cases. Establishments primarily engaged in manufacturing timeclocks are classified in industry 3579; those manufacturing glass crystals are classified in industry 3231; and those manufacturing plastics crystals are classified in industry 3089.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3873, Watches, Clocks, Watchcases, and Parts, had employment of 7.6 thousand. The employment figure was 36 percent below the 11.8 thousand reported in 1987.

The leading States in employment in 1992 were Georgia, Illinois, Michigan, and New York. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $811.6 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3873 shipped $625.1 million of watches, clocks, watchcases, and parts considered primary to the industry, $100.4 million of secondary products, and had $86.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 86 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3873, no matter in what industry they were produced, appear in table 6a and aggregate to $658.2 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the watches, clocks, watchcases, and parts industry amounted to $382.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS															
1992 Census	1 216	1 340	551	98.2	3 095.3	58.5	113.1	1 228.3	9 397.8	4 063.5	13 384.9	688.8	2 182.9	96	93
1991 ASM	(NA)	(NA)	(NA)	87.7	2 591.4	53.1	103.6	1 096.7	7 431.7	3 352.6	10 710.3	535.6	1 835.6	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	88.9	2 433.8	53.8	104.2	1 022.2	7 077.5	3 219.0	10 261.6	468.7	1 849.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	83.9	2 187.2	50.7	99.1	949.0	6 059.8	2 958.4	8 971.6	403.3	1 761.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	75.7	1 918.5	46.7	93.1	891.0	5 683.2	2 668.3	8 258.6	384.8	1 581.9	(NA)	(NA)
1987 Census	1 029	1 136	442	73.1	1 785.8	45.4	93.6	833.6	5 202.2	2 598.9	7 779.5	354.6	1 459.7	92	94
1986 ASM	(NA)	(NA)	(NA)	62.6	1 386.2	39.4	79.3	686.8	3 575.2	1 814.7	5 346.8	217.2	1 135.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	61.4	1 290.7	39.3	77.8	631.8	3 528.1	1 603.4	5 081.6	202.9	1 060.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	61.3	1 215.5	39.7	77.3	601.2	3 155.6	1 529.4	4 629.6	219.1	1 006.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	60.2	1 130.2	40.1	76.6	570.1	2 990.1	1 362.6	4 343.2	191.2	851.5	(NA)	(NA)
1982 Census	766	859	312	56.9	999.5	38.5	74.3	517.5	2 884.8	1 252.5	4 084.5	230.2	847.7	90	81
1981 ASM	(NA)	(NA)	(NA)	54.6	830.6	35.4	65.8	417.4	2 158.0	1 027.8	3 158.2	183.7	612.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	51.3	738.7	33.9	62.9	372.7	1 764.1	959.4	2 697.3	163.4	575.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	49.9	628.0	33.6	62.7	340.4	1 539.8	774.1	2 253.5	142.3	493.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	45.9	537.5	32.3	63.8	291.8	1 370.4	681.0	2 029.9	75.9	419.9	(NA)	(NA)
1977 Census	575	650	237	43.2	490.7	29.2	57.4	260.9	1 212.2	647.0	1 829.4	85.3	360.3	88	80
INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES															
1992 Census	1 572	1 764	667	96.8	2 865.2	61.6	119.7	1 296.6	8 939.3	4 963.7	13 842.8	504.3	2 329.6	92	94
1991 ASM	(NA)	(NA)	(NA)	93.3	2 509.8	60.6	118.3	1 197.5	8 044.3	4 622.9	12 554.7	425.4	2 123.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	86.6	2 194.9	55.8	109.8	1 054.1	7 163.1	4 058.3	11 127.6	265.5	1 938.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	84.4	2 011.4	54.3	104.0	972.8	6 504.4	3 725.7	10 187.1	239.9	1 798.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	82.1	1 910.0	52.8	105.0	943.3	6 539.5	3 465.3	9 827.9	219.7	1 694.3	(NA)	(NA)
1987 Census	1 329	1 501	550	78.5	1 786.1	51.1	99.5	874.4	5 444.6	3 146.3	8 534.1	215.3	1 441.0	90	91
1986 ASM	(NA)	(NA)	(NA)	77.7	1 722.7	48.6	93.6	803.9	5 379.6	2 971.6	8 290.8	254.5	1 438.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	76.3	1 606.6	49.2	95.3	794.6	4 975.1	2 872.7	7 864.7	348.3	1 350.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	73.8	1 441.4	49.5	95.4	743.5	4 422.9	2 760.3	7 116.9	260.9	1 309.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	69.3	1 301.5	45.6	88.0	676.9	3 738.3	2 302.8	6 044.1	180.4	1 184.3	(NA)	(NA)
1982 Census	1 224	1 367	451	68.8	1 211.1	46.1	87.8	633.1	3 450.8	2 233.1	5 667.1	187.7	1 106.7	86	89
1981 ASM	(NA)	(NA)	(NA)	64.9	1 061.8	44.0	85.8	573.6	2 855.0	1 914.3	4 733.9	190.0	860.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	61.8	917.6	41.9	79.7	490.3	2 313.2	1 595.2	3 860.5	118.0	766.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	58.7	794.3	39.8	76.1	435.1	2 144.5	1 350.9	3 443.4	99.1	666.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	58.6	716.9	40.0	75.1	396.8	1 803.5	1 169.3	2 934.4	92.2	562.4	(NA)	(NA)
1977 Census	1 016	1 153	321	53.5	618.8	36.5	69.9	342.4	1 586.4	1 038.9	2 588.2	67.4	503.3	87	85
INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES															
1992 Census	589	611	129	15.1	458.1	8.9	16.9	194.3	1 202.9	731.7	1 910.0	48.6	336.3	93	97
1991 ASM	(NA)	(NA)	(NA)	13.8	383.1	8.6	16.0	179.6	1 000.5	585.5	1 576.2	32.2	295.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.9	345.0	8.4	15.1	171.2	890.1	503.4	1 364.7	24.4	271.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.9	315.5	8.4	15.3	157.8	851.9	428.2	1 277.1	27.3	240.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.9	360.2	8.9	17.3	163.5	965.3	528.3	1 473.4	30.0	282.9	(NA)	(NA)
1987 Census	473	505	130	14.6	347.6	8.7	17.2	160.9	899.1	531.5	1 420.7	31.5	262.4	94	98
1986 ASM	(NA)	(NA)	(NA)	14.5	336.3	8.7	16.7	164.8	798.1	531.1	1 317.6	33.5	257.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	14.4	320.7	9.2	17.4	158.5	740.6	508.7	1 256.5	24.4	252.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.4	290.4	9.3	18.2	144.9	720.3	503.0	1 213.2	29.6	249.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.4	271.7	9.0	17.5	124.5	612.9	481.2	1 117.2	15.9	224.8	(NA)	(NA)
1982 Census	438	485	131	15.5	281.3	9.8	18.8	132.0	642.8	473.3	1 111.7	21.6	271.2	95	99
1981 ASM	(NA)	(NA)	(NA)	17.4	290.8	11.4	21.6	141.8	685.6	644.1	1 313.7	19.5	247.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	16.7	264.6	11.0	20.9	124.5	613.5	652.6	1 251.5	28.6	232.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.2	234.6	10.7	20.7	115.6	532.7	558.8	1 079.6	29.2	204.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.4	225.0	11.2	21.8	116.7	491.6	416.6	909.4	21.5	199.5	(NA)	(NA)
1977 Census	507	550	119	16.3	203.3	10.7	21.2	104.8	458.6	339.7	786.7	16.2	174.1	92	98
INDUSTRY 3844, X-RAY APPARATUS AND TUBES															
1992 Census	110	128	65	14.3	562.7	7.1	14.3	211.5	1 871.4	1 302.0	3 235.0	63.6	608.5	84	97
1991 ASM	(NA)	(NA)	(NA)	13.0	483.8	6.6	13.1	188.2	1 683.9	1 321.2	3 011.4	65.3	598.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	12.6	454.1	6.8	14.4	198.6	1 495.8	1 099.2	2 576.5	91.5	549.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	9.4	308.6	5.5	11.8	152.6	1 113.6	853.1	1 925.8	56.9	400.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.4	284.6	5.4	11.4	142.2	995.9	658.9	1 614.8	41.8	390.8	(NA)	(NA)
1987 Census	69	75	43	8.7	257.1	5.5	11.2	136.7	834.5	727.5	1 554.3	32.0	311.8	95	86
INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT															
1992 Census	331	357	193	40.0	1 553.0	18.0	37.6	449.3	4 692.3	2 493.1	7 175.4	253.6	1 328.1	94	94
1991 ASM	(NA)	(NA)	(NA)	33.2	1 249.6	14.5	29.4	345.3	3 712.9	2 018.6	5 742.9	181.3	1 112.1	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	33.6	1 175.6	13.8	28.1	322.8	3 659.8	1 955.3	5 603.8	174.3	1 103.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	31.8	1 062.8	14.1	29.2	318.6	3 093.2	1 764.2	4 821.4	174.0	1 065.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	31.4	970.8	14.4	29.1	297.0	2 702.8	1 482.6	4 155.1	125.9	958.2	(NA)	(NA)
1987 Census	196	224	144	29.2	850.5	13.2	25.6	261.5	2 368.8	1 251.3	3 576.7	114.7	828.7	94	88
INDUSTRY 3851, OPHTHALMIC GOODS															
1992 Census	526	569	150	29.6	716.3	19.9	40.2	385.6	1 950.6	748.0	2 692.1	202.4	512.2	98	96
1991 ASM	(NA)	(NA)	(NA)	26.2	626.9	17.2	34.8	335.6	1 645.2	666.4	2 313.0	120.0	455.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	28.0	605.0	19.8	40.3	347.2	1 625.6	672.5	2 274.7	137.2	483.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	25.0	500.8	17.8	36.2	302.8	1 542.6	664.1	2 193.5	146.0	430.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.5	499.9	17.6	33.8	271.0	1 345.1	621.3	1 945.8	88.6	411.3	(NA)	(NA)
1987 Census	479	495	149	24.2	475.0	15.8	31.0	234.0	1 152.9	546.0	1 689.4	76.7	366.7	94	98
1986 ASM	(NA)	(NA)	(NA)	21.7	414.6	14.3	28.6	207.5	933.5	472.2	1 411.2	92.6	335.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	24.9	434.0	15.5	31.2	210.1	995.6	412.4	1 418.2	78.6	343.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.1	433.0	16.6	33.1	219.8	1 009.1	398.3	1 350.7	63.5	348.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	24.1	396.3	15.5	31.1	201.8	930.0	388.4	1 332.4	29.2	313.4	(NA)	(NA)
1982 Census	390	410	122	25.8	408.7	17.1	34.5	212.6	874.2	386.4	1 273.0	41.1	321.7	92	98
1981 ASM	(NA)	(NA)	(NA)	26.4	387.2	18.7	37.3	215.7	862.8	402.1	1 263.2	28.3	302.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.4	386.1	20.8	41.3	221.1	839.0	398.6	1 211.9	25.7	303.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.1	343.3	21.3	41.8	205.3	757.1	363.4	1 102.7	37.5	269.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.1	353.8	22.5	44.5	209.7	769.6	376.0	1 132.5	40.6	269.7	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3851, OPHTHALMIC GOODS—Con.															
1977 Census	593	634	155	30.0	314.1	21.7	43.1	188.4	656.2	331.1	971.8	44.1	244.9	92	98
INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES															
1992 Census	831	904	264	77.5	3 069.3	39.4	90.7	1 328.5	14 885.4	7 058.7	22 149.8	808.1	2 247.6	90	98
1991 ASM	(NA)	(NA)	(NA)	78.0	3 044.1	40.0	87.5	1 288.6	14 603.3	6 686.4	21 397.8	1 089.2	2 510.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	79.3	2 937.4	41.2	91.8	1 257.0	14 527.2	6 439.2	21 018.2	1 008.6	2 699.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	87.0	3 134.3	43.9	96.9	1 299.4	15 804.2	6 935.4	22 737.8	1 008.2	2 739.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	87.5	2 963.4	43.9	92.8	1 216.4	14 223.2	6 638.0	20 545.8	809.7	2 874.4	(NA)	(NA)
1987 Census	717	787	279	88.0	2 878.3	44.8	92.1	1 224.3	12 908.0	6 233.5	19 240.5	681.0	2 415.5	93	98
1986 ASM	(NA)	(NA)	(NA)	94.6	2 870.2	47.6	95.0	1 235.0	12 335.9	6 110.5	18 580.4	697.0	2 480.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	98.5	3 128.8	50.2	100.4	1 377.3	12 257.4	5 890.1	18 114.4	834.2	2 673.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	104.0	3 137.8	53.7	108.4	1 400.7	12 960.9	5 682.4	18 701.9	665.4	2 701.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	110.2	3 117.6	57.6	112.7	1 398.8	11 654.7	5 887.0	17 366.3	587.3	2 752.3	(NA)	(NA)
1982 Census	723	795	286	119.3	3 193.1	64.1	123.7	1 457.2	10 859.5	5 859.7	17 037.5	752.6	2 601.4	94	97
1981 ASM	(NA)	(NA)	(NA)	114.2	2 888.0	62.7	124.4	1 331.9	11 199.2	5 902.3	16 927.3	771.9	2 386.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	114.2	2 559.6	62.6	122.3	1 165.9	9 930.8	6 199.8	15 867.0	578.2	2 228.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	114.1	2 303.2	64.6	123.8	1 069.1	8 812.6	4 698.5	13 410.2	475.6	1 879.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	112.0	2 072.3	64.3	123.1	984.8	7 837.8	3 747.5	11 535.9	354.6	1 628.5	(NA)	(NA)
1977 Census	700	778	263	111.6	1 897.9	61.6	119.2	885.1	6 728.8	3 236.0	9 933.2	322.7	1 501.1	95	95
INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS															
1992 Census	179	180	52	7.6	171.9	5.6	11.0	91.9	423.5	382.0	811.6	22.3	175.0	86	95
1991 ASM	(NA)	(NA)	(NA)	8.4	206.7	5.8	12.7	108.6	541.3	570.9	1 130.0	11.8	247.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.4	218.3	6.9	14.7	127.7	570.3	546.9	1 118.4	20.4	228.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.5	220.0	7.5	15.9	128.1	573.7	597.7	1 180.6	18.8	229.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.1	230.9	9.0	17.8	139.6	644.7	676.6	1 295.0	16.6	248.9	(NA)	(NA)
1987 Census	213	218	74	11.8	222.9	9.0	17.8	139.4	584.6	637.6	1 220.9	24.3	230.8	98	94
1986 ASM	(NA)	(NA)	(NA)	11.6	222.7	8.5	16.8	127.9	509.7	635.8	1 147.6	28.6	228.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.8	210.4	8.7	17.1	126.6	418.6	485.4	912.1	15.8	204.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.4	223.7	10.3	19.7	139.2	531.5	573.9	1 094.6	12.1	235.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.6	227.3	10.7	20.1	138.1	433.4	582.2	1 068.2	15.4	233.7	(NA)	(NA)
1982 Census	227	237	87	16.8	248.1	12.3	22.4	150.2	483.5	688.2	1 187.6	14.6	281.0	95	93
1981 ASM	(NA)	(NA)	(NA)	20.5	296.5	15.2	29.2	177.7	627.7	804.1	1 417.7	17.4	313.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	23.0	290.6	17.3	33.0	180.6	663.5	880.9	1 511.6	17.6	313.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.4	309.3	21.0	40.3	197.4	672.2	930.2	1 592.0	23.6	299.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.9	376.3	26.8	53.1	233.1	788.0	1 040.2	1 802.9	40.9	328.6	(NA)	(NA)
1977 Census	283	302	112	31.5	316.6	24.0	46.3	199.4	684.5	912.4	1 594.7	23.2	271.7	91	95

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS									
1992 Census	31 520	60	1 933	10.86	30	53	95 701	33	83.09
1991 ASM	29 548	61	1 951	10.59	31	55	84 740	35	71.73
1990 ASM	27 377	61	1 937	9.81	31	55	79 612	34	67.92
1989 ASM	26 069	60	1 955	9.58	33	57	72 226	36	61.15
1988 ASM	25 343	62	1 994	9.57	32	56	75 075	34	61.04
1987 Census	24 430	62	2 062	8.91	33	56	71 166	34	55.58
1986 ASM	22 144	63	2 013	8.66	34	60	57 112	39	45.08
1985 ASM	21 021	64	1 980	8.12	32	57	57 461	37	45.35
1984 ASM	19 829	65	1 947	7.78	33	59	51 478	39	40.82
1983 ASM	18 774	67	1 910	7.44	31	57	49 669	38	39.04
1982 Census	17 566	68	1 930	6.97	31	55	50 699	35	38.83
1981 ASM	15 212	65	1 859	6.34	33	59	39 524	38	32.80
1980 ASM	14 400	66	1 855	5.93	36	63	34 388	42	28.05
1979 ASM	12 585	67	1 866	5.43	34	62	30 858	41	24.56
1978 ASM	11 710	70	1 975	4.57	34	60	29 856	39	21.48
1977 Census	11 359	68	1 966	4.55	35	62	28 060	40	21.12

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES									
1992 Census	29 599	64	1 943	10.83	36	57	92 348	32	74.68
1991 ASM	26 900	65	1 952	10.12	37	57	86 220	31	68.00
1990 ASM	25 345	64	1 968	9.60	36	56	82 715	31	65.24
1989 ASM	23 832	64	1 915	9.35	37	56	77 066	31	62.54
1988 ASM	23 264	64	1 989	8.98	35	55	79 653	29	62.28
1987 Census	22 753	65	1 947	8.79	37	58	69 358	33	54.72
1986 ASM	22 171	63	1 926	8.59	36	57	69 236	32	57.47
1985 ASM	21 056	64	1 937	8.34	37	57	65 204	32	52.20
1984 ASM	19 531	67	1 927	7.79	39	59	59 931	33	46.36
1983 ASM	18 781	66	1 930	7.69	38	60	53 944	35	42.48
1982 Census	17 603	67	1 905	7.21	39	61	50 157	35	39.30
1981 ASM	16 361	68	1 950	6.69	40	63	43 991	37	33.28
1980 ASM	14 848	68	1 902	6.15	41	65	37 430	40	29.02
1979 ASM	13 532	68	1 912	5.72	39	62	36 533	37	28.18
1978 ASM	12 234	68	1 877	5.28	40	64	30 776	40	24.01
1977 Census	11 566	68	1 915	4.90	40	64	29 652	39	22.70
INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES									
1992 Census	30 338	59	1 899	11.50	38	62	79 662	38	71.18
1991 ASM	27 761	62	1 860	11.23	37	61	72 500	38	62.53
1990 ASM	26 744	65	1 798	11.34	37	62	69 000	39	58.95
1989 ASM	24 457	65	1 821	10.31	34	58	66 039	37	55.68
1988 ASM	24 174	60	1 944	9.45	36	60	64 785	37	55.80
1987 Census	23 808	60	1 977	9.35	37	62	61 582	39	52.27
1986 ASM	23 193	60	1 920	9.87	40	66	55 041	42	47.79
1985 ASM	22 271	64	1 891	9.11	40	66	51 431	43	42.56
1984 ASM	20 167	65	1 957	7.96	41	65	50 021	40	39.58
1983 ASM	18 868	63	1 944	7.11	43	67	42 563	44	35.02
1982 Census	18 148	63	1 918	7.02	43	68	41 471	44	34.19
1981 ASM	16 713	66	1 895	6.56	49	71	39 402	42	31.74
1980 ASM	15 844	66	1 900	5.96	52	73	36 737	43	29.35
1979 ASM	14 481	66	1 935	5.58	52	73	32 883	44	25.73
1978 ASM	12 931	64	1 946	5.35	46	71	28 253	46	22.55
1977 Census	12 472	66	1 981	4.94	43	69	28 135	44	21.63
INDUSTRY 3844, X-RAY APPARATUS AND TUBES									
1992 Census	39 350	50	2 014	14.79	40	58	130 867	30	130.87
1991 ASM	37 215	51	1 985	14.37	44	60	129 531	29	128.54
1990 ASM	36 040	54	2 118	13.79	43	60	118 714	30	103.88
1989 ASM	32 830	59	2 145	12.93	44	60	118 468	28	94.37
1988 ASM	30 277	57	2 111	12.47	41	58	105 947	29	87.36
1987 Census	29 552	63	2 036	12.21	47	63	95 920	31	74.51
INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT									
1992 Census	38 825	45	2 089	11.95	35	56	117 307	33	124.80
1991 ASM	37 639	44	2 028	11.74	35	57	111 834	34	126.29
1990 ASM	34 988	41	2 036	11.49	35	56	108 923	32	130.24
1989 ASM	33 421	44	2 071	10.91	37	59	97 270	34	105.93
1988 ASM	30 917	46	2 021	10.21	36	59	86 076	36	92.88
1987 Census	29 127	45	1 939	10.21	35	59	81 123	36	92.53
INDUSTRY 3851, OPHTHALMIC GOODS									
1992 Census	24 199	67	2 020	9.59	28	54	65 899	37	48.52
1991 ASM	23 927	66	2 023	9.64	29	56	62 794	38	47.28
1990 ASM	21 607	71	2 035	8.62	30	56	58 057	37	40.34
1989 ASM	20 032	71	2 034	8.36	30	53	61 704	32	42.61
1988 ASM	19 604	69	1 920	8.02	32	58	52 749	37	39.80
1987 Census	19 628	65	1 962	7.55	32	60	47 640	41	37.19
1986 ASM	19 106	66	2 000	7.26	33	63	43 018	44	32.64
1985 ASM	17 430	62	2 013	6.73	29	60	39 984	44	31.91
1984 ASM	17 251	66	1 994	6.64	29	62	40 203	43	30.49
1983 ASM	16 444	64	2 006	6.49	29	59	38 589	43	29.90
1982 Census	15 841	66	2 018	6.16	30	62	33 884	47	25.34
1981 ASM	14 667	71	1 995	5.78	32	62	32 682	45	23.13
1980 ASM	13 133	71	1 986	5.35	33	65	28 537	46	20.31
1979 ASM	11 797	73	1 962	4.91	33	64	26 017	45	18.11
1978 ASM	11 376	72	1 978	4.71	33	64	24 746	46	17.29
1977 Census	10 470	72	1 986	4.37	34	66	21 873	48	15.23
INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES									
1992 Census	39 604	51	2 302	14.65	32	46	192 070	21	164.12
1991 ASM	39 027	51	2 188	14.73	31	45	187 222	21	166.89
1990 ASM	37 042	52	2 228	13.69	31	45	183 193	20	158.25
1989 ASM	36 026	50	2 207	13.41	31	44	181 657	20	163.10
1988 ASM	33 867	50	2 114	13.11	32	47	162 551	21	153.27
1987 Census	32 708	51	2 056	13.29	32	47	146 682	22	140.15
1986 ASM	30 340	50	1 996	13.00	33	48	130 401	23	129.85
1985 ASM	31 764	51	2 000	13.72	33	50	124 441	26	122.09
1984 ASM	30 171	52	2 019	12.92	30	47	124 624	24	119.57
1983 ASM	28 290	52	1 957	12.41	34	52	105 760	27	103.41
1982 Census	26 765	54	1 930	11.78	34	53	91 027	29	87.79
1981 ASM	25 289	55	1 984	10.71	35	52	98 067	26	90.03
1980 ASM	22 413	55	1 954	9.53	39	55	86 960	26	81.20
1979 ASM	20 186	57	1 916	8.64	35	52	77 236	26	71.18
1978 ASM	18 503	57	1 914	8.00	32	50	69 980	26	63.67
1977 Census	17 006	55	1 935	7.43	33	52	60 294	28	56.45

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS								
1992 Census	22 618	74	1 964	8.35	47	68	55 724	41	38.50
1991 ASM	24 607	69	2 190	8.55	51	69	64 440	38	42.62
1990 ASM	23 223	73	2 130	8.69	49	68	60 670	38	38.80
1989 ASM	20 952	71	2 120	8.06	51	69	54 638	38	36.08
1988 ASM	19 083	74	1 978	7.84	52	70	53 281	36	36.22
1987 Census	18 890	76	1 978	7.83	52	70	49 542	38	32.84
1986 ASM	19 198	73	1 976	7.61	55	75	43 940	44	30.34
1985 ASM	17 831	74	1 966	7.40	53	76	35 475	50	24.48
1984 ASM	16 694	77	1 913	7.07	52	73	39 664	42	26.98
1983 ASM	15 568	73	1 879	6.87	55	76	29 685	52	21.56
1982 Census	14 768	73	1 821	6.71	58	79	28 780	51	21.58
1981 ASM	14 463	74	1 921	6.09	57	78	30 620	47	21.50
1980 ASM	12 635	75	1 908	5.47	58	78	28 848	44	20.11
1979 ASM	11 288	77	1 919	4.90	58	78	24 533	46	16.68
1978 ASM	10 782	77	1 981	4.39	58	79	22 579	48	14.84
1977 Census	10 051	76	1 929	4.31	57	77	21 730	46	14.78

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS														
United States	**E1**	**1 340**	**551**	**98.2**	**3 095.3**	**58.5**	**113.1**	**1 228.3**	**9 397.8**	**4 063.5**	**13 384.9**	**688.8**	**73.1**	**5 202.2**
Alabama	–	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	–	16	7	.6	22.0	.2	.4	4.2	42.7	22.3	60.7	1.0	(NA)	(D)
Arkansas	–	2	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	265	100	18.0	705.8	8.6	16.5	189.5	1 958.8	911.5	2 859.1	156.6	13.3	1 059.5
Colorado	E2	48	13	2.2	71.3	1.2	2.3	25.7	174.2	139.1	312.7	12.4	G	(D)
Connecticut	–	44	19	6.2	243.0	3.9	7.3	99.7	1 271.7	340.0	1 596.7	98.9	3.3	456.9
Florida	–	67	23	5.1	161.4	2.8	5.5	48.1	408.8	116.3	510.1	23.9	3.1	166.0
Georgia	–	18	9	1.6	51.3	1.0	1.9	21.4	212.2	49.5	252.4	16.2	1.2	139.2
Illinois	E4	61	28	3.1	82.8	2.1	4.2	39.1	248.1	121.6	367.8	13.2	G	(D)
Indiana	E1	32	17	2.5	65.8	1.9	3.8	40.2	193.8	68.8	259.6	11.6	2.2	212.6
Iowa	E1	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Kansas	–	5	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E8	23	4	.7	21.7	.5	.9	12.1	34.0	58.0	91.7	(D)	.4	27.4
Massachusetts	E1	91	54	9.3	309.0	4.9	9.7	110.2	959.8	372.5	1 331.9	50.7	6.2	416.8
Michigan	–	31	12	2.2	70.9	1.0	2.0	19.8	172.6	88.9	270.4	19.6	G	(D)
Minnesota	E4	65	30	5.3	176.3	2.8	5.7	63.2	534.6	147.8	676.7	44.8	G	(D)
Missouri	E1	35	17	3.6	103.1	2.4	4.8	51.5	270.1	137.6	408.3	10.6	2.5	184.4
Nebraska	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New Hampshire	E1	20	8	1.3	36.5	.8	1.2	16.5	88.2	47.9	133.7	2.8	F	(D)
New Jersey	E1	61	26	2.2	61.9	1.4	2.5	26.8	138.9	62.8	202.5	9.3	2.5	133.5
New York	E2	73	28	7.8	202.2	5.1	9.9	108.3	444.4	218.5	663.3	26.7	7.1	395.5
North Carolina	E1	21	12	2.4	74.1	1.8	3.8	36.6	122.5	107.0	232.1	10.3	1.7	94.1
Ohio	E1	42	19	1.5	41.6	1.0	1.9	21.6	180.9	109.7	286.4	5.6	1.3	86.8
Oklahoma	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oregon	E3	20	6	.3	10.8	.2	.4	3.7	27.6	12.6	40.1	1.5	.2	11.1
Pennsylvania	–	69	32	4.7	155.0	2.7	4.5	55.3	380.7	206.6	589.7	48.2	3.1	154.5
South Carolina	–	7	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Tennessee	E4	20	5	.3	4.8	.2	.3	2.9	10.7	6.4	16.9	.6	F	(D)
Texas	E2	56	23	4.5	120.5	3.2	6.3	66.9	239.1	189.5	431.6	28.3	2.9	145.1
Utah	E1	23	14	2.4	61.4	1.5	3.1	23.6	211.2	74.1	280.9	17.4	3.0	105.1
Vermont	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E1	9	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E1	30	6	.8	24.9	.3	.7	7.5	53.5	20.4	69.8	11.9	E	(D)
Wisconsin	–	18	10	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.4	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1992											1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES														
United States	**E1**	**1 764**	**667**	**96.8**	**2 865.2**	**61.6**	**119.7**	**1 296.6**	**8 939.3**	**4 963.7**	**13 842.8**	**504.3**	**78.5**	**5 444.6**
Alabama	–	27	11	1.0	12.5	.8	1.5	8.6	39.5	22.9	61.4	(D)	F	(D)
Arizona	–	31	7	1.5	50.2	.7	1.6	15.1	185.1	96.5	278.3	3.1	1.0	106.4
California	E2	259	95	12.5	379.3	7.6	14.9	140.3	983.5	553.3	1 525.4	52.5	9.8	754.9
Colorado	E3	36	11	.8	20.2	.4	.9	7.9	61.9	29.6	90.5	1.8	.3	16.5
Connecticut	–	26	15	1.9	56.2	1.2	2.7	28.8	190.2	135.5	322.8	2.4	1.9	70.7
Florida	E2	124	30	3.4	86.3	2.2	3.9	38.8	297.6	120.6	411.8	15.3	G	(D)
Georgia	E1	35	17	2.7	61.9	2.0	3.5	34.0	150.1	198.0	345.1	5.0	1.9	50.8
Idaho	E1	11	2	.1	2.0	.1	.1	1.1	4.5	2.2	6.6	.1	(NA)	(NA)
Illinois	–	57	22	2.9	71.2	1.9	3.9	35.6	146.4	182.1	326.4	5.1	2.8	198.0
Indiana	–	37	16	4.8	191.4	2.5	4.7	84.7	935.8	164.0	1 090.8	51.6	G	(D)
Iowa	E5	16	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	16	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	F	(D)
Kentucky	E1	18	8	.9	14.4	.7	1.2	8.1	26.7	29.9	56.2	1.6	G	(D)
Louisiana	E3	11	1	.1	3.5	.1	.1	1.5	9.4	4.3	13.7	.2	(NA)	(NA)
Maryland	E1	23	7	.5	17.8	.2	.5	4.8	24.6	32.6	60.2	.8	.3	27.6
Massachusetts	–	60	26	2.3	70.7	1.3	2.4	25.2	193.5	102.1	295.2	8.5	G	(D)
Michigan	–	61	21	2.3	66.8	1.4	2.5	27.1	171.8	122.8	295.0	(D)	1.8	136.3
Minnesota	–	66	38	5.4	155.0	3.2	6.4	64.3	368.3	164.0	526.3	13.5	4.3	261.3
Mississippi	–	12	6	1.0	19.7	.7	1.3	10.0	55.4	42.6	95.8	(D)	F	(D)
Missouri	–	28	17	1.2	22.7	.9	1.7	12.4	85.2	63.7	148.4	8.7	F	(D)
Nebraska	E1	5	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	E1	8	1	.1	2.9	.1	.2	1.4	8.5	4.8	13.2	.2	(NA)	(NA)
New Hampshire	–	11	4	.4	8.7	.3	.5	4.4	21.9	18.9	40.6	(D)	E	(D)
New Jersey	–	57	34	7.8	316.7	4.2	8.5	125.0	674.2	373.4	1 114.9	31.5	7.8	870.5
New Mexico	–	9	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.6	F	(D)
New York	E1	118	31	4.0	102.0	2.5	4.6	45.0	251.4	150.9	399.7	7.4	(NA)	(D)
North Carolina	–	50	26	3.3	87.8	2.5	4.9	58.5	499.2	290.3	783.9	38.7	2.7	196.0
Ohio	E1	88	40	7.2	260.5	4.1	8.0	90.7	698.0	249.4	899.0	(D)	5.4	303.7
Oklahoma	E1	16	5	.4	9.0	.3	.5	4.2	34.8	12.4	46.8	.6	.3	17.3
Oregon	E2	22	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E1	90	28	5.0	165.0	3.4	7.0	90.8	465.7	225.1	680.2	22.8	5.8	390.5
Rhode Island	–	16	6	2.1	53.3	1.5	2.8	26.7	128.9	101.3	232.4	7.0	G	(D)
South Carolina	–	13	8	1.2	35.9	1.0	2.3	20.8	82.4	80.4	163.2	3.7	2.5	78.4
South Dakota	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E4	38	22	4.3	128.9	2.6	4.1	51.1	549.4	220.2	758.2	27.8	(NA)	(D)
Texas	E1	102	40	6.6	174.4	4.7	9.6	95.5	583.0	614.1	1 194.6	33.2	4.7	333.0
Utah	–	19	5	.8	17.5	.6	1.1	9.2	52.5	29.5	82.1	2.0	.2	12.0
Virginia	–	26	10	1.3	24.1	.9	1.5	12.6	92.6	117.5	211.2	1.6	.5	28.0
Washington	–	36	9	.6	14.4	.4	.7	6.3	37.8	21.5	59.3	1.9	.2	10.2
West Virginia	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	E1	40	15	2.2	52.7	1.6	3.2	36.0	205.1	139.6	342.2	6.6	2.1	173.3
INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES														
United States	**E1**	**611**	**129**	**15.1**	**458.1**	**8.9**	**16.9**	**194.3**	**1 202.9**	**731.7**	**1 910.0**	**48.6**	**14.6**	**899.1**
Alabama	E1	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	124	30	3.8	120.3	2.2	4.1	57.2	384.2	155.8	536.5	14.0	(NA)	(D)
Colorado	–	18	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	14.3
Connecticut	–	13	8	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	38.9
Delaware	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E5	28	3	.3	7.9	.3	.5	4.5	16.8	17.6	34.7	.8	E	(D)
Georgia	–	12	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	E3	39	12	1.4	56.2	.7	1.6	19.9	142.8	83.1	221.1	5.3	G	(D)
Indiana	–	13	2	.5	13.5	.3	.6	5.8	28.9	14.5	43.2	.6	(NA)	(NA)
Kentucky	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	14	3	.1	3.2	(Z)	.1	1.0	13.1	6.6	20.2	(D)	(NA)	(NA)
Michigan	–	14	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E4	23	5	.3	7.6	.2	.4	3.2	15.9	7.6	23.3	.4	F	(D)
New York	–	48	13	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	14	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	E1	19	3	.2	3.9	.2	.2	2.8	5.3	10.7	15.7	.2	E	(D)
Oregon	–	19	6	.8	27.9	.5	1.0	12.3	65.9	26.9	91.6	3.9	F	(D)
Pennsylvania	–	35	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	59.9
South Carolina	–	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Tennessee	E8	8	1	.1	2.0	.1	.1	.9	4.3	2.0	6.4	.1	(NA)	(NA)
Texas	E5	24	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Utah	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	E2	14	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	E7	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3844, X-RAY APPARATUS AND TUBES														
United States	–	**128**	**65**	**14.3**	**562.7**	**7.1**	**14.3**	**211.5**	**1 871.4**	**1 302.0**	**3 235.0**	**63.6**	**8.7**	**834.5**
California	E1	30	16	4.7	218.5	1.9	3.9	69.1	462.2	362.3	835.9	22.0	F	(D)
Colorado	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	38.0
Illinois	E2	18	11	2.0	72.3	.9	1.7	20.4	191.6	149.3	342.5	8.9	F	(D)
Massachusetts	–	7	6	1.5	58.3	.8	1.6	16.7	91.6	50.1	144.7	(D)	F	(D)
New York	E6	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	72.1
North Carolina	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	10	7	.9	34.7	.3	.7	8.4	123.0	156.4	318.4	(D)	F	(D)
Pennsylvania	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Utah	–	3	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Wisconsin	–	6	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT														
United States	–	**357**	**193**	**40.0**	**1 553.0**	**18.0**	**37.6**	**449.3**	**4 692.3**	**2 493.1**	**7 175.4**	**253.6**	**29.2**	**2 368.8**
Arizona	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	–	75	45	8.3	376.1	3.4	6.9	110.9	1 294.2	492.7	1 786.2	52.6	6.2	582.4
Colorado	–	11	7	3.3	113.0	1.8	3.9	37.2	371.2	148.0	516.3	(D)	2.1	177.5
Connecticut	–	14	6	.8	25.8	.5	1.0	13.7	88.0	57.6	144.2	2.7	1.3	138.5
Florida	–	13	9	1.8	55.4	1.2	2.7	28.8	124.5	125.0	246.9	7.4	F	(D)
Illinois	E1	17	6	.4	13.8	.2	.4	5.2	43.8	19.6	63.3	.7	E	(D)
Indiana	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	21	13	3.2	150.9	1.6	2.9	49.1	405.1	315.9	710.0	13.8	(NA)	(D)
Michigan	E1	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	20	11	2.4	116.2	1.0	2.0	21.1	376.5	126.6	504.8	(D)	G	(D)
Missouri	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	50.4
New Jersey	E2	16	9	1.1	39.1	.3	.5	6.7	116.0	98.1	215.5	8.1	F	(D)
New York	E2	28	15	2.0	74.4	1.0	2.2	25.4	164.9	89.8	254.3	6.3	G	(D)
North Carolina	E2	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E2	12	6	.9	33.6	.4	.7	6.8	85.4	86.4	170.3	3.8	F	(D)
Oregon	–	9	5	.8	28.8	.3	.5	5.6	66.7	63.3	128.0	2.1	.8	86.1
Pennsylvania	–	18	10	1.5	53.9	.6	1.3	13.5	76.8	118.4	197.2	3.9	F	(D)
South Carolina	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	E1	16	9	1.8	68.4	.9	1.7	20.5	190.7	55.8	238.2	(D)	1.2	107.2
Utah	–	5	4	2.0	48.4	1.5	4.1	30.8	71.4	64.2	152.1	(D)	(NA)	(D)
Virginia	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	–	10	8	3.6	146.7	1.0	2.1	23.9	331.1	167.8	488.9	16.3	(NA)	(D)
Wisconsin	–	16	11	2.7	106.1	.9	2.0	19.2	563.1	247.7	828.7	14.6	1.8	203.4
INDUSTRY 3851, OPHTHALMIC GOODS														
United States	**E1**	**569**	**150**	**29.6**	**716.3**	**19.9**	**40.2**	**385.6**	**1 950.6**	**748.0**	**2 692.1**	**202.4**	**24.2**	**1 152.9**
California	E1	80	15	3.8	94.8	2.7	5.2	56.2	307.8	88.8	392.8	12.2	G	(D)
Colorado	E1	14	2	.2	4.1	.1	.3	2.4	11.2	3.9	15.2	(D)	(NA)	(NA)
Florida	–	35	12	4.5	126.2	3.2	6.8	69.1	382.8	129.5	518.1	(D)	3.1	142.7
Georgia	–	11	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Illinois	–	26	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kansas	E7	7	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	10	3	1.1	18.1	.9	1.8	14.9	35.7	16.8	52.0	(D)	F	(D)
Massachusetts	E1	33	15	2.2	58.3	1.4	2.7	25.6	124.5	53.4	171.7	(D)	2.6	140.8
Michigan	E6	21	2	.1	2.4	.1	.2	1.5	5.5	2.3	7.8	.3	(NA)	(D)
Minnesota	–	14	8	1.3	23.1	1.0	2.0	17.0	58.1	38.2	96.3	(D)	G	(D)
Missouri	–	11	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	.4	10.9
New Jersey	E3	25	6	.7	14.0	.5	1.0	6.5	35.3	20.9	56.0	1.4	F	(D)
New Mexico	–	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	E1	51	19	4.6	128.2	3.2	6.4	70.1	297.4	84.2	375.1	21.9	(NA)	(D)
Ohio	–	18	4	.4	7.2	.3	.6	3.4	16.1	14.6	30.0	.9	.4	11.2
Oklahoma	–	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Oregon	–	9	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Pennsylvania	E3	25	6	.6	12.7	.5	1.0	8.2	32.8	20.7	54.7	2.3	.5	20.3
Rhode Island	E2	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E9	8	1	.1	1.8	.1	.2	1.2	8.3	5.1	13.3	.1	.2	7.4
Texas	E1	36	13	2.2	40.5	1.6	3.5	23.5	85.6	117.3	208.8	5.7	E	(D)
Utah	E1	9	1	.1	3.0	.1	.2	1.6	4.2	1.1	5.9	.1	(NA)	(NA)
Virginia	–	11	4	1.0	20.3	.8	1.5	12.3	24.8	26.8	51.0	2.5	F	(D)
Wisconsin	E6	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES														
United States	**–**	**904**	**264**	**77.5**	**3 069.3**	**39.4**	**90.7**	**1 328.5**	**14 885.4**	**7 058.7**	**22 149.8**	**808.1**	**88.0**	**12 908.0**
Arizona	E3	10	3	.1	2.7	.1	.1	1.2	6.3	2.6	8.9	.5	(NA)	(NA)
California	E3	142	39	6.8	209.1	3.0	6.1	65.0	373.8	367.9	743.0	25.7	4.5	311.3
Colorado	–	12	1	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	E1	18	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	E	(D)
Florida	E9	26	3	.2	6.5	.1	.2	2.8	29.0	11.8	40.8	(D)	.2	9.9
Georgia	E6	23	6	.5	10.8	.3	.6	5.0	51.2	30.6	78.3	2.7	(NA)	(D)
Illinois	E3	76	25	3.0	107.8	1.3	2.8	36.4	247.7	215.2	464.9	6.2	3.9	244.1
Indiana	E2	14	6	1.3	35.9	.9	2.0	22.3	156.6	87.7	243.2	5.0	G	(D)
Kansas	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maryland	E1	9	3	.2	5.7	.1	.2	2.4	18.9	17.4	36.3	(D)	(NA)	(D)
Massachusetts	E1	50	19	7.8	363.7	4.3	10.3	161.3	1 090.1	764.8	1 858.6	(D)	7.7	949.2
Michigan	E5	27	8	.7	20.0	.3	.6	6.4	47.0	47.4	95.1	2.2	F	(D)
Minnesota	E1	18	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.9	F	(D)
Mississippi	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	E5	20	7	.7	19.5	.3	.7	7.6	67.1	33.0	99.3	3.8	E	(D)
Nebraska	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	E1	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	67	19	2.9	112.8	1.6	3.3	50.6	457.9	286.6	736.7	31.4	4.7	404.0
New York	–	112	40	K	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
North Carolina	–	16	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E1	23	11	.6	17.6	.3	.6	6.7	56.9	30.2	88.0	2.9	F	(D)
Oklahoma	–	10	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oregon	–	11	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Pennsylvania	E1	40	13	1.4	50.0	1.0	1.9	26.2	254.4	126.7	380.3	9.2	2.2	325.7
Rhode Island	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	–	9	4	.3	6.0	.2	.3	2.4	14.7	15.2	28.1	.3	(NA)	(NA)
South Dakota	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E1	10	5	.2	4.0	.2	.3	2.1	15.9	10.1	25.2	.5	(NA)	(NA)
Texas	E2	34	9	.7	16.4	.4	1.0	9.7	54.3	46.3	101.0	3.5	E	(D)
Virginia	E3	23	5	.4	10.9	.2	.5	4.6	33.5	44.3	78.2	1.7	F	(D)
Washington	E8	17	4	.4	14.5	.2	.4	4.4	46.9	30.0	77.3	2.1	(NA)	(NA)
West Virginia	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E3	20	3	.4	10.8	.2	.4	3.7	33.5	16.2	49.5	1.7	.8	48.0
INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS														
United States	**E1**	**180**	**52**	**7.6**	**171.9**	**5.6**	**11.0**	**91.9**	**423.5**	**382.0**	**811.6**	**22.3**	**11.8**	**584.6**
Alabama	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	3	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E2	24	2	.3	5.7	.3	.5	3.5	13.7	14.8	28.0	.2	E	(D)
Connecticut	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	F	(D)
Georgia	–	3	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Illinois	–	14	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Indiana	E9	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E5	7	3	.3	6.5	.2	.4	3.6	13.7	12.7	26.4	.3	.4	14.9
Michigan	–	13	5	1.1	27.0	.8	1.8	16.0	68.7	56.8	130.5	1.0	1.4	70.5
Mississippi	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E1	7	4	.3	7.4	.2	.4	3.2	20.3	22.1	41.2	.3	E	(D)
New York	E4	25	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
North Carolina	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
North Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	E1	9	2	.1	2.4	.1	.1	.9	4.7	3.4	8.2	.1	(NA)	(NA)
Pennsylvania	E1	8	3	.2	4.1	.1	.3	2.0	6.4	11.0	18.8	.1	.7	21.3
Virginia	–	3	3	.4	6.2	.4	.7	5.2	21.8	19.9	39.9	1.2	E	(D)
Wisconsin	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	X-ray apparatus and tubes (SIC 3844)	Electro-medical equipment (SIC 3845)	Ophthalmic goods (SIC 3851)	Photo-graphic equipment and supplies (SIC 3861)	Watches, clocks, watchcases, and parts (SIC 3873)
Companies ---- number	1 216	1 572	589	110	331	526	831	179
All establishments ---- number	1 340	1 764	611	128	357	569	904	180
With 1 to 19 employees ---- number	789	1 097	482	63	164	419	640	128
With 20 to 99 employees ---- number	344	441	98	37	105	87	176	33
With 100 employees or more ---- number	207	226	31	28	88	63	88	19
Employment and labor costs:								
Employees ---- 1,000	98.2	96.8	15.1	14.3	40.0	29.6	77.5	7.6
Compensation, total ---- mil dol	3 850.9	3 556.1	581.1	701.6	1 857.6	898.8	3 679.9	218.8
Annual payroll ---- mil dol	3 095.3	2 865.2	458.1	562.7	1 553.0	716.3	3 069.3	171.9
Fringe benefits ---- mil dol	755.6	690.9	123.0	138.9	304.6	182.4	610.6	46.9
Social Security and other legally required payments ---- mil dol	271.6	252.0	44.7	54.4	128.7	72.2	281.2	17.1
Employer voluntary payments ---- mil dol	484.0	438.9	78.4	84.5	175.9	110.2	329.4	29.9
Production workers:								
Average for year ---- 1,000	58.5	61.6	8.9	7.1	18.0	19.9	39.4	5.6
March ---- 1,000	58.2	61.7	8.9	7.1	18.3	20.0	40.1	5.8
May ---- 1,000	58.9	62.1	8.9	7.1	18.4	20.1	38.5	5.6
August ---- 1,000	58.8	61.8	9.0	7.1	17.7	20.1	39.7	5.5
November ---- 1,000	58.1	61.1	8.8	6.9	17.6	19.6	39.2	5.6
Hours ---- millions	113.1	119.7	16.9	14.3	37.6	40.2	90.7	11.0
Wages ---- mil dol	1 228.3	1 296.6	194.3	211.5	449.3	385.6	1 328.5	91.9
Cost of materials[1] ---- mil dol	4 063.5	4 963.7	731.7	1 302.0	2 493.1	748.0	7 058.7	382.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	3 558.8	4 150.9	572.9	1 079.9	2 109.6	550.1	6 119.4	310.0
Resales ---- mil dol	262.8	534.2	116.2	160.9	288.1	151.6	613.0	60.7
Fuels ---- mil dol	15.1	20.4	4.4	3.1	5.2	4.2	87.2	1.3
Purchased electricity ---- mil dol	89.1	81.9	11.1	18.0	34.9	24.7	110.7	6.6
Contract work ---- mil dol	137.7	176.2	27.0	40.1	55.3	17.5	128.4	3.5
Quantity of electric energy used for heat and power:								
Purchased ---- mil kWh	1 364.1	1 285.3	153.4	289.1	530.4	349.0	1 806.6	101.1
Generated less sold ---- mil kWh	(D)	(D)	–	–	–	–	(D)	–
Total value of shipments ---- mil dol	13 384.9	13 842.8	1 910.0	3 235.0	7 175.4	2 692.1	22 149.8	811.6
Value added ---- mil dol	9 397.8	8 939.3	1 202.9	1 871.4	4 692.3	1 950.6	14 885.4	423.5
Inventories by stage of fabrication:								
Beginning of 1992 ---- mil dol	2 049.9	2 215.7	318.6	687.8	1 291.7	503.8	2 490.7	192.3
Finished goods ---- mil dol	821.5	973.0	130.3	205.0	503.0	324.9	585.2	96.7
Work in process ---- mil dol	519.6	530.5	86.4	262.2	311.1	72.2	1 123.1	46.9
Materials and supplies ---- mil dol	708.7	712.2	101.9	220.6	477.7	106.7	782.4	48.7
End of 1992 ---- mil dol	2 182.9	2 329.6	336.3	608.5	1 328.1	512.2	2 247.6	175.0
Finished goods ---- mil dol	903.3	1 059.7	147.4	188.5	518.4	332.5	619.7	89.8
Work in process ---- mil dol	514.2	504.0	93.9	217.1	305.7	71.1	883.0	47.8
Materials and supplies ---- mil dol	765.4	765.9	94.9	202.9	504.0	108.5	744.9	37.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)	Surgical appliances and supplies (SIC 3842)	Dental equipment and supplies (SIC 3843)	X-ray apparatus and tubes (SIC 3844)	Electro-medical equipment (SIC 3845)	Ophthalmic goods (SIC 3851)	Photo-graphic equipment and supplies (SIC 3861)	Watches, clocks, watchcases, and parts (SIC 3873)
Gross book value of depreciable assets:								
Total:								
Beginning of year	3 291.6	3 078.9	386.0	553.1	1 565.3	816.2	7 623.7	208.3
New capital expenditures[1]	688.8	504.3	48.6	63.6	253.6	202.4	808.1	22.3
Used capital expenditures	21.2	16.9	6.7	1.3	15.7	5.5	21.5	1.2
Retirements	158.9	105.7	20.6	14.3	65.0	37.7	297.5	15.9
End of year	3 842.7	3 494.4	420.8	603.7	1 769.6	986.4	8 155.9	215.9
Buildings and other structures:								
Beginning of year	968.6	811.1	100.0	116.3	455.1	223.3	1 531.4	50.6
New capital expenditures	165.9	152.5	6.5	9.4	50.0	45.0	88.5	9.2
Used capital expenditures	5.8	4.1	.9	(D)	(D)	1.9	11.6	.2
Retirements	16.1	29.5	8.4	(D)	(D)	5.7	10.8	.6
End of year	1 124.3	938.2	99.0	125.2	509.2	264.5	1 620.7	59.4
Machinery and equipment:								
Beginning of year	2 322.9	2 267.8	286.0	436.8	1 110.2	592.9	6 092.3	157.7
New capital expenditures[1]	522.9	351.8	42.2	54.2	203.5	157.4	719.7	13.1
Used capital expenditures	15.4	12.8	5.9	(D)	(D)	3.6	9.9	1.0
Retirements	142.8	76.2	12.1	(D)	(D)	32.0	286.6	15.3
End of year	2 718.4	2 556.2	321.8	478.6	1 260.4	721.9	6 535.2	156.5
Depreciation charges during 1992:								
Total	377.7	301.5	38.3	55.0	169.2	75.5	665.1	20.9
Buildings and other structures	63.9	44.5	6.4	8.1	22.6	13.5	71.4	3.7
Machinery and equipment	313.8	257.0	31.8	46.9	146.6	62.0	593.7	17.2
Rental payments:								
Total	130.7	139.6	30.3	22.8	63.1	33.6	90.6	7.7
Buildings and other structures	88.1	85.2	15.7	17.0	40.6	21.7	51.7	5.3
Machinery and equipment	42.6	54.3	14.6	5.8	22.6	11.9	38.9	2.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Surgical and medical instruments (SIC 3841)		Surgical appliances and supplies (SIC 3842)		Dental equipment and supplies (SIC 3843)		X-ray apparatus and tubes (SIC 3844)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	12.7	(X)	20.6	(X)	1.9	(X)	1.9	(X)
Response coverage ratio (percent)[2]	74.1	(X)	81.1	(X)	76.8	(X)	71.1	(X)
Machinery	45.0	(X)	55.4	(X)	6.1	(X)	7.6	(X)
Response coverage ratio (percent)[2]	74.4	(X)	82.5	(X)	75.5	(X)	71.1	(X)
Other purchased services:								
Communications	41.1	(X)	38.8	(X)	4.8	(X)	7.0	(X)
Response coverage ratio (percent)[2]	75.7	(X)	81.0	(X)	74.6	(X)	62.7	(X)
Legal	28.5	(X)	42.7	(X)	1.6	(X)	2.7	(X)
Response coverage ratio (percent)[2]	73.1	(X)	79.4	(X)	73.5	(X)	62.7	(X)
Accounting and bookkeeping	7.9	(X)	11.0	(X)	1.6	(X)	1.5	(X)
Response coverage ratio (percent)[2]	70.1	(X)	77.0	(X)	76.8	(X)	62.7	(X)
Advertising	34.7	(X)	71.8	(X)	16.2	(X)	7.3	(X)
Response coverage ratio (percent)[2]	74.8	(X)	79.0	(X)	76.8	(X)	62.7	(X)
Software and other data processing	9.8	(X)	16.0	(X)	2.0	(X)	1.2	(X)
Response coverage ratio (percent)[2]	76.4	(X)	80.5	(X)	76.8	(X)	59.8	(X)
Refuse removal, including hazardous waste	11.0	(X)	7.7	(X)	1.1	(X)	.6	(X)
Response coverage ratio (percent)[2]	74.9	(X)	80.4	(X)	76.8	(X)	62.7	(X)
New machinery and equipment expenditures	522.9	(X)	351.8	(X)	42.2	(X)	54.2	(X)
Automobiles, trucks, etc., for highway use	3.7	24	4.3	46	1.1	18	.2	33
Computers and peripheral data processing equipment	58.2	5	56.6	3	3.6	17	17.2	11
All other	460.9	1	290.9	1	37.4	3	36.8	6
Adjustment ratio[3]	1.2	(X)	1.2	(X)	1.3	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	3 558.8	(X)	4 150.9	(X)	572.9	(X)	1 079.9	(X)
Materials purchased or transferred from foreign sources[4]	181.0	6	(S)	(X)	(S)	(X)	179.7	4
Materials purchased or transferred from domestic sources	3 377.8	1	(S)	(X)	(S)	(X)	900.1	1
Adjustment ratio[3]	1.8	(X)	(S)	(X)	(S)	(X)	1.4	(X)

Item	Electromedical equipment (SIC 3845)		Ophthalmic goods (SIC 3851)		Photographic equipment and supplies (SIC 3861)		Watches, clocks, watchcases, and parts (SIC 3873)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	8.9	(X)	5.3	(X)	13.0	(X)	.9	(X)
Response coverage ratio (percent)[2]	80.2	(X)	82.0	(X)	84.8	(X)	83.1	(X)
Machinery	16.7	(X)	11.4	(X)	50.6	(X)	2.8	(X)
Response coverage ratio (percent)[2]	80.3	(X)	87.3	(X)	84.2	(X)	92.8	(X)
Other purchased services:								
Communications	30.9	(X)	13.8	(X)	38.6	(X)	2.1	(X)
Response coverage ratio (percent)[2]	80.7	(X)	85.6	(X)	85.5	(X)	92.7	(X)
Legal	34.6	(X)	2.4	(X)	5.1	(X)	1.6	(X)
Response coverage ratio (percent)[2]	79.7	(X)	71.8	(X)	86.6	(X)	92.8	(X)
Accounting and bookkeeping	8.6	(X)	1.5	(X)	2.2	(X)	1.7	(X)
Response coverage ratio (percent)[2]	80.7	(X)	61.3	(X)	85.5	(X)	92.8	(X)
Advertising	29.2	(X)	67.0	(X)	11.5	(X)	10.7	(X)
Response coverage ratio (percent)[2]	79.8	(X)	70.3	(X)	86.2	(X)	92.8	(X)
Software and other data processing	14.2	(X)	3.6	(X)	25.8	(X)	1.3	(X)
Response coverage ratio (percent)[2]	75.6	(X)	73.9	(X)	85.9	(X)	92.8	(X)
Refuse removal, including hazardous waste	1.7	(X)	3.0	(X)	21.2	(X)	.7	(X)
Response coverage ratio (percent)[2]	76.1	(X)	89.2	(X)	86.2	(X)	92.8	(X)
New machinery and equipment expenditures	203.5	(X)	157.4	(X)	719.7	(X)	13.1	(X)
Automobiles, trucks, etc., for highway use	1.3	27	(S)	(X)	1.1	14	.2	54
Computers and peripheral data processing equipment	60.9	3	(S)	(X)	46.6	3	2.9	47
All other	141.3	1	(S)	(X)	672.0	1	10.0	16
Adjustment ratio[3]	1.2	(X)	(S)	(X)	1.1	(X)	.9	(X)
Cost of materials, components, parts, etc., used	2 109.6	(X)	550.1	(X)	6 119.4	(X)	310.0	(X)
Materials purchased or transferred from foreign sources[4]	153.0	6	107.1	24	794.0	2	(S)	(X)
Materials purchased or transferred from domestic sources	1 956.6	1	443.0	7	5 325.4	1	(S)	(X)
Adjustment ratio[3]	1.6	(X)	2.0	(X)	1.8	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS												
Total	**E1**	**1 340**	**98.2**	**3 095.3**	**58.5**	**113.1**	**1 228.3**	**9 397.8**	**4 063.5**	**13 384.9**	**688.8**	**2 182.9**
Establishments with an average of—												
1 to 4 employees	E8	373	.6	18.3	.4	.8	8.2	53.9	22.7	76.4	3.4	13.2
5 to 9 employees	E5	213	1.4	38.5	.8	1.6	15.4	110.7	49.7	158.6	6.4	28.5
10 to 19 employees	E3	203	2.8	81.2	1.6	3.1	33.8	210.3	95.3	301.3	12.2	51.9
20 to 49 employees	E2	215	6.8	208.8	4.2	8.0	84.7	532.0	244.7	771.8	32.2	131.6
50 to 99 employees	E2	129	9.1	292.0	5.4	10.2	109.2	654.9	329.3	975.2	46.5	199.2
100 to 249 employees	E1	100	15.5	469.9	9.2	17.9	181.7	1 202.4	729.7	1 919.5	92.6	333.7
250 to 499 employees	E1	63	23.2	696.9	14.3	27.6	310.1	1 963.7	1 003.1	2 944.2	156.6	552.4
500 to 999 employees	E1	35	24.3	804.0	14.4	28.0	311.0	2 875.8	964.9	3 822.2	183.4	523.8
1,000 to 2,499 employees	E1	8	14.5	485.6	8.2	15.8	174.4	1 794.1	624.1	2 415.7	155.5	348.7
2,500 employees or more	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	504	1.8	39.0	1.1	2.0	16.8	105.5	46.3	151.8	6.8	26.5
INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES												
Total	**E1**	**1 764**	**96.8**	**2 865.2**	**61.6**	**119.7**	**1 296.6**	**8 939.3**	**4 963.7**	**13 842.8**	**504.3**	**2 329.6**
Establishments with an average of—												
1 to 4 employees	E8	535	1.1	27.9	.7	1.4	13.3	88.6	49.4	137.2	3.7	24.9
5 to 9 employees	E5	311	2.1	55.7	1.3	2.5	27.2	148.1	77.8	226.1	5.3	37.2
10 to 19 employees	E2	251	3.4	87.3	2.2	4.1	40.5	234.9	119.1	351.4	7.1	56.4
20 to 49 employees	E1	289	9.0	211.4	5.9	11.2	95.2	578.5	356.2	931.5	24.1	138.4
50 to 99 employees	E1	152	10.5	251.4	7.1	13.6	121.5	763.6	427.9	1 181.9	25.4	199.5
100 to 249 employees	–	131	20.0	513.7	12.9	25.0	227.1	1 549.1	1 081.7	2 609.0	55.3	409.1
250 to 499 employees	E1	56	19.4	555.5	12.7	25.3	272.4	1 586.4	1 102.1	2 675.2	92.4	417.4
500 to 999 employees	–	34	22.3	720.9	14.7	29.8	352.6	2 706.6	1 428.7	4 126.1	128.0	639.0
1,000 to 2,499 employees	E1	5	9.0	441.4	4.2	6.8	146.8	1 283.6	320.8	1 604.5	163.0	407.8
Covered by administrative records[2]	E9	632	2.2	41.7	1.5	2.6	19.8	129.0	72.3	201.3	5.2	35.9
INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES												
Total	**E1**	**611**	**15.1**	**458.1**	**8.9**	**16.9**	**194.3**	**1 202.9**	**731.7**	**1 910.0**	**48.6**	**336.3**
Establishments with an average of—												
1 to 4 employees	E8	299	.5	10.7	.3	.6	5.5	26.2	12.3	38.2	.8	6.9
5 to 9 employees	E4	105	.7	14.7	.4	.8	7.7	30.8	23.3	54.3	1.1	9.0
10 to 19 employees	E1	78	1.1	27.3	.7	1.3	13.2	59.0	36.3	96.5	2.2	15.0
20 to 49 employees	E1	58	1.9	46.3	1.2	2.4	21.1	103.2	60.6	164.2	4.3	26.2
50 to 99 employees	E1	40	2.7	72.8	1.5	2.8	29.5	191.9	143.9	332.1	6.3	58.0
100 to 249 employees	E2	19	3.1	104.2	1.5	3.1	35.8	239.7	245.4	481.5	11.2	84.0
250 to 499 employees	–	8	2.8	99.4	1.7	3.4	42.9	346.7	158.4	491.8	12.5	87.5
500 to 999 employees	–	4	2.3	82.8	1.5	2.6	38.6	205.4	51.5	251.4	10.2	49.6
Covered by administrative records[2]	E9	321	.8	14.3	.5	.8	6.7	32.2	15.2	47.5	1.1	8.6
INDUSTRY 3844, X-RAY APPARATUS AND TUBES												
Total	**–**	**128**	**14.3**	**562.7**	**7.1**	**14.3**	**211.5**	**1 871.4**	**1 302.0**	**3 235.0**	**63.6**	**608.5**
Establishments with an average of—												
1 to 4 employees	E8	24	(Z)	1.0	(Z)	(Z)	.5	2.8	2.0	4.8	.2	1.1
5 to 9 employees	E7	16	.1	3.6	.1	.1	1.5	8.2	6.5	14.4	.5	3.7
10 to 19 employees	E3	23	.3	10.2	.2	.3	3.9	29.6	20.1	49.9	1.5	12.1
20 to 49 employees	E5	17	.5	18.4	.3	.6	8.2	41.9	29.8	74.3	1.9	14.8
50 to 99 employees	–	20	1.4	47.7	.6	1.3	15.9	146.3	129.0	316.4	4.6	57.9
100 to 249 employees	E2	13	1.9	70.1	1.1	2.3	29.6	172.3	153.8	325.1	13.7	92.4
250 to 499 employees	–	7	2.2	81.8	1.0	1.8	30.6	385.9	306.0	698.5	7.1	125.0
500 to 999 employees	–	6	7.8	329.8	3.8	7.9	121.4	1 084.5	654.7	1 751.5	34.1	301.5
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	32	.1	3.1	.1	.1	1.3	6.5	4.9	11.4	.4	2.8
INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT												
Total	**–**	**357**	**40.0**	**1 553.0**	**18.0**	**37.6**	**449.3**	**4 692.3**	**2 493.1**	**7 175.4**	**253.6**	**1 328.1**
Establishments with an average of—												
1 to 4 employees	E9	54	.1	3.0	(Z)	.1	.8	8.6	4.2	12.8	.4	2.5
5 to 9 employees	E3	49	.4	11.4	.1	.3	2.7	57.7	12.7	70.0	2.1	12.9
10 to 19 employees	E3	61	.9	32.2	.4	.7	8.4	81.2	36.5	118.2	3.4	22.1
20 to 49 employees	E2	69	2.3	85.3	.9	1.8	21.6	212.0	108.7	323.1	8.7	59.0
50 to 99 employees	E3	36	2.6	92.3	1.1	2.1	28.1	277.7	169.8	445.7	10.8	74.0
100 to 249 employees	–	45	7.2	274.0	3.0	5.9	68.0	682.3	401.3	1 084.8	32.2	201.9
250 to 499 employees	–	26	8.5	280.2	4.2	8.7	98.3	1 034.8	768.6	1 817.4	41.8	334.9
500 to 999 employees	–	10	7.9	318.2	3.6	7.4	88.6	1 023.5	353.0	1 370.7	52.6	272.7
1,000 to 2,499 employees	–	7	10.2	456.4	4.7	10.6	132.8	1 314.4	638.4	1 932.5	101.4	348.1
Covered by administrative records[2]	E9	73	.3	6.3	.1	.2	1.7	17.0	8.3	25.3	.8	5.1

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3851, OPHTHALMIC GOODS												
Total	**E1**	**569**	**29.6**	**716.3**	**19.9**	**40.2**	**385.6**	**1 950.6**	**748.0**	**2 692.1**	**202.4**	**512.2**
Establishments with an average of—												
1 to 4 employees	E8	236	.5	9.5	.3	.6	5.6	23.7	9.0	32.7	1.6	7.0
5 to 9 employees	E6	101	.7	12.9	.5	.9	7.3	32.0	13.7	45.5	1.7	8.5
10 to 19 employees	E1	82	1.1	24.1	.8	1.5	12.6	57.1	27.2	84.2	4.0	13.3
20 to 49 employees	E2	50	1.5	30.3	1.0	2.0	16.6	73.3	38.7	111.4	5.0	20.6
50 to 99 employees	E2	37	2.6	52.6	1.8	3.7	29.2	141.4	88.8	222.5	7.2	53.5
100 to 249 employees	E2	41	6.2	135.3	4.4	8.8	76.9	306.9	152.7	468.7	44.4	92.0
250 to 499 employees	E2	8	2.6	47.6	2.1	4.2	33.5	149.4	58.2	207.0	4.4	44.6
500 to 999 employees	–	8	5.4	125.6	4.0	7.8	74.7	340.6	185.9	527.8	14.5	139.3
1,000 to 2,499 employees	–	6	9.0	278.4	5.1	10.8	129.1	826.3	173.8	992.3	119.5	133.6
Covered by administrative records[2]	E9	288	.9	16.6	.7	1.2	9.8	41.5	15.7	57.1	2.9	12.5
INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES												
Total	**–**	**904**	**77.5**	**3 069.3**	**39.4**	**90.7**	**1 328.5**	**14 885.4**	**7 058.7**	**22 149.8**	**808.1**	**2 247.6**
Establishments with an average of—												
1 to 4 employees	E9	324	.6	14.9	.3	.7	6.4	59.5	25.8	85.2	3.6	10.7
5 to 9 employees	E8	178	1.2	28.9	.6	1.4	12.5	105.7	42.7	149.0	6.4	18.2
10 to 19 employees	E5	138	1.9	53.4	1.0	2.2	23.6	185.0	85.5	271.1	11.5	35.2
20 to 49 employees	E1	122	3.7	104.2	2.1	4.2	46.4	314.6	219.6	533.1	13.8	83.0
50 to 99 employees	E1	54	3.8	115.2	2.2	4.4	54.5	432.1	302.3	715.7	25.8	141.4
100 to 249 employees	E2	56	8.7	284.3	4.9	10.3	124.5	773.3	667.8	1 438.1	67.1	228.1
250 to 499 employees	–	16	5.6	220.4	3.6	7.4	123.3	906.6	682.4	1 581.4	108.2	284.5
500 to 999 employees	E2	7	52.0	2 248.1	24.6	60.1	937.2	12 108.7	5 032.5	17 376.2	571.6	1 446.4
1,000 to 2,499 employees	E1	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	441	1.6	34.0	.9	1.9	14.6	110.3	43.1	153.4	7.0	19.0
INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS												
Total	**E1**	**180**	**7.6**	**171.9**	**5.6**	**11.0**	**91.9**	**423.5**	**382.0**	**811.6**	**22.3**	**175.0**
Establishments with an average of—												
1 to 4 employees	E8	68	.1	2.2	.1	.1	1.2	5.5	5.8	11.3	.1	2.3
5 to 9 employees	E7	34	.2	4.0	.2	.3	2.1	7.7	9.9	17.6	.2	3.2
10 to 19 employees	E3	26	.4	6.9	.2	.5	3.6	14.3	13.6	28.1	.2	5.1
20 to 49 employees	E1	21	.7	14.5	.5	.9	7.5	33.9	37.1	69.7	.9	13.1
50 to 99 employees	E2	12	.9	20.9	.7	1.4	11.7	43.0	63.0	107.0	2.6	28.1
100 to 249 employees	–	11	1.6	36.6	1.1	2.2	19.8	86.8	91.5	178.4	6.6	50.1
250 to 499 employees	E1	6	3.8	86.8	2.9	5.6	46.0	232.4	161.2	399.4	11.8	73.2
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	90	.3	4.9	.2	.4	2.6	11.3	11.7	23.0	.2	4.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3841	**Surgical and medical instruments:**										
	All establishments in industry	1 340	98.2	3 095.3	58.5	113.1	1 228.3	9 397.8	4 063.5	13 384.9	688.8
	Establishments with this product class primary:										
38411	Surgical and medical instruments and apparatus	474	83.7	2 667.8	49.6	95.8	1 042.2	8 208.0	3 500.9	11 645.3	619.3
38412	Hospital furniture	45	3.0	84.5	2.2	4.4	47.7	284.5	184.9	462.0	8.7

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3842	**Surgical appliances and supplies:**										
	All establishments in industry	1 764	96.8	2 865.2	61.6	119.7	1 296.6	8 939.3	4 963.7	13 842.8	504.3
	Establishments with this product class primary:										
38421	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies	599	66.2	2 160.7	40.2	79.4	931.8	7 028.1	3 795.1	10 765.2	439.1
38423	Personal industrial safety devices	136	13.3	279.5	10.1	18.3	162.4	836.7	595.8	1 439.3	28.2
38424	Electronic hearing aids	34	5.2	135.9	3.6	7.3	74.6	332.8	150.4	482.4	8.4
3843	**Dental equipment and supplies:**										
	All establishments in industry	611	15.1	458.1	8.9	16.9	194.3	1 202.9	731.7	1 910.0	48.6
	Establishments with this product class primary:										
38431	Dental professional equipment and supplies	135	8.7	285.0	5.0	9.7	119.4	800.7	418.1	1 195.8	34.0
38432	Dental laboratory equipment and supplies	55	3.1	92.1	1.9	3.7	36.8	198.9	221.0	419.1	6.1
3844	**X-ray apparatus and tubes:**										
	All establishments in industry	128	14.3	562.7	7.1	14.3	211.5	1 871.4	1 302.0	3 235.0	63.6
3845	**Electromedical equipment:**										
	All establishments in industry	357	40.0	1 553.0	18.0	37.6	449.3	4 692.3	2 493.1	7 175.4	253.6
3851	**Ophthalmic goods:**										
	All establishments in industry	569	29.6	716.3	19.9	40.2	385.6	1 950.6	748.0	2 692.1	202.4
	Establishments with this product class primary:										
38511	Ophthalmic fronts and temples	16	1.8	40.9	1.4	2.8	20.2	97.4	69.1	160.8	4.3
38514	Glass ophthalmic focus lenses	11	2.3	39.8	2.0	3.7	31.9	88.1	61.1	150.4	3.0
38515	Plastics ophthalmic focus lenses	38	6.5	150.3	5.0	10.5	98.8	322.9	171.8	493.5	18.2
38516	Contact lenses	43	9.1	284.4	4.5	9.1	111.2	962.3	141.5	1 091.3	141.9
38517	Ophthalmic goods, except fronts, temples, and lenses	45	4.2	96.9	3.2	6.2	62.2	216.1	202.5	429.3	16.4
3861	**Photographic equipment and supplies:**										
	All establishments in industry	904	77.5	3 069.3	39.4	90.7	1 328.5	14 885.4	7 058.7	22 149.8	808.1
	Establishments with this product class primary:										
38611	Still picture equipment	60	5.9	213.1	3.1	6.6	89.1	408.4	292.6	707.0	39.6
38612	Photocopying equipment (includes diffusion transfer, dye transfer, electrostatic, light and heat sensitive types, etc.)	13	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
38613	Motion picture equipment	24	2.0	65.9	1.2	2.5	28.9	166.1	81.5	255.1	8.0
38614	Microfilming, blueprinting, and whiteprinting equipment	13	2.2	78.1	.7	1.2	12.7	142.6	137.7	273.7	3.5
38615	Photographic sensitized film and plates, silver halide type (except X-ray)	37	31.1	1 344.7	15.8	40.8	607.3	4 736.4	2 413.1	7 347.5	455.9
38616	Sensitized photographic paper and cloth, silver halide type	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
38617	Sensitized photographic film, plates, paper, and cloth, other than silver halide type	55	4.7	156.0	2.9	5.9	77.1	592.4	534.0	1 129.9	33.8
38618	Prepared photographic chemicals	36	3.6	119.3	1.4	2.9	38.3	385.2	385.1	745.1	37.7
38619	X-ray film and plates	8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3873	**Watches, clocks, watchcases, and parts:**										
	All establishments in industry	180	7.6	171.9	5.6	11.0	91.9	423.5	382.0	811.6	22.3
	Establishments with this product class primary:										
38731	Watches, watchcases, movements or modules, and watch parts	12	.8	20.3	.6	1.2	10.1	45.4	58.9	105.8	.4
38732	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts	48	5.4	123.0	4.2	8.3	68.1	321.7	273.0	599.2	16.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS			
Total value of shipments	13 384.9	7 779.5	4 084.5
Primary products value of shipments	12 327.2	6 786.5	3 480.2
Secondary products value of shipments	518.1	579.3	396.9
Total miscellaneous receipts	539.7	413.7	207.3
Value of resales	418.9	348.2	182.8
Contract receipts	43.4	14.4	3.0
Other miscellaneous receipts	77.4	51.1	21.5
Receipts for repair work	52.4	32.4	10.6
Other miscellaneous receipts	14.1	(D)	10.9
Other miscellaneous receipts, n.s.k.	10.8	(D)	(NA)
Primary products specialization ratio	96	92	90
Value of primary products shipments made in all industries	13 264.9	7 231.7	4 271.9
Value of primary products shipments made in this industry	12 327.2	6 786.5	3 480.2
Value of primary products shipments made in other industries	937.8	445.2	791.7

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS—Con.			
Coverage ratio	93	94	81
INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES			
Total value of shipments	13 842.8	8 534.1	5 667.1
Primary products value of shipments	11 734.4	7 268.1	4 484.8
Secondary products value of shipments	1 073.1	778.9	751.2
Total miscellaneous receipts	1 035.3	487.1	431.1
Value of resales	887.5	383.7	300.4
Contract receipts	38.0	17.7	46.7
Other miscellaneous receipts	109.9	85.7	84.0
Receipts for repair work	36.3	(D)	70.2
Other miscellaneous receipts	39.9	17.0	13.8
Receipts for artificial limbs, internal body replacement parts, braces, trusses, etc., to individual prescription	17.6	12.2	(NA)
Other miscellaneous receipts, n.s.k.	16.1	(D)	(NA)
Primary products specialization ratio	92	90	86
Value of primary products shipments made in all industries	12 479.2	7 981.2	5 018.8
Value of primary products shipments made in this industry	11 734.4	7 268.1	4 484.8
Value of primary products shipments made in other industries	744.8	713.2	533.9
Coverage ratio	94	91	89
INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES			
Total value of shipments	1 910.0	1 420.7	1 111.7
Primary products value of shipments	1 568.6	1 215.6	943.0
Secondary products value of shipments	123.5	80.2	49.0
Total miscellaneous receipts	218.0	124.9	119.7
Value of resales	200.8	116.8	99.0
Contract receipts	1.0	.7	2.4
Other miscellaneous receipts	16.2	7.4	18.3
Sales of scrap and refuse	9.3	1.2	10.8
Receipts for repair work	4.9	1.6	5.8
Other miscellaneous receipts	1.8	4.6	1.7
Other miscellaneous receipts, n.s.k.	.1	–	(NA)
Primary products specialization ratio	93	94	95
Value of primary products shipments made in all industries	1 616.5	1 241.3	957.0
Value of primary products shipments made in this industry	1 568.6	1 215.6	943.0
Value of primary products shipments made in other industries	47.9	25.6	14.0
Coverage ratio	97	98	99
INDUSTRY 3844, X-RAY APPARATUS AND TUBES			
Total value of shipments	3 235.0	1 554.3	(NA)
Primary products value of shipments	2 407.3	1 341.2	(NA)
Secondary products value of shipments	464.1	74.3	(NA)
Total miscellaneous receipts	363.6	138.8	(NA)
Value of resales	281.7	107.4	(NA)
Contract receipts	15.7	(D)	(NA)
Other miscellaneous receipts	66.1	(D)	(NA)
Primary products specialization ratio	84	95	(NA)
Value of primary products shipments made in all industries	2 473.8	1 556.8	(NA)
Value of primary products shipments made in this industry	2 407.3	1 341.2	(NA)
Value of primary products shipments made in other industries	66.5	215.6	(NA)
Coverage ratio	97	86	(NA)
INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT			
Total value of shipments	7 175.4	3 576.7	(NA)
Primary products value of shipments	5 910.3	3 104.9	(NA)
Secondary products value of shipments	366.7	182.9	(NA)
Total miscellaneous receipts	898.3	288.8	(NA)
Value of resales	510.6	200.8	(NA)
Contract receipts	8.3	1.7	(NA)
Other miscellaneous receipts	379.4	86.3	(NA)
Primary products specialization ratio	94	94	(NA)
Value of primary products shipments made in all industries	6 294.5	3 513.3	(NA)
Value of primary products shipments made in this industry	5 910.3	3 104.9	(NA)
Value of primary products shipments made in other industries	384.2	408.4	(NA)
Coverage ratio	94	88	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3851, OPHTHALMIC GOODS			
Total value of shipments	2 692.1	1 689.4	1 273.0
Primary products value of shipments	2 318.6	1 412.1	1 060.5
Secondary products value of shipments	37.9	97.0	95.6
Total miscellaneous receipts	335.6	180.3	116.9
Value of resales	295.0	167.6	101.3
Contract receipts	12.0	2.9	(D)
Other miscellaneous receipts	28.6	9.8	(D)
Primary products specialization ratio	98	94	92
Value of primary products shipments made in all industries	2 405.7	1 445.1	1 081.1
Value of primary products shipments made in this industry	2 318.6	1 412.1	1 060.5
Value of primary products shipments made in other industries	87.1	32.9	20.6
Coverage ratio	96	98	98
INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES			
Total value of shipments	22 149.8	19 240.5	17 037.5
Primary products value of shipments	18 442.7	15 052.0	14 537.8
Secondary products value of shipments	1 946.9	1 214.4	944.9
Total miscellaneous receipts	1 760.1	2 974.0	1 554.8
Value of resales	(D)	1 115.6	703.5
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	90	93	94
Value of primary products shipments made in all industries	18 909.1	15 324.3	14 990.4
Value of primary products shipments made in this industry	18 442.7	15 052.0	14 537.8
Value of primary products shipments made in other industries	466.5	272.3	452.6
Coverage ratio	98	98	97
INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS			
Total value of shipments	811.6	1 220.9	1 187.6
Primary products value of shipments	625.1	1 077.9	1 044.7
Secondary products value of shipments	100.4	21.2	57.7
Total miscellaneous receipts	86.0	121.9	85.1
Value of resales	81.3	99.9	60.7
Contract receipts	1.0	(D)	12.0
Other miscellaneous receipts	3.7	(D)	12.4
Primary products specialization ratio	86	98	95
Value of primary products shipments made in all industries	658.2	1 151.9	1 121.8
Value of primary products shipments made in this industry	625.1	1 077.9	1 044.7
Value of primary products shipments made in other industries	33.0	74.0	77.1
Coverage ratio	95	94	93

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3841– —	**SURGICAL AND MEDICAL INSTRUMENTS**						
	Total	**(NA)**	**(X)**	**13 264.9**	**(NA)**	**(X)**	**7 231.7**
38411	Surgical and medical instruments and apparatus	(NA)	(X)	11 717.2	(NA)	(X)	6 063.2
38411 12	Surgical instruments, including suture needles; and eye, ear, nose, and throat instruments	85	(X)	2 157.7	51	(X)	687.3
38411 31	Orthopedic instruments, excluding eye, ear, nose, and throat instruments	39	(X)	307.1	22	(X)	125.8
	Diagnostic apparatus:						
38411 21	Metabolism and blood-pressure apparatus	24	(X)	246.2	14	(X)	134.6
38411 23	Other diagnostic apparatus, including optical diagnostic apparatus[3]	63	(X)	1 122.5	(NA)	(X)	363.0
38411 42	Syringes — millions	20	3 880.5	696.7	11	4 887.8	583.6
38411 49	Hypodermic needles — millions	16	3 828.7	215.4	15	4 946.7	183.4
38411 72	Anesthesia apparatus and instruments	22	(X)	446.3	15	(X)	270.0
38411 84	Bone plates, screws, and nails, and other internal fixation devices or appliances[3]	24	(X)	400.0	(NA)	(X)	[4]
38411 85	Blood transfusion, I.V. equipment, and donor kits	41	(X)	833.1	29	(X)	415.5
38411 86	Catheters	73	(X)	2 000.7	41	(X)	1 009.4
38411 87	Mechanical therapy appliances	16	(X)	221.7	12	(X)	125.2
38411 96	Other surgical and medical instruments[3]	193	(X)	2 251.4	(NA)	(X)	1 522.3
38411 99	Parts for surgical and medical instruments and apparatus	94	(X)	501.7	7	(X)	353.2
38411 00	Surgical and medical instruments and apparatus, n.s.k.	(NA)	(X)	316.9	(NA)	(X)	290.0
38412	Hospital furniture	(NA)	(X)	415.8	(NA)	(X)	416.4
38412 91	Operating room furniture, including tables, cases, cabinets, etc.	19	(X)	147.3	21	(X)	87.9
38412 93	Patient room furniture, including cabinets, overbed tables, desks, dressers, etc., but excluding beds and chairs	15	(X)	137.2	18	(X)	114.7
38412 96	Other hospital furniture excluding operating and patient room furniture, beds, and instruments	45	(X)	121.2	39	(X)	199.9
38412 00	Hospital furniture, n.s.k.	(NA)	(X)	10.2	(NA)	(X)	13.9
38410	Surgical and medical instruments, n.s.k.	(NA)	(X)	1 131.9	(NA)	(X)	752.1
38410 00	Surgical and medical instruments, n.s.k.[5]	(NA)	(X)	977.1	(NA)	(X)	471.5
38410 02	Surgical and medical instruments, n.s.k.[6]	(NA)	(X)	154.8	(NA)	(X)	280.6
3842– —	**SURGICAL APPLIANCES AND SUPPLIES**						
	Total	**(NA)**	**(X)**	**12 479.2**	**(NA)**	**(X)**	**7 981.3**
38421	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies	(NA)	(X)	9 660.0	(NA)	(X)	5 778.5
	Orthopedic or fracture appliances and prosthetic appliances:						
38421 01	Artificial joints	29	(X)	1 496.5	37	(X)	514.6
38421 02	Artificial limbs	87	(X)	87.5	10	(X)	38.9
38421 04	Braces, mechanical	76	(X)	137.3	31	(X)	45.0
38421 05	Elastic braces, suspensories, and other elastic supports	37	(X)	216.4	27	(X)	107.5
38421 06	Elastic stockings	12	(X)	45.5	11	(X)	64.0
38421 07	Surgical corsets	13	(X)	20.3	12	(X)	19.7
38421 08	Splints and trusses	21	(X)	67.1	19	(X)	55.4
38421 09	Crutches, canes (orthopedic), and other walking assistance devices	15	(X)	83.0	9	(X)	59.2
38421 10	Arch supports and other foot appliances	31	(X)	180.4	14	(X)	139.6
38421 12	Intraocular lenses	13	(X)	291.9	6	(X)	[7]
38421 13	Other orthopedic and prosthetic appliances	61	(X)	516.4	47	(X)	556.5
	Surgical dressings:						
38421 22	Bandages, elastic	16	(X)	40.2	10	(X)	36.0
38421 23	Bandages, other, including muslin, plaster of paris, etc., excluding self-adhering bandages	20	(X)	107.4	19	(X)	261.8
38421 24	Adhesive plaster, medicated and nonmedicated, including self-adhering bandages	16	(X)	273.1	10	(X)	[8]
38421 26	Gauze (absorbent and packing)	9	(X)	57.0	11	(X)	84.6
38421 27	Cotton, including cotton balls (sterile and nonsterile)	13	(X)	76.7	12	(X)	82.7
38421 29	Other surgical dressings, including sponges, compresses, pads, etc.	30	(X)	425.5	27	(X)	[8]502.0
38421 31	Disposable surgical drapes, including O/B and O/R packs	34	(X)	631.6	21	(X)	304.4
38421 32	Disposable incontinent pads, bedpads, and adult diapers	25	(X)	754.8	29	(X)	496.4
38421 37	Sterile surgical sutures	13	(X)	528.8	6	(X)	193.4
38421 65	Breathing devices, excluding anesthetic apparatus but including incubators, respirators, resuscitators, inhalators, etc.	37	(X)	353.0	19	(X)	166.2
	Patient transport devices:						
38421 83	Wheel chairs — thousands	25	(S)	280.5	13	*302.4	211.9
38421 85	Other patient transport devices, including stretchers, wheeled chairs, tables, etc.	27	(X)	141.1	17	(X)	57.1
	Therapeutic appliances and supplies:						
38421 87	Hydrotherapy equipment, including full body and limb tanks (portable and stationary)	7	(X)	36.2	9	(X)	48.5
38421 89	Other therapeutic equipment and supplies, excluding electromedical	35	(X)	157.9	25	(X)	75.9
38421 91	Surgical kits	19	(X)	559.0	16	(X)	180.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3842– —	**SURGICAL APPLIANCES AND SUPPLIES—Con.**						
38421	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies—Con.						
38421 97	Other surgical and orthopedic items not included in above categories	134	(X)	1 796.8	86	(X)	[7]1 125.8
38421 98	Parts for surgical, orthopedic, prosthetic, and therapeutic appliances and supplies	68	(S)	156.3	48	(X)	119.1
38421 00	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies, n.s.k.	(NA)	(X)	141.8	(NA)	(X)	[4] r232.2
38423	Personal industrial safety devices	(NA)	(X)	1 332.0	(NA)	(X)	1 030.6
38423 11	Respiratory protection equipment, including gas masks, abrasive masks, canister masks, etc.	26	(X)	483.0	15	(X)	312.0
38423 21	Industrial helmets (hardhats)	11	(X)	65.4	10	(X)	34.0
38423 22	Eye and face protection devices (face shields, welding helmets, masks), excluding industrial goggles and eye protectors	29	(X)	101.0	20	(X)	57.8
38423 51	Protective clothing, except shoes	67	(X)	361.5	57	(X)	299.1
38423 61	First aid, snake bite, and burn kits, both household and industrial types	15	(X)	39.9	13	(X)	69.4
38423 73	Other personal safety devices, including motorcycle and auto racing helmets[3]	53	(X)	237.1	(NA)	(X)	193.8
38423 00	Personal industrial safety devices, n.s.k.	(NA)	(X)	44.1	(NA)	(X)	64.6
38424	Electronic hearing aids	(NA)	(X)	372.5	(NA)	(X)	266.4
38424 00	Electronic hearing aids, complete units thousands	26	(S)	372.5	19	(S)	266.4
38420	Surgical appliances and supplies, n.s.k.	(NA)	(X)	1 114.7	(NA)	(X)	905.8
38420 00	Surgical appliances and supplies, n.s.k.[9]	(NA)	(X)	913.8	(NA)	(X)	566.7
38420 02	Surgical appliances and supplies, n.s.k.[10]	(NA)	(X)	200.9	(NA)	(X)	339.1

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3843– —	**DENTAL EQUIPMENT AND SUPPLIES**				
	Total	**(NA)**	**1 616.5**	**(NA)**	**1 241.3**
38431	Dental professional equipment and supplies	(NA)	958.3	(NA)	651.6
	Professional equipment:				
38431 01	Dental chairs	14	58.0	10	43.8
38431 02	Instrument delivery systems (dental units)	19	65.1	10	57.6
38431 03	Dental hand pieces	21	48.3	17	19.6
38431 04	Other dental professional equipment, excluding X-ray	47	152.1	(NA)	99.9
	Professional supplies:				
38431 05	Dental hand instruments (forceps and pliers, broaches, cutting instruments, etc.)	26	90.8	24	76.0
38431 06	Burs, diamond points, abrasive points, wheels, disks, and similar tools for use with dental hand pieces	14	42.2	13	28.1
38431 07	Dental alloys for amalgams	9	53.4	6	38.8
38431 08	Dental impression materials (alginates, silicones, etc.)	12	51.5	10	39.4
38431 09	Dental cements and other nonmetallic filling materials	15	77.4	13	57.3
38431 11	Other dental professional supplies	58	300.2	37	168.1
38431 00	Dental professional equipment and supplies, n.s.k.	(NA)	19.4	(NA)	23.0
38432	Dental laboratory equipment and supplies	(NA)	415.4	(NA)	382.3
38432 01	Dental laboratory equipment (furnaces, casting machines, lathes, benches, polishing units, flasks, blow pipes, etc.)	13	96.8	13	35.1
	Dental laboratory supplies:				
	Dental metals:				
38432 02	Precious	13	165.9	16	167.9
38432 03	Nonprecious	13	56.6	12	70.1
38432 09	Teeth (excluding dentures)[3]	14	38.0	(NA)	40.3
38432 19	Other dental laboratory supplies (waxes, gypsums, etc.)[3]	31	51.8	(NA)	58.1
38432 00	Dental laboratory equipment and supplies, n.s.k.	(NA)	6.3	(NA)	10.7
38430	Dental equipment and supplies, n.s.k.	(NA)	242.8	(NA)	207.4
38430 00	Dental equipment and supplies, n.s.k.[11]	(NA)	194.5	(NA)	r159.6
38430 02	Dental equipment and supplies, n.s.k.[12]	(NA)	48.3	(NA)	47.8
3844– —	**X-RAY APPARATUS AND TUBES**				
	Total	**(NA)**	**2 473.8**	**(NA)**	**1 556.8**
38440	Irradiation (ionizing radiation) equipment, including X-ray, beta ray, gamma ray, and nuclear	(NA)	2 473.8	(NA)	1 556.8
38440 00	Irradiation (ionizing radiation) equipment, including X-ray, beta ray, gamma ray, and nuclear[13]	96	2 462.4	53	1 539.5
38440 02	X-ray apparatus and tubes, n.s.k.[10]	(NA)	11.4	(NA)	17.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3845– —	**ELECTROMEDICAL EQUIPMENT**				
	Total	**(NA)**	**6 294.5**	**(NA)**	**3 513.3**
38450	Electromedical equipment (diagnostic, therapeutic, patient monitoring, etc.), excluding ionizing radiation equipment	(NA)	6 294.5	(NA)	3 513.3
38450 00	Electromedical equipment (diagnostic, therapeutic, patient monitoring, etc.), excluding ionizing radiation equipment[13]	293	6 269.2	170	3 475.9
38450 02	Electromedical equipment, n.s.k.[14]	(NA)	25.3	(NA)	37.4

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3851– —	**OPHTHALMIC GOODS**						
	Total	**(NA)**	**(X)**	**2 405.7**	**(NA)**	**(X)**	**1 445.1**
38511	Ophthalmic fronts and temples	(NA)	(X)	167.6	(NA)	(X)	93.5
	Fronts, finished (with or without decoration):						
38511 15	Plastics fronts	16	(X)	73.2	18	(X)	41.6
38511 17	Other fronts[3]	6	(X)	37.3	(NA)	(X)	17.2
	Temples:						
38511 18	Plastics	10	(X)	36.9	13	(X)	23.1
38511 19	Other	5	(X)	20.1	6	(X)	6.8
38511 00	Ophthalmic fronts and temples, n.s.k.	(NA)	(X)	–	(NA)	(X)	4.9
38514	Glass ophthalmic focus lenses	(NA)	(X)	158.0	(NA)	(X)	133.7
38514 31	Single vision lenses (ground and polished and molded blanks)	17	(X)	62.0	17	(X)	39.9
38514 45	Multifocal lenses (finished, semifinished, and molded blanks)	15	(X)	92.7	(NA)	(X)	76.4
38514 00	Glass ophthalmic focus lenses, n.s.k.	(NA)	(X)	3.3	(NA)	(X)	17.4
38515	Plastics ophthalmic focus lenses	(NA)	(X)	423.8	(NA)	(X)	226.1
38515 25	Single vision lenses mil pairs	29	*30.5	192.9	21	**30.7	115.4
38515 27	Multifocal lenses mil pairs	23	32.2	230.9	19	20.1	110.7
38515 00	Plastics ophthalmic focus lenses, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
38516	Contact lenses	(NA)	(X)	923.7	(NA)	(X)	478.6
38516 12	Conventional (hard) mil pairs	29	(S)	94.6	16	4.6	103.2
38516 13	Soft mil pairs	20	(S)	829.0	15	15.5	372.8
38516 00	Contact lenses, n.s.k.	(NA)	(X)	–	(NA)	(X)	2.5
38517	Ophthalmic goods, except fronts, temples, and lenses	(NA)	(X)	402.0	(NA)	(X)	291.9
38517 02	Industrial goggles, eye protectors, welding circles and plates, and mountings	13	(X)	98.7	11	(X)	90.2
38517 03	Sun or glare glasses and sungoggles, ready-made	9	(X)	157.9	10	(X)	64.4
38517 04	Magnifying or reading glasses, ready-made	6			6	(X)	15.2
38517 06	Parts for frames and mounting, except fronts and temples	11	(X)	42.4	3	(X)	(6)
	Other ophthalmic goods:						
38517 09	Plastics[3]	20	(X)	48.7	(NA)	(X)	(6)
38517 19	Other[3]	10	(X)	50.7	(NA)	(X)	698.0
38517 00	Ophthalmic goods, except fronts, temples, and lenses, n.s.k.	(NA)	(X)	3.6	(NA)	(X)	24.1
38510	Ophthalmic goods, n.s.k.	(NA)	(X)	330.7	(NA)	(X)	221.2
38510 00	Ophthalmic goods, n.s.k.[11]	(NA)	(X)	273.5	(NA)	(X)	142.2
38510 02	Ophthalmic goods, n.s.k.[12]	(NA)	(X)	57.1	(NA)	(X)	78.9
3861– —	**PHOTOGRAPHIC EQUIPMENT AND SUPPLIES**						
	Total	**(NA)**	**(X)**	**18 909.1**	**(NA)**	**(X)**	**15 324.3**
38611	Still picture equipment	(NA)	(X)	918.4	(NA)	(X)	995.3
	Still cameras:						
38611 11	Hand-type cameras (excluding film, bulbs, batteries, etc., in outfits) thousands	5	(D)	(15)	4	(S)	324.4
38611 21	Process cameras for photoengraving and photolithography, including value of stands and attachments when shipped together thousands	6	(S)	81.8	8	16.0	52.7
38611 32	Other still cameras, excluding photocopying, microfilming, blueprinting, and whiteprinting thousands	6	(S)	19.3	6	19.5	24.3
38611 67	Projectors, except rear screen viewers[3] thousands	6	(S)	55.6	(NA)	**396.9	87.1
	Still picture commercial-type finishing equipment:						
38611 73	Processing equipment for film	14	(X)	127.3	13	(X)	124.8
38611 81	All other processing equipment (developing machines, motor-operated print washers and driers, etc.)[3]	15	(X)	115.5	(NA)	(X)	73.9
38611 97	Other still picture equipment, parts, attachments, and accessories, excluding projection screens[3]	44	(X)	15468.1	(NA)	(X)	254.4
38611 00	Still picture equipment, n.s.k.	(NA)	(X)	50.8	(NA)	(X)	53.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3861– ––	**PHOTOGRAPHIC EQUIPMENT AND SUPPLIES**—Con.						
38612	Photocopying equipment (includes diffusion transfer, dye transfer, electrostatic, light and heat sensitive types, etc.)	(NA)	(X)	(D)	(NA)	(X)	(D)
38612 00	Photocopying equipment (includes diffusion transfer, dye transfer, electrostatic, light and heat sensitive types, etc.)[3]	16	(X)	(D)	(NA)	(X)	(D)
38614	Microfilming, blueprinting, and whiteprinting equipment	(NA)	(X)	270.9	(NA)	(X)	382.9
	Microfilming equipment (including microfiche):						
38614 06	Cameras, including computer output	8	(X)	45.8	7	(X)	80.0
38614 03	Microfilm readers, excluding handheld and service type	4	(X)	(16)	7	(X)	42.1
38614 04	Microfilm reader-printers	7	(X)	27.7	5	(X)	77.0
38614 05	Other microfilm equipment	9	(X)	123.3	14	(X)	118.4
38614 21	Blueprinting and whiteprinting (direct process type) equipment	4	(X)	16 74.0	8	(X)	52.1
38614 00	Microfilming, blueprinting, and whiteprinting equipment, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	13.2
38613	Motion picture equipment	(NA)	(X)	212.6	(NA)	(X)	188.6
38613 11	8 mm and 16 mm motion picture equipment[3]	5	(X)	112.6	(NA)	(X)	93.0
38613 21	35 mm or larger motion picture equipment[3]	8			(NA)	(X)	24.2
38613 52	Projection screens (for motion picture and/ or still projection) thousands	4	378.3	51.4	8	443.2	34.4
38613 97	Motion picture processing equipment, all types, excluding motion picture still type equipment and interchangeable types	9	(X)	45.6	8	(X)	24.2
38613 00	Motion picture equipment, n.s.k.	(NA)	(X)	3.0	(NA)	(X)	12.8
38615	Photographic sensitized film and plates, silver halide type (except X-ray)	(NA)	(X)	5 600.8	(NA)	(X)	4 545.2
38615 02	Sheet film, pack film, and long lengths of still picture roll film other than graphic arts film mil sq meters	6	(D)	(D)			
38615 03	Presensitized printing plates, unexposed mil sq meters	11	(S)	366.8			
38615 06	Phototypesetting and imagesetting film[3] mil sq meters	4	(S)	117.4	(NA)	(NA)	4 467.0
38615 08	Graphic arts film[3] mil sq meters	11	(D)	(D)			
38615 19	Other film, plates, and slides, including microfilm and motion picture film[3] mil sq meters	18	(D)	(D)			
38615 00	Photographic sensitized film and plates, silver halide type (except x-ray), n.s.k.	(NA)	(X)	9.8	(NA)	(X)	78.3
38616	Sensitized photographic paper and cloth, silver halide type	(NA)	(X)	(D)	(NA)	(X)	(D)
38616 00	Sensitized photographic paper and cloth, silver halide type mil sq meters	8	(D)	(D)	6	(D)	(D)
38617	Sensitized photographic film, plates, paper, and cloth, other than silver halide type	(NA)	(X)	1 335.0	(NA)	(X)	1 247.8
	Diazo type:						
38617 13	Dry diazo print paper mil sq yd	14	(S)	288.3	12	(S)	219.7
38617 18	Paper reproducibles mil sq yd	6	(D)	(D)	4	(S)	30.2
38617 22	Diazo type film, except microfilm/ microfiche mil sq yd	6	(S)	30.8	8	(S)	46.5
38617 23	Diazo microfilm/ microfiche mil sq yd	3	(S)	39.5	4	(S)	89.9
38617 29	All other diazo materials[3] mil sq yd	9	(D)	(D)			
38617 41	Diffusion transfer materials (including both imager and receiver sheets)[3] mil sq yd	–	–	(D)			
38617 43	Off-press color proofing media[3] mil sq yd	2	(D)	(D)			
38617 45	Letterpress plates[3] mil sq yd	1	–	(D)	(NA)	(NA)	793.3
38617 47	Flexographic plates[3] mil sq yd	4	(D)	(D)			
38617 51	Other types, including sensitized film, plates, paper, and cloth for all other processes (including blueprint types)[3] mil sq yd	17	(D)	(D)			
38617 00	Sensitized photographic film, plates, paper, and cloth, other than silver halide type, n.s.k.	(NA)	(X)	45.9	(NA)	(X)	68.2
38618	Prepared photographic chemicals	(NA)	(X)	1 852.5	(NA)	(X)	1 224.8
	Prepared photographic chemicals (developers, fixers, toners, and other chemicals):						
38618 12	Office copy toners	16	(X)	963.4	20	(X)	538.2
38618 14	Photographic chemicals[3]	26	(X)	695.2			
38618 15	Plate chemicals[3]	5	(X)	41.0	(NA)	(X)	654.4
38618 19	Other[3]	14	(X)	142.6			
38618 00	Prepared photographic chemicals, n.s.k.	(NA)	(X)	10.2	(NA)	(X)	32.2
38619	X-ray film and plates	(NA)	(X)	(D)	(NA)	(X)	(D)
38619 00	X-ray film and plates mil sq meters	9	(D)	(D)	9	(D)	(D)
38610	Photographic equipment and supplies, n.s.k.	(NA)	(X)	807.2	(NA)	(X)	757.0
38610 00	Photographic equipment and supplies, n.s.k.[9]	(NA)	(X)	653.8	(NA)	(X)	407.1
38610 02	Photographic equipment and supplies, n.s.k.[10]	(NA)	(X)	153.4	(NA)	(X)	350.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3873– –	**WATCHES, CLOCKS, WATCHCASES, AND PARTS**						
	Total	**(NA)**	**(X)**	**658.2**	**(NA)**	**(X)**	**1 151.9**
38731	Watches, watchcases, movements or modules, and watch parts	(NA)	(X)	107.6	(NA)	(X)	429.1
38731 04	Watches[3] thousands	11	(S)	77.6	(NA)	(NA)	384.5
38731 14	Watchcases, movements or modules, and watch parts[3] thousands	5	(S)	29.3	(NA)	(NA)	39.8
38731 00	Watches, watchcases, movements or modules, and watch parts, n.s.k.	(NA)	(X)	.7	(NA)	(X)	4.8
38732	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts	(NA)	(X)	456.4	(NA)	(X)	597.9
38732 01	Alarm, excluding clock timers and timing mechanisms thousands	5	(S)	42.5	6	(S)	50.2
	Household, excluding alarm:						
38732 02	Wall thousands	21	(S)	76.6	15	(S)	85.0
38732 03	All other, including chime and strike, desk, mantel, etc. thousands	19	(S)	119.3	16	(S)	134.9
38732 09	Other clocks, complete thousands	12	(S)	29.7	16	1 774.6	48.6
	Timing mechanisms, excluding time recording and time stamp machines:						
38732 53	Household timing mechanisms thousands	8	(S)	88.8	9	(S)	134.2
38732 54	Commercial timing mechanisms thousands	8	(S)	41.4	10	(S)	57.4
38732 59	Other timing mechanisms, including military[3] thousands	3	(S)	1.9	(NA)	(NA)	10.2
38732 58	Timers and switch clocks with clock or watch movements or modules having dials or displays for telling time of day thousands	4	(S)	8.9	4	(S)	4.6
38732 61	Clock movements and modules, complete thousands	4	(S)	27.6	6	10 479.9	29.4
38732 69	Other clock parts (except timing motors)[3]	9	(X)	7.5	(NA)	(X)	6.1
38732 00	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts, n.s.k.	(NA)	(X)	12.2	(NA)	(X)	37.4
38730	Watches, clocks, watchcases, and parts, n.s.k.	(NA)	(X)	94.1	(NA)	(X)	124.9
38730 00	Watches, clocks, watchcases, and parts, n.s.k.[11]	(NA)	(X)	71.1	(NA)	(X)	86.4
38730 02	Watches, clocks, watchcases, and parts, n.s.k.[12]	(NA)	(X)	23.0	(NA)	(X)	38.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]For 1987, data for product code 38411 84 were published under product code 38421 03 with 10 companies with shipments of $100,000 or more and $83.4 million in product shipments. These 1987 data were included with 38421 00.
[5]Typically for establishments with 10 employees or more.
[6]Typically for establishments with less than 10 employees.
[7]For 1987, products were combined to avoid disclosing data for individual companies.
[8]For 1987, products were combined to avoid disclosing data for individual companies.
[9]Typically for establishments with 15 employees or more.
[10]Typically for establishments with less than 15 employees.
[11]Typically for establishments with 5 employees or more.
[12]Typically for establishments with less than 5 employees.
[13]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[14]Typically for establishments with less than 20 employees.
[15]For 1992, products are combined to avoid disclosing data for individual companies.
[16]For 1992, products are combined to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
38411, SURGICAL AND MEDICAL INSTRUMENTS AND APPARATUS			**38411, SURGICAL AND MEDICAL INSTRUMENTS AND APPARATUS**—Con.		
United States	**11 717.2**	**6 063.2**			
			Indiana	352.2	159.2
Arizona	50.1	(NA)	Iowa	7.3	(NA)
California	2 648.6	1 347.3	Kentucky	6.3	(NA)
Colorado	278.9	204.5	Massachusetts	1 147.4	468.1
Connecticut	1 521.0	559.3	Michigan	216.6	72.2
Florida	434.0	188.9	Minnesota	534.2	128.2
Georgia	237.9	162.2	Missouri	299.9	177.4
Illinois	268.8	141.4	New Hampshire	65.5	37.3

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
38411, SURGICAL AND MEDICAL INSTRUMENTS AND APPARATUS—Con.		
New Jersey	156.1	171.8
New York	510.9	428.9
North Carolina	227.1	185.8
Ohio	120.1	46.8
Oklahoma	22.0	(NA)
Oregon	11.6	(NA)
Pennsylvania	515.1	206.7
South Carolina	92.1	68.4
Tennessee	36.4	80.3
Texas	351.0	216.9
Utah	234.2	119.0
Washington	69.7	27.4
Wisconsin	170.4	103.8
38412, HOSPITAL FURNITURE		
United States	**415.8**	**416.4**
California	12.0	8.2
Florida	7.0	(NA)
Massachusetts	4.3	(NA)
Minnesota	3.4	(NA)
Missouri	15.1	20.2
New Jersey	13.5	7.7
Ohio	110.8	52.9
Pennsylvania	16.8	22.9
Wisconsin	22.5	36.8
38421, SURGICAL, ORTHOPEDIC, PROSTHETIC, AND THERAPEUTIC APPLIANCES AND SUPPLIES		
United States	**9 660.0**	**5 778.5**
Alabama	18.6	4.2
Arizona	264.9	130.5
Arkansas	16.3	7.1
California	1 152.6	855.6
Colorado	48.5	15.6
Connecticut	231.1	128.1
Florida	272.7	100.1
Georgia	221.8	82.9
Idaho	3.4	(NA)
Illinois	166.4	182.0
Indiana	923.4	(NA)
Kansas	59.2	(NA)
Louisiana	2.9	(NA)
Maryland	26.3	10.4
Massachusetts	200.5	87.8
Michigan	106.1	113.8
Minnesota	215.9	232.3
Mississippi	70.1	20.2
Missouri	141.4	82.0
Nebraska	22.2	14.0
New Hampshire	39.7	12.0
New Jersey	815.6	856.9
New York	207.6	144.8
North Carolina	470.1	320.4
Ohio	730.1	361.8
Oklahoma	40.9	17.9
Oregon	6.3	(NA)
Pennsylvania	339.3	168.7
Tennessee	563.4	323.4
Texas	987.9	511.5
Virginia	211.3	32.2
Washington	24.8	(NA)
Wisconsin	280.3	205.3
38423, PERSONAL INDUSTRIAL SAFETY DEVICES		
United States	**1 332.0**	**1 030.6**
Alabama	33.9	(NA)
California	145.7	97.0
Delaware	30.5	36.7
Georgia	59.8	42.7
Illinois	61.1	23.8
Kentucky	41.9	37.1
Massachusetts	30.3	13.7
Michigan	53.5	47.4
Missouri	8.1	(NA)
New Jersey	39.7	73.1
New York	54.4	41.8
North Carolina	100.6	51.9
Ohio	29.2	31.5
Pennsylvania	191.0	216.6
Texas	75.2	8.5
Wisconsin	13.5	(NA)
38424, ELECTRONIC HEARING AIDS		
United States	**372.5**	**266.4**
Florida	21.8	16.2
Minnesota	178.1	112.7
New Jersey	35.4	(NA)
38431, DENTAL PROFESSIONAL EQUIPMENT AND SUPPLIES		
United States	**958.3**	**651.6**
California	281.4	154.2
Connecticut	21.8	17.1
Florida	28.6	7.0
Illinois	113.2	78.2
Missouri	16.5	13.4
New Jersey	11.5	30.7
New York	52.8	54.2
Pennsylvania	42.4	31.2
Texas	4.8	(NA)
Washington	15.7	11.1
38432, DENTAL LABORATORY EQUIPMENT AND SUPPLIES		
United States	**415.4**	**382.3**
California	85.8	86.2
New Jersey	9.3	(NA)
New York	105.5	124.8
38511, OPHTHALMIC FRONTS AND TEMPLES		
United States	**167.6**	**93.5**
New York	56.9	24.3
38514, GLASS OPHTHALMIC FOCUS LENSES		
United States	**158.0**	**133.7**
Minnesota	57.1	38.4
38515, PLASTICS OPHTHALMIC FOCUS LENSES		
United States	**423.8**	**226.1**
California	184.0	110.4
Florida	72.9	(NA)
Minnesota	28.3	5.8
38516, CONTACT LENSES		
United States	**923.7**	**478.6**
Texas	29.0	(NA)
38517, OPHTHALMIC GOODS, EXCEPT FRONTS, TEMPLES, AND LENSES		
United States	**402.0**	**291.9**
California	18.0	(NA)
Florida	49.0	(NA)
Massachusetts	72.6	104.9
New York	81.2	39.0
Ohio	7.9	(NA)
Pennsylvania	25.9	22.5
38611, STILL PICTURE EQUIPMENT		
United States	**918.4**	**995.3**
California	13.5	17.7
Illinois	49.6	68.9
Massachusetts	215.7	(NA)
Minnesota	33.3	52.4
New Jersey	18.6	79.5
New York	411.1	(NA)
Pennsylvania	23.4	(NA)
38612, PHOTOCOPYING EQUIPMENT (INCLUDES DIFFUSION TRANSFER, DYE TRANSFER, ELECTROSTATIC, LIGHT AND HEAT SENSITIVE TYPES, ETC.)		
United States	**(D)**	**(D)**
38613, MOTION PICTURE EQUIPMENT		
United States	**212.6**	**188.6**
California	106.0	93.2
Illinois	7.4	(NA)
New York	7.4	19.4

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
38614, MICROFILMING, BLUEPRINTING, AND WHITEPRINTING EQUIPMENT			**38618, PREPARED PHOTOGRAPHIC CHEMICALS**		
United States	**270.9**	**382.9**	**United States**	**1 852.5**	**1 224.8**
California	69.0	45.2	California	81.4	92.1
			New Jersey	106.0	115.2
38615, PHOTOGRAPHIC SENSITIZED FILM AND PLATES, SILVER HALIDE TYPE (EXCEPT X-RAY)			**38619, X-RAY FILM AND PLATES**		
United States	**5 600.8**	**4 545.2**	**United States**	**(D)**	**(D)**
California	58.9	(NA)			
Minnesota	6.2	(NA)	**38731, WATCHES, WATCHCASES, MOVEMENTS OR MODULES, AND WATCH PARTS**		
New Jersey	264.8	(NA)			
38616, SENSITIZED PHOTOGRAPHIC PAPER AND CLOTH, SILVER HALIDE TYPE			**United States**	**107.6**	**429.1**
			New York	52.0	96.3
United States	**(D)**	**(D)**			
38617, SENSITIZED PHOTOGRAPHIC FILM, PLATES, PAPER, AND CLOTH, OTHER THAN SILVER HALIDE TYPE			**38732, CLOCKS, TIMING MECHANISMS, TIME SWITCHES, CLOCK MOVEMENTS, CLOCK CASES, AND PARTS**		
United States	**1 335.0**	**1 247.8**	**United States**	**456.4**	**597.9**
California	152.5	151.9	California	17.2	21.7
Illinois	100.9	70.4	Illinois	68.8	(NA)
Massachusetts	120.7	14.1	Michigan	114.3	115.5
New Jersey	120.3	163.6	New York	4.4	(NA)
New York	94.4	(NA)	Ohio	3.2	(NA)
Texas	56.5	(NA)	Virginia	38.2	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3841-	**Surgical and medical instruments**	**13 264.9**	**10 473.5**	**9 857.0**	**8 654.8**	**7 958.9**	**7 231.7**	**4 271.9**	**1 891.3**
38411	Surgical and medical instruments and apparatus	11 717.2	9 080.9	8 207.6	7 329.4	6 776.6	6 063.2	3 686.1	1 506.7
38412	Hospital furniture	415.8	330.0	445.5	407.2	424.8	416.4	270.0	206.7
38410	Surgical and medical instruments, n.s.k.	1 131.9	1 062.6	1 203.9	918.2	757.5	752.1	315.8	177.9
3842-	**Surgical appliances and supplies**	**12 479.2**	**11 514.4**	**10 354.8**	**9 474.2**	**8 895.1**	**7 981.3**	**5 018.8**	**2 413.0**
38421	Surgical, orthopedic, prosthetic, and therapeutic appliances and supplies	9 660.0	8 538.0	7 598.7	6 917.8	6 501.2	5 778.5	3 785.7	1 773.0
38423	Personal industrial safety devices	1 332.0	1 344.7	1 246.1	1 181.9	1 048.1	1 030.6	874.2	403.1
38424	Electronic hearing aids	372.5	423.5	320.5	303.8	324.9	266.4	109.2	58.1
38420	Surgical appliances and supplies, n.s.k.	1 114.7	1 208.3	1 189.5	1 070.6	1 021.0	905.8	249.5	178.8
3843-	**Dental equipment and supplies**	**1 616.5**	**1 397.2**	**1 264.8**	**1 177.0**	**1 227.3**	**1 241.3**	**957.0**	**660.7**
38431	Dental professional equipment and supplies	958.3	679.4	580.1	590.7	719.1	651.6	567.9	
38432	Dental laboratory equipment and supplies	415.4	383.9	369.1	346.8	334.1	382.3	268.8	660.7
38430	Dental equipment and supplies, n.s.k.	242.8	333.9	315.6	239.4	174.1	207.4	120.4	
3844-	**X-ray apparatus and tubes**	**2 473.8**	**2 201.4**	**1 854.0**	**1 690.4**	**1 648.8**	**1 556.8**	**1 355.9**	**664.6**
38440	Irradiation (ionizing radiation) equipment, including X-ray, beta ray, gamma ray, and nuclear	2 473.8	2 201.4	1 854.0	1 690.4	1 648.8	1 556.8	1 355.9	664.6
3845-	**Electromedical equipment**	**6 294.5**	**5 193.8**	**4 807.7**	**4 657.5**	**4 031.0**	**3 513.3**	**2 478.3**	**897.8**
38450	Electromedical equipment (diagnostic, therapeutic, patient monitoring, etc.), excluding ionizing radiation equipment	6 294.5	5 193.8	4 807.7	4 657.5	4 031.0	3 513.3	2 478.3	897.8
3851-	**Ophthalmic goods**	**2 405.7**	**1 930.3**	**1 907.4**	**1 715.3**	**1 619.9**	**1 445.1**	**1 081.1**	**844.3**
38511	Ophthalmic fronts and temples	167.6	163.1	145.4	120.6	92.7	93.5	153.7	154.2
38514	Glass ophthalmic focus lenses	158.0	161.4	170.1	171.4	172.8	133.7	155.1	132.6
38515	Plastics ophthalmic focus lenses	423.8	346.7	336.6	303.2	253.8	226.1	115.3	73.8
38516	Contact lenses	923.7	788.7	754.1	593.6	526.4	478.6	228.8	117.7
38517	Ophthalmic goods, except fronts, temples, and lenses	402.0	226.4	254.7	311.1	327.7	291.9	284.4	259.3
38510	Ophthalmic goods, n.s.k.	330.7	244.1	246.3	215.4	246.6	221.2	143.8	106.7
3861-	**Photographic equipment and supplies**	**18 909.1**	**18 517.5**	**17 853.8**	**17 893.9**	**16 629.5**	**15 324.3**	**14 990.4**	**9 217.5**
38611	Still picture equipment	918.4	906.3	867.0	992.6	1 173.8	995.3	1 473.3	925.8
38612	Photocopying equipment (includes diffusion transfer, dye transfer, electrostatic, light and heat sensitive types, etc.)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
38613	Motion picture equipment	212.6	217.5	208.8	169.0	204.8	188.6	203.2	178.2
38614	Microfilming, blueprinting, and whiteprinting equipment	270.9	232.4	328.0	334.4	418.9	382.9	466.0	240.2
38615	Photographic sensitized film and plates, silver halide type (except X-ray)	5 600.8	5 288.7	5 152.9	5 097.9	4 930.5	4 545.2	4 154.7	2 587.3

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3861-	**Photographic equipment and supplies**—Con.								
38616	Sensitized photographic paper and cloth, silver halide type	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
38617	Sensitized photographic film, plates, paper, and cloth, other than silver halide type	1 335.0	1 281.4	1 417.5	1 380.9	1 308.1	1 247.8	985.0	443.1
38618	Prepared photographic chemicals	1 852.5	1 635.2	1 491.7	1 355.0	1 397.5	1 224.8	966.8	634.3
38619	X-ray film and plates	(D)	(D)	(D)	(D)	(D)	(D)	(D)	515.3
38610	Photographic equipment and supplies, n.s.k.	807.2	938.8	1 148.6	961.8	798.4	757.0	(D)	(D)
3873-	**Watches, clocks, watchcases, and parts**	**658.2**	**962.3**	**1 061.1**	**1 110.3**	**1 227.6**	**1 151.9**	**1 121.8**	**1 332.0**
38731	Watches, watchcases, movements or modules, and watch parts	107.6	360.2	406.0	435.4	492.3	429.1	586.8	839.2
38732	Clocks, timing mechanisms, time switches, clock movements, clock cases, and parts	456.4	564.9	578.4	576.9	617.3	597.9	475.1	433.0
38730	Watches, clocks, watchcases, and parts, n.s.k.	94.1	37.2	76.7	98.0	118.0	124.9	60.0	59.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3841, SURGICAL AND MEDICAL INSTRUMENTS		
	Materials, ingredients, containers, and supplies	**3 558.8**	**2 225.8**
384001	Surgical and orthopedic supplies, including sutures and hypodermic needles for further manufacture or assembly	474.9	172.9
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	178.8	190.1
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	64.9	42.8
340098	Other fabricated metal products	136.3	(1)
	Forgings:		
346200	Iron and steel	16.6	26.1
346300	Nonferrous	2.1	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	18.4	13.0
336010	Nonferrous	7.3	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	48.8	67.4
336002	Nonferrous shapes and forms	23.1	28.2
229710	Nonwoven fabrics	5.5	7.1
220170	Broadwoven fabrics	13.3	(2)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	140.6	199.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	146.5	245.5
308005	Fabricated plastics products	262.0	(1)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	56.3	81.2
289100	Adhesives and sealants	5.6	8.6
320103	Glass and glass products, except photographic and projection lenses and prisms	17.6	39.2
265001	Paperboard containers, boxes, and corrugated paperboard	79.4	79.0
260070	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard	48.3	31.1
970099	All other materials and components, parts, containers, and supplies	845.3	[2]586.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	967.2	407.3
	INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES		
	Materials, ingredients, containers, and supplies	**4 150.9**	**[r]2 717.7**
384001	Surgical and orthopedic supplies, including sutures and hypodermic needles for further manufacture or assembly	319.3	159.8
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	123.8	86.7
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	35.0	12.4
340098	Other fabricated metal products	120.2	(1)
	Forgings:		
346200	Iron and steel	40.9	15.4
346300	Nonferrous	12.6	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	91.2	36.7
336010	Nonferrous	25.2	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	101.2	64.6
336002	Nonferrous shapes and forms	35.0	40.1
229710	Nonwoven fabrics	466.0	262.4
220170	Broadwoven fabrics	252.3	167.1
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	110.4	95.0
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	154.6	121.7
308005	Fabricated plastics products	149.8	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3842, SURGICAL APPLIANCES AND SUPPLIES—Con.		
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	49.6	31.5
289100	Adhesives and sealants	41.1	49.2
320103	Glass and glass products, except photographic and projection lenses and prisms	6.1	5.7
265001	Paperboard containers, boxes, and corrugated paperboard	137.1	108.2
260070	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard	81.7	42.0
970099	All other materials and components, parts, containers, and supplies	1 065.6	744.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	732.1	r674.9
	INDUSTRY 3843, DENTAL EQUIPMENT AND SUPPLIES		
	Materials, ingredients, containers, and supplies	**572.9**	**r413.8**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	7.3	5.8
340098	Other fabricated metal products	54.2	(1)
346000	Forgings	1.2	(1)
330091	Castings (rough and semifinished)	5.6	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	12.7	10.7
336002	Nonferrous, except precious metals	9.3	8.7
333903	Precious metals (gold, platinum, etc.), all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	136.5	138.2
280003	Chemicals, all types, except resins	31.6	(1)
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	8.8	11.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	11.0	2.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	10.9	12.2
308006	Fabricated plastics products, except gaskets	21.2	(1)
320103	Glass and glass products, except photographic and projection lenses and prisms	15.1	4.8
260070	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard	5.8	3.5
265001	Paperboard boxes, containers, and corrugated paperboard	14.2	7.5
970099	All other materials and components, parts, containers, and supplies	112.6	111.2
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	114.9	r96.9
	INDUSTRY 3844, X-RAY APPARATUS AND TUBES		
	Materials, ingredients, containers, and supplies	**1 079.9**	**639.8**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	11.1	(2)
346901	Metal stampings	(D)	25.2
340093	Other fabricated metal products	99.1	(1)
346000	Forgings	(D)	(1)
330091	Castings (rough and semifinished)	1.0	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331031	Stainless	4.2	(1)
331050	Other	5.2	(1)
336002	Nonferrous shapes and forms	8.9	(1)
357005	Purchased electronic computing and peripheral equipment for incorporation into complete finished products	(D)	(1)
	Electronic components and accessories:		
367103	Transmittal, industrial, and special-purpose electron tubes, except x-ray	(D)	(2)
367408	Semiconductors, including microprocessors	8.1	5.1
367501	Capacitors for electronic circuitry	3.8	.7
367601	Resistors for electronic circuitry	3.7	.7
367800	Connectors for electronic circuitry	3.2	3.3
367900	Other electronic components and accessories	169.3	(2)
335791	Insulated wire and cable, except magnet wire	14.6	(2)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes, except resins	5.7	20.4
265001	Paperboard boxes, containers, and corrugated paperboard	1.6	(1)
970099	All other materials and components, parts, containers, and supplies	350.6	2505.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	248.7	79.3
	INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT		
	Materials, ingredients, containers, and supplies	**2 109.6**	**1 070.3**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	29.9	12.7
346901	Metal stampings	25.1	14.8
340093	Other fabricated metal products	118.4	(1)
346000	Forgings	(4)	(1)
330091	Castings (rough and semifinished)	6.5	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331031	Stainless	12.0	(1)
331050	Other	18.2	(1)
336002	Nonferrous shapes and forms	4.2	(1)
357005	Purchased electronic computing and peripheral equipment for incorporation into complete finished products	283.1	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3845, ELECTROMEDICAL EQUIPMENT—Con.		
	Electronic components and accessories:		
367103	Transmittal, industrial, and special-purpose electron tubes, except x-ray	8.4	6.2
367408	Semiconductors, including microprocessors	132.2	47.5
367501	Capacitors for electronic circuitry	18.4	16.1
367601	Resistors for electronic circuitry	15.5	10.8
367800	Connectors for electronic circuitry	20.1	19.7
367900	Other electronic components and accessories	191.5	82.8
335791	Insulated wire and cable, except magnet wire	68.8	17.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes, except resins	90.3	31.8
265001	Paperboard boxes, containers, and corrugated paperboard	33.9	(1)
970099	All other materials and components, parts, containers, and supplies	[4]593.9	354.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	439.2	456.2
	INDUSTRY 3851, OPHTHALMIC GOODS		
	Materials, ingredients, containers, and supplies	**550.1**	**418.9**
322941	Lens blanks, optical and ophthalmic	144.7	89.1
382710	Lenses and prisms for optical instruments, and sighting and fire control equipment	11.7	4.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	55.0	40.6
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	48.0	18.0
265001	Paperboard containers, boxes, and corrugated paperboard	12.5	6.9
970099	All other materials and components, parts, containers, and supplies	153.7	184.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	124.4	75.5
	INDUSTRY 3861, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES		
	Materials, ingredients, containers, and supplies	**6 119.4**	**5 029.4**
	Fabricated metal products, except forgings:		
346901	Metal stampings	166.1	65.5
340085	All other fabricated metal products	62.9	(1)
346000	Forgings	–	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	6.2	(1)
336005	Aluminum and aluminum-base alloy	87.0	36.1
336003	All other nonferrous castings	1.5	(1)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
331002	Steel	29.0	30.7
336002	Nonferrous	12.7	64.6
362121	Fractional horsepower electric motors (less than 1 hp)	107.6	52.9
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components	415.1	122.0
260004	Paper and paperboard products (except paperboard boxes, containers, corrugated paperboard, and photographic base papers)	195.6	178.3
262175	Photographic base papers	308.2	132.4
265001	Paperboard boxes, containers, and corrugated paperboard	187.8	146.5
281903	Inorganic chemicals, n.e.c., except silver nitrate and prepared photographic chemicals	126.9	92.8
281997	Silver nitrate	265.5	269.6
286902	Synthetic organic chemicals, except prepared photographic chemicals	141.3	60.0
386180	Prepared photographic chemicals	1 253.0	134.0
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	220.2	83.2
308112	Unsupported plastics film and sheet for photographic, mimeographic, X-ray, etc.	171.9	197.7
308006	Fabricated plastics products, except gaskets	176.6	(1)
382730	Photographic and projection lenses and prisms	48.0	154.0
386101	Light sensitive films and papers	281.4	113.0
970099	All other materials and components, parts, containers, and supplies	1 155.2	2 538.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	699.6	557.2
	INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS		
	Materials, ingredients, containers, and supplies	**310.0**	**549.2**
	Watch movements or modules:		
	Domestic (made in the United States):		
387315	Without balance wheel and hairspring	16.6	21.9
387314	With balance wheel and hairspring		
	Imported (not made in the United States):		
387375	With balance wheel and hairspring	25.4	143.4
387317	Without balance wheel and hairspring		
	Watchcases:		
	Domestic (made in the United States):		
387310	Precious metal or precious metal clad	4.6	25.9
387374	Other		
	Imported (not made in the United States):		
387312	Precious metal or precious metal clad	6.2	17.1
387313	Other		
	Watch parts (including dials, hands, etc.; except movements and face crystals):		
387318	Domestic (made in the United States)	19.3	22.2
387319	Imported (not made in the United States)	2.6	11.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3873, WATCHES, CLOCKS, WATCHCASES, AND PARTS—Con.		
190092	Watchbands	3.2	(1)
190093	Face crystals	.6	(1)
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	11.5	(2)
369201	Batteries, primary	.8	2.6
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., except sheets, rods, tubes and shapes	15.2	8.5
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	2.9	4.0
340098	Other fabricated metal products	3.9	(1)
346000	Forgings	(5)	(1)
330091	Castings (rough and semifinished)	(5)	(1)
330090	Metal shapes and forms, except castings, forgings, and fabricated metal products	(5)	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	15.2	8.7
970099	All other materials and components, parts, containers, and supplies	[5]108.5	[2]203.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[3]	73.6	79.9

[1]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the material was consumed.
[2]For 1987, material was combined with 970099 to avoid disclosing data for individual companies.
[3]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[4]For 1992, materials are combined to avoid disclosing data for individual companies.
[5]For 1992, materials are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
38274	38272
38274	38273
38274 10	38272 00
38274 20	38273 00
38295 00	38295 10
38295 00	38295 20
38411 23	38411 22
38411 23	38411 24
38411 84	38421 03
38411 96	38411 76
38411 96	38411 81
38411 96	38411 97
38423 73	38423 23
38423 73	38423 24
38423 73	38423 71
38431 04	38431 12
38431 04	38431 13
38432 09	38432 04
38432 09	38432 05
38432 19	38432 06
38432 19	38432 07
38432 19	38432 08
38511 17	38511 12
38511 17	38511 14
38511 17	38511 16
38514 45	38514 41
38514 45	38514 43
38517 09	38517 01
38517 09	38517 05
38517 09	38517 07
38517 09	38517 10
38517 19	38517 01
38517 19	38517 05
38517 19	38517 07
38517 19	38517 11
38611 67	38611 66
38611 67	38611 69
38611 81	38611 75
38611 81	38611 79
38611 81	38611 82
38611 97	38611 63
38611 97	38611 64
38611 97	38611 91
38611 97	38611 98
38612 00	38612 22
38612 00	38612 24
38612 00	38612 25
38612 00	38612 27
38613 11	38613 16
38613 11	38613 17
38613 11	38613 74
38613 21	38613 81
38613 21	38613 85
38613 21	38613 89
38615 06	38615 05
38615 08	38615 05
38615 19	38615 01
38615 19	38615 04
38615 19	38615 05
38617 29	38617 15
38617 29	38617 24
38617 41	38617 49
38617 43	38617 49
38617 45	38617 49
38617 47	38617 49
38617 51	38617 27
38617 51	38617 49
38618 14	38618 13
38618 15	38618 13
38618 19	38618 13
38731 04	38731 01
38731 04	38731 02
38731 04	38731 03
38731 14	38731 05
38731 14	38731 06
38731 14	38731 07
38731 14	38731 11
38731 14	38731 13
38732 59	38732 52
38732 59	38732 56
38732 69	38732 66
38732 69	38732 68

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
38272	38274
38272 00	38274 10
38273	38274
38273 00	38274 20
38295 10	38295 00
38295 20	38295 00
38411 22	38411 23
38411 24	38411 23
38411 76	38411 96
38411 81	38411 96
38411 97	38411 96
38421 03	38411 84
38423 23	38423 73
38423 24	38423 73
38423 71	38423 73
38431 12	38431 04
38431 13	38431 04
38432 04	38432 09
38432 05	38432 09
38432 06	38432 19
38432 07	38432 19
38432 08	38432 19
38511 12	38511 17
38511 14	38511 17
38511 16	38511 17
38514 41	38514 45
38514 43	38514 45
38517 01	38517 09
38517 01	38517 19
38517 05	38517 09
38517 05	38517 19
38517 07	38517 09
38517 07	38517 19
38517 10	38517 09
38517 11	38517 19
38611 63	38611 97
38611 64	38611 97
38611 66	38611 67
38611 69	38611 67
38611 75	38611 81
38611 79	38611 81
38611 82	38611 81
38611 63	38611 97
38611 64	38611 97
38611 91	38611 97
38611 98	38611 97
38612 22	38612 00
38612 24	38612 00
38612 25	38612 00
38612 27	38612 00
38613 16	38613 11
38613 17	38613 11
38613 74	38613 11
38613 81	38613 21
38613 85	38613 21
38613 89	38613 21
38615 01	38615 19
38615 04	38615 19
38615 05	38615 06
38615 05	38615 08
38615 05	38615 19
38617 15	38617 29
38617 24	38617 29
38617 27	38617 51
38617 49	38617 41
38617 49	38617 43
38617 49	38617 45
38617 49	38617 47
38617 49	38617 51
38618 13	38618 14
38618 13	38618 15
38618 13	38618 19
38731 01	38731 04
38731 02	38731 04
38731 03	38731 04
38731 05	38731 14
38731 06	38731 14
38731 07	38731 14
38731 11	38731 14
38731 13	38731 14
38732 52	38732 59
38732 56	38732 59
38732 66	38732 69
38732 68	38732 69

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:57 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08570033.DAT;1 1/ 6/ 95 08:57:08 UTF:TIPS93-08570033.DAT;1 1/ 6/ 95 08:57:08 META:TIPS96-08570033.DAT;1 1/ 6/ 95 08:57:46

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3812100	MA38B, Selected Instruments and Related Products	3812100	MA38B, Selected Instruments and Related Products
3812200	MA38B, Selected Instruments and Related Products	3812200	MA38B, Selected Instruments and Related Products
3821010	MA38B, Selected Instruments and Related Products	3821010	MA38B, Selected Instruments and Related Products
3821020	MA38B, Selected Instruments and Related Products	3821020	MA38B, Selected Instruments and Related Products
3822000	MA38B, Selected Instruments and Related Products	3822000	MA38B, Selected Instruments and Related Products
3823000	MA38B, Selected Instruments and Related Products	3823000	MA38B, Selected Instruments and Related Products
3824200	MA38B, Selected Instruments and Related Products	3824200	MA38B, Selected Instruments and Related Products
3824300	MA38B, Selected Instruments and Related Products	3824300	MA38B, Selected Instruments and Related Products
3824400	MA38B, Selected Instruments and Related Products	3824400	MA38B, Selected Instruments and Related Products
3825100	MA38B, Selected Instruments and Related Products	3825100	MA38B, Selected Instruments and Related Products
3825200	MA38B, Selected Instruments and Related Products	3825200	MA38B, Selected Instruments and Related Products
3825300	MA38B, Selected Instruments and Related Products	3825300	MA38B, Selected Instruments and Related Products
3826000	MA38B, Selected Instruments and Related Products	3826000	MA38B, Selected Instruments and Related Products
3827100	MA38B, Selected Instruments and Related Products	3827100	MA38B, Selected Instruments and Related Products
3827410	MA38B, Selected Instruments and Related Products	3827410	MA38B, Selected Instruments and Related Products
3827420	MA38B, Selected Instruments and Related Products	3827420	MA38B, Selected Instruments and Related Products
3829100	MA38B, Selected Instruments and Related Products	3829100	MA38B, Selected Instruments and Related Products
3829200	MA38B, Selected Instruments and Related Products	3829200	MA38B, Selected Instruments and Related Products
3829400	MA38B, Selected Instruments and Related Products	3829400	MA38B, Selected Instruments and Related Products
3829500	MA38B, Selected Instruments and Related Products	3829500	MA38B, Selected Instruments and Related Products
3829600	MA38B, Selected Instruments and Related Products	3829600	MA38B, Selected Instruments and Related Products
3844000	MA36R, Electromedical and Irradiation Equipment	3844000	MA36R, Electromedical and Irradiation Equipment
3845000	MA36R, Electromedical and Irradiation Equipment	3845000	MA36R, Electromedical and Irradiation Equipment

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:57 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08570033.DAT;1 1/ 6/ 95 08:57:08 UTF:TIPS93-08570033.DAT;1 1/ 6/ 95 08:57:08 META:TIPS96-08570033.DAT;1 1/ 6/ 95 08:57:46

Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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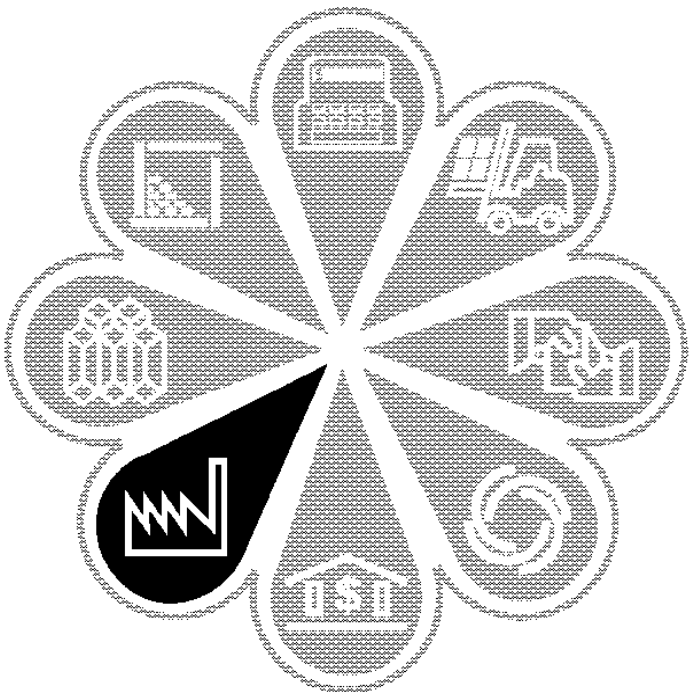
1992 Census of Manufactures

MC92-I-39A

INDUSTRY SERIES

Jewelry, Silverware, and Plated Ware

Industries 3911, 3914, and 3915



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-39A

INDUSTRY SERIES

Jewelry, Silverware, and Plated Ware

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3911	Jewelry, Precious Metal
3914	Silverware and Plated Ware
3915	Jewelers' Materials and Lapidary Work

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]*.* The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3911, JEWELRY, PRECIOUS METAL

This industry is made up of establishments primarily engaged in manufacturing jewelry and other articles worn on or carried about the person, made of precious metals (including base metals clad or rolled with precious metals), with or without stones. Products of this industry include cigarette cases and lighters, vanity cases, and compacts; trimmings for umbrellas and canes; and jewel settings and mountings. Establishments primarily engaged in manufacturing costume jewelry from nonprecious metals and other materials are classified in industry 3961.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3911, Jewelry, Precious Metal, had employment of 32.3 thousand. The employment figure was 9 percent below the 35.5 thousand reported in 1987.

The leading States in employment in 1992 were New York, Rhode Island, California, and Massachusetts, accounting for approximately 56 percent of the industry's employment. This represents a shift from 1987 when New York, Rhode Island, California, and New Jersey were the leading States.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3911 shipped $3.6 billion of jewelry, precious metal, products considered primary to the industry, $242.1 million of secondary products, and had $277.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3911, no matter in what industry they were produced, appear in table 6a and aggregate to $3.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the jewelry, precious metal, industry amounted to $2.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 22 percent of the total value of shipments.

INDUSTRY 3914, SILVERWARE AND PLATED WARE

This industry is made up of establishments primarily engaged in manufacturing flatware (including knives, forks, and spoons), hollowware, ecclesiastical ware, trophies, trays, and related products made of sterling silver; of metal plated with silver, gold, or other metal; of nickel silver; of pewter; or of stainless steel. Also included are establishments primarily engaged in manufacturing table flatware with blades and handles of metal. Establishments primarily engaged in manufacturing other metal cutlery are classified in industry 3421, and those manufacturing metal trophies, trays and toilet ware, other than silver, nickel silver, pewter, stainless steel, and plated are classified in industry 3499.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3914, Silverware and Plated Ware, had employment of 6.7 thousand. The employment figure was 3 percent below the 6.9 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Massachusetts, New York, and Rhode Island. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $684.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3914 shipped $530.2 million of silverware and plated ware products considered primary to the industry.

Establishments in this industry accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 99 percent.

The products primary to industry 3914, no matter in what industry they were produced, appear in table 6a and aggregate to $541.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the silverware and plated ware industry amounted to $279.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK

This industry is made up of establishments primarily engaged in manufacturing unassembled jewelry parts and stock shop products, such as sheet, wire, and tubing; and establishments of lapidaries primarily engaged in cutting, slabbing, tumbling, carving, engraving, polishing, or faceting stones from natural or manmade precious or semiprecious gem raw materials, either for sale or on a contract basis for the trade; in recutting, repolishing, and setting gem stones; or in cutting, drilling, and otherwise preparing jewels for instruments, dies, watches, chronometers, and other industrial uses. This industry includes the drilling, sawing, and peeling of real or cultured pearls. Establishments primarily engaged in manufacturing synthetic stones for gem stones and industrial use are classified in industry 3299, and those manufacturing artificial pearls are classified in industry 3961.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3915, Jewelers' Materials and Lapidary Work, had employment of 6.4 thousand. The employment figure was 10 percent below the 7.1 thousand reported in 1987.

The leading States in employment in 1992 were Massachusetts, New Jersey, New York, and Rhode Island. This represents a shift from 1987 when Rhode Island, New York, Massachusetts, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $877.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3915 shipped $769.0 million of jewelers' materials and lapidary work products considered primary to the industry, $63.6 million of secondary products, and had $45.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio also was 92 percent.

Establishments in this industry also accounted for 86 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3915, no matter in what industry they were produced, appear in table 6a and aggregate to $889.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the jewelers' materials and lapidary work industry amounted to $530.8 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3911, JEWELRY, PRECIOUS METAL															
1992 Census	2 180	2 201	322	32.3	753.5	22.3	44.3	417.0	1 757.0	2 378.2	4 163.8	36.5	938.9	94	98
1991 ASM	(NA)	(NA)	(NA)	32.6	695.0	22.2	43.0	376.6	1 683.6	2 078.9	3 733.4	40.5	1 000.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	35.6	749.2	24.6	46.4	408.1	1 869.4	2 329.2	4 180.1	43.2	978.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	35.5	732.8	24.1	47.4	397.6	1 860.4	2 407.3	4 227.3	29.8	947.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	37.1	727.7	25.6	51.4	387.3	1 870.4	2 375.7	4 273.3	26.4	1 016.7	(NA)	(NA)
1987 Census	2 294	2 324	369	35.5	682.0	24.8	48.8	373.4	1 792.3	2 331.1	4 078.1	40.3	1 024.8	97	98
1986 ASM	(NA)	(NA)	(NA)	32.6	564.9	22.2	41.7	316.5	1 415.3	1 886.4	3 302.5	27.3	860.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	33.7	579.7	23.0	40.0	319.9	1 318.8	1 847.4	3 133.4	26.1	828.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	35.3	576.6	24.5	43.1	326.1	1 287.8	1 893.6	3 179.8	29.1	815.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	33.9	534.2	23.8	42.7	297.9	1 227.8	1 867.9	3 075.0	22.2	809.2	(NA)	(NA)
1982 Census	2 159	2 193	367	35.3	535.8	23.7	43.6	302.6	1 278.8	1 779.3	3 039.1	33.4	824.2	94	97
1981 ASM	(NA)	(NA)	(NA)	36.7	506.8	25.4	46.0	288.7	1 239.3	1 737.9	2 959.7	30.5	666.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	36.9	469.4	25.3	45.8	266.2	1 160.8	1 693.1	2 838.6	34.0	646.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	40.8	478.2	28.6	51.7	266.0	1 193.8	1 539.5	2 699.4	29.0	601.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	41.8	468.8	30.6	55.8	270.3	1 006.7	1 405.9	2 344.7	24.4	573.9	(NA)	(NA)
1977 Census	2 165	2 206	405	42.1	432.0	29.2	53.3	241.4	979.8	1 154.9	2 107.0	25.6	489.8	92	97
INDUSTRY 3914, SILVERWARE AND PLATED WARE															
1992 Census	209	213	41	6.7	156.5	4.9	7.4	99.8	405.0	279.1	684.1	16.9	191.5	(D)	98
1991 ASM	(NA)	(NA)	(NA)	7.0	169.5	5.3	8.7	109.3	501.9	300.8	774.3	22.8	202.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.3	163.0	5.4	8.7	101.8	462.3	282.8	751.9	14.8	200.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.1	167.6	5.9	9.6	106.8	470.6	292.7	749.5	15.6	211.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.0	137.0	5.0	9.2	87.8	322.4	264.5	575.0	8.9	219.9	(NA)	(NA)
1987 Census	205	209	52	6.9	132.7	4.9	8.9	82.0	276.1	254.5	528.7	9.9	201.4	97	99
1986 ASM	(NA)	(NA)	(NA)	5.7	120.7	3.8	7.2	71.1	252.8	227.5	473.7	10.2	203.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.6	126.8	4.3	8.6	73.9	273.4	268.6	541.4	10.9	222.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.7	125.7	4.7	8.8	75.5	242.3	264.4	547.0	9.4	211.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.4	137.4	5.9	11.1	87.7	290.7	232.0	510.8	9.6	208.4	(NA)	(NA)
1982 Census	199	208	55	9.1	148.3	6.5	12.4	91.6	311.9	262.5	583.9	11.8	194.0	96	98
1981 ASM	(NA)	(NA)	(NA)	10.0	152.6	7.7	14.8	103.9	320.8	297.5	618.2	17.4	178.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	10.0	144.7	7.6	14.7	97.9	321.0	293.3	597.6	11.6	178.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	10.3	130.8	8.0	15.1	88.8	311.1	269.1	581.1	10.4	159.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.2	127.2	7.8	15.1	86.3	282.7	225.4	497.5	10.8	150.4	(NA)	(NA)
1977 Census	247	258	67	10.8	119.8	8.3	15.7	80.2	255.1	205.4	457.0	8.0	142.8	93	98
INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK															
1992 Census	419	421	60	6.4	156.0	4.2	8.4	81.5	335.3	530.8	877.8	12.9	208.2	92	86
1991 ASM	(NA)	(NA)	(NA)	6.0	117.9	4.4	8.5	72.9	272.8	498.8	767.2	7.2	205.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	6.2	128.0	4.5	9.1	80.9	259.0	564.1	822.2	7.1	228.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	6.6	126.6	4.9	9.8	78.6	292.4	646.2	935.0	11.5	260.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.2	132.4	5.0	10.2	76.1	270.3	651.8	920.5	6.0	276.1	(NA)	(NA)
1987 Census	437	442	73	7.1	126.3	5.3	10.7	77.0	303.1	649.5	947.3	9.2	280.1	92	93
1986 ASM	(NA)	(NA)	(NA)	7.4	126.5	5.7	11.4	83.1	281.9	565.6	846.2	5.8	222.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.8	106.2	5.2	10.3	67.6	284.4	485.4	728.8	28.5	204.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.2	102.0	4.7	9.2	62.1	234.8	456.4	685.5	8.0	171.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.4	97.1	4.9	9.5	60.2	225.3	515.7	742.5	5.2	193.3	(NA)	(NA)
1982 Census	477	481	82	5.8	86.1	4.5	8.8	53.6	193.7	536.8	755.5	7.1	188.4	96	86
1981 ASM	(NA)	(NA)	(NA)	7.2	101.5	5.4	12.3	63.1	272.2	775.5	1 039.3	7.9	185.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.3	106.5	6.2	13.1	64.1	261.4	820.9	1 068.5	9.5	196.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.0	91.0	6.4	12.8	58.0	265.0	679.3	915.4	12.6	171.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.2	98.8	6.4	12.4	55.8	195.8	583.0	766.5	6.1	148.1	(NA)	(NA)
1977 Census	650	654	92	8.3	85.9	6.8	12.2	51.3	213.6	491.1	685.2	5.9	119.9	96	89

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3911, JEWELRY, PRECIOUS METAL								
1992 Census	23 328	69	1 987	9.41	57	75	54 396	43	39.66
1991 ASM	21 319	68	1 937	8.76	56	74	51 644	41	39.15
1990 ASM	21 045	69	1 886	8.80	56	74	52 511	40	40.29
1989 ASM	20 642	68	1 967	8.39	57	74	52 406	39	39.25
1988 ASM	19 615	69	2 008	7.54	56	73	50 415	39	36.39
1987 Census	19 211	70	1 968	7.65	57	74	50 487	38	36.73
1986 ASM	17 328	68	1 878	7.59	57	74	43 414	40	33.94
1985 ASM	17 202	68	1 739	8.00	59	77	39 134	44	32.97
1984 ASM	16 334	69	1 759	7.57	60	78	36 482	45	29.88
1983 ASM	15 758	70	1 794	6.98	61	78	36 218	44	28.75
1982 Census	15 178	67	1 840	6.94	59	76	36 227	42	29.33
1981 ASM	13 809	69	1 811	6.28	59	76	33 768	41	26.94
1980 ASM	12 721	69	1 810	5.81	60	76	31 458	40	25.34
1979 ASM	11 721	70	1 808	5.15	57	75	29 260	40	23.09
1978 ASM	11 215	73	1 824	4.84	60	80	24 084	47	18.04
1977 Census	10 261	69	1 825	4.53	55	75	23 273	44	18.38
	INDUSTRY 3914, SILVERWARE AND PLATED WARE								
1992 Census	23 358	73	1 510	13.49	41	64	60 448	39	54.73
1991 ASM	24 214	76	1 642	12.56	39	61	71 700	34	57.69
1990 ASM	22 329	74	1 611	11.70	38	59	63 329	35	53.14
1989 ASM	20 691	73	1 627	11.13	39	61	58 099	36	49.02
1988 ASM	19 571	71	1 840	9.54	46	70	46 057	42	35.04
1987 Census	19 232	71	1 816	9.21	48	73	40 014	48	31.02
1986 ASM	21 175	67	1 895	9.88	48	74	44 351	48	35.11
1985 ASM	19 212	65	2 000	8.59	50	73	41 424	46	31.79
1984 ASM	18 761	70	1 872	8.58	48	71	36 164	52	27.53
1983 ASM	16 357	70	1 881	7.90	45	72	34 607	47	26.19
1982 Census	16 297	71	1 908	7.39	45	70	34 275	48	25.15
1981 ASM	15 260	77	1 922	7.02	48	73	32 080	48	21.68
1980 ASM	14 470	76	1 934	6.66	49	73	32 100	45	21.84
1979 ASM	12 699	78	1 888	5.88	46	69	30 204	42	20.60
1978 ASM	12 471	76	1 936	5.72	45	71	27 716	45	18.72
1977 Census	11 093	77	1 892	5.11	45	71	23 620	47	16.25
	INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK								
1992 Census	24 375	66	2 000	9.70	60	78	52 391	47	39.92
1991 ASM	19 650	73	1 932	8.58	65	80	45 467	43	32.09
1990 ASM	20 645	73	2 022	8.89	69	84	41 774	49	28.46
1989 ASM	19 182	74	2 000	8.02	69	83	44 303	43	29.84
1988 ASM	18 389	69	2 040	7.46	71	85	37 542	49	26.50
1987 Census	17 789	75	2 019	7.20	69	82	42 690	42	28.33
1986 ASM	17 095	77	2 000	7.29	67	82	38 095	45	24.73
1985 ASM	15 618	76	1 981	6.56	67	81	41 824	37	27.61
1984 ASM	16 452	76	1 957	6.75	67	81	37 871	43	25.52
1983 ASM	15 172	77	1 939	6.34	69	83	35 203	43	23.72
1982 Census	14 845	78	1 956	6.09	71	82	33 397	44	22.01
1981 ASM	14 097	75	2 278	5.13	75	84	37 806	37	22.13
1980 ASM	12 831	75	2 113	4.89	77	87	31 494	41	19.95
1979 ASM	11 375	80	2 000	4.53	74	84	33 125	34	20.70
1978 ASM	12 049	78	1 937	4.50	76	89	23 878	50	15.79
1977 Census	10 349	82	1 794	4.20	72	84	25 735	40	17.51

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3911, JEWELRY, PRECIOUS METAL														
United States	**E2**	**2 201**	**322**	**32.3**	**753.5**	**22.3**	**44.3**	**417.0**	**1 757.0**	**2 378.2**	**4 163.8**	**36.5**	**35.5**	**1 792.3**
Arizona	E5	36	–	.1	2.5	.1	.2	1.5	7.2	6.1	13.0	(D)	(NA)	(NA)
California	E2	312	35	3.2	71.4	2.3	4.7	40.5	202.6	241.4	446.1	2.6	(NA)	(D)
Colorado	E5	34	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Connecticut	E6	14	3	.2	3.3	.1	.2	1.9	9.9	10.1	20.7	.1	.2	13.2
Florida	E1	121	9	1.2	26.5	.8	1.6	15.4	49.7	95.3	143.9	1.0	1.6	72.8
Hawaii	E2	36	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	50	8	.8	20.8	.6	1.1	11.0	45.2	51.9	99.4	1.0	F	(D)
Indiana	–	19	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E2	14	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E3	56	16	2.1	56.4	1.5	3.0	29.7	162.7	120.2	282.9	(D)	2.2	140.7
Michigan	E1	26	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	15.0
Minnesota	–	19	3	.4	7.5	.3	.6	4.7	12.0	29.6	46.5	.3	F	(D)
New Hampshire	E1	10	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	61	15	1.6	39.6	1.2	2.4	23.6	96.7	157.5	252.2	2.3	2.5	101.7
New Mexico	E1	85	17	1.4	27.0	1.1	2.1	16.0	57.6	47.0	103.0	.8	.6	16.3
New York	E1	632	109	9.5	248.6	6.1	12.3	131.5	529.6	1 021.1	1 577.4	14.6	11.5	682.5
Ohio	–	30	4	.3	6.4	.2	.3	3.1	11.6	18.9	32.7	.1	E	(D)
Oregon	E3	23	2	.2	3.0	.1	.2	1.7	8.1	5.5	13.6	.1	(NA)	(NA)
Pennsylvania	E1	46	4	.5	15.0	.4	.7	7.1	35.1	50.4	86.4	.6	.4	18.0
Rhode Island	E3	186	43	3.3	74.4	2.4	4.7	43.2	163.0	171.0	333.9	3.1	4.0	142.1
South Dakota	–	14	9	1.2	22.9	1.0	1.9	15.2	56.8	32.7	90.9	1.6	.7	29.1
Texas	E3	109	17	2.1	43.2	1.3	2.5	20.6	125.5	100.3	223.6	3.4	G	(D)
Utah	–	16	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Virginia	–	18	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Washington	E3	45	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	10.3
INDUSTRY 3914, SILVERWARE AND PLATED WARE														
United States	**–**	**213**	**41**	**6.7**	**156.5**	**4.9**	**7.4**	**99.8**	**405.0**	**279.1**	**684.1**	**16.9**	**6.9**	**276.1**
California	E1	23	3	.3	6.8	.2	.3	3.1	11.9	9.3	21.3	(D)	E	(D)
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Florida	E1	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	3.9
Illinois	E7	12	4	.4	7.4	.3	.4	4.3	14.6	9.9	24.5	(D)	E	(D)
Maryland	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	21	7	1.3	39.1	.7	1.2	15.0	81.7	94.8	169.9	(D)	G	(D)
New Jersey	E3	9	3	.2	3.9	.1	.2	2.1	7.5	8.5	16.1	.1	.2	7.5
New York	–	28	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Oklahoma	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	E1	10	3	.2	3.7	.1	.2	2.1	7.2	4.2	11.3	(D)	(NA)	(NA)
Rhode Island	–	6	3	.4	10.0	.3	.7	6.3	25.4	10.9	37.3	.4	F	(D)
INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK														
United States	**E1**	**421**	**60**	**6.4**	**156.0**	**4.2**	**8.4**	**81.5**	**335.3**	**530.8**	**877.8**	**12.9**	**7.1**	**303.1**
California	E2	28	2	.2	3.9	.1	.3	2.1	7.6	3.6	11.2	(D)	(NA)	(NA)
Florida	E7	13	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E4	20	6	1.0	23.6	.6	1.3	11.1	52.7	74.5	127.1	2.4	F	(D)
New Jersey	E1	13	5	.3	6.4	.2	.5	4.0	14.2	31.0	47.7	.5	.3	16.7
New York	–	133	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Rhode Island	E1	137	21	2.5	58.0	1.9	3.6	36.4	109.2	99.8	211.1	4.6	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Jewelry, precious metal (SIC 3911)	Silverware and plated ware (SIC 3914)	Jewelers' materials and lapidary work (SIC 3915)	Item	Jewelry, precious metal (SIC 3911)	Silverware and plated ware (SIC 3914)	Jewelers' materials and lapidary work (SIC 3915)
Companies ---- number	2 180	209	419	Cost of materials[1] ---- mil dol	2 378.2	279.1	530.8
All establishments ---- number	2 201	213	421	Materials, parts, containers, etc., consumed[2] ---- mil dol	2 096.0	195.1	474.3
With 1 to 19 employees ---- number	1 879	172	361	Resales ---- mil dol	171.3	70.4	36.5
With 20 to 99 employees ---- number	265	32	49	Fuels ---- mil dol	3.9	2.4	1.9
With 100 employees or more ---- number	57	9	11	Purchased electricity ---- mil dol	13.8	4.3	4.6
Employment and labor costs:				Contract work ---- mil dol	93.2	6.9	13.5
Employees ---- 1,000	32.3	6.7	6.4	Quantity of electric energy used for heat and power:			
Compensation, total ---- mil dol	910.5	194.9	189.3	Purchased ---- mil kWh	163.0	87.2	45.7
Annual payroll ---- mil dol	753.5	156.5	156.0	Generated less sold ---- mil kWh	–	–	–
Fringe benefits ---- mil dol	157.0	38.4	33.2	Total value of shipments ---- mil dol	4 163.8	684.1	877.8
Social Security and other legally required payments ---- mil dol	74.4	18.5	14.9	Value added ---- mil dol	1 757.0	405.0	335.3
Employer voluntary payments ---- mil dol	82.6	19.9	18.3	Inventories by stage of fabrication:			
Production workers:				Beginning of 1992 ---- mil dol	998.9	193.6	216.0
Average for year ---- 1,000	22.3	4.9	4.2	Finished goods ---- mil dol	481.7	134.2	111.1
March ---- 1,000	22.2	4.9	4.2	Work in process ---- mil dol	151.0	30.1	37.3
May ---- 1,000	22.2	4.9	4.1	Materials and supplies ---- mil dol	366.1	29.3	67.5
August ---- 1,000	22.5	5.0	4.3	End of 1992 ---- mil dol	938.9	191.5	208.2
November ---- 1,000	22.5	4.9	4.2	Finished goods ---- mil dol	467.0	138.3	104.5
Hours ---- millions	44.3	7.4	8.4	Work in process ---- mil dol	137.2	26.1	32.2
Wages ---- mil dol	417.0	99.8	81.5	Materials and supplies ---- mil dol	334.7	27.1	71.5

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Jewelry, precious metal (SIC 3911)	Silverware and plated ware (SIC 3914)	Jewelers' materials and lapidary work (SIC 3915)	Item	Jewelry, precious metal (SIC 3911)	Silverware and plated ware (SIC 3914)	Jewelers' materials and lapidary work (SIC 3915)
Gross book value of depreciable assets:				Gross book value of depreciable assets—Con.			
Total:				Machinery and equipment—Con.			
Beginning of year	373.5	163.0	82.4	Beginning of year—Con.			
New capital expenditures[1]	36.5	16.9	12.9	New capital expenditures[1]	28.5	11.4	10.6
Used capital expenditures	4.1	.3	.9	Used capital expenditures	3.5	.2	.5
Retirements	14.0	3.5	2.7	Retirements	11.0	3.1	2.6
End of year	400.2	176.7	93.6	End of year	305.0	121.8	71.5
Buildings and other structures:				Depreciation charges during 1992:			
Beginning of year	89.5	49.6	19.4	Total	34.4	14.4	7.3
New capital expenditures	8.0	5.5	2.3	Buildings and other structures	5.4	2.7	1.2
Used capital expenditures	.6	.1	.4	Machinery and equipment	29.0	11.7	6.1
Retirements	2.9	.4	.1	Rental payments:			
End of year	95.2	54.9	22.1	Total	61.0	6.6	13.5
Machinery and equipment:				Buildings and other structures	44.1	4.3	10.4
Beginning of year	284.1	113.4	63.0	Machinery and equipment	16.9	2.3	3.1

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Jewelry, precious metal (SIC 3911)		Silverware and plated ware (SIC 3914)		Jewelers' materials and lapidary work (SIC 3915)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	2.8	(X)	2.1	(X)	.3	(X)
Response coverage ratio (percent)[2]	71.8	(X)	57.6	(X)	61.7	(X)
Machinery	3.0	(X)	8.5	(X)	.7	(X)
Response coverage ratio (percent)[2]	70.4	(X)	77.5	(X)	60.5	(X)
Other purchased services:						
Communications	10.6	(X)	2.6	(X)	1.1	(X)
Response coverage ratio (percent)[2]	71.0	(X)	77.5	(X)	59.4	(X)
Legal	5.9	(X)	1.1	(X)	.8	(X)
Response coverage ratio (percent)[2]	75.1	(X)	77.5	(X)	59.3	(X)
Accounting and bookkeeping	6.0	(X)	1.4	(X)	1.1	(X)
Response coverage ratio (percent)[2]	71.5	(X)	77.5	(X)	59.4	(X)
Advertising	26.7	(X)	20.0	(X)	7.3	(X)
Response coverage ratio (percent)[2]	75.8	(X)	77.5	(X)	62.0	(X)
Software and other data processing	2.9	(X)	.7	(X)	.5	(X)
Response coverage ratio (percent)[2]	70.6	(X)	57.5	(X)	50.9	(X)
Refuse removal, including hazardous waste	.8	(X)	1.3	(X)	.3	(X)
Response coverage ratio (percent)[2]	68.7	(X)	77.5	(X)	62.0	(X)
New machinery and equipment expenditures	28.5	(X)	11.4	(X)	10.6	(X)
Automobiles, trucks, etc., for highway use	2.1	58	.1	15	(S)	(X)
Computers and peripheral data processing equipment	3.8	26	2.1	6	(S)	(X)
All other	22.5	5	9.1	2	(S)	(X)
Adjustment ratio[3]	1.2	(X)	1.1	(X)	(S)	(X)
Cost of materials, components, parts, etc., used	2 096.0	(X)	195.1	(X)	474.3	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	53.3	30	(S)	(X)
Materials purchased or transferred from domestic sources	(S)	(X)	141.8	12	(S)	(X)
Adjustment ratio[3]	(S)	(X)	1.0	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3911, JEWELRY, PRECIOUS METAL												
Total	**E2**	**2 201**	**32.3**	**753.5**	**22.3**	**44.3**	**417.0**	**1 757.0**	**2 378.2**	**4 163.8**	**36.5**	**938.9**
Establishments with an average of–												
1 to 4 employees	E6	1 279	2.1	45.7	1.4	3.0	26.6	118.3	156.3	271.4	2.9	60.0
5 to 9 employees	E2	352	2.3	50.4	1.6	3.1	28.0	124.8	163.0	289.9	2.6	61.6
10 to 19 employees	E1	248	3.4	78.3	2.3	4.5	43.8	205.8	332.6	539.1	2.6	102.0
20 to 49 employees	E1	172	5.3	121.5	3.6	6.9	65.2	270.0	337.5	595.8	4.3	148.2
50 to 99 employees	E1	93	6.2	146.7	4.3	8.1	76.8	301.6	465.8	767.5	5.6	185.7
100 to 249 employees	E2	40	5.9	146.1	4.0	8.1	76.1	391.0	435.7	829.4	7.5	197.6
250 to 499 employees	E2	15	7.2	164.9	5.1	10.6	100.5	345.6	487.3	870.6	11.0	183.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	–	(D)
Covered by administrative records[2]	E9	1 134	1.8	36.7	1.3	2.7	20.9	87.9	120.6	208.5	2.7	43.6
INDUSTRY 3914, SILVERWARE AND PLATED WARE												
Total	**–**	**213**	**6.7**	**156.5**	**4.9**	**7.4**	**99.8**	**405.0**	**279.1**	**684.1**	**16.9**	**191.5**
Establishments with an average of–												
1 to 4 employees	E9	112	.2	4.2	.1	.3	2.4	11.0	6.0	17.0	.2	3.6
5 to 9 employees	E3	29	.2	4.1	.1	.3	2.7	9.8	4.8	14.3	.2	2.9
10 to 19 employees	–	31	.4	10.2	.3	.6	5.6	20.5	12.4	32.4	.3	6.2
20 to 49 employees	E1	18	.6	12.4	.4	.6	6.3	24.4	15.1	39.7	.5	8.7
50 to 99 employees	–	14	1.0	22.1	.7	1.5	11.7	46.2	36.7	82.4	1.2	15.9
100 to 249 employees	–	6	4.2	103.5	3.2	4.1	71.2	293.2	204.1	498.2	14.5	154.3
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	116	.2	4.9	.2	.3	2.8	12.4	6.3	18.7	.3	4.0

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK												
Total	**E1**	**421**	**6.4**	**156.0**	**4.2**	**8.4**	**81.5**	**335.3**	**530.8**	**877.8**	**12.9**	**208.2**
Establishments with an average of—												
1 to 4 employees	E8	281	.3	8.3	.3	.6	5.3	16.9	23.9	40.9	.5	9.9
5 to 9 employees	E3	41	.3	6.0	.2	.4	3.8	11.9	18.2	30.0	.3	7.2
10 to 19 employees	E1	39	.6	12.4	.4	.8	7.2	25.4	67.6	93.8	.7	15.4
20 to 49 employees	–	35	1.2	27.9	.8	1.6	15.3	53.0	100.3	155.2	.9	20.4
50 to 99 employees	E1	14	.9	22.5	.6	1.2	12.2	42.8	111.2	162.4	.9	39.9
100 to 249 employees	E2	6	.8	19.4	.6	.9	9.2	45.1	42.7	86.4	1.4	30.9
250 to 499 employees	E4	3	2.3	59.6	1.4	2.9	28.5	140.1	167.0	309.1	8.2	84.6
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	239	.3	6.4	.2	.4	3.9	13.0	18.1	31.2	.5	8.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3911	**Jewelry, precious metal:**										
	All establishments in industry	2 201	32.3	753.5	22.3	44.3	417.0	1 757.0	2 378.2	4 163.8	36.5
	Establishments with this product class primary:										
39111	Jewelry, made of platinum metals and karat gold	542	20.9	509.9	14.4	29.1	282.7	1 203.3	1 760.1	2 994.6	25.6
39113	Jewelry made of silver (including platinum metals and karat gold clad to silver)	104	2.7	50.1	1.9	3.6	28.9	110.1	85.6	195.4	1.6
39114	Other jewelry, except costume	70	2.0	50.4	1.2	2.2	23.0	101.6	123.3	223.3	1.2
3914	**Silverware and plated ware:**										
	All establishments in industry	213	6.7	156.5	4.9	7.4	99.8	405.0	279.1	684.1	16.9
	Establishments with this product class primary:										
39141	Hollowware (including toiletware, ecclesiastical ware, novelties, trophies, baby goods, and other plated ware)	67	2.7	59.1	1.9	3.7	33.0	121.2	83.1	201.7	(D)
39142	Flatware (including all knives, forks, spoons, and carving sets made wholly of metal)	6	3.4	85.9	2.7	3.1	60.5	256.7	180.7	439.7	(D)
3915	**Jewelers' materials and lapidary work:**										
	All establishments in industry	421	6.4	156.0	4.2	8.4	81.5	335.3	530.8	877.8	12.9
	Establishments with this product class primary:										
39152	Lapidary work and diamond cutting and polishing	23	.5	12.3	.3	.6	5.3	29.2	122.3	160.1	.5
39153	Jewelers' findings and materials of precious metal	51	3.1	78.2	1.9	3.6	34.8	189.4	291.9	482.7	7.3
39154	Jewelers' findings and materials of base metal	29	1.7	42.0	1.3	2.6	26.6	76.9	55.6	134.1	(D)

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3911, JEWELRY, PRECIOUS METAL			
Total value of shipments	4 163.8	4 078.1	3 039.1
Primary products value of shipments	3 644.4	3 764.8	2 740.1
Secondary products value of shipments	242.1	134.8	170.7
Total miscellaneous receipts	277.2	178.5	128.3
Value of resales	209.7	140.4	58.6
Contract receipts	57.9	20.4	30.9
Other miscellaneous receipts	9.6	17.7	38.7
Sales of scrap and refuse	1.9	(NA)	20.4
Other miscellaneous receipts	2.6	(NA)	8.9
Other miscellaneous receipts, n.s.k.	5.1	(NA)	9.4
Primary products specialization ratio	94	97	94
Value of primary products shipments made in all industries	3 710.4	3 858.3	2 823.2
Value of primary products shipments made in this industry	3 644.4	3 764.8	2 740.1
Value of primary products shipments made in other industries	65.9	93.5	83.1
Coverage ratio	98	98	97
INDUSTRY 3914, SILVERWARE AND PLATED WARE			
Total value of shipments	684.1	528.7	583.9
Primary products value of shipments	530.2	418.3	481.9
Secondary products value of shipments	(D)	12.5	19.7
Total miscellaneous receipts	(D)	97.9	82.4
Value of resales	(D)	89.5	66.9
Contract receipts	(D)	3.8	(D)
Other miscellaneous receipts	(D)	4.6	(D)
Primary products specialization ratio	(D)	97	96
Value of primary products shipments made in all industries	541.7	424.2	489.3
Value of primary products shipments made in this industry	530.2	418.3	481.9
Value of primary products shipments made in other industries	11.5	5.9	7.4
Coverage ratio	98	99	98
INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK			
Total value of shipments	877.8	947.3	755.5
Primary products value of shipments	769.0	846.7	700.1
Secondary products value of shipments	63.6	77.3	31.6
Total miscellaneous receipts	45.1	23.3	23.7
Value of resales	32.8	11.8	10.3
Contract receipts	10.2	6.8	9.0
Other miscellaneous receipts	2.2	4.7	4.5
Primary products specialization ratio	92	92	96
Value of primary products shipments made in all industries	889.6	910.0	814.4
Value of primary products shipments made in this industry	769.0	846.7	700.1
Value of primary products shipments made in other industries	120.6	63.4	114.3
Coverage ratio	86	93	86

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3911– —	**JEWELRY, PRECIOUS METAL**				
	Total	**(NA)**	**3 710.4**	**(NA)**	**3 858.3**
39111	Jewelry, made of platinum metals and karat gold	(NA)	2 613.9	(NA)	2 527.1
	Rings and ring mountings:				
	Rings (complete):				
39111 11	Fraternal, college, and school rings	40	261.6	22	264.6
39111 12	Wedding rings	134	409.2	111	307.7
39111 14	Other rings	233	514.7	241	541.8
39111 15	Ring mountings, for sale separately	74	132.6	84	181.9
39111 31	Women's and children's jewelry (necklaces, bracelets, brooches, pins, clips, earrings, lockets, etc.)	313	896.2	265	629.5
39111 41	Watch attachments (bracelets for watches)	18	29.0	15	19.0
39111 51	Organizational jewelry (fraternal, college, and school jewelry and emblems; military insignia, excluding rings)	30	69.7	25	37.1
39111 98	Other jewelry worn or carried about the person (watch chains, rosaries, cigarette cases, lighters, compacts, etc.)	94	241.6	88	262.0
39111 00	Jewelry, made of platinum metals and karat gold, n.s.k.	(NA)	59.4	(NA)	283.6
39113	Jewelry made of silver (including platinum metals and karat gold clad to silver)	(NA)	231.9	(NA)	199.9
39113 11	Rings and ring mountings	57	56.8	48	51.1
39113 21	Men's jewelry (collar and cuff buttons, studs, watch chains, money clips, identification bracelets, scarf pins, etc.)	33	26.4	20	16.3
39113 31	Women's and children's jewelry (necklaces, bracelets, brooches, pins, clips, earrings, lockets, etc.)	127	120.2	82	93.8
39113 41	Watch attachments (bracelets for watches)	–	.4	6	3.2
39113 98	Other jewelry worn or carried about the person (rosaries, cigarette cases, lighters, compacts, vanity cases, etc.)	32	26.4	28	33.1
39113 00	Jewelry made of silver (including platinum metals and karat gold clad to silver), n.s.k.	(NA)	1.9	(NA)	2.5
39114	Other jewelry, except costume	(NA)	212.7	(NA)	269.8
	Jewelry of base metal clad with precious metal:				
39114 11	Rings and ring mountings	18	21.6	11	32.6
39114 21	Men's jewelry (collar and cuff buttons, studs, watch chains, money clips, identification bracelets, scarf pins, etc.)	24	16.5	14	10.3
39114 31	Women's and children's jewelry (necklaces, bracelets, brooches, pins, clips, earrings, lockets, etc.)	56	81.3	38	88.9
39114 41	Watch attachments (bracelets for watches)	2	9.3	(NA)	16.4
39114 51	Other clad jewelry, including cigarette lighters	9			
39114 61	Jewelry of natural or cultured pearls	12	7.6	17	20.0
39114 71	Jewelry of semiprecious or precious stones	35	72.1	32	98.6
39114 00	Other jewelry, except costume, n.s.k.	(NA)	4.3	(NA)	2.9
39110	Jewelry, precious metal, n.s.k.	(NA)	651.9	(NA)	861.5
39110 00	Jewelry, precious metal, n.s.k.[2]	(NA)	443.7	(NA)	574.4
39110 02	Jewelry, precious metal, n.s.k.[3]	(NA)	208.2	(NA)	287.0
3914– —	**SILVERWARE AND PLATED WARE**				
	Total	**(NA)**	**541.7**	**(NA)**	**424.2**
39141	Hollowware (including toiletware, ecclesiastical ware, novelties, trophies, baby goods, and other plated ware)	(NA)	227.5	(NA)	196.5
39141 11	Sterling silver	12	16.9	14	33.6
39141 31	Electrosilverplated	16	49.7	9	54.7
39141 41	Precious metal other than silver whether or not clad with precious metal	7	3.0	4	1.8
39141 43	Base metal clad with precious metal	5	6.5	5	8.5
39141 53	Pewter	28	79.6	17	29.6
39141 70	Unplated hollowware of other metals (including stainless steel), and hollowware plated with other metals[4]	25	45.6	(NA)	40.2
39141 00	Hollowware (including toiletware, ecclesiastical ware, novelties, trophies, baby goods, and other plated ware), n.s.k.	(NA)	26.1	(NA)	28.0
39142	Flatware (including all knives, forks, spoons, and carving sets made wholly of metal)	(NA)	276.7	(NA)	185.7
39142 11	Sterling silver	6		6	37.1
39142 35	Electrosilverplated	3		5	27.1
39142 41	Precious metal other than silver whether or not clad with precious metal	2	276.7	1	(D)
39142 43	Base metal clad with precious metal	1		(NA)	–
39142 70	Unplated flatware of other metals (including stainless steel), and flatware plated with metals other than silver[4]	6		(NA)	(D)
39142 00	Flatware (including all knives, forks, spoons, and carving sets made wholly of metal), n.s.k.	(NA)	–	(NA)	38.3
39140	Silverware and plated ware, n.s.k.	(NA)	37.4	(NA)	42.0
39140 00	Silverware and plated ware, n.s.k.[2]	(NA)	19.0	(NA)	20.9
39140 02	Silverware and plated ware, n.s.k.[3]	(NA)	18.5	(NA)	21.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3915– —	**JEWELERS' MATERIALS AND LAPIDARY WORK**				
	Total	**(NA)**	**889.6**	**(NA)**	**910.0**
39152	Lapidary work and diamond cutting and polishing	(NA)	173.1	(NA)	260.6
	Stones cut or polished in the plant from materials owned by the plant:				
39152 11	Diamonds for jewelry purposes	18	155.3	13	159.4
39152 33	Other natural precious and semiprecious stones, including synthetic stones, industrial diamonds, and drilling of pearls	12	9.5	7	15.7
39152 00	Lapidary work and diamond cutting and polishing, n.s.k.	(NA)	8.4	(NA)	85.5
39153	Jewelers' findings and materials of precious metal	(NA)	548.7	(NA)	382.3
39153 11	Jewelers' findings and materials of platinum and karat gold, except machine chain	43	281.2	24	265.1
39153 12	Machine chain of platinum and karat gold	11	80.6	13	87.8
39153 21	Jewelers' findings and materials of silver	25	19.8	8	6.5
39153 31	Jewelers' findings and materials made of base metal clad with precious metal	20	164.6	6	8.9
39153 00	Jewelers' findings and materials of precious metal, n.s.k.	(NA)	2.6	(NA)	14.1
39154	Jewelers' findings and materials of base metal	(NA)	89.4	(NA)	53.0
39154 00	Jewelers' findings and stock shop products made of base metal not clad with precious metal	45	89.4	28	53.0
39150	Jewelers' materials and lapidary work, n.s.k.	(NA)	78.4	(NA)	214.1
39150 00	Jewelers' materials and lapidary work, n.s.k.[2]	(NA)	47.2	(NA)	157.1
39150 02	Jewelers' materials and lapidary work, n.s.k.[3]	(NA)	31.2	(NA)	57.0

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]Typically for establishments with 5 employees or more.
[3]Typically for establishments with less than 5 employees.
[4]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39111, JEWELRY, MADE OF PLATINUM METALS AND KARAT GOLD		
United States	**2 613.9**	**2 527.1**
California	303.5	217.5
Colorado	2.5	(NA)
Florida	106.5	135.9
Hawaii	17.6	2.7
Illinois	61.6	68.8
Indiana	34.2	(NA)
Louisiana	2.7	(NA)
Massachusetts	198.1	185.9
Michigan	5.1	7.8
Missouri	3.8	5.5
New Jersey	164.9	189.2
New Mexico	19.3	(NA)
New York	1 072.2	1 095.2
Ohio	23.2	44.8
Oregon	3.8	3.4
Pennsylvania	40.6	15.7
Rhode Island	214.4	165.4
South Dakota	58.3	58.5
Texas	108.8	141.0
Washington	5.5	8.4
39113, JEWELRY MADE OF SILVER (INCLUDING PLATINUM METALS AND KARAT GOLD CLAD TO SILVER)		
United States	**231.9**	**199.9**
California	17.6	32.4
Colorado	2.1	(NA)
Massachusetts	14.7	20.6
New Mexico	46.9	8.8
New York	41.8	62.4
Rhode Island	42.2	35.7
South Dakota	13.2	(NA)
Texas	19.9	(NA)
39114, OTHER JEWELRY, EXCEPT COSTUME		
United States	**212.7**	**269.8**
California	20.2	20.3
Illinois	2.3	(NA)
Massachusetts	13.3	31.1
New York	91.0	124.3
Rhode Island	30.6	52.9
Texas	17.6	2.4
39141, HOLLOWWARE (INCLUDING TOILETWARE, ECCLESIASTICAL WARE, NOVELTIES, TROPHIES, BABY GOODS, AND OTHER PLATED WARE)		
United States	**227.5**	**196.5**
California	11.1	7.1
Connecticut	3.5	8.9
Illinois	20.4	17.7
Massachusetts	44.5	73.7
New Mexico	5.3	(NA)
New York	32.1	26.2
Ohio	5.8	3.2
Pennsylvania	9.3	9.6
Rhode Island	20.9	(NA)
39142, FLATWARE (INCLUDING ALL KNIVES, FORKS, SPOONS, AND CARVING SETS MADE WHOLLY OF METAL)		
United States	**276.7**	**185.7**
Massachusetts	64.7	47.9
39152, LAPIDARY WORK AND DIAMOND CUTTING AND POLISHING		
United States	**173.1**	**260.6**
New York	133.8	229.3
39153, JEWELERS' FINDINGS AND MATERIALS OF PRECIOUS METAL		
United States	**548.7**	**382.3**
Massachusetts	80.1	(NA)
New Jersey	39.0	49.1
New York	284.5	60.8
Rhode Island	81.3	147.3
39154, JEWELERS' FINDINGS AND MATERIALS OF BASE METAL		
United States	**89.4**	**53.0**
Massachusetts	6.8	7.6
Rhode Island	70.9	41.7

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3911-	**Jewelry, precious metal**	**3 710.4**	**3 502.2**	**3 959.3**	**3 988.0**	**4 000.7**	**3 858.3**	**2 823.2**	**1 907.7**
39111	Jewelry, made of platinum metals and karat gold	2 613.9	2 449.7	2 679.8	2 708.7	2 625.6	2 527.1	2 076.5	1 251.5
39113	Jewelry made of silver (including platinum metals and karat gold clad to silver)	231.9	284.3	295.4	253.3	197.3	199.9	(NA)	(NA)
39114	Other jewelry, except costume	212.7	121.6	191.1	230.6	244.5	269.8	(NA)	(NA)
39110	Jewelry, precious metal, n.s.k.	651.9	646.6	793.1	795.3	933.3	861.5	335.7	303.2
3914-	**Silverware and plated ware**	**541.7**	**619.4**	**546.0**	**551.8**	**431.2**	**424.2**	**489.3**	**403.2**
39141	Hollowware (including toiletware, ecclesiastical ware, novelties, trophies, baby goods, and other plated ware)	227.5	279.9	203.9	239.0	203.7	196.5	208.2	175.2
39142	Flatware (including all knives, forks, spoons, and carving sets made wholly of metal)	276.7	273.3	266.7	251.7	183.8	185.7	266.1	193.2
39140	Silverware and plated ware, n.s.k.	37.4	66.1	75.4	61.1	43.7	42.0	15.1	34.7
3915-	**Jewelers' materials and lapidary work**	**889.6**	**737.4**	**812.4**	**938.6**	**871.3**	**910.0**	**814.4**	**726.0**
39152	Lapidary work and diamond cutting and polishing	173.1	213.2	211.3	293.8	256.8	260.6	238.9	305.6
39153	Jewelers' findings and materials of precious metal	548.7	317.6	347.4	382.6	377.4	382.3	(NA)	(NA)
39154	Jewelers' findings and materials of base metal	89.4	39.3	31.0	89.1	55.5	53.0	(NA)	(NA)
39150	Jewelers' materials and lapidary work, n.s.k.	78.4	167.4	222.6	173.0	181.5	214.1	81.0	114.9

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3911, JEWELRY, PRECIOUS METAL		
	Materials, ingredients, containers, and supplies	**2 096.0**	**2 123.3**
340004	Fabricated metal products, including forgings	91.3	(1)
	Shapes and forms (except fabricated metal products):		
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	787.4	820.7
330025	Other shapes and forms, including castings	42.4	(1)
	Jewelry, silverware, and plated ware:		
391521	Precious, semiprecious, and synthetic stones, and pearls; cut, polished, or drilled	257.1	328.1
391501	Jewelers' findings, including joints, pins, clasps, chains, flat stock, etc.	111.1	74.4
391015	Other jewelry, silverware, and plated ware	41.0	(1)
970099	All other materials and components, parts, containers, and supplies	66.8	[1]117.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	699.0	782.3
	INDUSTRY 3914, SILVERWARE AND PLATED WARE		
	Materials, ingredients, containers, and supplies	**195.1**	**166.5**
340091	Fabricated metal products (except forgings)	22.4	(3)
330091	Castings (rough and semifinished)	1.3	(3)
346000	Forgings	.2	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel		
335105	Copper and copper-base alloy	45.3	23.9
335090	All other nonferrous shapes and forms		
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	66.3	29.3
970099	All other materials and components, parts, containers, and supplies	29.8	[3]55.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	29.9	57.8
	INDUSTRY 3915, JEWELERS' MATERIALS AND LAPIDARY WORK		
	Materials, ingredients, containers, and supplies	**474.3**	**623.4**
340004	Fabricated metal products, including forgings	22.3	(NA)
	Shapes and forms (except fabricated metal products):		
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	125.9	(NA)
330025	Other shapes and forms, including castings	5.9	(NA)
	Jewelry, silverware, and plated ware:		
391521	Precious, semiprecious, and synthetic stones, and pearls; cut, polished, or drilled	139.3	(NA)
391501	Jewelers' findings, including joints, pins, clasps, chains, flat stock, etc.	18.0	(NA)
391015	Other jewelry, silverware, and plated ware	.2	(NA)
970099	All other materials and components, parts, containers, and supplies	10.4	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	152.3	(NA)

[1]For 1987, material codes were not collected separately but were included with material code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes were not collected separately but were included with material code 970099.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
39141 70	39141 51
39141 70	39141 69
39142 70	39142 55
39142 70	39142 69
39314 27	39314 24
39314 27	39314 25
39314 27	39314 26
39420 12	39420 09
39420 12	39420 11
39420 21	39420 22
39420 21	39420 23
39420 21	39420 24
39420 21	39420 25
39420 43	39420 26
39420 43	39420 37
39420 43	39420 39
39420 43	39420 40
39420 43	39420 42
39443 16	39443 11
39443 16	39443 15
39443 97	39443 33
39443 97	39443 47
39443 97	39443 98
39444 20	39444 17
39444 20	39444 19
39444 36	39444 34
39444 36	39444 35
39445 16	39445 15
39445 16	39445 17
39445 30	39445 27
39445 30	39445 29
39491 06	39491 01
39491 06	39491 03
39491 06	39491 05
39491 11	39491 07
39491 11	39491 09
39491 11	39491 10
39494	39496
39494 01	39496 01
39494 02	39496 02
39494 03	39496 03
39494 04	39496 04
39494 05	39496 05
39494 06	39496 06
39495 36	39495 34
39495 36	39495 35
39495 51	39495 43
39495 51	39495 48
39495 51	39495 50
39495 53	39495 52
39495 53	39495 55
39495 64	39495 82
39495 64	39495 83
39495 69	39495 74
39495 69	39495 76
39495 70	39495 72
39495 70	39495 73
39495 71	39495 73
39495 91	39495 87
39495 91	39495 88
39495 99	39495 05
39495 99	39495 81
39495 99	39495 98
39511 02	39511 00
39511 04	39511 00
39511 13	39511 00
39512 02	39512 00
39512 06	39512 00
39513 05	39513 00
39513 10	39513 00
39513 13	39513 00
39513 25	39513 00
39523 10	39523 00
39523 13	39523 00
39523 22	39523 00
39530 13	39530 00
39530 15	39530 00
39530 33	39530 00
39530 35	39530 00
39530 37	39530 00
39530 98	39530 00
39551 10	39551 00
39551 15	39551 00
39551 20	39551 00
39610 72	39610 65
39610 72	39610 71
39610 96	39610 93
39610 96	39610 95
39656 25	39656 21
39656 25	39656 32
39960 00	39960 11
39960 00	39960 21
39960 00	39960 26
39960 00	39960 29
39960 00	39960 98
39991 40	39991 18
39991 40	39991 41
39991 70	39991 51
39991 70	39991 61
39991 70	39991 69
39997 00	39997 11
39999 81	39999 98
39999 99	39997 51
39999 99	39999 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
39141 51	39141 70
39141 69	39141 70
39142 55	39142 70
39142 69	39142 70
39314 24	39314 27
39314 25	39314 27
39314 26	39314 27
39420 09	39420 12
39420 11	39420 12
39420 22	39420 21
39420 23	39420 21
39420 24	39420 21
39420 25	39420 21
39420 26	39420 43
39420 37	39420 43
39420 39	39420 43
39420 40	39420 43
39420 42	39420 43
39443 11	39443 16
39443 15	39443 16
39443 33	39443 97
39443 47	39443 97
39443 98	39443 97
39444 17	39444 20
39444 19	39444 20
39444 34	39444 36
39444 35	39444 36
39445 15	39445 16
39445 17	39445 16
39445 27	39445 30
39445 29	39445 30
39491 01	39491 06
39491 03	39491 06
39491 05	39491 06
39491 07	39491 11
39491 09	39491 11
39491 10	39491 11
39495 05	39495 99
39495 34	39495 36
39495 35	39495 36
39495 43	39495 51
39495 48	39495 51
39495 50	39495 51
39495 52	39495 53
39495 55	39495 53
39495 72	39495 70
39495 73	39495 70
39495 73	39495 71
39495 74	39495 69
39495 76	39495 69
39495 81	39495 99
39495 82	39495 64
39495 83	39495 64
39495 87	39495 91
39495 88	39495 91
39495 98	39495 99
39496	39494
39496 01	39494 01
39496 02	39494 02
39496 03	39494 03
39496 04	39494 04
39496 05	39494 05
39496 06	39494 06
39511 00	39511 02
39511 00	39511 04
39511 00	39511 13
39512 00	39512 02
39512 00	39512 06
39513 00	39513 05
39513 00	39513 10
39513 00	39513 13
39513 00	39513 25
39523 00	39523 10
39523 00	39523 13
39523 00	39523 22
39530 00	39530 13
39530 00	39530 15
39530 00	39530 33
39530 00	39530 35
39530 00	39530 37
39530 00	39530 98
39551 00	39551 10
39551 00	39551 15
39551 00	39551 20
39610 65	39610 72
39610 71	39610 72
39610 93	39610 96
39610 95	39610 96
39656 21	39656 25
39656 32	39656 25
39960 11	39960 00
39960 21	39960 00
39960 26	39960 00
39960 29	39960 00
39960 98	39960 00
39991 18	39991 40
39991 41	39991 40
39991 51	39991 70
39991 61	39991 70
39991 69	39991 70
39997 11	39997 00
39997 51	39999 99
39999 98	39999 81
39999 98	39999 99

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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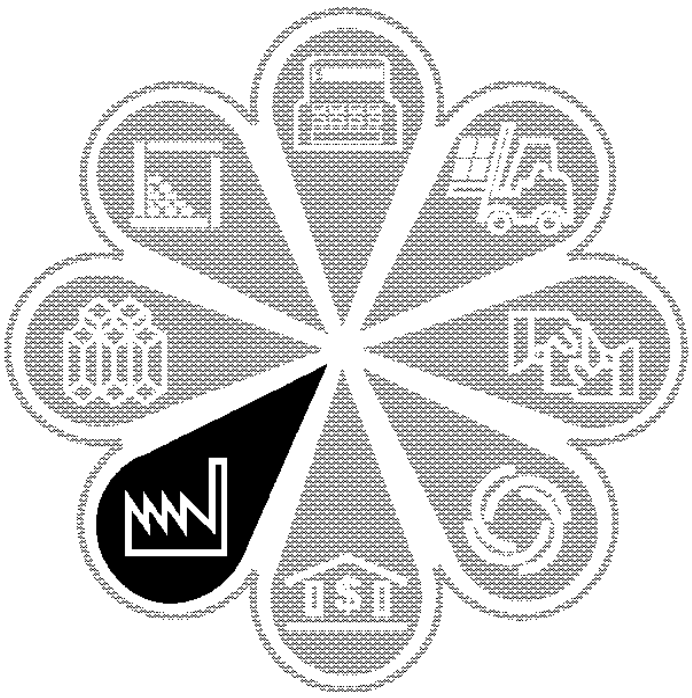
1992 Census of Manufactures

MC92-I-39B

INDUSTRY SERIES

Musical Instruments and Parts; Toys and Sporting Goods

Industries 3931, 3942, 3944, and 3949



U.S. Department of Commerce
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BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-39B

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

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Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3931	Musical Instruments
3942	Dolls and Stuffed Toys
3944	Games, Toys, and Children's Vehicles
3949	Sporting and Athletic Goods, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]*Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3931, MUSICAL INSTRUMENTS

This industry is made up of establishments primarily engaged in manufacturing pianos, with or without player attachments; organs; other musical instruments; and parts and accessories for musical instruments. The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3931, Musical Instruments, had employment of 12.2 thousand. The employment figure was unchanged from 1987.

The leading States in employment in 1992 were California, Indiana, Pennsylvania, and New York, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Indiana, New York, California, and Mississippi were the leading States.

The total value of shipments for establishments classified in this industry was $981.3 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3931 shipped $878.9 million of musical instruments and parts considered primary to the industry, $42.3 million of secondary products, and had $60.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3931, no matter in what industry they were produced, appear in table 6a and aggregate to $900.8 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the musical instruments industry amounted to $405.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a

small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3942, DOLLS AND STUFFED TOYS

This industry is made up of establishments primarily engaged in manufacturing dolls, doll parts, and doll clothing, except doll wigs. Establishments primarily engaged in manufacturing stuffed toys are classified in this industry. Doll wigs are classified in industry 3999. The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3942, Dolls and Stuffed Toys, had employment of 3.6 thousand. The employment figure was 18 percent below the 4.4 thousand reported in 1987. Compared with 1991, employment decreased 28 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were New York, New Hampshire, California, and Illinois. This represents a shift from 1987 when California, New Hampshire, New Jersey, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $251.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3942 shipped $232.7 million of dolls and stuffed toys, considered primary to the industry, $5.7 million of secondary products, and had $12.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 80 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 79 percent.

The products primary to industry 3942, no matter in what industry they were produced, appear in table 6a and aggregate to $290.5 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the dolls and stuffed toys industry amounted to $91.1 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES

This industry is made up of establishments primarily engaged in manufacturing games and game sets for adults and children, and mechanical and nonmechanical toys. Important products of this industry include games; toy furniture; doll carriages and carts; construction sets; mechanical trains; toy guns and rifles; baby carriages and strollers; children's tricycles, coaster wagons, play cars, sleds, and other children's outdoor wheel goods and vehicles, except bicycles. Included are establishments primary engaged in manufacturing electronic board games; electronic toys; and electronic game machines, except coin-operated. Establishments primarily engaged in manufacturing dolls and stuffed toys are classified in industry 3942; those manufacturing bicycles are classified in industry 3751; those manufacturing sporting and athletic goods for children and adults are classified in industry 3949; those manufacturing coin-operated game machines are classified in industry 3999; those manufacturing electronic video game cartridges are classified in Services, industry 7372; and those manufacturing rubber toys, except dolls, are classified in industry 3069.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3944, Games, Toys, and Children's Vehicles, had employment of 30.6 thousand. The employment figure was 1 percent below the 30.9 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Massachusetts, New York, and Illinois. This represents a shift from 1987 when New York, New Jersey, Illinois, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $4.2 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3944 shipped $3.3 billion of games, toys, and children's vehicles, considered primary to the industry, $295.7 million of secondary products, and had $631.6 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 93 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3944, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the games, toys, and children's vehicles industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing sporting and athletic goods, not elsewhere classified, such as fishing tackle; golf and tennis goods; baseball, football, basketball, and boxing equipment; roller skates and ice skates; gymnasium and playground equipment; billiard and pool tables; and bowling alleys and equipment. Establishments primarily engaged in manufacturing athletic apparel are classified in major group 23; those manufacturing athletic footwear are classified in industries 3021 and 3149; those manufacturing small arms ammunition are classified in industry 3482; and those manufacturing small arms are classified in industry 3484.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3949, Sporting and Athletic Goods, N.E.C., had employment of 61.7 thousand. The employment figure was 15 percent above the 53.6 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, Texas, and Alabama. This represents a shift from 1987 when California, Illinois, New York, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $7.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3949 shipped $6.7 billion of sporting and athletic goods, not elsewhere classified, considered primary to the industry, $171.4 million of secondary products, and had $720.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 98 percent.

The products primary to industry 3949, no matter in what industry they were produced, appear in table 6a and aggregate to $7.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the sporting and athletic goods, not elsewhere classified, industry amounted to $3.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3931, MUSICAL INSTRUMENTS															
1992 Census	437	461	104	12.2	272.7	9.4	17.9	176.6	588.4	405.7	981.3	13.8	259.4	95	98
1991 ASM	(NA)	(NA)	(NA)	11.5	238.1	8.7	17.4	154.9	536.3	349.2	881.3	12.6	214.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.7	233.8	9.1	17.7	154.3	547.7	335.0	872.9	14.0	212.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	11.6	226.2	9.1	17.6	152.6	506.8	323.6	814.7	10.9	203.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.3	235.2	9.4	18.4	155.6	538.8	334.3	875.8	24.0	193.2	(NA)	(NA)
1987 Census	402	423	104	12.2	218.1	9.6	18.5	145.9	501.9	318.9	814.1	13.9	184.4	97	98
1986 ASM	(NA)	(NA)	(NA)	12.2	211.8	9.4	18.8	140.2	443.5	301.3	742.2	11.0	180.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	12.1	202.8	9.1	17.4	134.8	407.2	295.7	725.2	15.0	203.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.0	228.6	10.8	20.8	153.9	421.8	384.5	811.4	19.3	257.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	16.6	261.3	13.1	24.7	175.6	489.4	441.4	945.6	15.5	271.6	(NA)	(NA)
1982 Census	403	452	137	17.8	257.8	14.0	25.7	176.6	494.8	415.5	915.9	20.1	270.7	98	97
1981 ASM	(NA)	(NA)	(NA)	23.9	335.2	18.8	35.6	235.3	619.5	531.2	1 138.4	20.2	295.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	24.3	306.3	19.1	35.7	212.8	583.1	522.7	1 119.8	36.0	275.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.6	322.1	22.1	42.3	229.3	538.8	539.0	1 072.8	22.8	290.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	27.2	302.8	21.9	41.7	211.5	553.7	512.0	1 052.6	27.8	294.3	(NA)	(NA)
1977 Census	400	450	127	25.2	259.7	20.6	38.2	178.2	488.2	428.9	924.9	13.8	243.2	98	99
INDUSTRY 3942, DOLLS AND STUFFED TOYS															
1992 Census	204	209	42	3.6	64.1	2.8	5.2	35.8	156.5	91.1	251.0	3.0	60.4	98	80
1991 ASM	(NA)	(NA)	(NA)	5.0	87.4	3.8	5.9	51.4	274.0	152.1	419.9	11.4	73.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	4.9	76.3	3.8	6.4	40.2	244.1	135.3	380.4	11.8	68.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.4	62.5	3.4	6.0	34.4	184.7	146.0	322.5	10.4	72.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.9	57.6	3.1	5.4	31.3	135.7	132.2	272.3	2.3	36.3	(NA)	(NA)
1987 Census	191	197	53	4.4	57.9	3.3	5.7	31.0	150.3	154.7	294.0	4.4	60.4	99	79
1986 ASM	(NA)	(NA)	(NA)	3.0	48.4	1.8	3.3	23.1	235.0	235.6	470.6	(D)	71.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.5	52.4	2.4	4.4	29.3	231.3	257.6	496.0	16.2	95.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.4	89.7	5.1	9.4	58.1	312.6	317.8	614.9	(D)	101.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.7	103.1	5.5	10.1	47.9	335.7	256.9	595.1	(D)	78.0	(NA)	(NA)
1982 Census	233	237	71	7.3	86.6	5.9	10.6	48.1	209.5	194.2	402.7	7.3	71.2	88	66
1981 ASM	(NA)	(NA)	(NA)	7.9	81.7	6.5	10.6	44.8	209.0	207.1	410.9	6.3	69.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.2	71.5	6.7	11.1	45.4	168.4	179.9	349.1	4.0	61.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.6	70.0	7.2	12.2	42.3	167.3	170.0	338.9	4.4	63.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.3	68.7	7.9	13.7	41.5	168.5	158.4	322.7	7.3	68.2	(NA)	(NA)
1977 Census	223	231	88	9.1	65.3	8.0	13.3	43.5	181.6	171.6	340.2	6.4	62.5	94	59
INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES															
1992 Census	895	917	213	30.6	673.6	23.0	46.1	392.0	2 389.8	1 818.0	4 186.2	137.3	553.8	92	90
1991 ASM	(NA)	(NA)	(NA)	27.0	588.7	19.4	38.4	316.6	2 060.3	1 831.5	3 887.2	92.1	458.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.9	571.6	19.9	39.7	315.3	1 911.8	1 672.7	3 622.9	78.7	462.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	32.1	561.4	24.4	44.9	332.9	2 156.3	1 639.5	3 802.9	117.6	496.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	34.1	602.8	26.5	49.7	369.3	2 201.8	1 791.4	3 950.8	96.0	553.5	(NA)	(NA)
1987 Census	698	716	197	30.9	541.6	23.7	45.1	331.5	1 911.3	1 507.4	3 381.3	94.2	485.3	93	94
1986 ASM	(NA)	(NA)	(NA)	30.0	504.3	22.3	41.7	305.8	1 663.1	1 603.8	3 264.7	112.4	497.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	27.6	462.5	20.6	38.5	267.3	1 714.8	1 601.2	3 323.7	68.2	538.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	33.5	530.9	26.1	48.7	327.1	2 120.6	1 965.9	4 020.2	66.6	503.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	43.9	565.6	34.4	61.3	345.2	1 980.0	1 547.8	3 552.8	99.8	545.9	(NA)	(NA)
1982 Census	732	780	253	43.8	625.0	32.2	59.4	363.6	2 622.6	1 854.5	4 476.0	111.5	652.5	89	91
1981 ASM	(NA)	(NA)	(NA)	48.4	667.2	35.3	67.1	363.8	2 549.6	2 034.2	4 556.7	107.3	657.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	50.6	638.9	37.2	69.9	359.7	2 039.3	1 737.9	3 729.8	131.5	632.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	53.9	606.5	40.8	77.4	362.4	1 826.5	1 620.8	3 436.1	89.0	585.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	51.0	551.2	37.3	71.0	313.1	1 570.3	1 386.5	2 918.5	83.1	505.3	(NA)	(NA)
1977 Census	754	800	251	53.1	520.6	39.2	73.2	295.0	1 544.6	1 205.6	2 719.7	78.5	437.7	86	93
INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.															
1992 Census	2 025	2 113	510	61.7	1 361.4	44.0	88.5	754.0	4 198.8	3 400.8	7 566.4	176.9	1 357.1	97	96
1991 ASM	(NA)	(NA)	(NA)	61.3	1 247.3	45.4	90.3	740.5	3 753.6	3 287.4	7 035.7	138.2	1 268.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	65.8	1 238.0	49.5	91.3	748.8	3 763.6	3 265.5	7 040.2	169.6	1 326.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	59.3	1 128.4	45.4	84.5	698.0	3 547.1	3 069.9	6 509.6	166.2	1 298.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	55.7	1 022.7	41.7	81.2	625.2	3 202.4	2 641.5	5 746.9	120.1	1 203.9	(NA)	(NA)
1987 Census	1 708	1 800	490	53.6	913.0	39.9	75.4	558.1	2 799.9	2 346.0	5 123.0	133.2	1 005.2	94	98
1986 ASM	(NA)	(NA)	(NA)	43.2	729.1	31.8	61.5	449.5	2 131.2	1 844.9	3 960.6	(D)	829.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.8	707.6	32.4	60.1	437.9	1 928.6	1 782.4	3 766.1	111.3	827.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	46.7	742.6	35.2	68.3	459.7	2 020.7	1 812.6	3 765.3	(D)	897.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	44.8	663.1	33.7	63.1	411.0	1 759.3	1 572.4	3 333.9	(D)	761.7	(NA)	(NA)
1982 Census	1 453	1 553	460	47.8	677.7	36.0	67.7	426.1	1 778.0	1 591.2	3 376.8	76.5	796.2	97	95
1981 ASM	(NA)	(NA)	(NA)	52.4	660.0	40.4	77.0	423.0	1 681.2	1 577.8	3 249.0	68.1	736.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	53.9	634.6	42.2	80.7	413.8	1 610.1	1 496.2	3 055.3	73.5	685.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	56.0	600.1	44.3	84.4	401.5	1 457.8	1 362.0	2 812.2	88.8	621.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	59.7	588.4	48.1	88.5	398.8	1 339.9	1 279.2	2 575.9	69.3	631.4	(NA)	(NA)
1977 Census	1 757	1 878	496	57.2	525.8	46.1	85.9	358.6	1 273.6	1 182.0	2 425.1	62.7	579.1	95	94

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3931, MUSICAL INSTRUMENTS								
1992 Census	22 352	77	1 904	9.87	41	69	48 230	46	32.87
1991 ASM	20 704	76	2 000	8.90	40	67	46 635	44	30.82
1990 ASM	19 983	78	1 945	8.72	38	65	46 812	43	30.94
1989 ASM	19 500	78	1 934	8.67	40	67	43 690	45	28.80
1988 ASM	19 122	76	1 957	8.46	38	65	43 805	44	29.28
1987 Census	17 877	79	1 927	7.89	39	66	41 139	43	27.13
1986 ASM	17 361	77	2 000	7.46	41	69	36 352	48	23.59
1985 ASM	16 760	75	1 912	7.75	41	69	33 653	50	23.40
1984 ASM	16 329	77	1 926	7.40	47	76	30 129	54	20.28
1983 ASM	15 741	79	1 885	7.11	47	74	29 482	53	19.81
1982 Census	14 483	79	1 836	6.87	45	74	27 798	52	19.25
1981 ASM	14 025	79	1 894	6.61	47	76	25 921	54	17.40
1980 ASM	12 605	79	1 869	5.96	47	74	23 996	53	16.33
1979 ASM	11 670	80	1 914	5.42	50	80	19 522	60	12.74
1978 ASM	11 132	81	1 904	5.07	49	77	20 357	55	13.28
1977 Census	10 306	82	1 854	4.66	46	74	19 373	53	12.78
	INDUSTRY 3942, DOLLS AND STUFFED TOYS								
1992 Census	17 806	78	1 857	6.88	36	62	43 472	41	30.10
1991 ASM	17 480	76	1 553	8.71	36	57	54 800	32	46.44
1990 ASM	15 571	78	1 684	6.28	36	56	49 816	31	38.14
1989 ASM	14 205	77	1 765	5.73	45	65	41 977	34	30.78
1988 ASM	14 769	79	1 742	5.80	49	70	34 795	42	25.13
1987 Census	13 159	75	1 727	5.44	53	72	34 159	39	26.37
1986 ASM	16 133	60	1 833	7.00	50	60	78 333	21	71.21
1985 ASM	14 971	69	1 833	6.66	52	63	66 086	23	52.57
1984 ASM	14 016	80	1 843	6.18	52	66	48 844	29	33.26
1983 ASM	13 390	71	1 836	4.74	43	60	43 597	31	33.24
1982 Census	11 863	81	1 797	4.54	48	70	28 699	41	19.76
1981 ASM	10 342	82	1 631	4.23	50	70	26 456	39	19.72
1980 ASM	8 720	82	1 657	4.09	52	72	20 537	42	15.17
1979 ASM	8 140	84	1 694	3.47	50	71	19 453	42	13.71
1978 ASM	7 387	85	1 734	3.03	49	70	18 118	41	12.30
1977 Census	7 176	88	1 663	3.27	50	70	19 956	36	13.65
	INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES								
1992 Census	22 013	75	2 004	8.50	43	60	78 098	28	51.84
1991 ASM	21 804	72	1 979	8.24	47	62	76 307	29	53.65
1990 ASM	20 487	71	1 995	7.94	46	62	68 523	30	48.16
1989 ASM	17 489	76	1 840	7.41	43	58	67 174	26	48.02
1988 ASM	17 677	78	1 875	7.43	45	61	64 569	27	44.30
1987 Census	17 528	77	1 903	7.35	45	61	61 854	28	42.38
1986 ASM	16 810	74	1 870	7.33	49	65	55 437	30	39.88
1985 ASM	16 757	75	1 869	6.94	48	62	62 130	27	44.54
1984 ASM	15 848	78	1 866	6.72	49	62	63 301	25	43.54
1983 ASM	12 884	78	1 782	5.63	44	59	45 103	29	32.30
1982 Census	14 269	74	1 845	6.12	41	55	59 877	24	44.15
1981 ASM	13 785	73	1 901	5.42	45	59	52 678	26	38.00
1980 ASM	12 626	74	1 879	5.15	47	64	40 302	31	29.17
1979 ASM	11 252	76	1 897	4.68	47	65	33 887	33	23.60
1978 ASM	10 808	73	1 903	4.41	48	66	30 790	35	22.12
1977 Census	9 804	74	1 867	4.03	44	63	29 089	34	21.10
	INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.								
1992 Census	22 065	71	2 011	8.52	45	63	68 052	32	47.44
1991 ASM	20 347	74	1 989	8.20	47	64	61 233	33	41.57
1990 ASM	18 815	75	1 844	8.20	46	64	57 198	33	41.22
1989 ASM	19 029	77	1 861	8.26	47	64	59 816	32	41.98
1988 ASM	18 361	75	1 947	7.70	46	64	57 494	32	39.44
1987 Census	17 034	74	1 890	7.40	46	64	52 237	33	37.13
1986 ASM	16 877	74	1 934	7.31	47	65	49 333	34	34.65
1985 ASM	16 533	76	1 855	7.29	47	66	45 061	37	32.09
1984 ASM	15 901	75	1 940	6.73	48	68	43 270	37	29.59
1983 ASM	14 801	75	1 872	6.51	47	67	39 270	38	27.88
1982 Census	14 178	75	1 881	6.29	47	67	37 197	38	26.26
1981 ASM	12 595	77	1 906	5.49	49	69	32 084	39	21.83
1980 ASM	11 774	78	1 912	5.13	49	70	29 872	39	19.95
1979 ASM	10 716	79	1 905	4.76	48	70	26 032	41	17.27
1978 ASM	9 856	81	1 840	4.51	50	73	22 444	44	15.14
1977 Census	9 192	81	1 863	4.17	49	70	22 266	41	14.83

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3931, MUSICAL INSTRUMENTS														
United States	–	**461**	**104**	**12.2**	**272.7**	**9.4**	**17.9**	**176.6**	**588.4**	**405.7**	**981.3**	**13.8**	**12.2**	**501.9**
Arizona	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	81	18	1.8	39.5	1.3	2.7	23.0	82.6	68.7	149.1	2.1	G	(D)
Connecticut	–	8	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	9.5
Georgia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	32	10	.6	14.0	.5	.9	8.8	33.4	23.6	56.2	.4	.5	20.2
Indiana	–	17	10	1.7	40.0	1.4	2.6	32.2	83.8	49.2	128.1	1.9	1.5	64.2
Maryland	E3	9	2	.2	3.1	.1	.3	2.2	6.7	3.8	10.3	(D)	(NA)	(D)
Massachusetts	–	23	6	.4	9.5	.3	.5	6.0	24.1	7.5	31.2	1.1	E	(D)
Michigan	–	11	3	.4	9.9	.3	.6	7.0	19.3	18.5	37.8	.8	E	(D)
Minnesota	E9	12	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Mississippi	–	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Montana	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	–	38	7	1.2	28.1	.8	1.7	16.0	53.4	26.7	78.1	.5	1.3	40.6
North Carolina	–	12	4	.3	4.3	.2	.4	2.9	11.0	16.3	27.8	.1	E	(D)
Ohio	–	18	7	.6	13.7	.5	.9	10.8	31.8	11.0	41.7	.4	F	(D)
Oregon	–	9	1	.2	5.6	.1	.2	2.4	9.8	6.4	14.8	.1	(NA)	(D)
Pennsylvania	–	23	8	1.3	30.6	.9	1.5	15.9	65.9	44.6	108.1	1.6	1.1	51.1
Tennessee	–	9	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	E4	18	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	17	4	.3	7.5	.3	.5	4.3	13.6	18.0	32.7	(D)	.5	22.4
INDUSTRY 3942, DOLLS AND STUFFED TOYS														
United States	**E1**	**209**	**42**	**3.6**	**64.1**	**2.8**	**5.2**	**35.8**	**156.5**	**91.1**	**251.0**	**3.0**	**4.4**	**150.3**
California	–	32	4	.3	6.1	.2	.5	3.1	19.9	8.7	29.0	.1	F	(D)
Illinois	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	E	(D)
Massachusetts	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	–	7	2	.1	1.7	.1	.2	1.2	4.3	2.7	7.2	(D)	E	(D)
New Hampshire	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E2	40	13	1.3	21.4	1.0	2.0	13.1	37.7	36.8	73.4	1.3	1.6	36.5
Ohio	–	5	3	.1	2.1	.1	.1	1.0	5.2	4.4	9.7	(D)	(NA)	(NA)
Pennsylvania	–	9	4	.2	3.3	.2	.3	1.7	7.5	3.9	11.4	.2	(NA)	(NA)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES														
United States	–	**917**	**213**	**30.6**	**673.6**	**23.0**	**46.1**	**392.0**	**2 389.8**	**1 818.0**	**4 186.2**	**137.3**	**30.9**	**1 911.3**
Alabama	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arizona	E1	9	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Arkansas	–	17	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	135	22	1.8	40.3	1.3	2.7	20.6	117.7	95.3	211.4	3.9	1.4	63.8
Colorado	E1	15	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	–	24	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	86.3
Florida	E4	27	5	.3	5.8	.2	.3	2.6	17.5	15.5	32.2	.6	.2	5.6
Georgia	E2	21	2	.2	3.8	.1	.2	1.8	9.8	4.7	14.8	.2	(NA)	(NA)
Illinois	–	47	14	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	11.3	(NA)	(D)
Indiana	–	19	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	13	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Kentucky	–	6	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maine	E2	17	2	.1	2.3	.1	.2	1.2	5.6	4.6	10.3	.2	(NA)	(D)
Maryland	–	12	5	.4	8.8	.3	.6	4.3	18.7	19.7	37.3	(D)	.4	13.4
Massachusetts	–	29	11	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan	–	22	6	1.2	22.1	.9	1.5	12.3	77.4	38.8	115.6	7.1	F	(D)
Minnesota	E8	19	2	.1	3.0	.1	.2	1.9	13.0	12.2	22.4	(D)	E	(D)
Mississippi	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E1	17	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	.3	8.3
Montana	E9	9	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nevada	E2	12	3	.1	2.5	.1	.2	1.4	6.3	6.8	12.8	.3	(NA)	(NA)
New Jersey	E2	30	10	1.1	25.0	.8	1.6	12.0	70.2	54.2	124.5	2.4	G	(D)
New York	–	66	14	2.1	44.7	1.6	2.8	30.7	161.9	107.0	270.2	1.9	3.8	198.5
North Carolina	–	17	5	1.1	23.0	1.0	2.6	16.4	92.8	72.2	161.3	(D)	G	(D)
Ohio	–	44	20	3.6	85.8	2.6	5.3	48.6	293.2	242.0	544.4	23.2	2.3	240.9
Oregon	–	26	5	.7	14.6	.6	1.5	9.2	61.4	40.2	93.9	1.8	F	(D)
Pennsylvania	E1	51	18	1.5	31.8	1.0	2.0	15.5	64.5	55.8	121.0	2.2	1.9	110.3
Rhode Island	–	8	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E2	19	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	46	9	1.3	21.9	1.2	2.4	16.3	79.9	64.0	144.5	3.0	F	(D)
Vermont	E2	14	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E3	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(NA)
Washington	E3	27	3	.1	3.2	.1	.2	1.7	6.3	6.2	12.9	(D)	(NA)	(NA)
Wisconsin	E1	17	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.														
United States	**E1**	**2 113**	**510**	**61.7**	**1 361.4**	**44.0**	**88.5**	**754.0**	**4 198.8**	**3 400.8**	**7 566.4**	**176.9**	**53.6**	**2 799.9**
Alabama	E2	43	16	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arizona	–	23	6	2.2	63.8	1.7	4.1	29.5	169.9	137.0	305.9	5.0	G	(D)
Arkansas	E1	34	11	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E1	345	93	8.3	201.6	5.5	10.9	88.7	585.8	502.9	1 099.4	29.9	(NA)	(D)
Colorado	–	53	9	.9	19.5	.7	1.6	11.3	53.7	28.5	80.6	1.7	F	(D)
Connecticut	E3	20	6	.5	11.4	.4	.6	6.7	24.4	16.5	40.6	(D)	F	(D)
Florida	E2	130	18	1.4	25.5	1.1	2.0	16.5	63.8	55.1	119.2	1.9	1.3	43.3
Georgia	E2	48	11	.8	15.9	.6	1.1	8.9	39.7	36.9	80.7	4.3	.9	70.5
Hawaii	E3	11	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Idaho	–	22	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	94	25	3.3	80.5	2.2	4.2	36.3	281.8	204.0	484.0	10.3	2.7	146.9
Indiana	–	42	11	1.1	23.5	.8	1.3	14.1	102.3	67.0	158.4	(D)	G	(D)
Iowa	E1	20	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	F	(D)
Kansas	–	17	3	.2	3.7	.1	.3	2.0	10.2	8.8	19.2	(D)	(NA)	(NA)
Kentucky	–	24	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.2	F	(D)
Louisiana	–	22	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	E1	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	E	(D)
Maryland	E1	15	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	34	6	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Michigan	–	73	14	1.1	29.3	.8	1.7	17.3	138.8	125.8	263.5	(D)	1.5	137.2
Minnesota	–	66	14	2.8	60.6	1.6	3.1	28.2	239.0	145.7	380.1	10.4	G	(D)
Mississippi	–	23	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	E1	62	18	1.7	30.6	1.4	2.7	19.3	91.4	72.1	160.3	2.8	1.0	44.3
Montana	–	19	5	.6	10.2	.5	.9	6.7	20.1	12.8	34.2	.4	.2	6.0
Nebraska	E3	16	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.0
Nevada	–	13	2	.2	3.3	.1	.2	1.7	8.6	5.7	14.6	.2	.2	6.8
New Hampshire	E1	12	2	.1	2.4	.1	.2	1.5	5.5	4.8	9.8	(D)	(NA)	(NA)
New Jersey	E3	30	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
New York	E3	73	15	1.6	33.6	1.1	2.2	20.2	111.2	93.2	205.1	3.4	2.6	99.6
North Carolina	E1	49	9	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	F	(D)
Ohio	E2	60	13	1.3	24.4	1.0	2.0	16.5	63.0	51.6	111.2	(D)	G	(D)
Oklahoma	–	40	9	1.3	28.4	.9	1.9	14.7	117.6	97.0	206.4	3.7	F	(D)
Oregon	E1	75	17	1.3	28.2	.9	1.5	14.6	93.1	40.8	133.1	1.5	G	(D)
Pennsylvania	E2	78	22	2.6	55.1	2.0	3.4	35.3	151.8	160.5	307.6	4.9	2.9	149.1
South Carolina	–	24	5	1.2	26.3	.9	1.8	18.4	117.3	80.6	194.8	4.9	G	(D)
South Dakota	E1	6	2	.1	1.6	.1	.2	1.0	4.4	4.8	8.5	.2	(NA)	(NA)
Tennessee	–	33	12	1.9	42.6	1.5	2.8	25.2	120.6	99.1	219.1	6.4	2.4	113.6
Texas	E2	117	22	3.0	57.6	2.3	4.3	32.9	130.7	170.4	310.8	18.1	2.4	120.5
Utah	–	31	12	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Vermont	–	10	3	.4	10.4	.3	.5	5.4	31.7	40.0	71.2	.5	.2	11.3
Virginia	E1	15	5	1.2	29.0	.9	2.3	14.8	112.5	96.1	207.3	(D)	G	(D)
Washington	–	88	23	2.6	59.0	1.8	3.7	36.3	156.1	117.7	274.0	4.1	2.1	103.9
West Virginia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	75	20	2.0	39.9	1.5	3.1	22.3	131.7	116.6	245.3	6.2	1.3	60.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Musical instruments (SIC 3931)	Dolls and stuffed toys (SIC 3942)	Games, toys, and children's vehicles (SIC 3944)	Sporting and athletic goods, n.e.c. (SIC 3949)
Companies ---- number	437	204	895	2 025
All establishments ---- number	461	209	917	2 113
With 1 to 19 employees ---- number	357	167	704	1 603
With 20 to 99 employees ---- number	74	36	156	367
With 100 employees or more ---- number	30	6	57	143
Employment and labor costs:				
Employees ---- 1,000	12.2	3.6	30.6	61.7
Compensation, total ---- mil dol	327.3	72.5	835.9	1 678.6
Annual payroll ---- mil dol	272.7	64.1	673.6	1 361.4
Fringe benefits ---- mil dol	54.7	8.4	162.4	317.2
Social Security and other legally required payments ---- mil dol	27.0	5.3	75.5	135.4
Employer voluntary payments ---- mil dol	27.6	3.1	86.9	181.9

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Musical instruments (SIC 3931)	Dolls and stuffed toys (SIC 3942)	Games, toys, and children's vehicles (SIC 3944)	Sporting and athletic goods, n.e.c. (SIC 3949)
Production workers:				
Average for year ---- 1,000	9.4	2.8	23.0	44.0
March ---- 1,000	9.4	2.7	23.2	43.9
May ---- 1,000	9.5	2.8	22.6	44.1
August ---- 1,000	9.4	2.8	22.6	43.9
November ---- 1,000	9.1	2.7	23.5	44.3
Hours ---- millions	17.9	5.2	46.1	88.5
Wages ---- mil dol	176.6	35.8	392.0	754.0
Cost of materials[1] ---- mil dol	405.7	91.1	1 818.0	3 400.8
Materials, parts, containers, etc., consumed[2] ---- mil dol	344.5	76.6	1 390.9	2 854.7
Resales ---- mil dol	44.2	6.3	297.1	416.8
Fuels ---- mil dol	3.3	.8	9.6	19.9
Purchased electricity ---- mil dol	7.8	1.7	36.1	47.9
Contract work ---- mil dol	6.0	5.6	84.3	61.5
Quantity of electric energy used for heat and power:				
Purchased ---- mil kWh	111.9	20.2	555.7	772.3
Generated less sold ---- mil kWh	(D)	–	(D)	(D)
Total value of shipments ---- mil dol	981.3	251.0	4 186.2	7 566.4
Value added ---- mil dol	588.4	156.5	2 389.8	4 198.8
Inventories by stage of fabrication:				
Beginning of 1992 ---- mil dol	247.4	64.4	513.4	1 312.8
Finished goods ---- mil dol	69.9	38.7	236.0	654.8
Work in process ---- mil dol	96.9	9.2	82.1	202.6
Materials and supplies ---- mil dol	80.5	16.5	195.2	455.3
End of 1992 ---- mil dol	259.4	60.4	553.8	1 357.1
Finished goods ---- mil dol	81.9	34.6	258.4	679.0
Work in process ---- mil dol	97.8	10.0	81.3	211.7
Materials and supplies ---- mil dol	79.8	15.8	214.1	466.4

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Musical instruments (SIC 3931)	Dolls and stuffed toys (SIC 3942)	Games, toys, and children's vehicles (SIC 3944)	Sporting and athletic goods, n.e.c. (SIC 3949)
Gross book value of depreciable assets:				
Total:				
Beginning of year	226.4	41.9	844.4	1 365.9
New capital expenditures[1]	13.8	3.0	137.3	176.9
Used capital expenditures	1.8	.5	12.3	23.9
Retirements	4.8	.6	26.9	39.6
End of year	237.2	44.7	967.1	1 527.1
Buildings and other structures:				
Beginning of year	69.4	14.4	251.6	356.3
New capital expenditures	2.6	.8	23.0	34.6
Used capital expenditures	.4	.1	2.3	13.0
Retirements	.4	(Z)	.4	1.6
End of year	71.9	15.3	276.5	402.3
Machinery and equipment:				
Beginning of year	157.0	27.4	592.8	1 009.6
New capital expenditures[1]	11.2	2.2	114.3	142.3
Used capital expenditures	1.4	.4	9.9	10.9
Retirements	4.4	.6	26.5	38.0
End of year	165.2	29.4	690.5	1 124.7
Depreciation charges during 1992:				
Total	18.4	3.6	86.8	125.9
Buildings and other structures	3.3	.8	14.6	19.7
Machinery and equipment	15.1	2.8	72.2	106.2
Rental payments:				
Total	9.7	4.7	39.0	96.5
Buildings and other structures	6.2	3.5	28.7	67.1
Machinery and equipment	3.6	1.2	10.3	29.4

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Musical instruments (SIC 3931)		Dolls and stuffed toys (SIC 3942)		Games, toys, and children's vehicles (SIC 3944)		Sporting and athletic goods, n.e.c. (SIC 3949)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	1.3	(X)	(S)	(X)	4.8	(X)	7.9	(X)
Response coverage ratio (percent)[2]	76.7	(X)	(S)	(X)	83.8	(X)	62.5	(X)
Machinery	3.2	(X)	(S)	(X)	16.9	(X)	30.9	(X)
Response coverage ratio (percent)[2]	81.0	(X)	(S)	(X)	83.8	(X)	67.2	(X)
Other purchased services:								
Communications	1.8	(X)	(S)	(X)	8.0	(X)	21.1	(X)
Response coverage ratio (percent)[2]	76.7	(X)	(S)	(X)	79.5	(X)	67.8	(X)
Legal	1.0	(X)	(S)	(X)	5.9	(X)	24.3	(X)
Response coverage ratio (percent)[2]	76.3	(X)	(S)	(X)	81.3	(X)	67.1	(X)
Accounting and bookkeeping	1.6	(X)	(S)	(X)	3.4	(X)	7.9	(X)
Response coverage ratio (percent)[2]	80.7	(X)	(S)	(X)	82.4	(X)	59.9	(X)
Advertising	5.6	(X)	(S)	(X)	125.9	(X)	192.4	(X)
Response coverage ratio (percent)[2]	81.0	(X)	(S)	(X)	81.0	(X)	63.0	(X)
Software and other data processing	.7	(X)	(S)	(X)	6.0	(X)	6.9	(X)
Response coverage ratio (percent)[2]	76.7	(X)	(S)	(X)	75.4	(X)	56.0	(X)
Refuse removal, including hazardous waste	.9	(X)	(S)	(X)	2.7	(X)	6.3	(X)
Response coverage ratio (percent)[2]	76.7	(X)	(S)	(X)	84.1	(X)	68.8	(X)
New machinery and equipment expenditures	11.2	(X)	2.2	(X)	114.3	(X)	142.3	(X)
Automobiles, trucks, etc., for highway use	.4	25	(S)	(X)	1.2	24	3.1	23
Computers and peripheral data processing equipment	.7	18	(S)	(X)	11.6	9	24.9	15
All other	10.0	3	(S)	(X)	101.5	2	114.2	4
Adjustment ratio[3]	1.5	(X)	(S)	(X)	1.3	(X)	1.4	(X)
Cost of materials, components, parts, etc., used	344.5	(X)	76.6	(X)	1 390.9	(X)	2 854.7	(X)
Materials purchased or transferred from foreign sources[4]	71.7	9	(S)	(X)	322.4	6	273.6	13
Materials purchased or transferred from domestic sources	272.7	3	(S)	(X)	1 068.5	2	2 581.1	2
Adjustment ratio[3]	1.8	(X)	(S)	(X)	1.4	(X)	1.9	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3931, MUSICAL INSTRUMENTS												
Total	**–**	**461**	**12.2**	**272.7**	**9.4**	**17.9**	**176.6**	**588.4**	**405.7**	**981.3**	**13.8**	**259.4**
Establishments with an average of–												
1 to 4 employees	E6	244	.4	7.7	.3	.6	5.4	18.5	10.5	29.1	.6	6.8
5 to 9 employees	E1	58	.4	7.2	.3	.6	5.5	15.4	7.9	23.3	.4	5.5
10 to 19 employees	E1	55	.7	14.9	.6	1.1	10.0	30.3	15.9	46.9	.6	9.6
20 to 49 employees	E1	43	1.5	29.6	1.2	2.2	20.0	64.3	44.9	108.1	1.6	23.6
50 to 99 employees	–	31	2.2	47.3	1.8	3.4	31.2	106.0	67.4	174.2	3.2	46.0
100 to 249 employees	–	19	3.1	76.1	2.3	4.5	47.5	171.1	145.5	311.6	4.5	81.5
250 to 499 employees	E1	11	4.0	89.9	2.9	5.4	57.0	182.8	113.6	288.1	2.9	86.3
Covered by administrative records[2]	E9	210	.3	5.4	.2	.5	3.7	12.9	7.4	20.3	.4	5.1
INDUSTRY 3942, DOLLS AND STUFFED TOYS												
Total	**E1**	**209**	**3.6**	**64.1**	**2.8**	**5.2**	**35.8**	**156.5**	**91.1**	**251.0**	**3.0**	**60.4**
Establishments with an average of–												
1 to 4 employees	E9	112	.1	2.2	.1	.2	1.0	5.8	2.2	8.0	.2	1.9
5 to 9 employees	E2	30	.2	3.3	.1	.3	1.6	10.2	8.9	18.7	.2	5.0
10 to 19 employees	–	25	.4	5.9	.3	.5	3.0	14.3	10.2	23.9	.3	5.2
20 to 49 employees	–	25	.7	13.0	.5	1.0	6.4	37.3	21.8	59.9	.4	17.1
50 to 99 employees	E1	11	.8	13.4	.6	1.2	7.6	44.3	21.4	66.4	.7	16.6
100 to 249 employees	E1	4	1.4	26.3	1.2	2.1	16.1	44.6	26.7	74.0	1.2	14.5
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	111	.2	2.8	.1	.2	1.2	7.5	2.7	10.2	.2	2.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES												
Total	**–**	**917**	**30.6**	**673.6**	**23.0**	**46.1**	**392.0**	**2 389.8**	**1 818.0**	**4 186.2**	**137.3**	**553.8**
Establishments with an average of—												
1 to 4 employees	E9	475	.7	14.6	.4	1.0	8.1	45.1	39.9	85.2	1.6	11.4
5 to 9 employees	E6	141	1.0	20.4	.7	1.4	11.0	59.5	51.1	109.3	1.7	15.6
10 to 19 employees	E2	88	1.3	25.2	.9	1.7	13.2	62.9	56.9	119.7	1.8	19.0
20 to 49 employees	E2	101	3.1	63.9	2.3	4.4	33.9	168.6	147.7	314.2	5.2	53.7
50 to 99 employees	–	55	4.0	81.1	2.9	5.8	43.2	191.3	185.5	378.8	13.1	65.8
100 to 249 employees	E1	32	4.8	95.7	3.6	7.2	53.8	279.1	210.9	496.3	14.4	70.8
250 to 499 employees	–	14	4.7	102.0	3.4	7.2	56.2	349.6	295.3	636.8	32.3	85.0
500 to 999 employees	–	7	5.0	109.5	4.1	8.1	70.4	508.9	322.4	822.5	30.1	110.5
1,000 to 2,499 employees	–	4	6.0	161.3	4.8	9.4	102.0	724.9	508.3	1 223.5	37.0	122.0
Covered by administrative records[2]	E9	539	1.2	24.9	.9	1.8	13.7	70.4	60.4	130.8	2.5	16.5
INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.												
Total	**E1**	**2 113**	**61.7**	**1 361.4**	**44.0**	**88.5**	**754.0**	**4 198.8**	**3 400.8**	**7 566.4**	**176.9**	**1 357.1**
Establishments with an average of—												
1 to 4 employees	E8	982	1.5	28.7	1.1	2.2	16.9	85.8	71.8	157.3	7.8	29.2
5 to 9 employees	E3	348	2.3	40.5	1.7	3.0	24.8	105.1	88.0	196.6	15.5	47.1
10 to 19 employees	E2	273	3.8	71.8	2.7	5.0	41.4	189.0	164.3	353.6	5.8	62.8
20 to 49 employees	E1	233	7.2	142.1	5.0	9.4	75.1	358.3	313.7	665.3	13.1	135.7
50 to 99 employees	E1	134	9.4	186.6	6.8	13.5	103.8	544.3	512.6	1 045.6	21.2	192.6
100 to 249 employees	–	99	15.3	343.0	11.3	22.3	189.5	1 035.4	820.0	1 843.7	40.5	346.5
250 to 499 employees	–	31	10.7	278.7	7.8	16.0	151.0	958.7	741.2	1 699.7	44.7	324.7
500 to 999 employees	–	9	6.0	146.2	4.5	8.9	93.1	547.8	318.7	862.5	14.4	127.3
1,000 to 2,499 employees	–	4	5.5	123.6	3.3	8.2	58.3	374.3	370.4	742.1	13.8	91.3
Covered by administrative records[2]	E9	1 011	2.1	33.9	1.6	2.9	20.5	97.0	82.6	179.6	3.5	33.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3931	**Musical instruments:**										
	All establishments in industry	461	12.2	272.7	9.4	17.9	176.6	588.4	405.7	981.3	13.8
	Establishments with this product class primary:										
39311	Pianos	9	1.6	35.8	1.2	2.3	24.0	88.9	90.9	172.6	1.6
39312	Organs	47	1.4	31.5	1.1	2.0	20.4	62.1	40.5	101.7	.7
39313	Piano and organ parts	11	.7	12.3	.5	1.1	7.5	18.1	13.9	31.1	.2
39314	Other musical instruments and parts	129	7.5	172.2	5.7	10.9	110.6	371.9	233.9	602.4	10.0
3942	**Dolls and stuffed toys:**										
	All establishments in industry	209	3.6	64.1	2.8	5.2	35.8	156.5	91.1	251.0	3.0
3944	**Games, toys, and children's vehicles:**										
	All establishments in industry	917	30.6	673.6	23.0	46.1	392.0	2 389.8	1 818.0	4 186.2	137.3
	Establishments with this product class primary:										
39443	Baby carriages and children's vehicles, except bicycles with pneumatic tires	11	2.2	47.0	1.9	3.9	31.4	176.5	136.5	315.5	10.3
39444	Toys; excluding games, hobbies, and electronic toys	115	15.3	332.7	12.0	23.7	205.2	1 294.2	1 046.9	2 335.7	74.0
39445	Hobbies: models (operating or static); craft, structural, and scientific equipment kits, sets, and individual units	90	5.1	106.4	3.4	6.6	53.4	262.8	177.1	434.9	14.6
39446	Nonelectronic games	43	4.4	116.9	3.2	7.0	64.3	472.8	294.6	751.7	(D)
39447	Electronic games and toys (excluding disks, tapes, and cartridges)	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3949	**Sporting and athletic goods, n.e.c.:**										
	All establishments in industry	2 113	61.7	1 361.4	44.0	88.5	754.0	4 198.8	3 400.8	7 566.4	176.9
	Establishments with this product class primary:										
39491	Fishing tackle and equipment	138	5.3	101.7	4.2	8.3	60.7	274.9	205.6	467.3	9.3
39492	Golf equipment	113	12.4	336.2	9.0	18.7	181.7	1 202.3	803.2	1 995.8	50.5
39493	Playground equipment	57	2.8	64.9	2.0	3.8	36.8	201.8	153.6	351.1	7.8
39494	Gymnasium and exercise equipment	107	11.5	249.4	7.2	15.8	128.8	749.3	671.2	1 420.1	26.5
39495	Other sporting and athletic goods	392	21.2	451.9	15.4	30.2	252.6	1 327.9	1 228.9	2 557.4	63.0

See footnotes at end of table.

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TSF:39B_92.DAT;4 5/ 4/ 95 16:36:22 UTF:39B_93.DAT;7 5/ 4/ 95 16:36:22 META:TIPS96-16361810.DAT;1 5/ 4/ 95 16:37:15

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**—Con.

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3931, MUSICAL INSTRUMENTS			
Total value of shipments	981.3	814.1	915.9
Primary products value of shipments	878.9	762.4	851.4
Secondary products value of shipments	42.3	21.1	20.7
Total miscellaneous receipts	60.1	30.6	43.8
Value of resales	49.3	22.2	33.1
Contract receipts	4.3	(D)	3.9
Other miscellaneous receipts	6.5	(D)	6.8
Primary products specialization ratio	95	97	98
Value of primary products shipments made in all industries	900.8	781.3	876.5
Value of primary products shipments made in this industry	878.9	762.4	851.4
Value of primary products shipments made in other industries	21.9	18.9	25.1
Coverage ratio	98	98	97
INDUSTRY 3942, DOLLS AND STUFFED TOYS			
Total value of shipments	251.0	294.0	402.7
Primary products value of shipments	232.7	241.5	344.9
Secondary products value of shipments	5.7	3.1	46.4
Total miscellaneous receipts	12.6	49.4	11.4
Value of resales	10.7	48.9	9.8
Contract receipts	1.2	(D)	(D)
Other miscellaneous receipts	.6	(D)	(D)
Primary products specialization ratio	98	99	88
Value of primary products shipments made in all industries	290.5	305.4	523.6
Value of primary products shipments made in this industry	232.7	241.5	344.9
Value of primary products shipments made in other industries	57.8	63.9	178.7
Coverage ratio	80	79	66
INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES			
Total value of shipments	4 186.2	3 381.3	4 476.0
Primary products value of shipments	3 259.0	2 804.8	3 625.6
Secondary products value of shipments	295.7	220.6	436.2
Total miscellaneous receipts	631.6	355.9	414.2
Value of resales	540.9	298.7	408.9
Contract receipts	(D)	52.0	(D)
Other miscellaneous receipts	(D)	5.2	(D)
Primary products specialization ratio	92	93	89
Value of primary products shipments made in all industries	3 625.8	2 997.0	3 976.9
Value of primary products shipments made in this industry	3 259.0	2 804.8	3 625.6
Value of primary products shipments made in other industries	366.8	192.2	351.3
Coverage ratio	90	94	91
INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.			
Total value of shipments	7 566.4	5 123.0	3 376.8
Primary products value of shipments	6 674.9	4 243.8	3 008.2
Secondary products value of shipments	171.4	293.4	103.4
Total miscellaneous receipts	720.1	585.8	265.2
Value of resales	636.6	550.8	246.9
Contract receipts	40.5	24.0	(D)
Other miscellaneous receipts	43.0	11.0	(D)
Primary products specialization ratio	97	94	97
Value of primary products shipments made in all industries	6 979.9	4 349.4	3 160.8
Value of primary products shipments made in this industry	6 674.9	4 243.8	3 008.2
Value of primary products shipments made in other industries	305.0	105.6	152.6
Coverage ratio	96	98	95

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3931– —	**MUSICAL INSTRUMENTS**						
	Total	**(NA)**	**(X)**	**900.8**	**(NA)**	**(X)**	**781.3**
39311	Pianos	(NA)	(X)	140.5	(NA)	(X)	171.8
39311 11	Verticals, uprights, or consoles, 37 inches or less in height — thousands	1	53.7	84.1	(NA)	93.0	113.6
39311 15	Verticals, uprights, or consoles, more than 37 inches in height — thousands	7					
39311 51	Grand pianos — thousands	3	5.3	55.5	3	7.7	58.2
39311 00	Pianos, n.s.k.	(NA)	(X)	.9	(NA)	(X)	–
39312	Organs	(NA)	(X)	87.0	(NA)	(X)	80.1
39312 11	Pipe and reed	37	(X)	35.3	18	(X)	22.1
39312 51	Electronic	7	(X)	51.7	7	(X)	58.0
39312 00	Organs, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
39313	Piano and organ parts	(NA)	(X)	29.3	(NA)	(X)	40.6
39313 11	Piano parts (actions, attachments, strings, tuning pins, etc.), except benches	10	(X)	15.6	8	(X)	33.4
39313 51	Organ parts and materials, except benches	11	(X)	13.7	8	(X)	7.2
39313 00	Piano and organ parts, n.s.k.	(NA)	(X)	–	(NA)	(X)	–
39314	Other musical instruments and parts	(NA)	(X)	576.0	(NA)	(X)	384.2
39314 13	Woodwinds — thousands	16	264.7	82.6	12	265.6	54.2
39314 15	Brass winds — thousands	10	212.7	74.5	8	240.8	77.2
39314 27	Nonelectronic fretted or string instruments (such as harps, harpsichords, guitars, banjos, etc.)[3]	22	(X)	41.4	(NA)	(X)	([4])
39314 50	Electronic musical instruments, other than electronic organs and synthesizers	17	(X)	147.7	(NA)	(X)	66.8
39314 52	Synthesizers (all types)	3					
39314 88	Percussion musical instruments (cymbals, drums, vibraphones (nonelectronic), etc.)	12	(X)	54.1	(NA)	(X)	69.4
39314 98	Other nonelectronic musical instruments, including accordions, harmonicas, bagpipes, etc.	13	(X)	15.1			
39314 31	Accessories and parts, such as reed mouthpieces, strings (excluding piano strings), music stands, drummers' traps, etc.	56	(X)	157.3	(NA)	(X)	[4]110.6
39314 00	Other musical instruments and parts, n.s.k.	(NA)	(X)	3.2	(NA)	(X)	6.0
39310	Musical instruments, n.s.k.	(NA)	(X)	68.0	(NA)	(X)	104.6
39310 00	Musical instruments, n.s.k.[5]	(NA)	(X)	47.7	(NA)	(X)	65.1
39310 02	Musical instruments, n.s.k.[6]	(NA)	(X)	20.3	(NA)	(X)	39.5

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3942– —	**DOLLS AND STUFFED TOYS**				
	Total	**(NA)**	**290.5**	**(NA)**	**305.4**
39420	Dolls and toy animals, including accessories thereof	(NA)	290.5	(NA)	305.4
39420 08	Stuffed dolls	12	33.4	7	20.8
39420 12	Dolls, complete, more than 13 inches, including mechanical/electrical (except stuffed dolls)[3]	14	11.6	(NA)	13.6
39420 21	Dolls, complete, 13 inches or less, including fashion dolls, action figures, and collectors' miniatures (except stuffed)[3]	10	18.7	(NA)	(D)
39420 43	Doll parts; clothes, accessories, and playsets for dolls, including fashion dolls and action figures[3]	7	19.2	(NA)	(D)
39420 53	Stuffed toy animals	27	106.7	(NA)	176.0
39420 54	Other stuffed toys	6	13.0		
39420 56	Puppets, marionettes, and other animals and figures not stuffed	5	6.9	2	(D)
39420 00	Dolls and stuffed toys, n.s.k.[5]	(NA)	70.9	(NA)	37.6
39420 02	Dolls and stuffed toys, n.s.k.[6]	(NA)	10.2	(NA)	18.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3944– ––	**GAMES, TOYS, AND CHILDREN'S VEHICLES**						
	Total	**(NA)**	**(X)**	**3 625.8**	**(NA)**	**(X)**	**2 997.0**
39443	Baby carriages and children's vehicles, except bicycles with pneumatic tires	(NA)	(X)	432.4	(NA)	(X)	240.8
39443 16	Baby carriages and strollers[3]	7	(X)	49.0	(NA)	(X)	(7)
39443 46	Tricycles (including pedal and chain-driven), plastics and metal tubular construction ---- thousands	9	2 055.1	56.9	7	(S)	66.6
39443 81	Parts for children's vehicles, sold separately	2	(X)	(8)	5	(X)	7.5
39443 97	Other children's vehicles (automobiles, tractors, two-wheel sidewalk cycles, scooters, wagons, baby walkers, and sleds)[3]	18	(X)	8326.5	(NA)	(X)	7161.1
39443 00	Baby carriages and children's vehicles, except bicycles with pneumatic tires, n.s.k.	(NA)	(X)	–	(NA)	(X)	5.6
39444	Toys; excluding games, hobbies, and electronic toys	(NA)	(X)	1 735.8	(NA)	(X)	1 441.7
39444 11	Doll carriages, strollers, and doll carts	6	(X)	13.8	4	(X)	(S)
39444 13	Doll houses and furniture (excluding collectors' doll houses, miniatures, and accessories)	7	(X)	11.8	4	(X)	4.5
39444 15	Toy trains and equipment (mechanical and electric)	7	(X)	67.0	4	(X)	44.1
39444 20	Road-racing sets (including accessories and parts), and mechanically powered toys excluding scale model operating type[3]	1	(X)	(D)	(NA)	(X)	(S)
	Nonpowered transportation toys (nonriding), excluding model kits:						
	Units (sold without accessories):						
39444 21	Plastics, greater than 6 inches in length	8	(X)	91.8	(NA)	(X)	127.7
39444 23	Other, greater than 6 inches in length	7	(X)	67.4			
39444 24	6 inches in length or less	6	(X)	14.3	5	(X)	(9)
39444 28	Sets (sold with accessories)	5	(X)	45.6	1	(X)	(9)
39444 29	Musical toys and toy musical instruments	8	(X)	15.4	8	(X)	13.8
39444 31	Infants' toys, not elsewhere classified	8	(X)	72.2	10	(X)	124.5
39444 32	Construction sets and building toys	10	(X)	(D)	6	(X)	134.4
39444 36	Preschool playsets and toys, not elsewhere classified (excluding infants' toys and building toys)[3] ---- thousands	14	*29 159.6	238.6	(NA)	39 764.3	353.3
39444 37	Toy guns, gun sets, and rifles	8	(X)	34.4	11	(X)	23.0
39444 39	Children's coloring books and picture-word books	20	(X)	107.9	11	(X)	30.6
39444 41	Juvenile-scale sporting goods and inflatables (including sand, water, gardening toys, etc.)	16	(X)	92.6	13	(X)	67.5
39444 43	Housekeeping and cooking toys (including tea sets and play tools)	12	(X)	187.5	10	(X)	69.9
39444 95	Parts for toys	18	(X)	59.2	19	(X)	39.7
39444 99	Other toys, not listed above	86	(X)	375.9	45	(X)	9388.2
39444 00	Toys; excluding games, hobbies, and electronic toys, n.s.k.	(NA)	(X)	18.4	(NA)	(X)	14.0
39445	Hobbies: models (operating or static); craft, structural, and scientific equipment kits, sets, and individual units	(NA)	(X)	451.0	(NA)	(X)	399.2
	Operating models:						
39445 11	Electrically operated railroads; individual units, kits, sets, and accessories	11	(X)	38.9	6	(X)	39.8
39445 13	Operating cars, boats, planes, and other models (individual units, kits, and sets)	19	(X)	65.1	12	(X)	89.4
39445 16	Static models, other than plastics; all individual units, kits, sets, and structural kits (railroad, car, boat, plane)[3]	6	(X)	9.0	(NA)	(X)	18.6
39445 19	Plastics static models	6	(X)	80.9	(NA)	(X)	90.2
39445 21	Components and accessories for all models	9	(X)	16.1			
39445 23	Crafts: kits and supplies individually packaged or in bulk (decoupage, macrame, tiffany glass, beadery, etc.)	41	(X)	182.4	26	(X)	123.6
39445 25	Science: microscopes, chemistry sets, or any natural science kit or set (botany, minerology, electrical, etc.)	6	(X)	15.7	6	(X)	15.2
39445 30	Collectors' miniatures (doll houses, accessories; soldiers or historic figures; scale cars; aircraft; etc.) except dolls[3]	10	(X)	25.8	(NA)	(X)	6.5
39445 00	Hobbies: models; craft, structural, and scientific equipment kits, sets, and individual units, n.s.k.	(NA)	(X)	17.0	(NA)	(X)	15.9
39446	Nonelectronic games	(NA)	(X)	632.3	(NA)	(X)	539.1
	Games and puzzles:						
39446 15	Children's board games (under 12 yr)	7	(X)	(D)	9	(X)	57.6
39446 18	Family and other board games (chess, checkers, etc.) (12 yr and over)	13	(X)	171.2	17	(X)	235.6
39446 21	Sports-oriented action and skill games (football, baseball, etc.)	7	(X)	55.6	8	(X)	60.1
39446 24	Nonsports-oriented action and skill games	7	(X)	111.4	3	(X)	(10)
39446 27	Puzzles	18	(X)	93.8	14	(X)	51.4
39446 95	Other games	24	(X)	(D)	15	(X)	10118.5
39446 96	Parts for games (excluding electronic parts)	8	(X)	16.3	6	(X)	5.1
39446 00	Nonelectronic games, n.s.k.	(NA)	(X)	9.8	(NA)	(X)	10.7
39447	Electronic games and toys (excluding disks, tapes, and cartridges)	(NA)	(X)	64.0	(NA)	(X)	142.2
39447 12	Home video games, for attachment to television receiver	1	(X)	(D)	(NA)	(X)	40.6
39447 14	Other home electronic games, not video	2	(X)	(D)			
39447 16	Electronic toys, not elsewhere classified	3	(X)	(D)	8	(X)	94.0
39447 00	Electronic games and toys (excluding disks, tapes, and cartridges), n.s.k.	(NA)	(X)	.1	(NA)	(X)	7.5

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3944– —	**GAMES, TOYS, AND CHILDREN'S VEHICLES —Con.**						
39440	Games, toys, and children's vehicles, n.s.k.	(NA)	(X)	310.3	(NA)	(X)	234.0
39440 00	Games, toys, and children's vehicles, n.s.k.[11]	(NA)	(X)	178.7	(NA)	(X)	148.5
39440 02	Games, toys, and children's vehicles, n.s.k.[12]	(NA)	(X)	131.6	(NA)	(X)	85.5
3949– —	**SPORTING AND ATHLETIC GOODS, N.E.C.**						
	Total	**(NA)**	**(X)**	**6 979.9**	**(NA)**	**(X)**	**4 349.4**
39491	Fishing tackle and equipment	(NA)	(X)	493.1	(NA)	(X)	407.5
	Fishing tackle:						
39491 06	Fishing rods, all types[3]	19	(X)	43.1	(NA)	(X)	33.1
39491 11	Fishing reels, all types[3]	9	(X)	(D)	(NA)	(X)	(13)
39491 14	Fishing rod and reel combinations	5	(X)	(D)	4	(X)	52.5
39491 17	Fish hooks (including snelled hooks)	7	(X)	31.0	11	(X)	22.0
39491 18	Casting plugs, spinners, and spoons; flies, lures, and similar artificial baits	64	(X)	136.9	44	(X)	105.4
39491 20	Tackle boxes	8	(X)	45.1	7	(X)	(13)
39491 21	Other fishing equipment, including creels, fish and bait buckets, floats, furnished lines, sinkers, snap swivels, etc.	63	(X)	69.6	48	(X)	13186.1
39491 00	Fishing tackle and equipment, n.s.k.	(NA)	(X)	13.4	(NA)	(X)	8.4
39492	Golf equipment	(NA)	(X)	1 767.7	(NA)	(X)	963.6
39492 31	Golf balls, 1,000 dozens	12	45 186.8	501.8	11	17 104.0	161.2
	Golf clubs:						
39492 41	Irons, thousands	47	16 496.1	507.0	31	*22 819.4	437.3
39492 45	Woods, thousands	48	5 982.3	337.0	30	*5 059.9	169.5
39492 47	Golf bags, thousands	24	**3 354.8	143.3	18	2 064.7	68.8
39492 98	Other golf equipment (carts for carrying golf bags, shafts sold as such, tees, etc.) excluding shoes and apparel	54	(X)	266.9	25	(X)	116.1
39492 00	Golf equipment, n.s.k.	(NA)	(X)	11.7	(NA)	(X)	10.6
39493	Playground equipment	(NA)	(X)	384.6	(NA)	(X)	195.9
39493 01	Home, including swing sets, slides, seesaws, sandboxes, etc.	29	(X)	226.4	23	(X)	123.2
39493 02	Institutional and commercial playground equipment, heavy-duty (including swings, slides, etc.)	48	(X)	158.1	(NA)	(X)	68.3
39493 00	Playground equipment, n.s.k.	(NA)	(X)	.1	(NA)	(X)	4.4
39494	Gymnasium and exercise equipment	(NA)	(X)	1 376.1	(NA)	(X)	602.9
39494 01	Gymnasium and gymnastic apparatus and equipment (parallel and horizontal bars, balance beams, trampolines, mats, etc.)[3]	36	(X)	85.8	22	(X)	39.6
39494 02	Weight lifting equipment (including belts, benches, and weights)[3]	39	(X)	180.5	(NA)	(X)	116.8
39494 03	Multipurpose home gyms[3]	15	(X)	144.3	8	(X)	88.3
39494 04	Rowing machines[3]	2	(X)	(14)	7	(X)	33.0
39494 05	Exercise cycles[3], thousands	12	*955.2	100.4	12	(S)	87.9
39494 06	Other health, physical fitness, and exercising equipment (treadmills, slant-boards, multistation training units, etc.)[3]	59	(X)	14851.1	34	(X)	192.7
39494 00	Gymnasium and exercise equipment, n.s.k.[3]	(NA)	(X)	14.0	(NA)	(X)	44.5
39495	Other sporting and athletic goods	(NA)	(X)	2 365.3	(NA)	(X)	1 574.3
39495 11	Billiard and pool tables	22	(X)	100.7	17	(X)	50.4
39495 15	Billiard and pool supplies (such as balls, cues, etc.) sold separately	17	(X)	26.4	14	(X)	12.9
39495 27	Bowling alleys and bowling pinsetters, thousands	8	.8	135.3	4	(D)	(15)
	Bowling alley playing supplies:						
39495 28	Bowling balls, thousands	5	2 525.5	77.1	4	2 238.7	55.8
39495 30	Other bowling alley playing supplies (including pins, etc.)	11	(X)	144.8	11	(X)	15153.4
39495 36	Baseballs and softballs[3]	4	(X)	48.2	(NA)	(X)	36.6
39495 37	Baseball mitts and gloves, including softball	3	(X)	(D)	2	(X)	(D)
	Baseball bats, including softball bats:						
39495 38	Wood, 1,000 dozens	3	187.1	13.8	3	(S)	8.7
39495 39	Metal, 1,000 dozens	5	(S)	80.3	3	(S)	32.9
39495 41	Footballs, 1,000 dozens	4	369.3	34.7	4	243.7	22.8
39495 51	All inflatable athletic balls other than footballs (including basketballs, soccer balls, volleyballs, etc.)[3]	5	(X)	6.3	(NA)	(X)	(D)
	Tennis equipment:						
39495 64	Tennis rackets, all types (strung and unstrung), and tennis balls[3]	2	(X)	(D)	(NA)	(X)	(D)
39495 86	Other tennis equipment and accessories (excluding clothing, shoes, and nets)	9	(X)	8.8			
39495 91	Racquetball rackets and racquet balls[3]	5	(X)	8.7			
39495 89	Uninflatable athletic balls (handballs, table tennis balls, etc.), excl. golf, tennis, bowling, billiard, and racquet	1	(X)	(D)	(NA)	(X)	22.6
39495 85	Archery equipment	61	(X)	205.4	33	(X)	93.0
39495 53	Ice skates, shoe skates, and roller rink skates, excluding clamp-on type roller skates[3]	9	(X)	74.0	(NA)	(X)	3.1
39495 56	Wooden and plastics skateboards (including complete sets)	8	(X)	12.0	8	(X)	48.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3949– –	**SPORTING AND ATHLETIC GOODS, N.E.C.—Con.**						
39495	Other sporting and athletic goods—Con.						
39495 56	Wooden and plastics skateboards (including complete sets)—Con.						
39495 71	Winter sports equipment (bobsleds, toboggans, hockey goods, etc.), excluding clothing, protective equipment, and skates[3]	15	(X)	97.6	(NA)	(X)	97.9
39495 70	Snow skis and other snow-ski equipment (excluding clothing, body protective equipment, and shoes)[3]	13	(X)	18.5			
39495 69	Surfboards and sailboards[3]	18	(X)	21.8	(NA)	(X)	([16])
39495 75	Water skis 1,000 pairs	5	(S)	35.6	10	(S)	47.8
39495 77	Underwater sports equipment (SCUBA) and skindiving equipment, excluding watches and cameras	16	(X)	113.1	(NA)	(X)	[16]87.0
39495 92	Football helmets thousands	4	(D)	(D)	7	(S)	25.9
39495 93	Other sports helmets (including bicycle; excluding football, motorcycle, and auto racing)	19	(X)	88.8	10	(X)	8.0
39495 96	Body protective equipment for all sports (masks; shoulder, chest, knee, and kidney pads; etc.) excluding helmet	27	(X)	73.4	21	(X)	43.0
39495 94	Football, baseball, and soccer equipment, n.e.c. (including track, field, and miscellaneous athletic field equipment)	30	(X)	41.2	25	(X)	27.1
39495 95	Wading pools and other above ground swimming pools less than 15 ft in diameter, not filtered	3	(X)	(D)	4	(X)	60.2
39495 97	Above ground swimming pools 15 ft or more in diameter, filtered, (completely manufactured) thousands	11	(S)	115.9	10	(S)	168.1
39495 99	Other sporting and athletic goods[3]	174	(X)	543.8	(NA)	(X)	290.6
39495 00	Other sporting and athletic goods, n.s.k.	(NA)	(X)	54.6	(NA)	(X)	44.1
39490	Sporting and athletic goods, n.e.c., n.s.k.	(NA)	(X)	593.2	(NA)	(X)	605.3
39490 00	Sporting and athletic goods, n.e.c., n.s.k.[5]	(NA)	(X)	413.5	(NA)	(X)	420.2
39490 02	Sporting and athletic goods, n.e.c., n.s.k.[6]	(NA)	(X)	179.7	(NA)	(X)	185.1

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]For 1987, product code 39314 27 is included with product code 39314 31 to avoid disclosing data for individual companies.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]For 1987, product code 39443 16 is included with product code 39443 97 to avoid disclosing data for individual companies.
[8]For 1992, product code 39443 81 is included with product code 39443 97 to avoid disclosing data for individual companies.
[9]For 1987, product codes 39444 24 and 39444 28 are included with product code 39444 99 to avoid disclosing data for individual companies.
[10]For 1987, product code 39446 24 is included with product code 39446 95 to avoid disclosing data for individual companies.
[11]Typically for establishments with 10 employees or more.
[12]Typically for establishments with less than 10 employees.
[13]For 1987, product codes 39491 11 and 39491 20 are included with product code 39491 21 to avoid disclosing data for individual companies.
[14]For 1992, product code 39494 04 is included with product code 39494 06 to avoid disclosing data for individual companies.
[15]For 1987, product code 39495 27 is included with product code 39495 30 to avoid disclosing data for individual companies.
[16]For 1987, product code 39495 69 is included with product code 39495 77 to avoid disclosing data for individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39311, PIANOS		
United States	**140.5**	**171.8**
39312, ORGANS		
United States	**87.0**	**80.1**
Massachusetts	3.6	(NA)
Ohio	8.6	(NA)
Texas	2.1	(NA)
39313, PIANO AND ORGAN PARTS		
United States	**29.3**	**40.6**
New York	2.5	2.8
39314, OTHER MUSICAL INSTRUMENTS AND PARTS		
United States	**576.0**	**384.2**
California	132.3	66.7
Illinois	23.1	12.1
Indiana	83.7	63.9
Massachusetts	22.6	24.6
Michigan	36.8	(NA)

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39314, OTHER MUSICAL INSTRUMENTS AND PARTS—Con.		
New York	36.4	24.5
Pennsylvania	57.5	43.3
Washington	6.9	(NA)
39443, BABY CARRIAGES AND CHILDREN'S VEHICLES, EXCEPT BICYCLES WITH PNEUMATIC TIRES		
United States	**432.4**	**240.8**
Illinois	50.8	52.7
Ohio	97.8	(NA)
39444, TOYS; EXCLUDING GAMES, HOBBIES, AND ELECTRONIC TOYS		
United States	**1 735.8**	**1 441.7**
California	46.2	55.5
Illinois	101.5	68.0
Indiana	5.5	(NA)
Kansas	3.7	(NA)
Massachusetts	23.2	25.6
Minnesota	3.8	(NA)
Missouri	45.6	(NA)
New Hampshire	3.9	(NA)
New Jersey	46.9	122.2
New York	151.0	220.3
Ohio	266.4	251.8
Pennsylvania	75.6	122.3
39445, HOBBIES: MODELS (OPERATING OR STATIC); CRAFT, STRUCTURAL, AND SCIENTIFIC EQUIPMENT KITS, SETS, AND INDIVIDUAL UNITS		
United States	**451.0**	**399.2**
California	48.0	33.5
Illinois	68.5	75.7
Massachusetts	18.6	4.6
New Jersey	24.0	(NA)
New York	29.9	8.0
Ohio	25.2	(NA)
Oregon	11.1	(NA)
Pennsylvania	58.0	31.7
Texas	18.9	(NA)
39446, NONELECTRONIC GAMES		
United States	**632.3**	**539.1**
California	24.8	(NA)
Ohio	5.5	7.8
Pennsylvania	6.5	(NA)
39447, ELECTRONIC GAMES AND TOYS (EXCLUDING DISKS, TAPES, AND CARTRIDGES)		
United States	**64.0**	**142.2**
39491, FISHING TACKLE AND EQUIPMENT		
United States	**493.1**	**407.5**
Alabama	9.9	(NA)
California	12.6	28.4
Florida	16.7	13.6
Louisiana	15.5	4.4
Massachusetts	2.6	(NA)
Michigan	13.2	23.3
Minnesota	32.2	25.7
Mississippi	2.1	3.0
Missouri	8.6	8.3
Nebraska	3.3	5.0
39491, FISHING TACKLE AND EQUIPMENT—Con.		
New York	5.5	(NA)
Ohio	3.9	5.3
Texas	11.3	10.0
Washington	29.5	18.7
Wisconsin	24.8	17.8
39492, GOLF EQUIPMENT		
United States	**1 767.7**	**963.6**
California	397.9	138.6
Florida	12.6	(NA)
Illinois	127.6	89.4
Kentucky	9.6	7.9
South Carolina	132.5	(NA)
Wisconsin	17.5	8.6
39493, PLAYGROUND EQUIPMENT		
United States	**384.6**	**195.9**
Florida	8.8	(NA)
Indiana	5.8	9.5
Missouri	64.6	19.7
North Carolina	4.0	(NA)
Pennsylvania	58.3	49.7
Texas	12.2	(NA)
39494, GYMNASIUM AND EXERCISE EQUIPMENT		
United States	**1 376.1**	**602.9**
California	114.2	116.5
Indiana	12.1	(NA)
Missouri	39.9	14.1
New York	24.5	(NA)
Ohio	6.3	(NA)
Pennsylvania	19.4	26.8
Tennessee	2.7	(NA)
Texas	84.9	15.4
Washington	65.6	(NA)
Wisconsin	11.8	(NA)
39495, OTHER SPORTING AND ATHLETIC GOODS		
United States	**2 365.3**	**1 574.3**
Alabama	17.4	5.4
Arkansas	94.1	85.5
California	480.4	227.1
Colorado	28.1	29.4
Connecticut	8.9	27.2
Florida	51.9	33.2
Georgia	14.6	32.0
Idaho	15.3	(NA)
Illinois	174.2	66.2
Indiana	75.6	59.9
Iowa	11.4	9.0
Kansas	7.6	(NA)
Kentucky	49.7	(NA)
Louisiana	6.5	(NA)
Michigan	177.2	(NA)
Minnesota	35.2	17.9
Mississippi	9.6	3.2
Missouri	58.2	29.4
Nebraska	6.8	(NA)
Nevada	4.5	(NA)
New York	70.4	99.2
North Carolina	23.2	3.1
Ohio	87.5	52.5
Oklahoma	11.8	6.1
Oregon	35.5	11.9
Pennsylvania	60.9	76.0
Tennessee	55.3	63.4
Texas	77.7	56.7
Utah	63.8	(NA)
Vermont	10.5	(NA)
Washington	125.3	95.7
Wisconsin	94.0	54.2

Note: For qualifications of data, see footnotes on table 6a.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3931-	**Musical instruments**	**900.8**	**822.8**	**815.0**	**745.4**	**822.8**	**781.3**	**876.5**	**878.9**
39311	Pianos	140.5	138.0	140.9	153.7	161.9	171.8	194.8	180.6
39312	Organs	87.0	58.7	66.4	75.3	81.1	80.1	177.7	295.8
39313	Piano and organ parts	29.3	42.8	34.4	36.8	39.7	40.6	94.1	86.2
39314	Other musical instruments and parts	576.0	499.9	488.7	403.5	427.0	384.2	346.4	255.5
39310	Musical instruments, n.s.k.	68.0	83.5	84.5	76.1	113.2	104.6	63.6	60.8
3942-	**Dolls and stuffed toys**	**290.5**	**399.4**	**394.9**	**312.7**	**334.0**	**305.4**	**523.6**	**508.2**
39420	Dolls and toy animals, including accessories thereof	290.5	399.4	394.9	312.7	334.0	305.4	523.6	508.2
3944-	**Games, toys, and children's vehicles**	**3 625.8**	**3 440.2**	**3 270.6**	**3 419.3**	**3 431.2**	**2 997.0**	**3 976.9**	**2 333.2**
39443	Baby carriages and children's vehicles, except bicycles with pneumatic tires	432.4	(D)	300.4	284.2	261.3	240.8	315.1	211.2
39444	Toys; excluding games, hobbies, and electronic toys	1 735.8	1 824.9	1 690.3	1 912.6	1 657.8	1 441.7	1 329.5	1 036.0
39445	Hobbies: models (operating or static); craft, structural, and scientific equipment kits, sets, and individual units	451.0	344.3	328.5	377.5	493.4	399.2	377.0	309.3
39446	Nonelectronic games	632.3	596.9	541.1	567.1	621.4	539.1	399.1	612.0
39447	Electronic games and toys (excluding disks, tapes, and cartridges)	64.0	(D)	64.1	28.4	142.3	142.2	1 347.8	
39440	Games, toys, and children's vehicles, n.s.k.	310.3	304.8	346.3	249.4	255.0	234.0	208.5	164.6
3949-	**Sporting and athletic goods, n.e.c.**	**6 979.9**	**6 504.1**	**6 201.8**	**5 640.3**	**4 883.1**	**4 349.4**	**3 160.8**	**2 216.9**
39491	Fishing tackle and equipment	493.1	522.1	527.0	457.4	426.2	407.5	341.9	270.1
39492	Golf equipment	1 767.7	1 484.6	1 470.3	1 398.4	1 245.5	963.6	644.0	385.1
39493	Playground equipment	384.6	214.9	198.3	174.2	180.8	195.9	(NA)	(NA)
39494	Gymnasium and exercise equipment	1 376.1	1 329.9	1 169.4	1 119.0	741.3	602.9	(NA)	(NA)
39495	Other sporting and athletic goods	2 365.3	2 312.3	2 211.6	1 968.7	1 644.5	1 574.3	1 314.1	1 060.8
39490	Sporting and athletic goods, n.e.c., n.s.k.	593.2	640.4	625.2	522.7	644.7	605.3	329.4	243.4

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3931, MUSICAL INSTRUMENTS		
	Materials, ingredients, containers, and supplies	**344.5**	**287.2**
242101	Rough and dressed lumber	46.7	32.6
265001	Paperboard containers, boxes, and corrugated paperboard	5.4	2.5
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	4.8	(1)
	Electronic and electrical equipment and components, except computer equipment:		
365150	Loudspeakers, microphones, and tuners (all types)	4.1	2.3
	Broadcast, studio, and related electronic equipment:		
366321	Amplifiers	.6	(1)
366329	Other		
367000	Electronic components and accessories including circuit boards and recording heads	44.6	19.4
360080	All other electronic	6.9	(1)
393101	Parts specially designed for musical instruments, including actions, strings, mouthpieces, etc.	100.3	82.3
970099	All other materials and components, parts, containers, and supplies	78.7	[1]101.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	52.3	46.5
	INDUSTRY 3942, DOLLS AND STUFFED TOYS		
	Materials, ingredients, containers, and supplies	**76.6**	**109.0**
340004	Fabricated metal products, including forgings	–	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	(D)	(1)
335002	All other nonferrous shapes and forms	(D)	(1)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	2.1	.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	.8	.3
220129	Broadwoven fabrics (piece goods)	6.9	20.6
	Paper and allied products:		
263105	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	.9	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	.9	1.3
260002	Other paper products	.2	(1)
	Lumber and wood products:		
242111	Hardwood lumber, rough and dressed	(D)	–
242123	Softwood lumber, rough and dressed	–	(1)
240099	Other wood products (except lumber)	(D)	(1)
367000	Electronic components and accessories including circuit boards and recording heads	–	(1)
394200	Doll parts	15.7	17.0
970099	All other materials and components, parts, containers, and supplies	16.7	[1]33.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	32.3	35.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3944, GAMES, TOYS, AND CHILDREN'S VEHICLES		
	Materials, ingredients, containers, and supplies	**1 390.9**	**1 242.8**
340004	Fabricated metal products, including forgings	36.6	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	18.4	28.8
335002	All other nonferrous shapes and forms	25.1	5.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	241.2	189.8
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	226.5	202.5
220129	Broadwoven fabrics (piece goods)	34.6	30.6
	Paper and allied products:		
263105	Paperboard (including news, chip, pasted, tablet, check, binders' board), except for shipping	63.2	83.4
265001	Paperboard containers, boxes, and corrugated paperboard	126.7	120.6
260002	Other paper products	21.3	(1)
	Lumber and wood products:		
242111	Hardwood lumber, rough and dressed	15.3	11.9
242123	Softwood lumber, rough and dressed	3.7	12.5
240099	Other wood products (except lumber)	11.3	(1)
367000	Electronic components and accessories including circuit boards and recording heads	53.9	48.4
394200	Doll parts	(3)	(1)
970099	All other materials and components, parts, containers, and supplies	3291.9	1379.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	221.5	128.9
	INDUSTRY 3949, SPORTING AND ATHLETIC GOODS, N.E.C.		
	Materials, ingredients, containers, and supplies	**2 854.7**	**1 862.9**
	Fabricated metal products (except castings and forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	59.2	45.3
340098	All other fabricated metal products	149.8	(1)
	Castings (rough and semifinished):		
336005	Aluminum and aluminum-base alloy	26.3	19.0
336015	Other castings	64.3	(1)
346000	Forgings	2.3	(1)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331022	Sheet and strip	54.7	(1)
331028	All other steel shapes and forms	120.3	(1)
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	52.1	(1)
335011	All other (except sheet, plate, foil, and welded tubing)	14.7	(1)
335091	Other nonferrous shapes and forms	25.9	(1)
	Chemicals and allied products:		
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	33.4	20.7
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	174.9	79.6
280088	All other chemicals and allied products	15.5	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	101.6	89.2
220123	Cotton, wool, manmade fiber fabrics, etc.	76.5	45.3
311100	Finished leather	17.4	15.8
242101	Rough and dressed lumber	62.7	54.6
190004	Parts specially designed for sporting goods	495.6	288.0
265001	Paperboard containers, boxes, and corrugated paperboard	80.7	50.8
970099	All other materials and components, parts, containers, and supplies	643.8	1780.0
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	583.0	374.6

[1]In 1987, data for this material code were collected under code 970099.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1992, material code 394200 is included with material code 970099 to avoid disclosing data for individual companies.

TIPS [UPF] BATCH_1663 [EISS,BA_TAYLOR] MCD-SRB 5/ 4/ 95 4:37 PM MACHINE: EPCV20 DATA:NONE TAPE: NOreel FRAME: 15
TSF:39B_92.DAT;4 5/ 4/ 95 16:36:22 UTF:39B_93.DAT;7 5/ 4/ 95 16:36:22 META:TIPS96-16361810.DAT;1 5/ 4/ 95 16:37:15

Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
39141 70	39141 51
39141 70	39141 69
39142 70	39142 55
39142 70	39142 69
39314 27	39314 24
39314 27	39314 25
39314 27	39314 26
39420 12	39420 09
39420 12	39420 11
39420 21	39420 22
39420 21	39420 23
39420 21	39420 24
39420 21	39420 25
39420 43	39420 26
39420 43	39420 37
39420 43	39420 39
39420 43	39420 40
39420 43	39420 42
39443 16	39443 11
39443 16	39443 15
39443 97	39443 33
39443 97	39443 47
39443 97	39443 98
39444 20	39444 17
39444 20	39444 19
39444 36	39444 34
39444 36	39444 35
39445 16	39445 15
39445 16	39445 17
39445 30	39445 27
39445 30	39445 29
39491 06	39491 01
39491 06	39491 03
39491 06	39491 05
39491 11	39491 07
39491 11	39491 09
39491 11	39491 10
39494	39496
39494 01	39496 01
39494 02	39496 02
39494 03	39496 03
39494 04	39496 04
39494 05	39496 05
39494 06	39496 06
39495 36	39495 34
39495 36	39495 35
39495 51	39495 43
39495 51	39495 48
39495 51	39495 50
39495 53	39495 52
39495 53	39495 55
39495 64	39495 82
39495 64	39495 83
39495 69	39495 74
39495 69	39495 76
39495 70	39495 72
39495 70	39495 73
39495 71	39495 73
39495 91	39495 87
39495 91	39495 88
39495 99	39495 05
39495 99	39495 81
39495 99	39495 98
39511 02	39511 00
39511 04	39511 00
39511 13	39511 00
39512 02	39512 00
39512 06	39512 00
39513 05	39513 00
39513 10	39513 00
39513 13	39513 00
39513 25	39513 00
39523 10	39523 00
39523 13	39523 00
39523 22	39523 00
39530 13	39530 00
39530 15	39530 00
39530 33	39530 00
39530 35	39530 00
39530 37	39530 00
39530 98	39530 00
39551 10	39551 00
39551 15	39551 00
39551 20	39551 00
39610 72	39610 65
39610 72	39610 71
39610 96	39610 93
39610 96	39610 95
39656 25	39656 21
39656 25	39656 32
39960 00	39960 11
39960 00	39960 21
39960 00	39960 26
39960 00	39960 29
39960 00	39960 98
39991 40	39991 18
39991 40	39991 41
39991 70	39991 51
39991 70	39991 61
39991 70	39991 69
39997 00	39997 11
39999 81	39999 98
39999 99	39997 51
39999 99	39999 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
39141 51	39141 70
39141 69	39141 70
39142 55	39142 70
39142 69	39142 70
39314 24	39314 27
39314 25	39314 27
39314 26	39314 27
39420 09	39420 12
39420 11	39420 12
39420 22	39420 21
39420 23	39420 21
39420 24	39420 21
39420 25	39420 21
39420 26	39420 43
39420 37	39420 43
39420 39	39420 43
39420 40	39420 43
39420 42	39420 43
39443 11	39443 16
39443 15	39443 16
39443 33	39443 97
39443 47	39443 97
39443 98	39443 97
39444 17	39444 20
39444 19	39444 20
39444 34	39444 36
39444 35	39444 36
39445 15	39445 16
39445 17	39445 16
39445 27	39445 30
39445 29	39445 30
39491 01	39491 06
39491 03	39491 06
39491 05	39491 06
39491 07	39491 11
39491 09	39491 11
39491 10	39491 11
39495 05	39495 99
39495 34	39495 36
39495 35	39495 36
39495 43	39495 51
39495 48	39495 51
39495 50	39495 51
39495 52	39495 53
39495 55	39495 53
39495 72	39495 70
39495 73	39495 70
39495 73	39495 71
39495 74	39495 69
39495 76	39495 69
39495 81	39495 99
39495 82	39495 64
39495 83	39495 64
39495 87	39495 91
39495 88	39495 91
39495 98	39495 99
39496	39494
39496 01	39494 01
39496 02	39494 02
39496 03	39494 03
39496 04	39494 04
39496 05	39494 05
39496 06	39494 06
39511 00	39511 02
39511 00	39511 04
39511 00	39511 13
39512 00	39512 02
39512 00	39512 06
39513 00	39513 05
39513 00	39513 10
39513 00	39513 13
39513 00	39513 25
39523 00	39523 10
39523 00	39523 13
39523 00	39523 22
39530 00	39530 13
39530 00	39530 15
39530 00	39530 33
39530 00	39530 35
39530 00	39530 37
39530 00	39530 98
39551 00	39551 10
39551 00	39551 15
39551 00	39551 20
39610 65	39610 72
39610 71	39610 72
39610 93	39610 96
39610 95	39610 96
39656 21	39656 25
39656 32	39656 25
39960 11	39960 00
39960 21	39960 00
39960 26	39960 00
39960 29	39960 00
39960 98	39960 00
39991 18	39991 40
39991 41	39991 40
39991 51	39991 70
39991 61	39991 70
39991 69	39991 70
39997 11	39997 00
39997 51	39999 99
39999 98	39999 81
39999 98	39999 99

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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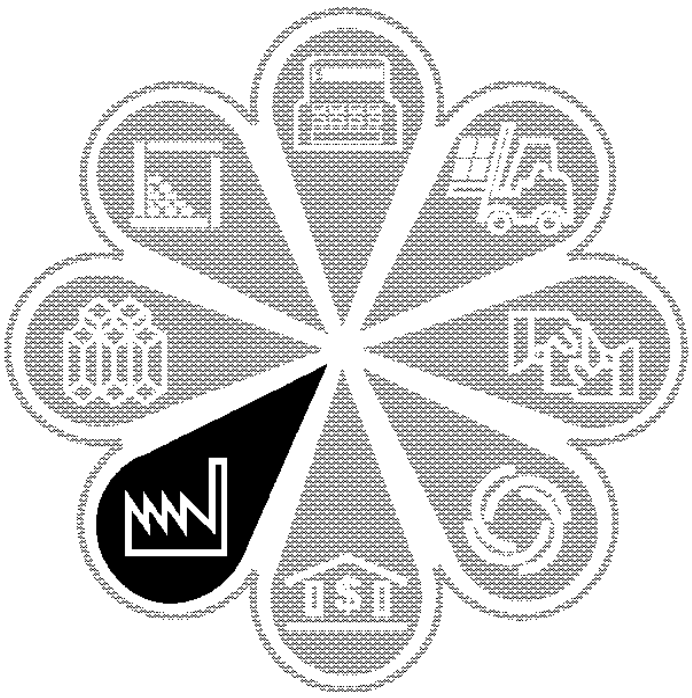
1992 Census of Manufactures

MC92-I-39C

INDUSTRY SERIES

Office Supplies, Costume Jewelry and Notions

Industries 3951, 3952, 3953, 3955, 3961, and 3965



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-39C

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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The Geography Division staff developed geographic coding procedures and associated computer programs.

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If you have any questions concerning the statistics in this report, call 301-457-4817.

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Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

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Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3951	Pens and Mechanical Pencils
3952	Lead Pencils and Art Goods
3953	Marking Devices
3955	Carbon Paper and Inked Ribbons
3961	Costume Jewelry
3965	Fasteners, Buttons, Needles, and Pins

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3951, PENS AND MECHANICAL PENCILS

This industry is made up of establishments primarily engaged in manufacturing pens (including ballpoint pens), refill cartridges, mechanical pencils, fine and broad tipped markers, and parts.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3951, Pens and Mechanical Pencils, had employment of 7.9 thousand. The employment figure was 6 percent below the 8.4 thousand reported in 1987. Compared with 1991, employment decreased 7 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were California, Illinois, Rhode Island, and Tennessee. This represents a shift from 1987 when California, Rhode Island, Tennessee, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $1.0 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3951 shipped $961.7 million of pens and mechanical pencils considered primary to the industry, $48.7 million of secondary products, and had $38.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 78 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 81 percent.

The products primary to industry 3951, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the pens and mechanical pencils industry amounted to $383.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3952, LEAD PENCILS AND ART GOODS

This industry is made up of establishments primarily engaged in manufacturing lead pencils, pencil leads, and crayons; and materials and equipment for artwork, such as airbrushes, drawing tables and boards, palettes, sketch boxes, pantographs, artists' colors and waxes, pyrography goods, drawing inks, and drafting materials. Establishments primarily engaged in manufacturing mechanical pencils are classified in industry 3951, and those manufacturing drafting instruments are classified in industry 3829.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3952, Lead Pencils and Art Goods, had employment of 7.3 thousand. The employment figure was 30 percent above the 5.6 thousand reported in 1987. Compared with 1991, employment increased 30 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, New Jersey, Pennsylvania, and Tennessee. This represents a shift from 1987 when Tennessee, New Jersey, Pennsylvania, and California were the leading States.

The total value of shipments for establishments classified in this industry was $975.9 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3952 shipped $618.9 million of lead pencils and art goods considered primary to the industry, $224.6 million of secondary products, and had $132.4 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 73 percent (specialization ratio). In 1987, the specialization ratio was 80 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3952, no matter in what industry they were produced, appear in table 6a and aggregate to $650.1 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the lead pencil and art goods industry amounted to $408.9 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 22 percent of the total value of shipments.

INDUSTRY 3953, MARKING DEVICES

This industry is made up of establishments primarily engaged in manufacturing rubber and metal hand stamps, dies, and seals; steel letters and figures; and stencils for use in painting or marking. Establishments primarily engaged in manufacturing felt tip markers are classified in industry 3951.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3953, Marking Devices, had employment of 7.6 thousand. The employment figure was 1 percent above the 7.5 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, New Jersey, and New York, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when Illinois, California, New York, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $553.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3953 shipped $451.7 million of marking devices considered primary to the industry, $40.8 million of secondary products, and had $60.7 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary

products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 76 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 84 percent.

The products primary to industry 3953, no matter in what industry they were produced, appear in table 6a and aggregate to $596.6 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the marking devices industry amounted to $202.4 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 15 percent of the total value of shipments.

INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS

This industry is made up of establishments primarily engaged in manufacturing carbon paper; spirit or gelatin process and other stencil paper; and inked or carbon ribbons for business machines.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3955, Carbon Paper and Inked Ribbons, had employment of 7.2 thousand. The employment figure was 1 percent below the 7.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Colorado, New York, and Tennessee. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $831.1 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3955 shipped $725.8 million of carbon paper and inked ribbon products considered primary to the industry, $37.0 million of secondary products, and had $68.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 98 percent.

Establishments in this industry also accounted for 85 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 76 percent.

The products primary to industry 3955, no matter in what industry they were produced, appear in table 6a and aggregate to $856.7 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the carbon paper and inked ribbon industry amounted to $432.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of the total value of shipments.

INDUSTRY 3961, COSTUME JEWELRY

This industry is made up of establishments primarily engaged in manufacturing costume jewelry, costume novelties, and ornaments made of all materials, except precious metal, precious or semiprecious stones, and rolled goldplate and gold-filled materials. Establishments primarily engaged in manufacturing jewelry of precious and semiprecious metal are classified in industry 3911; those manufacturing leather compacts and vanity cases are classified in industry 3172; and those manufacturing synthetic stones for gem stones and industrial use are classified in industry 3299.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3961, Costume Jewelry, had employment of 17.5 thousand. The employment figure was 21 percent below the 22.2 thousand reported in 1987.

The leading States in employment in 1992 were Rhode Island and New York accounting for approximately 63 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 66 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3961 shipped $1.3 billion of costume jewelry products considered primary to the industry, $46.1 million of secondary products, and had $75.2 million of miscellaneous

receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 97 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3961, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the costume jewelry industry amounted to $570.2 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of the total value of shipments.

INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS

This industry is made up of establishments primarily engaged in manufacturing notions, such as slide and snap fasteners and zippers; machine and hand needles, pins, hooks and eyes; buckles; buttons, button parts, and button blanks. Establishments primarily engaged in manufacturing these products from precious metals or from precious or semiprecious stones are classified in industry 3911.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3965, Fasteners, Buttons, Needles, and Pins, had employment of 10.0 thousand. The employment figure was 4 percent above the 9.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, Georgia, New Jersey, and North Carolina, accounting for approximately 52 percent of the industry's employment. This represents a shift from 1987 when Connecticut, Georgia, New York, and Rhode Island accounted for approximately 48 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $868.2 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3965 shipped $791.7 million of fasteners, buttons, needles, and pins products considered primary to the industry, $11.4 million of secondary products, and had $65.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 99 percent (specialization ratio). In 1987, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3965, no matter in what industry they were produced, appear in table 6a and aggregate to $825.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the fasteners, buttons, needles, and pins industry amounted to $379.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3951, PENS AND MECHANICAL PENCILS															
1992 Census	103	106	52	7.9	197.0	5.8	11.2	117.6	657.7	383.4	1 048.5	34.1	185.2	95	78
1991 ASM	(NA)	(NA)	(NA)	8.5	205.4	6.1	11.7	121.2	645.5	457.5	1 096.7	44.0	230.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.6	215.6	6.9	12.9	124.3	682.4	540.9	1 205.8	45.8	232.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	10.0	214.5	7.3	14.4	126.4	652.7	465.0	1 108.9	33.2	210.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.9	197.3	7.3	14.5	124.2	603.2	413.5	1 009.1	37.2	172.5	(NA)	(NA)
1987 Census	106	110	54	8.4	166.5	6.4	12.5	107.6	485.1	325.5	818.8	23.9	149.8	94	81
1986 ASM	(NA)	(NA)	(NA)	8.2	151.9	6.2	12.0	100.0	444.3	312.6	757.9	19.6	143.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.9	160.9	6.7	12.4	103.6	419.8	323.7	746.9	20.1	148.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.6	172.8	7.3	13.3	111.8	519.6	356.7	860.9	18.4	159.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	9.4	158.2	7.1	13.7	94.7	448.6	311.1	785.7	22.0	135.9	(NA)	(NA)
1982 Census	129	136	69	11.6	174.8	8.8	16.8	112.3	472.6	346.6	809.4	27.8	172.0	91	86
1981 ASM	(NA)	(NA)	(NA)	16.0	217.5	12.5	23.6	148.4	608.1	494.4	1 096.4	26.5	194.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.4	193.2	12.1	23.3	135.5	566.7	442.2	995.0	44.0	184.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	14.8	175.5	11.7	22.6	122.8	568.1	357.1	913.6	39.7	157.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	14.1	153.0	11.5	22.9	107.8	485.9	291.7	767.1	37.4	138.5	(NA)	(NA)
1977 Census	133	141	78	13.2	135.6	10.4	20.6	92.9	419.8	257.4	669.8	32.8	123.1	85	94
INDUSTRY 3952, LEAD PENCILS AND ART GOODS															
1992 Census	162	164	45	7.3	149.3	5.4	10.4	87.8	576.8	408.9	975.9	23.0	194.6	73	95
1991 ASM	(NA)	(NA)	(NA)	5.6	110.1	4.3	8.7	76.6	432.3	351.6	786.1	21.1	133.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	5.3	103.1	4.0	8.2	66.7	407.2	349.6	745.9	19.0	137.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	5.5	105.5	4.2	8.4	72.3	403.0	319.9	716.8	15.9	133.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	5.3	97.1	4.0	7.6	61.9	394.4	297.0	676.0	14.1	132.0	(NA)	(NA)
1987 Census	141	145	40	5.6	103.3	4.0	7.8	58.1	361.5	252.3	609.3	21.3	128.1	80	90
1986 ASM	(NA)	(NA)	(NA)	5.4	101.1	4.0	7.9	62.0	315.4	239.8	547.0	12.9	111.7	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	5.6	97.9	4.1	8.2	56.7	293.3	214.1	510.8	14.7	104.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	5.8	94.5	4.2	8.2	54.2	270.7	213.8	484.2	15.6	106.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.2	91.3	4.5	8.5	53.2	270.1	221.5	487.7	13.6	112.1	(NA)	(NA)
1982 Census	144	148	43	6.0	87.5	4.3	8.0	48.6	244.8	199.4	445.9	16.2	106.3	79	88
1981 ASM	(NA)	(NA)	(NA)	5.3	71.8	3.8	7.3	42.0	215.7	176.4	383.0	7.7	90.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.5	69.0	4.1	7.4	39.8	189.9	165.9	352.6	7.0	85.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.3	68.4	4.6	8.5	39.6	180.6	167.3	342.8	8.0	84.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.3	62.7	4.6	8.9	36.2	161.4	156.9	315.1	10.6	77.2	(NA)	(NA)
1977 Census	127	134	46	6.6	63.1	4.7	9.2	37.6	145.5	134.0	275.9	10.8	70.9	85	79
INDUSTRY 3953, MARKING DEVICES															
1992 Census	628	649	94	7.6	160.8	4.3	8.5	72.3	355.4	202.4	553.2	9.3	63.2	92	76
1991 ASM	(NA)	(NA)	(NA)	7.8	148.0	4.8	9.1	77.8	306.5	188.7	497.3	6.7	57.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.7	143.3	4.8	9.9	79.6	295.2	185.9	485.6	4.0	58.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.5	140.0	4.7	9.6	72.2	280.8	191.5	473.7	4.1	58.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	6.3	127.2	4.3	9.2	69.1	265.3	133.3	399.1	1.1	54.2	(NA)	(NA)
1987 Census	611	636	92	7.5	136.7	4.9	9.3	73.4	277.2	165.0	442.5	9.7	58.4	95	84
1986 ASM	(NA)	(NA)	(NA)	5.9	92.1	3.7	7.6	49.5	186.8	84.0	271.7	16.8	29.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.7	97.5	4.4	9.0	60.4	186.1	79.7	273.2	6.9	33.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.1	111.2	4.8	9.3	73.0	228.3	115.8	348.8	15.8	45.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.3	101.3	5.2	9.4	63.0	209.3	119.8	327.4	6.0	48.6	(NA)	(NA)
1982 Census	593	627	88	7.6	107.1	5.5	10.2	65.7	221.4	119.0	337.6	7.6	50.7	94	90
1981 ASM	(NA)	(NA)	(NA)	6.6	90.0	4.4	9.4	50.8	204.8	97.0	301.3	7.5	45.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.6	85.9	4.3	8.9	47.4	190.1	92.7	281.7	11.4	42.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	7.4	89.2	4.8	10.0	48.6	190.4	100.0	287.0	14.4	41.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.1	80.8	4.5	9.0	43.3	155.8	99.5	252.6	8.3	35.1	(NA)	(NA)
1977 Census	583	612	86	7.4	78.7	4.7	9.1	39.6	160.0	90.3	248.7	5.5	34.3	85	88
INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS															
1992 Census	117	133	62	7.2	159.4	5.4	10.9	90.7	399.0	432.2	831.1	11.3	108.0	95	85
1991 ASM	(NA)	(NA)	(NA)	7.4	161.7	5.7	12.0	89.9	403.4	527.7	925.8	12.6	131.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.3	149.3	5.6	12.1	86.3	395.2	488.6	872.7	20.1	134.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.3	159.7	6.5	13.1	88.4	411.0	489.4	887.4	22.4	119.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.1	153.8	6.2	13.3	92.9	342.4	454.3	796.3	16.0	100.8	(NA)	(NA)
1987 Census	108	125	63	7.3	133.8	5.4	11.4	80.2	308.3	351.0	665.3	16.0	86.2	98	76
1986 ASM	(NA)	(NA)	(NA)	6.4	118.9	5.0	10.3	76.8	278.1	349.6	621.8	17.5	82.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.3	112.7	4.8	9.5	71.6	243.8	353.7	612.5	16.6	75.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.9	118.5	5.2	10.3	74.9	308.6	361.1	661.6	22.2	101.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	7.1	127.9	5.4	10.7	83.4	361.9	516.5	849.7	13.1	164.2	(NA)	(NA)
1982 Census	93	115	67	6.9	115.4	5.2	10.3	77.6	324.1	463.5	778.8	23.1	125.5	83	73
1981 ASM	(NA)	(NA)	(NA)	4.9	86.3	3.6	7.2	56.3	255.1	399.3	646.4	14.1	90.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.8	89.3	4.3	8.5	56.8	224.4	363.4	580.5	18.0	91.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.2	71.7	3.9	8.1	44.4	170.0	267.7	433.3	9.5	67.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	4.4	57.0	3.3	6.6	33.1	152.5	217.9	364.2	7.1	58.0	(NA)	(NA)
1977 Census	78	100	51	4.6	53.7	3.4	6.9	33.1	142.4	205.4	344.0	6.2	47.8	96	64
INDUSTRY 3961, COSTUME JEWELRY															
1992 Census	888	895	184	17.5	330.9	12.6	25.3	183.3	874.5	570.2	1 449.4	12.8	204.8	97	88
1991 ASM	(NA)	(NA)	(NA)	17.6	331.4	12.4	24.6	170.6	820.6	546.9	1 371.1	9.4	206.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.2	315.8	13.1	25.7	170.8	892.4	542.9	1 415.7	11.5	207.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.2	302.8	13.5	26.3	167.5	803.6	517.4	1 305.6	13.2	193.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	23.7	343.2	16.0	29.7	180.0	822.5	557.9	1 388.5	14.7	191.0	(NA)	(NA)
1987 Census	753	760	198	22.2	328.9	14.9	28.4	176.0	852.0	537.6	1 391.9	11.2	195.7	94	90
1986 ASM	(NA)	(NA)	(NA)	18.5	303.1	12.7	26.7	168.2	782.4	509.3	1 292.3	19.0	188.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.7	292.5	13.5	27.0	171.3	762.7	512.5	1 265.0	19.9	187.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.5	292.8	14.6	29.0	176.8	712.8	487.4	1 185.8	13.1	177.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	23.3	290.0	17.3	31.6	167.5	674.4	536.2	1 216.1	26.2	188.8	(NA)	(NA)
1982 Census	780	785	186	21.1	263.3	15.7	29.4	158.0	588.9	414.5	1 027.1	16.6	175.1	93	90
1981 ASM	(NA)	(NA)	(NA)	23.4	258.4	18.0	34.0	162.7	557.0	449.3	990.7	11.3	166.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	23.4	249.4	17.7	33.0	158.3	546.9	450.9	989.4	18.9	164.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	22.4	219.3	18.3	32.4	140.6	480.4	397.7	857.6	13.5	138.5	(NA)	(NA)

See footnotes at end of table.

TIPS [UPF] C_BROOKS [APS_PPGB,C_BROOKS] APSD 3/29/95 10:18 AM MACHINE: EPCV23 DATA:NONE TAPE: NOreel FRAME: 1
TSF:39C_92.DAT;7 3/ 8/95 13:23:11 UTF:39C_93.DAT;9 3/29/95 10:16:12 META:TIPS96-10175616.DAT;1 3/29/95 10:18:34

Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
	INDUSTRY 3961, COSTUME JEWELRY—Con.														
1978 ASM	(NA)	(NA)	(NA)	24.4	218.2	19.6	35.4	143.0	493.2	355.5	846.9	24.1	131.3	(NA)	(NA)
1977 Census	837	847	236	25.0	215.9	20.8	36.1	136.1	485.1	338.9	816.6	17.6	119.6	92	89
	INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS														
1992 Census	221	238	91	10.0	225.9	6.8	15.5	134.7	493.8	379.6	868.2	119.1	157.8	99	96
1991 ASM	(NA)	(NA)	(NA)	8.7	195.4	7.0	15.9	130.9	464.9	361.5	831.9	42.2	144.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	9.0	174.8	7.1	14.8	117.0	471.1	345.1	807.2	42.2	147.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.9	166.3	7.1	14.4	109.5	388.4	304.7	695.3	36.4	125.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	9.8	177.5	7.4	14.1	112.5	423.0	291.8	699.0	39.7	135.5	(NA)	(NA)
1987 Census	247	262	96	9.6	169.3	7.6	15.0	109.9	389.3	282.5	670.0	20.5	116.7	97	93
1986 ASM	(NA)	(NA)	(NA)	12.4	215.6	9.8	18.5	141.3	480.4	388.6	869.7	30.9	148.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	14.3	240.6	11.2	22.3	158.0	557.7	408.4	964.4	37.7	175.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.0	233.0	11.8	23.9	151.9	526.7	402.8	921.5	77.6	166.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.8	216.5	11.5	22.7	144.7	497.1	360.3	842.8	42.8	165.4	(NA)	(NA)
1982 Census	333	356	132	16.1	212.5	12.7	25.7	143.9	446.6	370.5	823.0	41.6	159.7	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	16.9	206.4	13.3	25.9	147.0	462.7	417.1	872.3	36.6	154.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	218.5	14.7	28.7	154.0	438.4	393.3	836.5	27.8	139.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.9	201.8	14.6	28.7	139.7	424.0	354.5	775.9	48.1	136.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	21.2	212.7	17.0	32.8	142.9	453.5	343.7	790.8	27.6	131.6	(NA)	(NA)
1977 Census	399	434	164	20.9	196.4	16.6	32.2	131.8	425.4	345.9	769.4	23.4	125.5	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3951, PENS AND MECHANICAL PENCILS								
1992 Census	24 937	73	1 931	10.50	37	55	83 253	30	58.72
1991 ASM	24 165	72	1 918	10.36	42	60	75 941	32	55.17
1990 ASM	22 458	72	1 870	9.64	45	63	71 083	32	52.90
1989 ASM	21 450	73	1 973	8.78	42	61	65 270	33	45.33
1988 ASM	19 929	74	1 986	8.57	41	61	60 929	33	41.60
1987 Census	19 821	76	1 953	8.61	40	60	57 750	34	38.81
1986 ASM	18 524	76	1 935	8.33	41	61	54 183	34	37.03
1985 ASM	18 079	75	1 851	8.35	43	65	47 169	38	33.85
1984 ASM	18 000	76	1 822	8.41	41	62	54 125	33	39.07
1983 ASM	16 830	76	1 930	6.91	40	60	47 723	35	32.74
1982 Census	15 069	76	1 909	6.68	43	64	40 741	37	28.13
1981 ASM	13 594	78	1 888	6.29	45	65	38 006	36	25.77
1980 ASM	12 545	79	1 926	5.82	44	64	36 799	34	24.32
1979 ASM	11 858	79	1 932	5.43	39	58	38 385	31	25.14
1978 ASM	10 851	82	1 991	4.71	38	58	34 461	31	21.22
1977 Census	10 273	79	1 981	4.51	38	59	31 803	32	20.38
	INDUSTRY 3952, LEAD PENCILS AND ART GOODS								
1992 Census	20 452	74	1 926	8.44	42	57	79 014	26	55.46
1991 ASM	19 661	77	2 023	8.80	45	59	77 196	25	49.69
1990 ASM	19 453	75	2 050	8.13	47	61	76 830	25	49.66
1989 ASM	19 182	76	2 000	8.61	45	59	73 273	26	47.98
1988 ASM	18 321	75	1 900	8.14	44	58	74 415	25	51.89
1987 Census	18 446	71	1 950	7.45	41	58	64 554	29	46.35
1986 ASM	18 722	74	1 975	7.85	44	62	58 407	32	39.92
1985 ASM	17 482	73	2 000	6.91	42	61	52 375	33	35.77
1984 ASM	16 293	72	1 952	6.61	44	64	46 672	35	33.01
1983 ASM	14 726	73	1 889	6.26	45	64	43 565	34	31.78
1982 Census	14 583	72	1 860	6.08	45	64	40 800	36	30.60
1981 ASM	13 547	72	1 921	5.75	46	65	40 698	33	29.55
1980 ASM	12 545	75	1 805	5.38	47	67	34 527	36	25.66
1979 ASM	10 857	73	1 848	4.66	49	69	28 667	38	21.25
1978 ASM	9 952	73	1 935	4.07	50	70	25 619	39	18.13
1977 Census	9 561	71	1 957	4.09	49	71	22 045	43	15.82

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3953, MARKING DEVICES								
1992 Census	21 158	57	1 977	8.51	37	66	46 763	45	41.81
1991 ASM	18 974	62	1 896	8.55	38	68	39 295	48	33.68
1990 ASM	18 610	62	2 062	8.04	38	68	38 338	49	29.82
1989 ASM	18 667	63	2 043	7.52	40	70	37 440	50	29.25
1988 ASM	20 190	68	2 140	7.51	33	65	42 111	48	28.84
1987 Census	18 227	65	1 898	7.89	37	68	36 960	49	29.81
1986 ASM	15 610	63	2 054	6.51	31	65	31 661	49	24.58
1985 ASM	14 552	66	2 045	6.71	29	65	27 776	52	20.68
1984 ASM	15 662	68	1 938	7.85	33	65	32 155	49	24.55
1983 ASM	13 877	71	1 808	6.70	37	68	28 671	48	22.27
1982 Census	14 092	72	1 855	6.44	35	67	29 132	48	21.71
1981 ASM	13 636	67	2 136	5.40	32	62	31 030	44	21.79
1980 ASM	13 015	65	2 070	5.33	33	63	28 803	45	21.36
1979 ASM	12 054	65	2 083	4.86	35	66	25 730	47	19.04
1978 ASM	11 380	63	2 000	4.81	39	71	21 944	52	17.31
1977 Census	10 635	64	1 936	4.35	36	68	21 622	49	17.58
	INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS								
1992 Census	22 139	75	2 019	8.32	52	71	55 417	40	36.61
1991 ASM	21 851	77	2 105	7.49	57	74	54 514	40	33.62
1990 ASM	20 452	77	2 161	7.13	56	73	54 137	38	32.66
1989 ASM	19 241	78	2 015	6.75	55	73	49 518	39	31.37
1988 ASM	18 988	77	2 145	6.98	57	76	42 272	45	25.74
1987 Census	18 329	74	2 111	7.04	53	73	42 233	43	27.04
1986 ASM	18 578	78	2 060	7.46	56	75	43 453	43	27.00
1985 ASM	17 889	76	1 979	7.54	58	76	38 698	46	25.66
1984 ASM	17 174	75	1 981	7.27	55	72	44 725	38	29.96
1983 ASM	18 014	76	1 981	7.79	61	76	50 972	35	33.82
1982 Census	16 725	75	1 981	7.53	60	74	46 971	36	31.47
1981 ASM	17 612	73	2 000	7.82	62	75	52 061	34	35.43
1980 ASM	15 397	74	1 977	6.68	63	78	38 690	40	26.40
1979 ASM	13 788	75	2 077	5.48	62	78	32 692	42	20.99
1978 ASM	12 955	75	2 000	5.02	60	75	34 659	37	23.11
1977 Census	11 674	74	2 029	4.80	60	75	30 957	38	20.64
	INDUSTRY 3961, COSTUME JEWELRY								
1992 Census	18 909	72	2 008	7.25	39	62	49 971	38	34.57
1991 ASM	18 830	70	1 984	6.93	40	64	46 625	40	33.36
1990 ASM	16 448	68	1 962	6.65	38	61	46 479	35	34.72
1989 ASM	15 771	70	1 948	6.37	40	63	41 854	38	30.56
1988 ASM	14 481	68	1 856	6.06	40	65	34 705	42	27.69
1987 Census	14 815	67	1 906	6.20	39	62	38 378	39	30.00
1986 ASM	16 384	69	2 102	6.30	39	63	42 292	39	29.30
1985 ASM	15 642	72	2 000	6.34	41	64	40 786	38	28.25
1984 ASM	14 283	71	1 986	6.10	41	66	34 771	41	24.58
1983 ASM	12 446	74	1 827	5.30	44	68	28 944	43	21.34
1982 Census	12 479	74	1 873	5.37	40	66	27 910	45	20.03
1981 ASM	11 043	77	1 889	4.79	45	71	23 803	46	16.38
1980 ASM	10 658	76	1 864	4.80	46	71	23 372	46	16.57
1979 ASM	9 790	82	1 770	4.34	46	72	21 446	46	14.83
1978 ASM	8 943	80	1 806	4.04	42	68	20 213	44	13.93
1977 Census	8 636	83	1 736	3.77	42	68	19 404	45	13.44
	INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS								
1992 Census	22 590	68	2 279	8.69	44	70	49 380	46	31.86
1991 ASM	22 460	80	2 271	8.23	43	67	53 437	42	29.24
1990 ASM	19 422	79	2 085	7.91	43	64	52 344	37	31.83
1989 ASM	18 685	80	2 028	7.60	44	68	43 640	43	26.97
1988 ASM	18 112	76	1 905	7.98	42	67	43 163	42	30.00
1987 Census	17 635	79	1 974	7.33	42	67	40 552	43	25.95
1986 ASM	17 387	79	1 888	7.64	45	69	38 742	45	25.97
1985 ASM	16 825	78	1 991	7.09	42	67	39 000	43	25.01
1984 ASM	15 533	79	2 025	6.36	44	69	35 113	44	22.04
1983 ASM	14 628	78	1 974	6.37	43	68	33 588	44	21.90
1982 Census	13 199	79	2 024	5.60	45	71	27 739	48	17.38
1981 ASM	12 213	79	1 947	5.68	48	71	27 379	45	17.86
1980 ASM	11 684	79	1 952	5.37	47	73	23 444	50	15.28
1979 ASM	10 677	77	1 966	4.87	46	72	22 434	48	14.77
1978 ASM	10 033	80	1 929	4.36	43	70	21 392	47	13.83
1977 Census	9 397	79	1 940	4.09	45	70	20 354	46	13.21

Note: For qualifications of data, see footnotes on table 1a.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3951, PENS AND MECHANICAL PENCILS														
United States	**–**	**106**	**52**	**7.9**	**197.0**	**5.8**	**11.2**	**117.6**	**657.7**	**383.4**	**1 048.5**	**34.1**	**8.4**	**485.1**
California	–	12	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	106.8
Connecticut	E1	5	4	.2	3.8	.1	.2	2.3	11.3	10.5	21.7	.5	(NA)	(NA)
Florida	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	–	5	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	1	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E2	5	2	.1	2.3	.1	.1	1.7	6.8	2.5	9.3	(D)	(NA)	(NA)
Missouri	–	3	3	.2	4.5	.2	.5	3.5	9.2	7.1	16.9	.4	E	(D)
New Jersey	E2	17	8	.6	13.2	.5	.9	8.7	30.8	26.4	57.3	1.7	.6	26.5
New York	E1	17	7	.5	9.8	.3	.7	4.8	24.9	19.1	44.0	.8	.7	19.5
Pennsylvania	–	4	4	.3	5.8	.2	.4	3.8	14.1	11.2	25.1	(D)	E	(D)
Rhode Island	–	6	5	1.4	38.3	1.0	1.8	24.0	111.6	37.6	159.2	(D)	G	(D)
South Carolina	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	2	1	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
INDUSTRY 3952, LEAD PENCILS AND ART GOODS														
United States	**E2**	**164**	**45**	**7.3**	**149.3**	**5.4**	**10.4**	**87.8**	**576.8**	**408.9**	**975.9**	**23.0**	**5.6**	**361.5**
California	E2	29	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Georgia	E2	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E3	12	7	.7	15.8	.4	.8	6.9	42.4	33.4	75.1	1.3	E	(D)
Kansas	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E1	10	3	.1	4.0	.1	.2	1.7	8.4	6.4	14.5	.3	(NA)	(NA)
Missouri	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	E5	10	6	.7	16.0	.5	.9	8.3	49.8	20.0	69.4	.5	.9	47.3
New York	E2	21	4	.4	6.2	.3	.6	3.8	12.8	7.4	19.9	.9	(NA)	(D)
Ohio	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Tennessee	E3	8	5	2.2	41.9	1.7	3.2	22.2	176.5	151.1	324.9	(D)	1.2	54.7
INDUSTRY 3953, MARKING DEVICES														
United States	**E1**	**649**	**94**	**7.6**	**160.8**	**4.3**	**8.5**	**72.3**	**355.4**	**202.4**	**553.2**	**9.3**	**7.5**	**277.2**
California	E2	82	14	1.1	24.3	.7	1.3	11.6	54.6	27.9	81.4	1.6	F	(D)
Colorado	E2	17	3	.2	3.2	.1	.2	1.5	5.5	2.8	8.3	(D)	(NA)	(NA)
Connecticut	E1	13	3	.2	4.7	.1	.2	1.7	8.1	3.6	11.7	(D)	(NA)	(NA)
Florida	E2	33	2	.1	2.9	.1	.2	1.3	5.4	3.0	8.4	(D)	.2	8.3
Georgia	E1	11	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Illinois	–	56	9	.9	21.3	.5	.9	8.4	48.7	28.9	76.6	1.0	1.0	42.2
Iowa	–	5	3	.1	2.9	.1	.2	1.3	6.1	2.7	8.7	(D)	(NA)	(NA)
Maryland	E1	8	2	.1	3.2	.1	.2	1.4	7.3	2.7	10.0	.1	(NA)	(NA)
Massachusetts	E2	18	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(D)
Michigan	E1	23	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	–	11	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	26	3	.5	12.0	.3	.6	5.8	29.7	12.6	42.5	.8	.3	12.0
New York	E1	39	6	.4	7.8	.3	.6	4.7	15.2	11.4	26.9	.4	F	(D)
North Carolina	–	12	3	.2	3.1	.1	.2	1.2	5.2	2.2	7.5	(D)	(NA)	(NA)
Ohio	E4	30	6	.4	7.6	.2	.5	3.7	15.1	6.8	21.9	.4	.4	11.1
Oregon	–	14	2	.1	2.4	.1	.1	1.1	10.4	5.5	16.0	.1	(NA)	(NA)
Pennsylvania	E2	28	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	.6	20.2
South Carolina	–	7	2	.1	3.1	.1	.1	1.1	6.0	3.5	9.4	.2	(NA)	(D)
Tennessee	–	14	2	.1	2.4	.1	.2	1.5	6.3	5.2	11.5	.1	(NA)	(D)
Texas	E2	45	5	.3	5.4	.2	.3	2.8	10.6	5.5	16.1	.4	E	(D)
Virginia	E1	10	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Washington	–	19	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.8
Wisconsin	–	15	2	.4	8.2	.1	.2	2.2	16.0	3.2	19.3	.2	E	(D)
INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS														
United States	**–**	**133**	**62**	**7.2**	**159.4**	**5.4**	**10.9**	**90.7**	**399.0**	**432.2**	**831.1**	**11.3**	**7.3**	**308.3**
California	–	19	9	1.2	30.1	.9	1.6	15.8	79.5	77.5	155.1	2.6	1.3	64.9
Colorado	–	9	5	.7	12.6	.5	1.0	8.3	23.3	25.3	50.4	.5	F	(D)
Georgia	–	4	3	.4	6.6	.3	.5	4.1	13.2	24.1	36.2	(D)	E	(D)
Illinois	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	10	3	.4	10.5	.4	.7	6.0	25.6	39.2	68.0	.4	.5	17.2
New York	–	12	8	1.1	26.8	.9	2.1	17.9	49.2	66.7	116.5	1.1	1.0	34.4
North Carolina	–	4	3	.2	3.9	.1	.3	2.3	11.5	10.7	22.1	(D)	(NA)	(D)
Ohio	–	7	4	.3	6.9	.1	.3	2.9	17.0	22.9	39.9	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS—Con.														
Pennsylvania	–	8	3	.4	7.3	.3	.5	4.2	13.5	19.0	33.1	.2	.6	17.1
South Carolina	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	–	10	4	.3	4.7	.2	.4	3.3	30.7	24.6	54.4	1.1	(NA)	(NA)
INDUSTRY 3961, COSTUME JEWELRY														
United States	**E1**	**895**	**184**	**17.5**	**330.9**	**12.6**	**25.3**	**183.3**	**874.5**	**570.2**	**1 449.4**	**12.8**	**22.2**	**852.0**
California	E6	97	16	1.9	33.4	1.4	3.1	19.6	103.3	36.7	133.9	2.6	G	(D)
Connecticut	–	10	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Florida	E2	31	4	.2	3.6	.2	.3	2.3	8.0	5.3	13.2	(D)	.2	5.8
Illinois	E3	20	3	.1	2.5	.1	.1	1.1	3.3	3.4	6.7	(D)	.2	8.2
Massachusetts	E2	35	12	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Montana	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	14	1	.1	2.1	.1	.2	1.1	4.3	2.3	6.6	(D)	E	(D)
New Mexico	E1	20	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E2	153	37	2.5	44.8	1.9	3.7	27.2	92.7	66.9	159.0	1.7	2.7	85.4
Pennsylvania	–	12	3	.2	3.7	.2	.3	1.9	13.1	13.4	25.7	(D)	(NA)	(D)
Rhode Island	E1	328	82	8.5	169.0	6.0	11.6	89.3	482.5	311.5	807.8	4.0	12.0	461.3
Texas	E4	25	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS														
United States	**E1**	**238**	**91**	**10.0**	**225.9**	**6.8**	**15.5**	**134.7**	**493.8**	**379.6**	**868.2**	**119.1**	**9.6**	**389.3**
California	E1	26	6	.5	8.7	.4	.8	6.4	21.0	14.5	35.6	1.6	E	(D)
Connecticut	–	16	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Georgia	–	5	5	1.6	42.0	1.2	3.1	31.1	113.1	84.3	193.8	(D)	G	(D)
Illinois	–	11	6	.4	8.4	.2	.5	3.8	14.9	11.8	26.2	(D)	.6	17.6
Iowa	–	7	3	.3	5.0	.2	.4	2.9	9.7	8.0	17.7	(D)	(NA)	(D)
Kentucky	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Nevada	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	–	11	7	1.1	26.8	.6	1.4	10.7	30.0	21.2	51.4	(D)	.5	21.7
New York	E1	64	24	1.8	38.6	1.1	2.3	20.0	88.1	68.7	157.0	5.0	1.4	50.3
North Carolina	–	7	5	.7	14.9	.6	1.4	9.2	25.2	23.8	48.8	(D)	F	(D)
Pennsylvania	E7	7	4	.3	8.0	.2	.5	5.3	21.1	14.7	35.8	(D)	E	(D)
Rhode Island	E4	13	5	.5	12.4	.4	.9	8.1	25.2	22.1	47.2	1.2	.7	21.3
South Carolina	E2	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Virginia	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	4	.4	8.2	.3	.6	5.8	13.8	6.7	20.7	(D)	(NA)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Pens and mechanical pencils (SIC 3951)	Lead pencils and art goods (SIC 3952)	Marking devices (SIC 3953)	Carbon paper and inked ribbons (SIC 3955)	Costume jewelry (SIC 3961)	Fasteners, buttons, needles, and pins (SIC 3965)
Companies	number	103	162	628	117	888	221
All establishments	number	106	164	649	133	895	238
With 1 to 19 employees	number	54	119	555	71	711	147
With 20 to 99 employees	number	36	26	87	41	149	56
With 100 employees or more	number	16	19	7	21	35	35
Employment and labor costs:							
Employees	1,000	7.9	7.3	7.6	7.2	17.5	10.0
Compensation, total	mil dol	257.4	196.2	201.9	195.8	400.7	283.7
Annual payroll	mil dol	197.0	149.3	160.8	159.4	330.9	225.9
Fringe benefits	mil dol	60.4	46.9	41.1	36.4	69.8	57.8
Social Security and other legally required payments	mil dol	23.0	15.3	16.3	16.3	35.3	21.7
Employer voluntary payments	mil dol	37.3	31.6	24.9	20.1	34.5	36.1

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pens and mechanical pencils (SIC 3951)	Lead pencils and art goods (SIC 3952)	Marking devices (SIC 3953)	Carbon paper and inked ribbons (SIC 3955)	Costume jewelry (SIC 3961)	Fasteners, buttons, needles, and pins (SIC 3965)
Production workers:						
Average for year ---- 1,000	5.8	5.4	4.3	5.4	12.6	6.8
March ---- 1,000	5.8	5.5	4.3	5.6	12.7	6.7
May ---- 1,000	5.8	5.7	4.3	5.4	12.5	6.7
August ---- 1,000	5.8	5.5	4.4	5.3	12.7	7.0
November ---- 1,000	5.7	4.9	4.3	5.3	12.6	6.9
Hours ---- millions	11.2	10.4	8.5	10.9	25.3	15.5
Wages ---- mil dol	117.6	87.8	72.3	90.7	183.3	134.7
Cost of materials[1] ---- mil dol	383.4	408.9	202.4	432.2	570.2	379.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	330.5	313.3	161.2	376.5	432.2	296.0
Resales ---- mil dol	20.0	83.6	27.6	43.6	53.2	49.2
Fuels ---- mil dol	2.1	2.0	1.6	2.4	4.1	3.8
Purchased electricity ---- mil dol	9.5	7.1	7.4	6.4	8.6	15.1
Contract work ---- mil dol	21.4	2.8	4.7	3.2	72.1	15.5
Quantity of electric energy used for heat and power:						
Purchased ---- mil kWh	127.0	124.0	109.8	90.7	92.8	252.4
Generated less sold ---- mil kWh	–	–	–	–	–	–
Total value of shipments ---- mil dol	1 048.5	975.9	553.2	831.1	1 449.4	868.2
Value added ---- mil dol	657.7	576.8	355.4	399.0	874.5	493.8
Inventories by stage of fabrication:						
Beginning of 1992 ---- mil dol	194.0	176.5	60.0	108.2	220.2	150.8
Finished goods ---- mil dol	70.5	96.0	23.5	45.7	98.8	65.7
Work in process ---- mil dol	52.2	31.0	7.4	11.9	44.7	40.6
Materials and supplies ---- mil dol	71.4	49.5	29.1	50.6	76.6	44.6
End of 1992 ---- mil dol	185.2	194.6	63.2	108.0	204.8	157.8
Finished goods ---- mil dol	67.1	102.5	28.7	44.6	97.3	70.4
Work in process ---- mil dol	48.1	34.3	6.9	13.1	41.5	41.0
Materials and supplies ---- mil dol	69.9	57.8	27.6	50.4	65.9	46.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pens and mechanical pencils (SIC 3951)	Lead pencils and art goods (SIC 3952)	Marking devices (SIC 3953)	Carbon paper and inked ribbons (SIC 3955)	Costume jewelry (SIC 3961)	Fasteners, buttons, needles, and pins (SIC 3965)
Gross book value of depreciable assets:						
Total:						
Beginning of year	310.0	238.0	132.0	243.8	187.2	272.0
New capital expenditures[1]	34.1	23.0	9.3	11.3	12.8	119.1
Used capital expenditures	.5	.9	.9	1.8	1.0	2.8
Retirements	4.6	5.0	3.5	6.4	6.1	8.7
End of year	340.1	256.9	138.7	250.6	194.9	385.2
Buildings and other structures:						
Beginning of year	64.0	71.2	29.4	44.9	46.9	57.3
New capital expenditures	2.2	3.4	1.8	.5	1.7	(D)
Used capital expenditures	.1	.2	.1	.6	.3	(D)
Retirements	.4	.8	.1	.3	.8	(D)
End of year	65.9	74.1	31.1	45.7	48.2	88.5
Machinery and equipment:						
Beginning of year	246.0	166.7	102.6	198.9	140.2	214.7
New capital expenditures[1]	31.9	19.6	7.6	10.9	11.1	(D)
Used capital expenditures	.4	.7	.8	1.2	.7	(D)
Retirements	4.2	4.2	3.4	6.1	5.4	(D)
End of year	274.2	182.8	107.6	204.9	146.7	296.8
Depreciation charges during 1992:						
Total	24.5	22.0	12.1	21.4	15.3	26.3
Buildings and other structures	7.3	4.5	1.9	2.5	2.7	3.2
Machinery and equipment	17.2	17.5	10.2	18.8	12.6	23.0
Rental payments:						
Total	7.4	9.1	12.6	12.1	20.0	11.0
Buildings and other structures	5.2	6.6	7.2	8.0	12.8	7.3
Machinery and equipment	2.2	2.5	5.3	4.1	7.2	3.7

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Pens and mechanical pencils (SIC 3951)		Lead pencils and art goods (SIC 3952)		Marking devices (SIC 3953)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	1.2	(X)	(S)	(X)	.2	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	59.0	(X)
Machinery	5.2	(X)	(S)	(X)	1.6	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	64.0	(X)
Other purchased services:						
Communications	3.2	(X)	(S)	(X)	1.7	(X)
Response coverage ratio (percent)[2]	89.8	(X)	(S)	(X)	63.7	(X)
Legal	1.7	(X)	(S)	(X)	.5	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	64.0	(X)
Accounting and bookkeeping	1.2	(X)	(S)	(X)	.9	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	64.0	(X)
Advertising	18.7	(X)	(S)	(X)	1.5	(X)
Response coverage ratio (percent)[2]	93.3	(X)	(S)	(X)	64.0	(X)
Software and other data processing	1.4	(X)	(S)	(X)	1.4	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	57.9	(X)
Refuse removal, including hazardous waste	1.2	(X)	(S)	(X)	.3	(X)
Response coverage ratio (percent)[2]	97.9	(X)	(S)	(X)	64.0	(X)
New machinery and equipment expenditures	31.9	(X)	19.6	(X)	7.6	(X)
Automobiles, trucks, etc., for highway use	.2	76	.2	5	(S)	(X)
Computers and peripheral data processing equipment	3.0	11	5.3	4	2.7	34
All other	28.7	2	14.1	2	3.4	23
Adjustment ratio[3]	1.0	(X)	1.3	(X)	1.5	(X)
Cost of materials, components, parts, etc., used	330.5	(X)	313.3	(X)	161.2	(X)
Materials purchased or transferred from foreign sources[4]	60.8	12	–	(X)	–	(X)
Materials purchased or transferred from domestic sources	269.7	4	(S)	(X)	(S)	(X)
Adjustment ratio[3]	1.4	(X)	(S)	(X)	(S)	(X)

Item	Carbon paper and inked ribbons (SIC 3955)		Costume jewelry (SIC 3961)		Fasteners, buttons, needles, and pins (SIC 3965)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:						
Cost of purchased services for the repair of–						
Buildings and other structures	1.6	(X)	1.1	(X)	1.6	(X)
Response coverage ratio (percent)[2]	92.1	(X)	59.5	(X)	75.5	(X)
Machinery	6.2	(X)	1.8	(X)	3.5	(X)
Response coverage ratio (percent)[2]	99.7	(X)	61.5	(X)	75.5	(X)
Other purchased services:						
Communications	6.1	(X)	2.4	(X)	2.6	(X)
Response coverage ratio (percent)[2]	97.3	(X)	59.3	(X)	75.4	(X)
Legal	1.8	(X)	2.1	(X)	1.7	(X)
Response coverage ratio (percent)[2]	96.4	(X)	64.2	(X)	75.5	(X)
Accounting and bookkeeping	2.0	(X)	1.9	(X)	1.4	(X)
Response coverage ratio (percent)[2]	96.2	(X)	65.5	(X)	75.5	(X)
Advertising	3.0	(X)	4.8	(X)	4.5	(X)
Response coverage ratio (percent)[2]	89.0	(X)	65.5	(X)	75.5	(X)
Software and other data processing	2.9	(X)	.9	(X)	1.1	(X)
Response coverage ratio (percent)[2]	99.7	(X)	64.2	(X)	71.1	(X)
Refuse removal, including hazardous waste	2.1	(X)	.5	(X)	1.7	(X)
Response coverage ratio (percent)[2]	99.7	(X)	56.3	(X)	75.4	(X)
New machinery and equipment expenditures	10.9	(X)	11.1	(X)	(D)	(X)
Automobiles, trucks, etc., for highway use	.9	83	.7	41	(D)	(X)
Computers and peripheral data processing equipment	1.1	15	1.5	22	(D)	(X)
All other	8.9	9	8.9	7	(D)	(X)
Adjustment ratio[3]	.7	(X)	1.5	(X)	(D)	(X)
Cost of materials, components, parts, etc., used	376.5	(X)	432.2	(X)	296.0	(X)
Materials purchased or transferred from foreign sources[4]	21.6	21	(S)	(X)	38.9	21
Materials purchased or transferred from domestic sources	354.9	2	(S)	(X)	257.1	4
Adjustment ratio[3]	.9	(X)	(S)	(X)	1.7	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central admnistrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3951, PENS AND MECHANICAL PENCILS												
Total	**–**	**106**	**7.9**	**197.0**	**5.8**	**11.2**	**117.6**	**657.7**	**383.4**	**1 048.5**	**34.1**	**185.2**
Establishments with an average of—												
1 to 4 employees	E9	26	(Z)	.9	(Z)	.1	.5	2.2	1.7	4.0	.1	1.0
5 to 9 employees	E7	16	.1	2.2	.1	.1	1.3	6.4	4.8	11.3	.3	2.9
10 to 19 employees	E1	12	.2	4.1	.1	.3	2.5	10.3	7.1	17.3	.3	3.7
20 to 49 employees	E2	20	.7	15.8	.5	1.1	9.5	39.0	34.7	72.8	1.9	15.6
50 to 99 employees	–	16	1.1	25.8	.8	1.7	16.3	51.3	42.4	94.8	3.2	23.9
100 to 249 employees	–	8	1.2	22.1	1.0	1.9	14.6	62.4	37.2	100.0	6.4	21.6
250 to 499 employees	–	3	1.1	21.1	.7	1.2	12.2	103.1	45.8	148.3	4.0	16.4
500 to 999 employees	–	4	3.5	105.0	2.5	4.8	60.7	383.0	209.7	600.0	17.9	100.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	37	.1	2.5	.1	.2	1.4	6.6	5.1	11.7	.4	3.0
INDUSTRY 3952, LEAD PENCILS AND ART GOODS												
Total	**E2**	**164**	**7.3**	**149.3**	**5.4**	**10.4**	**87.8**	**576.8**	**408.9**	**975.9**	**23.0**	**194.6**
Establishments with an average of—												
1 to 4 employees	E9	78	.1	2.7	.1	.2	1.6	9.2	6.7	15.9	.5	3.0
5 to 9 employees	E8	23	.2	3.1	.1	.2	2.0	8.8	6.5	15.4	.4	2.9
10 to 19 employees	E1	18	.2	4.6	.1	.3	2.3	11.6	8.6	19.9	.5	3.5
20 to 49 employees	E1	16	.4	8.4	.3	.6	4.7	22.7	15.5	37.7	.9	9.8
50 to 99 employees	–	10	.8	16.3	.5	1.1	8.9	31.7	39.4	69.7	1.3	12.6
100 to 249 employees	E2	15	3.0	64.3	2.1	4.2	37.3	229.2	128.1	356.1	4.8	65.7
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	E3	2	2.5	49.9	2.1	3.8	31.1	263.6	204.1	461.2	14.6	97.2
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	90	.2	4.3	.2	.3	2.6	14.6	11.2	25.8	.8	4.8
INDUSTRY 3953, MARKING DEVICES												
Total	**E1**	**649**	**7.6**	**160.8**	**4.3**	**8.5**	**72.3**	**355.4**	**202.4**	**553.2**	**9.3**	**63.2**
Establishments with an average of—												
1 to 4 employees	E7	341	.6	11.5	.4	.8	5.4	29.6	14.8	44.5	1.3	3.4
5 to 9 employees	E1	117	.8	14.6	.5	1.0	7.7	28.5	15.3	44.0	.7	5.3
10 to 19 employees	E1	97	1.3	26.0	.8	1.6	13.0	56.6	25.2	81.7	1.3	8.2
20 to 49 employees	–	58	1.8	37.5	1.1	2.2	19.2	71.8	43.5	114.6	2.0	16.1
50 to 99 employees	E1	29	1.9	40.2	1.0	2.0	16.8	83.4	44.6	126.2	2.0	16.6
100 to 249 employees	E1	5	1.2	30.9	.5	1.0	10.2	85.3	59.0	142.3	2.0	13.5
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	303	.6	10.1	.4	.7	4.7	26.2	13.1	39.3	1.2	3.1
INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS												
Total	**–**	**133**	**7.2**	**159.4**	**5.4**	**10.9**	**90.7**	**399.0**	**432.2**	**831.1**	**11.3**	**108.0**
Establishments with an average of—												
1 to 4 employees	E9	33	.1	1.2	(Z)	.1	.8	2.6	3.8	6.4	.1	.9
5 to 9 employees	E3	15	.1	2.1	.1	.1	1.2	8.5	8.6	17.2	.2	2.0
10 to 19 employees	E1	23	.3	7.5	.2	.5	3.9	15.3	15.9	31.2	.3	4.0
20 to 49 employees	–	24	.8	15.5	.6	1.1	9.3	35.8	53.4	89.5	.9	8.6
50 to 99 employees	–	17	1.2	24.4	.9	1.7	14.0	79.1	85.3	163.7	2.1	18.8
100 to 249 employees	–	13	2.0	41.7	1.5	3.1	22.3	76.7	109.3	191.1	2.4	29.7
250 to 499 employees	–	8	2.7	66.9	2.1	4.4	39.2	181.0	155.9	332.1	5.3	44.1
Covered by administrative records[2]	E9	42	.1	2.8	.1	.2	1.6	6.1	7.2	13.3	.3	2.1
INDUSTRY 3961, COSTUME JEWELRY												
Total	**E1**	**895**	**17.5**	**330.9**	**12.6**	**25.3**	**183.3**	**874.5**	**570.2**	**1 449.4**	**12.8**	**204.8**
Establishments with an average of—												
1 to 4 employees	E8	467	.7	12.8	.5	.9	6.5	41.1	27.5	67.8	.5	11.4
5 to 9 employees	E2	136	.9	15.5	.6	1.2	8.7	44.2	33.7	72.8	.3	17.7
10 to 19 employees	E2	108	1.5	28.4	1.0	2.0	15.0	62.9	54.5	116.8	.6	14.2
20 to 49 employees	E1	110	3.3	59.8	2.3	4.4	31.2	131.4	105.3	234.7	1.7	26.9
50 to 99 employees	E1	39	2.7	45.7	1.9	3.3	24.2	85.1	65.9	155.5	1.6	17.5
100 to 249 employees	E1	26	3.9	76.2	3.1	6.2	44.9	163.1	118.7	282.7	4.6	39.4
250 to 499 employees	–	5	1.8	36.1	1.2	2.6	20.2	187.4	80.9	276.5	(D)	24.1
500 to 999 employees	E2	4	2.8	56.4	2.0	4.8	32.6	159.3	83.8	242.6	3.5	53.5
Covered by administrative records[2]	E9	410	.7	11.8	.4	.8	5.8	36.9	23.4	60.3	.5	9.5

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS												
Total	**E1**	**238**	**10.0**	**225.9**	**6.8**	**15.5**	**134.7**	**493.8**	**379.6**	**868.2**	**119.1**	**157.8**
Establishments with an average of—												
1 to 4 employees	E8	86	.2	3.3	.1	.2	2.1	9.8	7.1	16.8	(D)	2.8
5 to 9 employees	E6	38	.2	4.7	.2	.4	3.0	9.6	8.3	17.8	(D)	2.7
10 to 19 employees	E2	23	.3	6.2	.2	.5	4.1	10.5	13.2	23.6	(D)	2.9
20 to 49 employees	E1	37	1.2	24.0	.7	1.6	12.6	54.0	51.7	105.7	(D)	17.2
50 to 99 employees	–	19	1.3	26.0	.9	1.8	15.5	52.5	49.5	100.7	(D)	21.0
100 to 249 employees	E1	29	4.1	91.2	2.8	6.0	54.4	205.6	151.5	357.4	(D)	63.8
250 to 499 employees	–	5	2.7	70.4	1.9	5.0	43.1	151.9	98.3	246.2	(D)	47.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	93	.3	4.9	.2	.4	3.1	11.8	8.1	19.9	1.1	3.7

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3951	**Pens and mechanical pencils:**										
	All establishments in industry	106	7.9	197.0	5.8	11.2	117.6	657.7	383.4	1 048.5	34.1
	Establishments with this product class primary:										
39511	Pens	29	4.4	114.8	3.1	6.0	68.1	413.9	211.8	636.9	26.5
39512	Markers	9	1.5	38.2	1.2	2.2	21.7	148.0	99.1	243.0	4.0
39513	Other pens, mechanical pencils, and parts	21	1.7	38.7	1.3	2.7	24.6	82.0	63.1	145.3	3.0
3952	**Lead pencils and art goods:**										
	All establishments in industry	164	7.3	149.3	5.4	10.4	87.8	576.8	408.9	975.9	23.0
	Establishments with this product class primary:										
39523	Nonmechanical pencils, crayons, and chalk	20	4.9	96.6	3.8	7.0	59.6	422.2	311.1	724.0	18.8
39524	Artists' equipment	44	2.1	46.8	1.4	2.9	24.7	135.2	83.2	218.0	3.2
3953	**Marking devices:**										
	All establishments in industry	649	7.6	160.8	4.3	8.5	72.3	355.4	202.4	553.2	9.3
3955	**Carbon paper and inked ribbons:**										
	All establishments in industry	133	7.2	159.4	5.4	10.9	90.7	399.0	432.2	831.1	11.3
	Establishments with this product class primary:										
39551	Inked ribbons	58	5.6	123.7	4.2	8.5	69.3	317.4	310.0	625.3	9.9
39552	Carbon paper, stencil paper, etc.	21	1.3	29.5	1.0	1.9	18.1	68.8	107.6	178.5	1.1
3961	**Costume jewelry:**										
	All establishments in industry	895	17.5	330.9	12.6	25.3	183.3	874.5	570.2	1 449.4	12.8
3965	**Fasteners, buttons, needles, and pins:**										
	All establishments in industry	238	10.0	225.9	6.8	15.5	134.7	493.8	379.6	868.2	119.1
	Establishments with this product class primary:										
39651	Buttons and parts (except precious or semiprecious metals and precious or semiprecious stones)	40	2.1	40.7	1.5	2.9	23.3	90.6	55.2	145.9	6.4
39654	Zippers and slide fasteners	24	2.6	58.6	2.0	4.8	43.6	128.5	112.3	239.6	(D)
39656	Needles, pins, fasteners (except slide), and similar notions	57	4.7	114.8	2.9	6.9	61.1	247.2	185.3	428.6	(D)

Note: For qualifications of data, see footnotes on table 1a.

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3951, PENS AND MECHANICAL PENCILS			
Total value of shipments	1 048.5	818.8	809.4
Primary products value of shipments	961.7	745.2	667.6
Secondary products value of shipments	48.7	49.6	64.0
Total miscellaneous receipts	38.1	24.0	77.8
Value of resales	32.1	22.6	76.7
Contract receipts	.4	(D)	(D)
Other miscellaneous receipts	5.6	(D)	(D)
Primary products specialization ratio	95	94	91
Value of primary products shipments made in all industries	1 240.4	919.0	773.8
Value of primary products shipments made in this industry	961.7	745.2	667.6
Value of primary products shipments made in other industries	278.6	173.8	106.2
Coverage ratio	78	81	86
INDUSTRY 3952, LEAD PENCILS AND ART GOODS			
Total value of shipments	975.9	609.3	445.9
Primary products value of shipments	618.9	411.9	311.8
Secondary products value of shipments	224.6	103.7	85.3
Total miscellaneous receipts	132.4	93.7	48.8
Value of resales	121.1	92.4	45.5
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	73	80	79
Value of primary products shipments made in all industries	650.1	456.7	352.7
Value of primary products shipments made in this industry	618.9	411.9	311.8
Value of primary products shipments made in other industries	31.2	44.8	40.8
Coverage ratio	95	90	88
INDUSTRY 3953, MARKING DEVICES			
Total value of shipments	553.2	442.5	337.6
Primary products value of shipments	451.7	381.6	293.1
Secondary products value of shipments	40.8	20.2	18.6
Total miscellaneous receipts	60.7	40.6	25.9
Value of resales	56.8	37.8	22.6
Contract receipts	1.0	1.5	(D)
Other miscellaneous receipts	3.0	1.4	(D)
Primary products specialization ratio	92	95	94
Value of primary products shipments made in all industries	596.6	455.9	326.9
Value of primary products shipments made in this industry	451.7	381.6	293.1
Value of primary products shipments made in other industries	144.8	74.3	33.7
Coverage ratio	76	84	90
INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS			
Total value of shipments	831.1	665.3	778.8
Primary products value of shipments	725.8	622.8	582.6
Secondary products value of shipments	37.0	11.9	115.3
Total miscellaneous receipts	68.2	30.7	80.9
Value of resales	66.2	29.1	80.4
Contract receipts	1.3	1.4	(D)
Other miscellaneous receipts	.8	.2	(D)
Primary products specialization ratio	95	98	83
Value of primary products shipments made in all industries	856.7	821.1	793.6
Value of primary products shipments made in this industry	725.8	622.8	582.6
Value of primary products shipments made in other industries	130.8	198.3	211.0
Coverage ratio	85	76	73
INDUSTRY 3961, COSTUME JEWELRY			
Total value of shipments	1 449.4	1 391.9	1 027.1
Primary products value of shipments	1 328.2	1 142.7	855.5
Secondary products value of shipments	46.1	69.2	68.3
Total miscellaneous receipts	75.2	180.0	103.4
Value of resales	68.3	171.4	95.8
Contract receipts	5.3	(D)	(D)
Other miscellaneous receipts	1.5	(D)	(D)
Primary products specialization ratio	97	94	93
Value of primary products shipments made in all industries	1 513.5	1 265.0	948.6
Value of primary products shipments made in this industry	1 328.2	1 142.7	855.5
Value of primary products shipments made in other industries	185.3	122.3	93.1
Coverage ratio	88	90	90

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS			
Total value of shipments	868.2	670.0	823.0
Primary products value of shipments	791.7	627.4	(NA)
Secondary products value of shipments	11.4	19.0	(NA)
Total miscellaneous receipts	65.1	23.7	(NA)
Value of resales	50.5	17.1	(NA)
Contract receipts	4.3	(D)	(NA)
Other miscellaneous receipts	10.4	(D)	(NA)
Primary products specialization ratio	99	97	(NA)
Value of primary products shipments made in all industries	825.0	676.5	749.4
Value of primary products shipments made in this industry	791.7	627.4	(NA)
Value of primary products shipments made in other industries	33.4	49.1	(NA)
Coverage ratio	96	93	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3951– —	**PENS AND MECHANICAL PENCILS**						
	Total	**(NA)**	**(X)**	**1 240.4**	**(NA)**	**(X)**	**919.0**
39511	Pens	(NA)	(X)	588.2	(NA)	(X)	418.8
	Ball point:						
39511 02	Refillable[3] mil units	32	(S)	297.2			
39511 04	Nonrefillable[3] mil units	21	(S)	218.9			
39511 13	Roller[3] mil units	11	(S)	69.7	(NA)	(X)	418.8
39511 00	Pens, n.s.k.	(NA)	(X)	2.4			
39512	Markers	(NA)	(X)	366.3	(NA)	(X)	226.5
39512 02	Fine point (thin-line writing pens)[3] mil units	17	(S)	106.2			
39512 06	Broad tipped (thick-line coloring pens and markers)[3] mil units	19	(S)	259.6	(NA)	(X)	226.5
39512 00	Markers, n.s.k.	(NA)	(X)	.5			
39513	Other pens, mechanical pencils, and parts	(NA)	(X)	260.8	(NA)	(X)	243.2
39513 05	Mechanical pencils, including clutch action and twist action[3]	14	(X)	74.1			
39513 10	Ball point pen refills[3] mil units	10	(X)	27.9			
39513 13	All other refills (fountain and roller pens, fine point markers, etc.)[3]	8	(X)	23.6	(NA)	(X)	243.2
39513 25	All other pens, mechanical pencil parts, (including pen points, renewal parts, fountain pens, desk sets, etc.)[3]	33	(X)	132.5			
39513 00	Other pens, mechanical pencils, and parts, n.s.k.	(NA)	(X)	2.7			
39510	Pens and mechanical pencils, n.s.k.	(NA)	(X)	25.0	(NA)	(X)	30.5
39510 00	Pens and mechanical pencils, n.s.k.[4]	(NA)	(X)	9.9	(NA)	(X)	10.2
39510 02	Pens and mechanical pencils, n.s.k.[5]	(NA)	(X)	15.1	(NA)	(X)	20.3
3952– —	**LEAD PENCILS AND ART GOODS**						
	Total	**(NA)**	**(X)**	**650.1**	**(NA)**	**(X)**	**456.7**
39523	Nonmechanical pencils, crayons, and chalk	(NA)	(X)	348.0	(NA)	(X)	213.3
39523 10	Nonmechanical (wood-cased) black graphite pencils[3] mil units	12	(S)	158.2			
39523 13	Other nonmechanical (wood-cased) pencils (indelible, colored, etc.) and graphite and colored sticks[3]	6	(X)	18.7	(NA)	(X)	213.3
39523 22	Crayons and chalk, except artists', including tailors' chalk[3]	8	(X)	168.7			
39523 00	Nonmechanical pencils, crayons, and chalk, n.s.k.	(NA)	(X)	2.4			
39524	Artists' equipment	(NA)	(X)	270.3	(NA)	(X)	215.9
39524 13	Artists' equipment (including children's school art equipment, airbrushes, drawing tables, boards, palettes, etc.)	29	(X)	114.7	20	(X)	76.3
39524 19	Other art materials (including modeling clay, other modeling material, chalk, water colors, tempera colors, etc.)	40	(X)	155.6	36	(X)	138.7
39524 00	Artists' equipment, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	1.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3952– —	**LEAD PENCILS AND ART GOODS**—Con.						
39520	Lead pencils and art goods, n.s.k.	(NA)	(X)	31.7	(NA)	(X)	27.5
39520 00	Lead pencils and art goods, n.s.k.[4]	(NA)	(X)	2.8	(NA)	(X)	6.7
39520 02	Lead pencils and art goods, n.s.k.[5]	(NA)	(X)	28.9	(NA)	(X)	20.8

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3953– —	**MARKING DEVICES**				
	Total	**(NA)**	**596.6**	**(NA)**	**455.9**
39530	Hand stamps, stencils, and other marking devices	(NA)	596.6	(NA)	455.9
	Rubber and vinyl stamps:				
39530 13	Hand stamps, typeholder, and dies, custom and stock[3]	138	100.3		
39530 15	Permanently inked stamps, excluding print dies[3]	59	32.6		
39530 33	Mechanical hand stamps, self inkers including daters, time and numbering stamps, and metal and rubber wheel band goods[3]	71	136.0		
39530 35	Embossing seals, including notary, engineering, corporate, stationery, etc.[3]	24	12.2	(NA)	418.7
39530 37	Hand, letter, and figure stamps; dies; types and type holders; and steel embossing and incising numbering heads[3]	42	55.3		
39530 98	Other marking devices, such as stencils, letters, figures, numerals, stamp pads, branding irons, etc.[3]	57	136.8		
39530 00	Marking devices, n.s.k.[4]	(NA)	84.2		
39530 02	Marking devices, n.s.k.[5]	(NA)	39.3	(NA)	r37.2

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3955– —	**CARBON PAPER AND INKED RIBBONS**						
	Total	**(NA)**	**(X)**	**856.7**	**(NA)**	**(X)**	**821.1**
39551	Inked ribbons	(NA)	(X)	675.9	(NA)	(X)	610.4
39551 10	Typewriter ribbons[3] 1,000 dozens	21	(S)	120.8			
39551 15	Computer (electronic data processing) ribbons[3] 1,000 dozens	53	(S)	506.7	(NA)	(X)	610.4
39551 20	Other ribbons[3]	17	(X)	33.8			
39551 00	Inked ribbons, n.s.k.	(NA)	(X)	14.7			
39552	Carbon paper, stencil paper, etc.	(NA)	(X)	148.3	(NA)	(X)	171.5
39552 00	Carbon paper, stencil paper, etc.	18	(X)	148.3	21	(X)	171.5
39550	Carbon paper and inked ribbons, n.s.k.	(NA)	(X)	32.4	(NA)	(X)	39.2
39550 00	Carbon paper and inked ribbons, n.s.k.[6]	(NA)	(X)	13.7	(NA)	(X)	7.0
39550 02	Carbon paper and inked ribbons, n.s.k.[7]	(NA)	(X)	18.6	(NA)	(X)	32.2

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3961– —	**COSTUME JEWELRY**				
	Total	**(NA)**	**1 513.5**	**(NA)**	**1 265.0**
39610	Costume jewelry and costume novelties (except precious metal)	(NA)	1 513.5	(NA)	1 265.0
	Base metal, whether or not electroplated with gold, silver, chromium, etc.:				
39610 11	Rings and ring mountings	30	97.2	28	71.0
39610 21	Men's jewelry (excluding watch attachments and rings)	30	36.6	29	56.0
39610 31	Women's and children's jewelry and costume novelties (excluding watch attachments and rings)	219	921.9	167	711.9
39610 41	Watch attachments (bracelets for watches)	9	96.4	(NA)	77.2
39610 51	Fraternal, college, and school jewelry and emblems (including military insignia; excluding rings)	32			
39610 72	Other jewelry worn or carried about the person except compacts, vanity cases, cigar and cigarette cases, and lighters[3]	37	58.1	(NA)	49.4
39610 96	Compacts and vanity cases, other than leather[3]	7	17.3	(NA)	27.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3961– —	**COSTUME JEWELRY**—Con.				
39610	Costume jewelry and costume novelties (except precious metal)—Con.				
39610 99	Other costume jewelry, imitation pearls, and costume novelties made of plastics, wood, leather, etc.	83	92.4	50	87.7
39610 00	Costume jewelry, n.s.k.[4]	(NA)	131.3	(NA)	124.8
39610 02	Costume jewelry, n.s.k.[5]	(NA)	62.3	(NA)	59.8
3965– —	**FASTENERS, BUTTONS, NEEDLES, AND PINS**				
	Total	**(NA)**	**825.0**	**(NA)**	**676.5**
39651	Buttons and parts (except precious or semiprecious metals and precious or semiprecious stones)	(NA)	152.0	(NA)	166.9
	Metal:				
39651 01	Sew on type	9	18.1	10	41.7
39651 09	Other metal buttons (including mechanically applied types, etc.)	7	25.8	11	52.6
	Plastics:				
39651 11	Polyester	14	58.8	8	29.8
39651 19	Other plastics (including casein)	5	12.1	4	16.9
39651 21	Button blanks or molds, backs and parts for sale as such	3	1.0	(NA)	4.3
39651 29	Other buttons (including all fabrics covered; wood, bone, and hoof, vegetable ivory, leather, etc.)	15	26.3		
39651 00	Buttons and parts (except precious or semiprecious metals and precious or semiprecious stones), n.s.k.	(NA)	9.9	(NA)	21.5
39654	Zippers and slide fasteners	(NA)	234.8	(NA)	184.5
	Plastics:				
39654 22	Nylon	8	(8)	6	50.2
39654 23	Other plastics	6	(8)	4	51.5
	Metal:				
39654 31	Aluminum	7	10.8	5	23.0
39654 33	Brass	8	95.9	6	43.3
39654 39	Other	8	[8]127.1	4	15.3
39654 00	Zippers and slide fasteners, n.s.k.	(NA)	1.0	(NA)	1.2
39656	Needles, pins, fasteners (except slide), and similar notions	(NA)	399.2	(NA)	260.8
39656 20	Snap fasteners (all types)	10	91.0	7	54.4
39656 25	Buckles (including those covered with fabrics or other material, but excluding those used for costume jewelry and shoes)[3]	33	106.9	(NA)	73.4
39656 33	Other fasteners (including tape fasteners, hook and eyes, rivet and burrs, trimmings, etc.)	27	120.6	(NA)	75.7
39656 51	Hair curlers (except rubber and those designed for beauty parlor use)	3	(D)		
39656 71	Needles (except hypodermic, phonograph, and styli)	5	15.7	4	12.7
	Pins (except jewelry):				
39656 81	Common or toilet, (including dressmakers' pins)	1	(D)	3	23.2
39656 89	Other pins, hatpins, glasshead pins, safety pins, plastics and metal hairpins	10	48.6	7	18.6
39656 00	Needles, pins, fasteners (except slide), and similar notions, n.s.k.	(NA)	.6	(NA)	2.8
39650	Fasteners, buttons, needles, and pins, n.s.k.	(NA)	39.0	(NA)	64.3
39650 00	Fasteners, buttons, needles, and pins, n.s.k.[4]	(NA)	3.6	(NA)	37.0
39650 02	Fasteners, buttons, needles, and pins, n.s.k.[5]	(NA)	35.4	(NA)	27.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]Typically for establishments with 10 employees or more.
[7]Typically for establishments with less than 10 employees.
[8]Products are combined to avoid disclosing data for individual companies.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39511, PENS		
United States	**588.2**	**418.8**
Massachusetts	8.3	(NA)
Missouri	16.5	(NA)
New Jersey	12.0	(NA)
New York	15.3	11.2
Pennsylvania	6.1	(NA)
Tennessee	38.0	12.8
39512, MARKERS		
United States	**366.3**	**226.5**
Tennessee	74.6	(NA)
39513, OTHER PENS, MECHANICAL PENCILS, AND PARTS		
United States	**260.8**	**243.2**
California	27.2	25.3
Connecticut	10.8	5.9
New Jersey	34.0	25.8
New York	5.5	6.3
Rhode Island	59.6	(NA)
Tennessee	36.9	(NA)
39523, NONMECHANICAL PENCILS, CRAYONS, AND CHALK		
United States	**348.0**	**213.3**
Tennessee	130.1	54.1
39524, ARTISTS' EQUIPMENT		
United States	**270.3**	**215.9**
California	39.4	24.1
Illinois	28.8	21.3
Massachusetts	7.0	(NA)
New Jersey	57.8	51.8
New York	10.6	6.8
Pennsylvania	19.8	25.1
Wisconsin	2.1	(NA)
39551, INKED RIBBONS		
United States	**675.9**	**610.4**
California	114.6	107.4
Colorado	55.9	(NA)
Maryland	7.5	(NA)
New Jersey	55.1	36.7
New York	76.3	48.4
Ohio	34.9	12.1
Pennsylvania	34.1	34.0
Tennessee	96.9	67.6
39552, CARBON PAPER, STENCIL PAPER, ETC.		
United States	**148.3**	**171.5**
New York	39.2	18.4
Texas	12.3	(NA)
39651, BUTTONS AND PARTS (EXCEPT PRECIOUS OR SEMIPRECIOUS METALS AND PRECIOUS OR SEMIPRECIOUS STONES)		
United States	**152.0**	**166.9**
California	8.5	8.6
Connecticut	22.9	23.0
Iowa	11.3	6.2
New Jersey	3.3	11.0
New York	60.1	40.1
39654, ZIPPERS AND SLIDE FASTENERS		
United States	**234.8**	**184.5**
New York	19.4	15.3
39656, NEEDLES, PINS, FASTENERS (EXCEPT SLIDE), AND SIMILAR NOTIONS		
United States	**399.2**	**260.8**
Connecticut	26.7	54.0
Illinois	23.6	(NA)
New Jersey	33.8	25.0
New York	48.3	19.8
Pennsylvania	9.3	(NA)
Rhode Island	37.6	29.4
Wisconsin	18.8	8.4

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3951-	**Pens and mechanical pencils**	**1 240.4**	**1 241.1**	**1 278.3**	**1 246.9**	**1 071.5**	**919.0**	**773.8**	**562.9**
39511	Pens	588.2	607.5	601.9	571.6	483.1	418.8	383.5	
39512	Markers	366.3	293.9	296.9	325.6	279.2	226.5	156.9	562.9
39513	Other pens, mechanical pencils, and parts	260.8	293.0	311.9	318.2	277.3	243.2	204.7	
39510	Pens and mechanical pencils, n.s.k.	25.0	46.6	67.6	31.5	31.9	30.5	28.7	
3952-	**Lead pencils and art goods**	**650.1**	**558.2**	**523.5**	**515.8**	**500.8**	**456.7**	**352.7**	**268.1**
39523	Nonmechanical pencils, crayons, and chalk	348.0	293.6	278.8	281.5	262.5	213.3	(NA)	(NA)
39524	Artists' equipment	270.3	228.8	211.8	208.4	207.2	215.9	(NA)	(NA)
39520	Lead pencils and art goods, n.s.k.	31.7	35.7	32.9	25.9	31.1	27.5	23.7	13.6
3953-	**Marking devices**	**596.6**	**537.7**	**515.0**	**524.3**	**457.0**	**455.9**	**326.9**	**215.9**
39530	Hand stamps, stencils, and other marking devices	596.6	537.7	515.0	524.3	457.0	455.9	326.9	215.9
3955-	**Carbon paper and inked ribbons**	**856.7**	**1 137.4**	**1 098.1**	**1 058.1**	**926.4**	**821.1**	**793.6**	**488.9**
39551	Inked ribbons	675.9	869.5	839.7	794.0	695.2	610.4	485.3	246.9
39552	Carbon paper, stencil paper, etc.	148.3	222.5	213.5	219.4	190.6	171.5	282.0	220.2
39550	Carbon paper and inked ribbons, n.s.k.	32.4	45.4	44.9	44.7	40.4	39.2	26.3	21.8
3961-	**Costume jewelry**	**1 513.5**	**1 399.3**	**1 417.3**	**1 314.8**	**1 291.6**	**1 265.0**	**948.6**	**781.5**
39610	Costume jewelry and costume novelties (except precious metal)	1 513.5	1 399.3	1 417.3	1 314.8	1 291.6	1 265.0	948.6	781.5
3965-	**Fasteners, buttons, needles, and pins**	**825.0**	**865.4**	**850.1**	**763.7**	**701.4**	**676.5**	**749.4**	**739.8**
39651	Buttons and parts (except precious or semiprecious metals and precious or semiprecious stones)	152.0	148.4	157.1	133.0	169.1	166.9	142.5	106.2
39654	Zippers and slide fasteners	234.8	206.0	192.7	215.0	199.5	184.5	200.8	295.0
39656	Needles, pins, fasteners (except slide), and similar notions	399.2	432.0	425.0	362.1	263.5	260.8	364.4	278.1
39650	Fasteners, buttons, needles, and pins, n.s.k.	39.0	78.9	75.3	53.5	69.3	64.3	41.7	60.6

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3951, PENS AND MECHANICAL PENCILS		
	Materials, ingredients, containers, and supplies	**330.5**	**288.2**
240001	Lumber and wood products, except furniture	(D)	(1)
265001	Paperboard containers, boxes, and corrugated paperboard	33.8	20.4
	Chemicals and allied products:		
281600	Inorganic pigments	(D)	(1)
286532	Organic color pigments, lakes, and toners	(D)	(1)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	(D)	(1)
280093	Other chemicals and allied products	16.3	(1)
290006	Petroleum wax	(D)	(1)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	26.5	26.2
	Stone, clay, glass, and concrete products:		
329508	Natural graphite	.7	(1)
320098	Other stone, clay, glass, and concrete products	(D)	(1)
340004	Fabricated metal products, including forgings	27.7	35.7
395101	Parts for pens and mechanical pencils	155.4	94.8
970099	All other materials and components, parts, containers, and supplies	52.2	[1]95.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	11.6	15.5
	INDUSTRY 3952, LEAD PENCILS AND ART GOODS		
	Materials, ingredients, containers, and supplies	**313.3**	**185.2**
240001	Lumber and wood products, except furniture	39.5	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	29.4	(NA)
	Chemicals and allied products:		
281600	Inorganic pigments	9.1	(NA)
286532	Organic color pigments, lakes, and toners	8.6	(NA)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	23.2	(NA)
280093	Other chemicals and allied products	27.5	(NA)
290006	Petroleum wax	6.5	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	16.2	(NA)
	Stone, clay, glass, and concrete products:		
329508	Natural graphite	8.3	(NA)
320098	Other stone, clay, glass, and concrete products	1.6	(NA)
340004	Fabricated metal products, including forgings	21.2	(NA)
395101	Parts for pens and mechanical pencils	49.9	(NA)
970099	All other materials and components, parts, containers, and supplies	49.6	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	22.5	(NA)
	INDUSTRY 3953, MARKING DEVICES		
	Materials, ingredients, containers, and supplies	**161.2**	**129.4**
240001	Lumber and wood products, except furniture	2.1	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	1.1	(NA)
	Chemicals and allied products:		
281600	Inorganic pigments	(D)	(NA)
286532	Organic color pigments, lakes, and toners	(D)	(NA)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	.1	(NA)
280093	Other chemicals and allied products	1.5	(NA)
290006	Petroleum wax	(D)	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	10.2	(NA)
	Stone, clay, glass, and concrete products:		
329508	Natural graphite	–	(NA)
320098	Other stone, clay, glass, and concrete products	(D)	(NA)
340004	Fabricated metal products, including forgings	9.8	(NA)
395101	Parts for pens and mechanical pencils	(D)	(NA)
970099	All other materials and components, parts, containers, and supplies	75.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	58.6	(NA)
	INDUSTRY 3955, CARBON PAPER AND INKED RIBBONS		
	Materials, ingredients, containers, and supplies	**376.5**	**322.6**
	Textile mill products:		
220129	Broadwoven fabrics	14.4	21.6
224111	Woven fabrics (12 inches or less in width)	56.0	24.7
220090	Other textile mill products	(D)	(1)
	Paper and allied products:		
262106	Purchased (market) paper	42.6	79.0
265001	Paperboard containers, boxes, and corrugated paperboard	20.4	19.7
260092	Other paper and allied products	(D)	(1)
	Chemical and allied products:		
289501	Carbon black	3.0	4.5
289300	Printing ink	8.4	14.4
280092	Other chemical and allied products	29.5	(1)
970099	All other materials and components, parts, containers, and supplies	112.9	[1]128.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	33.3	30.1

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3961, COSTUME JEWELRY		
	Materials, ingredients, containers, and supplies	**432.2**	**401.6**
340004	Fabricated metal products, including forgings	24.0	(NA)
	Shapes and forms (except fabricated metal products):		
333903	Precious metals, all forms, including ingot, sheet, strip, solder, plating, electrodes, etc.	33.6	(NA)
330025	Other shapes and forms, including castings	11.2	(NA)
	Jewelry, silverware, and plated ware:		
391521	Precious, semiprecious, and synthetic stones, and pearls; cut, polished, or drilled	56.2	(NA)
391501	Jewelers' findings, including joints, pins, clasps, chains, flat stock, etc.	80.9	(NA)
391015	Other jewelry, silverware, and plated ware	15.2	(NA)
970099	All other materials and components, parts, containers, and supplies	60.3	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	150.8	(NA)
	INDUSTRY 3965, FASTENERS, BUTTONS, NEEDLES, AND PINS		
	Materials, ingredients, containers, and supplies	**296.0**	**244.5**
340004	Fabricated metal products, including forgings	21.8	[1]
	Shapes and forms, (except castings and fabricated metal products):		
331002	Steel	16.6	28.3
335001	Aluminum and aluminum-base alloy	5.3	10.5
335105	Copper and copper-base alloy	46.8	39.4
335099	All other nonferrous shapes and forms	5.6	[1]
220101	Cotton and manmade fiber fabrics, broadwoven and narrow woven (including tape for zippers and other fasteners)	46.8	19.2
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	17.7	18.0
396501	Needles, pins, fasteners, and similar materials purchased for further manufacture or assembly	15.9	21.1
970099	All other materials and components, parts, containers, and supplies	57.8	[1]61.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	61.5	46.1

[1]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the materials were consumed.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
39141 70	39141 51
39141 70	39141 69
39142 70	39142 55
39142 70	39142 69
39314 27	39314 24
39314 27	39314 25
39314 27	39314 26
39420 12	39420 09
39420 12	39420 11
39420 21	39420 22
39420 21	39420 23
39420 21	39420 24
39420 21	39420 25
39420 43	39420 26
39420 43	39420 37
39420 43	39420 39
39420 43	39420 40
39420 43	39420 42
39443 16	39443 11
39443 16	39443 15
39443 97	39443 33
39443 97	39443 47
39443 97	39443 98
39444 20	39444 17
39444 20	39444 19
39444 36	39444 34
39444 36	39444 35
39445 16	39445 15
39445 16	39445 17
39445 30	39445 27
39445 30	39445 29
39491 06	39491 01
39491 06	39491 03
39491 06	39491 05
39491 11	39491 07
39491 11	39491 09
39491 11	39491 10
39494	39496
39494 01	39496 01
39494 02	39496 02
39494 03	39496 03
39494 04	39496 04
39494 05	39496 05
39494 06	39496 06
39495 36	39495 34
39495 36	39495 35
39495 51	39495 43
39495 51	39495 48
39495 51	39495 50
39495 53	39495 52
39495 53	39495 55
39495 64	39495 82
39495 64	39495 83
39495 69	39495 74
39495 69	39495 76
39495 70	39495 72
39495 70	39495 73
39495 71	39495 73
39495 91	39495 87
39495 91	39495 88
39495 99	39495 05
39495 99	39495 81
39495 99	39495 98
39511 02	39511 00
39511 04	39511 00
39511 13	39511 00
39512 02	39512 00
39512 06	39512 00
39513 05	39513 00
39513 10	39513 00
39513 13	39513 00
39513 25	39513 00
39523 10	39523 00
39523 13	39523 00
39523 22	39523 00
39530 13	39530 00
39530 15	39530 00
39530 33	39530 00
39530 35	39530 00
39530 37	39530 00
39530 98	39530 00
39551 10	39551 00
39551 15	39551 00
39551 20	39551 00
39610 72	39610 65
39610 72	39610 71
39610 96	39610 93
39610 96	39610 95
39656 25	39656 21
39656 25	39656 32
39960 00	39960 11
39960 00	39960 21
39960 00	39960 26
39960 00	39960 29
39960 00	39960 98
39991 40	39991 18
39991 40	39991 41
39991 70	39991 51
39991 70	39991 61
39991 70	39991 69
39997 00	39997 11
39999 81	39999 98
39999 99	39997 51
39999 99	39999 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
39141 51	39141 70
39141 69	39141 70
39142 55	39142 70
39142 69	39142 70
39314 24	39314 27
39314 25	39314 27
39314 26	39314 27
39420 09	39420 12
39420 11	39420 12
39420 22	39420 21
39420 23	39420 21
39420 24	39420 21
39420 25	39420 21
39420 26	39420 43
39420 37	39420 43
39420 39	39420 43
39420 40	39420 43
39420 42	39420 43
39443 11	39443 16
39443 15	39443 16
39443 33	39443 97
39443 47	39443 97
39443 98	39443 97
39444 17	39444 20
39444 19	39444 20
39444 34	39444 36
39444 35	39444 36
39445 15	39445 16
39445 17	39445 16
39445 27	39445 30
39445 29	39445 30
39491 01	39491 06
39491 03	39491 06
39491 05	39491 06
39491 07	39491 11
39491 09	39491 11
39491 10	39491 11
39495 05	39495 99
39495 34	39495 36
39495 35	39495 36
39495 43	39495 51
39495 48	39495 51
39495 50	39495 51
39495 52	39495 53
39495 55	39495 53
39495 72	39495 70
39495 73	39495 70
39495 73	39495 71
39495 74	39495 69
39495 76	39495 69
39495 81	39495 99
39495 82	39495 64
39495 83	39495 64
39495 87	39495 91
39495 88	39495 91
39495 98	39495 99
39496	39494
39496 01	39494 01
39496 02	39494 02
39496 03	39494 03
39496 04	39494 04
39496 05	39494 05
39496 06	39494 06
39511 00	39511 02
39511 00	39511 04
39511 00	39511 13
39512 00	39512 02
39512 00	39512 06
39513 00	39513 05
39513 00	39513 10
39513 00	39513 13
39513 00	39513 25
39523 00	39523 10
39523 00	39523 13
39523 00	39523 22
39530 00	39530 13
39530 00	39530 15
39530 00	39530 33
39530 00	39530 35
39530 00	39530 37
39530 00	39530 98
39551 00	39551 10
39551 00	39551 15
39551 00	39551 20
39610 65	39610 72
39610 71	39610 72
39610 93	39610 96
39610 95	39610 96
39656 21	39656 25
39656 32	39656 25
39960 11	39960 00
39960 21	39960 00
39960 26	39960 00
39960 29	39960 00
39960 98	39960 00
39991 18	39991 40
39991 41	39991 40
39991 51	39991 70
39991 61	39991 70
39991 69	39991 70
39997 11	39997 00
39997 51	39999 99
39999 98	39999 81
39999 98	39999 99

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:59 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 1
TSF:TIPS92-08581280.DAT;1 1/ 6/ 95 08:58:20 UTF:TIPS93-08581280.DAT;1 1/ 6/ 95 08:58:21 META:TIPS96-08581280.DAT;1 1/ 6/ 95 08:58:55

Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

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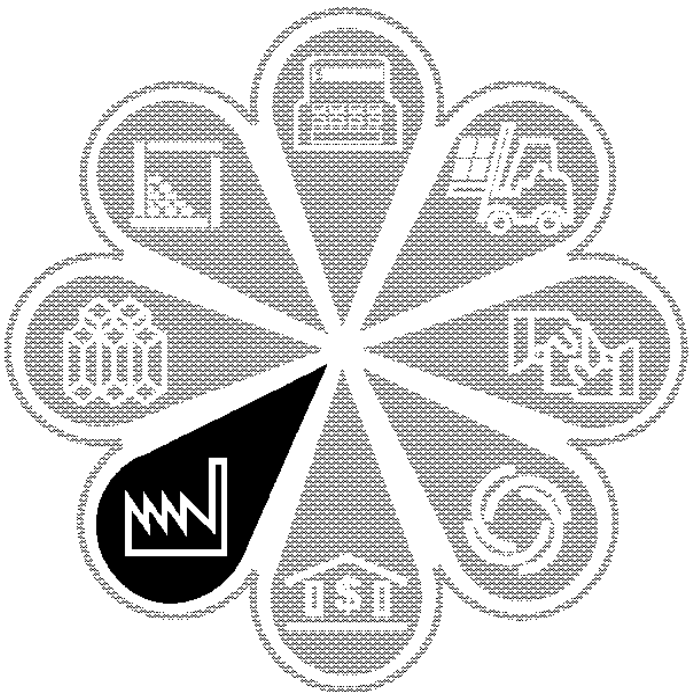
1992 Census of Manufactures

MC92-I-39D

INDUSTRY SERIES

Miscellaneous Manufactures

Industries 3991, 3993, 3995, 3996, and 3999



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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1992 Census of Manufactures

MC92-I-39D

INDUSTRY SERIES

Miscellaneous Manufactures

Industries 3991, 3993, 3995, 3996, and 3999

U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

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Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Bruce M. Goldhirsch,** Chief, Electrical and Transportation Branch, assisted by **Raphael S. Corrado**, Section Chief, with primary staff assistance by **Dennis Gosier.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Acting Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

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Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4817.

JOBNAME: No Job Name PAGE: 1 SESS: 19 OUTPUT: Tue Mar 28 11:26:52 1995 / pssw02/ disk2/ economic/ mc92i/ 0/ 04rstr

Economics and Statistics Administration

Everett M. Ehrlich, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS

Martha Farnsworth Riche, Director
Harry A. Scarr, Deputy Director

Paula J. Schneider, Principal Associate Director for Programs
Frederick T. Knickerbocker, Associate Director for Economic Programs
Thomas L. Mesenbourg, Assistant Director for Economic Programs

ECONOMIC PLANNING AND COORDINATION DIVISION
John P. Govoni, Chief

MANUFACTURING AND CONSTRUCTION DIVISION
John P. Govoni, Acting Chief

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census, ASM, and CIR		
SIC's 20-23, 3021, 31	Judy Dodds	301-457-4651
SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3991	Brooms and Brushes
3993	Signs and Advertising Specialties
3995	Burial Caskets
3996	Hard Surface Floor Coverings, N.E.C.
3999	Manufacturing Industries, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3991, BROOMS AND BRUSHES

This industry is made up of establishments primarily engaged in manufacturing household, industrial, and street sweeping brooms and brushes, such as paintbrushes, toothbrushes, toilet brushes, and household and industrial brushes.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3991, Brooms and Brushes, had employment of 12.6 thousand. The employment figure was 2 percent above the 12.3 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, New York, Ohio, and Wisconsin. This represents a shift from 1987 when Ohio, New York, Illinois, and Massachusetts were the leading States.

The total value of shipments for establishments classified in this industry was $1.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3991 shipped $1.1 billion of brooms and brushes considered primary to the industry, $86.0 million of secondary products, and had $90.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 91 percent.

The products primary to industry 3991, no matter in what industry they were produced, appear in table 6a and aggregate to $1.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the brooms

and brushes industry amounted to $539.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES

This industry is made up of establishments primarily engaged in manufacturing electrical, mechanical, cutout, or plate signs and advertising displays, including neon signs, and advertising specialties. Sign painting shops doing business on a custom basis are classified in services, industry 7389. Establishments primarily engaged in manufacturing electric signal equipment are classified in industry 3669, and those manufacturing commercial lighting fixtures are classified in industry 3646.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3993, Signs and Advertising Specialties, had employment of 67.5 thousand. The employment figure was 2 percent above the 66.3 thousand reported in 1987.

The leading States in employment in 1992 were California, New York, Illinois, and Ohio, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when New York, Illinois, Texas, and California were the leading States.

The total value of shipments for establishments classified in this industry was $5.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3993 shipped $4.8 billion of signs and advertising specialties considered primary to the industry, $120.9 million of secondary products, and had $514.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 98 percent (specialization ratio). In 1987, the specialization ratio was 96 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 97 percent.

The products primary to industry 3993, no matter in what industry they were produced, appear in table 6a and aggregate to $4.9 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the signs and advertising specialties industry amounted to $2.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3995, BURIAL CASKETS

This industry is made up of establishments primarily engaged in manufacturing burial caskets and cases, including shipping cases, of wood or other materials except concrete.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3995, Burial Caskets, had employment of 7.8 thousand. The employment figure was 10 percent below the 8.7 thousand reported in 1987.

The leading States in employment in 1992 were Indiana, New York, Pennsylvania, and Tennessee. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3995 shipped $1.0 billion of burial caskets considered primary to the industry.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 99 percent.

The products primary to industry 3995, no matter in what industry they were produced, appear in table 6a and aggregate to $1.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the burial caskets industry amounted to $390.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing linoleum, asphalted-felt-base, and other hard surface floor coverings, not elsewhere classified. Establishments primarily engaged in manufacturing rubber floor coverings are classified in industry 3069, and those manufacturing cork floor and wall tile are classified in industry 2499.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3996, Hard Surface Floor Coverings, N.E.C., had employment of 6.7 thousand. The employment figure was 12 percent below the 7.6 thousand reported in 1987. Compared with 1991, employment decreased 1 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Alabama, Illinois, New Jersey, and Pennsylvania. This represents a shift from 1987 when Pennsylvania, New Jersey, Illinois, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $1.5 billion.

The products primary to industry 3996, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the hard surface floor coverings, not elsewhere classified, industry amounted to $616.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of the total value of shipments.

INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing miscellaneous fabricated products, including beauty shop and barber shop equipment; hair work; tobacco pipes and cigarette holders; coin-operated amusement machines; matches; candles; lamp shades; feathers; artificial trees and flowers made from all materials except glass; dressed and dyed furs; umbrellas, parasols, and canes; and other articles, not elsewhere classified.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3999, Manufacturing Industries, N.E.C., had employment of 60.0 thousand. The employment figure was 12 percent below the 68.3 thousand reported in 1987.

The leading States in employment in 1992 were California, Illinois, New York, and Pennsylvania, accounting for approximately 36 percent of the industry's employment. This represents a shift from 1987 when California, New York, Illinois, and New Jersey accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3999 shipped $4.9 billion of manufacturing industries, not elsewhere classified, products considered primary to the industry, $372.8 million of secondary products, and had $641.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 93 percent (specialization ratio). In 1987, the specialization ratio also was 93 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3999, no matter in what industry they were produced, appear in table 6a and aggregate to $5.2 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the manufacturing industries, not elsewhere classified, industry amounted to $2.5 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3991, BROOMS AND BRUSHES															
1992 Census	260	279	128	12.6	291.7	8.9	18.8	161.4	745.4	539.5	1 281.4	35.8	203.5	93	91
1991 ASM	(NA)	(NA)	(NA)	14.0	290.7	10.7	19.7	170.7	740.7	521.2	1 260.3	23.8	205.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.0	278.8	10.4	19.3	152.0	731.0	498.0	1 221.8	17.4	209.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	13.9	266.7	10.2	19.5	146.2	680.7	508.0	1 185.0	14.1	200.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	13.4	267.8	9.9	18.8	155.2	616.5	500.3	1 105.1	37.9	215.0	(NA)	(NA)
1987 Census	293	301	143	12.3	230.6	9.3	17.5	137.1	550.9	440.7	990.4	26.5	180.9	88	91
1986 ASM	(NA)	(NA)	(NA)	11.4	202.3	8.7	16.9	118.9	479.3	386.2	859.3	27.6	166.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	11.4	190.3	8.6	16.3	111.9	438.9	369.7	808.0	26.1	154.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.2	202.6	9.9	18.0	121.4	482.4	402.9	878.2	17.7	172.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.4	205.1	9.9	17.6	124.1	470.9	421.1	894.0	18.7	159.2	(NA)	(NA)
1982 Census	320	341	139	14.1	197.1	10.5	19.4	123.0	432.5	376.9	818.1	17.2	155.1	90	89
1981 ASM	(NA)	(NA)	(NA)	15.0	195.1	11.4	21.4	122.1	431.1	363.7	788.3	21.1	156.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.8	189.7	12.1	23.2	118.5	406.4	357.2	762.4	28.9	149.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.6	179.4	12.6	24.3	113.1	397.7	353.1	742.3	22.2	147.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.8	174.2	12.9	24.2	109.4	376.2	339.8	716.8	13.5	138.4	(NA)	(NA)
1977 Census	391	409	153	16.5	163.8	12.7	24.0	101.1	353.6	326.7	673.1	15.7	129.9	91	89
INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES															
1992 Census	4 467	4 577	762	67.5	1 679.9	42.5	86.1	834.2	3 164.8	2 279.2	5 420.1	96.9	603.7	98	97
1991 ASM	(NA)	(NA)	(NA)	62.2	1 453.9	39.5	79.2	706.2	2 529.5	2 237.7	4 755.0	105.0	485.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	69.5	1 525.8	44.4	85.3	785.0	2 613.8	2 214.4	4 826.5	107.8	479.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	74.0	1 523.6	49.2	92.9	819.0	2 665.9	2 019.9	4 677.6	98.2	491.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	72.3	1 457.6	48.8	92.9	806.5	2 772.4	2 033.7	4 794.4	99.8	533.7	(NA)	(NA)
1987 Census	3 676	3 778	828	66.3	1 365.1	44.2	85.0	732.1	2 496.1	1 790.6	4 282.6	97.8	476.0	96	97
1986 ASM	(NA)	(NA)	(NA)	53.7	1 144.2	36.7	74.3	634.6	2 143.3	1 431.2	3 557.5	75.2	388.0	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	54.6	1 099.9	38.5	74.6	626.3	2 129.9	1 425.1	3 533.2	98.3	358.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	54.6	1 013.2	38.9	73.3	576.1	2 049.1	1 380.8	3 418.1	68.1	318.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	52.7	881.7	38.4	69.4	503.2	1 610.1	1 171.6	2 759.3	54.7	341.6	(NA)	(NA)
1982 Census	3 155	3 243	662	52.8	870.7	36.4	66.4	497.3	1 583.9	1 113.1	2 692.4	63.1	310.0	97	95
1981 ASM	(NA)	(NA)	(NA)	56.4	861.3	39.3	72.6	505.0	1 578.8	1 025.8	2 595.3	54.8	292.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	57.9	803.9	41.9	77.1	478.2	1 464.8	999.9	2 457.6	67.1	301.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	58.2	732.7	43.1	81.3	430.8	1 406.4	913.0	2 292.1	63.1	288.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	49.2	579.5	36.1	67.4	333.1	1 111.3	718.2	1 817.8	53.1	232.9	(NA)	(NA)
1977 Census	3 373	3 468	627	49.7	566.6	36.8	69.2	343.1	1 060.9	689.2	1 738.7	43.0	210.8	98	97
INDUSTRY 3995, BURIAL CASKETS															
1992 Census	195	211	67	7.8	196.2	6.0	13.4	131.0	660.6	390.6	1 053.3	28.5	110.8	(D)	99
1991 ASM	(NA)	(NA)	(NA)	9.9	237.8	7.7	16.2	150.1	644.2	554.3	1 193.7	29.1	130.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	10.2	228.6	8.0	17.8	158.5	579.8	539.6	1 093.5	26.9	116.0	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.5	170.3	6.6	13.3	114.8	502.5	446.5	946.3	23.5	88.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	8.6	169.9	6.6	13.3	116.5	497.5	390.9	884.6	31.1	88.8	(NA)	(NA)
1987 Census	213	231	80	8.7	163.2	6.9	13.7	112.5	472.1	361.8	839.9	28.8	92.9	99	99
1986 ASM	(NA)	(NA)	(NA)	8.4	155.0	6.6	13.2	105.0	403.9	338.5	738.3	29.7	96.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	8.7	151.0	6.9	13.2	103.9	397.0	329.3	727.3	28.5	85.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	9.0	147.4	6.9	13.6	97.4	373.5	332.6	704.9	27.2	87.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.3	151.2	8.3	17.0	106.0	408.3	275.1	689.7	14.3	95.4	(NA)	(NA)
1982 Census	270	301	110	10.3	145.1	8.1	15.3	98.0	374.6	309.7	682.1	36.7	103.4	100	99
1981 ASM	(NA)	(NA)	(NA)	10.6	149.6	8.2	16.5	95.4	342.8	330.7	674.0	25.5	115.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	12.4	161.1	9.5	19.4	100.0	328.8	341.4	667.4	16.1	101.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	11.4	135.8	8.8	17.5	83.7	292.0	276.4	571.5	10.4	94.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	11.9	142.4	9.1	18.8	90.2	287.8	257.1	540.8	15.5	90.4	(NA)	(NA)
1977 Census	376	406	133	12.0	129.7	9.3	17.8	79.7	264.2	244.1	505.9	16.3	81.8	99	98
INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.															
1992 Census	21	28	18	6.7	240.2	5.2	11.2	179.4	902.7	616.5	1 521.1	65.7	206.2	(D)	(D)
1991 ASM	(NA)	(NA)	(NA)	6.8	220.5	5.3	10.9	162.0	796.9	627.7	1 419.0	66.3	210.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	7.1	225.6	5.5	11.2	165.5	793.2	594.3	1 377.3	62.9	209.2	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	7.1	222.3	5.6	12.0	166.8	798.0	609.4	1 399.1	79.4	195.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	7.2	222.6	5.6	11.9	160.7	795.1	590.8	1 380.0	68.1	187.0	(NA)	(NA)
1987 Census	14	21	17	7.6	224.6	6.0	12.6	165.1	740.1	560.5	1 309.7	51.2	182.2	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	7.0	197.1	5.5	11.3	145.3	693.4	461.9	1 155.4	52.4	168.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.2	165.8	4.8	9.4	121.8	573.7	436.0	1 025.7	37.7	155.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	6.6	165.9	5.2	10.1	122.6	579.6	440.3	1 010.2	54.3	176.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	6.2	145.7	4.8	9.3	104.3	475.0	403.3	864.7	26.6	164.6	(NA)	(NA)
1982 Census	12	17	10	5.3	112.1	3.9	7.3	78.3	323.4	270.3	604.1	18.2	118.1	(D)	(D)
1981 ASM	(NA)	(NA)	(NA)	5.5	107.9	4.2	8.0	76.7	331.8	317.3	640.1	12.4	100.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.7	100.9	4.3	8.3	71.4	326.4	300.4	631.2	18.2	91.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.4	109.6	4.9	10.0	79.9	368.1	354.2	713.8	27.9	102.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.5	101.0	5.0	10.1	72.6	361.5	307.5	670.8	21.1	85.8	(NA)	(NA)
1977 Census	20	21	13	6.4	93.5	5.0	10.4	68.6	321.3	291.9	607.2	16.9	84.9	92	98
INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.															
1992 Census	3 208	3 252	689	60.0	1 362.8	41.3	82.4	721.2	3 373.1	2 538.0	5 881.3	213.8	1 091.4	93	94
1991 ASM	(NA)	(NA)	(NA)	64.0	1 251.2	47.7	94.0	722.3	3 132.1	2 376.6	5 495.4	137.1	898.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	68.0	1 284.1	50.8	96.5	740.8	3 176.2	2 326.0	5 482.4	108.9	905.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	65.2	1 214.1	48.1	92.5	686.0	2 980.1	2 105.2	5 084.6	122.2	839.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	70.3	1 255.0	51.3	95.6	706.1	2 954.1	2 182.4	5 122.8	71.3	840.5	(NA)	(NA)
1987 Census	4 047	4 093	725	68.3	1 190.7	50.5	94.5	677.1	2 785.2	2 036.3	4 825.1	100.1	788.3	93	93
1986 ASM	(NA)	(NA)	(NA)	54.7	905.3	40.4	75.0	529.5	1 991.9	1 485.5	3 488.0	72.4	629.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	53.5	878.6	34.1	71.3	499.1	1 870.2	1 451.9	3 345.1	84.1	587.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	58.2	913.5	43.3	80.1	521.1	2 048.8	1 631.4	3 663.3	87.1	709.3	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	62.6	943.8	46.3	86.0	546.2	1 968.7	1 925.5	3 952.8	70.4	747.8	(NA)	(NA)
1982 Census	3 842	3 898	637	64.0	944.0	46.8	85.8	548.7	2 157.0	2 173.8	4 322.9	93.2	747.3	(NA)	(NA)
1981 ASM	(NA)	(NA)	(NA)	66.0	880.5	49.4	91.8	518.0	2 073.8	1 939.7	3 980.1	137.3	611.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	69.0	833.6	52.1	94.4	498.7	1 863.9	1 780.0	3 643.0	85.6	594.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	70.2	732.0	54.0	102.5	456.5	1 696.7	1 567.3	3 229.7	81.4	554.6	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
	INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.—Con.														
1978 ASM	(NA)	(NA)	(NA)	77.6	778.0	59.4	105.3	484.0	1 706.1	1 544.0	3 218.4	86.4	549.8	(NA)	(NA)
1977 Census	4 144	4 208	680	71.7	702.3	55.7	98.7	430.3	1 566.8	1 285.2	2 818.3	84.0	507.6	(NA)	(NA)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3991, BROOMS AND BRUSHES								
1992 Census	23 151	71	2 112	8.59	42	65	59 159	39	39.65
1991 ASM	20 764	76	1 841	8.66	41	64	52 907	39	37.60
1990 ASM	19 914	74	1 856	7.88	41	64	52 214	38	37.88
1989 ASM	19 187	73	1 912	7.50	43	65	48 971	39	34.91
1988 ASM	19 985	74	1 899	8.26	45	70	46 007	43	32.79
1987 Census	18 748	76	1 882	7.83	44	68	44 789	42	31.48
1986 ASM	17 746	76	1 943	7.04	45	68	42 044	42	28.36
1985 ASM	16 693	75	1 895	6.87	46	69	38 500	43	26.93
1984 ASM	15 348	75	1 818	6.74	46	69	36 545	42	26.80
1983 ASM	15 306	74	1 778	7.05	47	70	35 142	44	26.76
1982 Census	13 979	74	1 848	6.34	46	70	30 674	46	22.29
1981 ASM	13 007	76	1 877	5.71	46	71	28 740	45	20.14
1980 ASM	12 006	77	1 917	5.11	47	72	25 722	47	17.52
1979 ASM	10 807	76	1 929	4.65	48	72	23 958	45	16.37
1978 ASM	10 369	77	1 876	4.52	47	72	22 393	46	15.55
1977 Census	9 927	77	1 890	4.21	49	73	21 430	46	14.73
	INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES								
1992 Census	24 887	63	2 026	9.69	42	73	46 886	53	36.76
1991 ASM	23 375	64	2 005	8.92	47	78	40 667	57	31.94
1990 ASM	21 954	64	1 921	9.20	46	77	37 609	58	30.64
1989 ASM	20 589	66	1 888	8.82	43	76	36 026	57	28.70
1988 ASM	20 160	67	1 904	8.68	42	73	38 346	53	29.84
1987 Census	20 590	67	1 923	8.61	42	74	37 649	55	29.37
1986 ASM	21 307	68	2 025	8.54	40	72	39 912	53	28.85
1985 ASM	20 145	71	1 938	8.40	40	71	39 009	52	28.55
1984 ASM	18 557	71	1 884	7.86	40	70	37 529	49	27.95
1983 ASM	16 731	73	1 807	7.25	42	74	30 552	55	23.20
1982 Census	16 491	69	1 824	7.49	41	74	29 998	55	23.85
1981 ASM	15 271	70	1 847	6.96	40	73	27 993	55	21.75
1980 ASM	13 884	72	1 840	6.20	41	73	25 299	55	19.00
1979 ASM	12 589	74	1 886	5.30	40	72	24 165	52	17.30
1978 ASM	11 778	73	1 867	4.94	40	71	22 587	52	16.49
1977 Census	11 400	74	1 880	4.96	40	72	21 346	53	15.33
	INDUSTRY 3995, BURIAL CASKETS								
1992 Census	25 154	77	2 233	9.78	37	56	84 692	30	49.30
1991 ASM	24 020	78	2 104	9.27	46	66	65 071	37	39.77
1990 ASM	22 412	78	2 225	8.90	49	70	56 843	39	32.57
1989 ASM	20 035	78	2 015	8.63	47	65	59 118	34	37.78
1988 ASM	19 756	77	2 015	8.76	44	63	57 849	34	37.41
1987 Census	18 759	79	1 986	8.21	43	63	54 264	35	34.46
1986 ASM	18 452	79	2 000	7.95	46	67	48 083	38	30.60
1985 ASM	17 356	79	1 913	7.87	45	66	45 632	38	30.08
1984 ASM	16 378	77	1 971	7.16	47	68	41 500	39	27.46
1983 ASM	14 680	81	2 048	6.24	40	62	39 641	37	24.02
1982 Census	14 087	79	1 889	6.41	45	67	36 369	39	24.48
1981 ASM	14 113	77	2 012	5.78	49	71	32 340	44	20.78
1980 ASM	12 992	77	2 042	5.15	51	75	26 516	49	16.95
1979 ASM	11 912	77	1 989	4.78	48	72	25 614	47	16.69
1978 ASM	11 966	76	2 066	4.80	48	74	24 185	49	15.31
1977 Census	10 808	78	1 914	4.48	48	74	22 017	49	14.84

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.								
1992 Census	35 851	78	2 154	16.02	41	56	134 731	27	80.60
1991 ASM	32 426	78	2 057	14.86	44	60	117 191	28	73.11
1990 ASM	31 775	77	2 036	14.78	43	60	111 718	28	70.82
1989 ASM	31 310	79	2 143	13.90	44	59	112 394	28	66.50
1988 ASM	30 917	78	2 125	13.50	43	59	110 431	28	66.82
1987 Census	29 553	79	2 100	13.10	43	60	97 382	30	58.74
1986 ASM	28 157	79	2 055	12.86	40	57	99 057	28	61.36
1985 ASM	26 742	77	1 958	12.96	43	59	92 532	29	61.03
1984 ASM	25 136	79	1 942	12.14	44	60	87 818	29	57.39
1983 ASM	23 500	77	1 938	11.22	47	63	76 613	31	51.08
1982 Census	21 151	74	1 872	10.73	45	63	61 019	35	44.30
1981 ASM	19 618	76	1 905	9.59	50	66	60 327	33	41.48
1980 ASM	17 702	75	1 930	8.60	48	64	57 263	31	39.33
1979 ASM	17 125	77	2 041	7.99	50	65	57 516	30	36.81
1978 ASM	15 538	77	2 020	7.19	46	61	55 615	28	35.79
1977 Census	14 609	78	2 080	6.60	48	63	50 203	29	30.89
	INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.								
1992 Census	22 713	69	1 995	8.75	43	66	56 218	40	40.94
1991 ASM	19 550	75	1 971	7.68	43	66	48 939	40	33.32
1990 ASM	18 884	75	1 900	7.68	42	66	46 709	40	32.91
1989 ASM	18 621	74	1 923	7.42	41	65	45 707	41	32.22
1988 ASM	17 852	73	1 864	7.39	43	67	42 021	42	30.90
1987 Census	17 433	74	1 871	7.17	42	67	40 779	43	29.47
1986 ASM	16 550	74	1 856	7.06	43	69	36 415	45	26.56
1985 ASM	16 422	64	2 091	7.00	43	70	34 957	47	26.23
1984 ASM	15 696	74	1 850	6.51	45	69	35 203	45	25.58
1983 ASM	15 077	74	1 857	6.35	49	73	31 449	48	22.89
1982 Census	14 750	73	1 833	6.40	50	72	33 703	44	25.14
1981 ASM	13 341	75	1 858	5.64	49	71	31 421	42	22.59
1980 ASM	12 081	76	1 812	5.28	49	72	27 013	45	19.74
1979 ASM	10 427	77	1 898	4.45	49	71	24 170	43	16.55
1978 ASM	10 026	77	1 773	4.60	48	72	21 986	46	16.20
1977 Census	9 795	78	1 772	4.36	46	71	21 852	45	15.87

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3991, BROOMS AND BRUSHES														
United States	**–**	**279**	**128**	**12.6**	**291.7**	**8.9**	**18.8**	**161.4**	**745.4**	**539.5**	**1 281.4**	**35.8**	**12.3**	**550.9**
California	–	22	9	.6	15.5	.4	.9	7.2	30.8	26.3	57.0	(D)	F	(D)
Florida	–	10	2	.1	2.8	.1	.2	1.5	8.2	5.7	13.5	.1	.2	6.7
Georgia	E5	7	3	.1	2.7	.1	.2	1.5	6.1	4.6	10.8	(D)	(NA)	(D)
Illinois	–	21	14	1.3	32.0	.9	2.1	16.3	76.6	71.4	149.1	(D)	G	(D)
Iowa	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kansas	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Maine	E9	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	12.1
Massachusetts	–	12	10	.9	18.0	.7	1.3	12.0	44.8	28.4	72.4	2.2	F	(D)
Minnesota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Nebraska	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	–	3	3	.3	7.1	.3	.5	3.9	21.9	14.5	35.4	(D)	E	(D)
New Jersey	–	14	5	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	E1	35	15	1.0	21.8	.8	1.5	11.7	53.9	45.4	100.4	(D)	1.3	45.2
North Carolina	–	8	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Ohio	–	27	17	1.7	43.2	1.3	2.4	25.9	107.5	85.8	191.7	3.6	1.5	84.2
Oregon	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	10.8
Pennsylvania	–	12	6	.6	14.1	.4	.8	6.4	29.5	24.7	53.6	(D)	.4	20.0
Tennessee	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E1	19	4	.2	4.9	.1	.3	2.0	11.5	9.5	20.8	.3	.3	8.0
Wisconsin	–	11	7	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	37.6

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES														
United States	**E1**	**4 577**	**762**	**67.5**	**1 679.9**	**42.5**	**86.1**	**834.2**	**3 164.8**	**2 279.2**	**5 420.1**	**96.9**	**66.3**	**2 496.6**
Alabama	–	54	11	.8	19.2	.6	1.2	9.9	39.3	39.7	78.3	3.3	.8	24.9
Arizona	E3	79	8	.6	16.0	.4	.8	8.2	27.4	16.7	44.1	.8	.6	25.5
Arkansas	–	38	5	.3	8.0	.2	.4	3.8	15.4	10.9	26.0	(D)	(NA)	(D)
California	E1	539	80	6.5	167.9	4.0	7.9	84.7	313.6	198.2	508.8	6.9	(NA)	(D)
Colorado	E1	78	7	.6	15.5	.4	.8	7.2	27.4	14.6	41.9	1.0	.8	24.6
Connecticut	E1	66	5	.5	12.9	.3	.6	6.0	26.6	19.4	46.2	.4	F	(D)
District of Columbia	E1	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	292	32	3.0	64.8	2.0	3.9	33.2	117.3	82.3	199.7	3.0	2.5	81.0
Georgia	E1	101	9	.9	21.5	.6	1.0	10.2	38.4	26.3	64.7	1.0	1.0	36.5
Hawaii	E2	26	–	.1	3.5	.1	.2	1.7	6.6	4.5	11.1	(D)	(NA)	(NA)
Idaho	–	29	5	.3	6.9	.2	.4	3.6	13.7	7.7	21.4	(D)	.3	9.6
Illinois	E2	224	67	5.4	167.7	3.4	7.0	75.6	329.4	253.9	580.0	10.0	5.2	236.2
Indiana	E1	111	15	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Iowa	–	46	9	.8	20.6	.4	.9	9.1	52.5	48.8	100.6	1.7	F	(D)
Kansas	E1	42	13	.7	13.5	.5	.9	7.5	25.9	14.1	39.7	.8	F	(D)
Kentucky	E1	37	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	E4	32	2	.2	5.6	.2	.3	3.1	10.2	7.2	17.3	.3	.3	11.4
Maine	–	15	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	E1	87	11	.9	23.0	.6	1.2	13.2	40.0	32.3	72.4	1.4	1.0	36.8
Massachusetts	–	89	10	.8	21.6	.6	1.2	11.7	39.0	24.0	62.5	.6	1.5	58.3
Michigan	–	163	24	2.9	74.4	1.4	2.8	32.7	139.9	108.5	247.8	3.2	2.6	115.8
Minnesota	E1	103	21	1.9	44.5	1.2	2.5	23.0	93.9	50.3	139.9	2.5	1.5	48.0
Mississippi	E5	22	5	.2	3.6	.1	.2	1.9	6.4	9.5	15.9	.3	E	(D)
Missouri	–	88	20	2.9	59.6	2.0	3.8	35.9	95.2	66.9	161.0	4.4	1.6	58.0
Montana	E4	19	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Nebraska	E2	31	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	.3	8.7
Nevada	–	31	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	.5	29.6
New Hampshire	E1	20	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.3	9.3
New Jersey	E1	166	29	3.3	82.9	2.1	3.9	38.8	152.3	127.0	279.9	4.1	3.0	117.7
New Mexico	E1	17	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	5.7
New York	E1	341	75	6.5	171.9	4.3	9.2	87.1	305.0	198.4	502.5	7.2	7.9	260.2
North Carolina	E1	119	13	1.3	26.9	.8	1.6	13.7	50.8	32.6	82.8	1.7	G	(D)
North Dakota	–	13	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	8.2
Ohio	–	211	53	4.0	101.8	2.5	5.2	48.6	190.1	165.3	355.9	4.6	3.8	153.7
Oklahoma	E3	51	5	.4	7.1	.2	.5	3.6	12.0	8.1	20.1	.4	.7	18.3
Oregon	E1	63	9	.7	16.2	.4	1.0	9.6	31.8	22.6	54.3	1.4	.5	18.2
Pennsylvania	E1	185	34	2.8	73.1	1.7	3.5	34.8	153.1	100.3	251.9	7.2	2.3	108.1
Rhode Island	E2	42	12	1.1	21.4	.7	1.4	10.6	41.0	34.5	75.3	.9	1.1	28.5
South Carolina	E2	42	5	.3	6.5	.2	.4	3.7	10.7	7.6	18.3	.2	.8	27.6
South Dakota	–	12	4	.7	14.6	.4	1.0	6.8	26.3	23.8	50.5	1.5	.4	12.0
Tennessee	–	112	15	2.1	43.7	1.4	2.7	23.5	85.1	65.8	148.6	4.1	2.5	97.3
Texas	E1	346	39	3.6	84.8	2.3	4.5	42.2	157.0	100.2	257.2	3.6	4.2	153.8
Utah	E1	42	5	.5	12.5	.4	.8	7.1	25.8	12.4	37.6	.7	.5	20.4
Virginia	E1	77	19	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	G	(D)
Washington	E4	105	17	1.3	35.4	.7	1.3	14.6	47.0	36.9	83.0	(D)	1.0	37.3
West Virginia	–	16	3	.2	5.2	.2	.3	3.0	11.5	6.0	17.3	(D)	.2	5.7
Wisconsin	–	115	32	3.4	87.6	2.3	4.6	43.3	190.7	163.4	349.5	7.6	2.4	84.7
INDUSTRY 3995, BURIAL CASKETS														
United States	**–**	**211**	**67**	**7.8**	**196.2**	**6.0**	**13.4**	**131.0**	**660.6**	**390.6**	**1 053.3**	**28.5**	**8.7**	**472.1**
Alabama	–	9	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
California	E1	11	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Georgia	E1	10	2	.3	5.1	.2	.5	3.3	10.7	8.5	18.8	.2	.4	9.6
Indiana	–	22	15	2.3	65.7	1.7	3.7	41.2	220.8	111.6	331.9	12.5	1.9	146.1
Kentucky	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	5	3	.2	3.6	.2	.3	2.6	7.0	5.1	12.3	.1	(NA)	(D)
Mississippi	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	9	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	9	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	E	(D)
North Carolina	–	10	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	7	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	.2	9.6
Pennsylvania	E2	12	6	1.0	23.8	.7	1.7	15.9	45.1	38.9	83.6	1.0	1.4	43.0
Tennessee	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E1	8	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.														
United States	–	**28**	**18**	**6.7**	**240.2**	**5.2**	**11.2**	**179.4**	**902.7**	**616.5**	**1 521.1**	**65.7**	**7.6**	**740.1**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Illinois	–	3	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Mississippi	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	5	4	1.6	52.2	1.1	2.2	33.3	171.8	131.6	302.8	(D)	1.6	178.0
New York	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Oklahoma	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	–	3	3	2.9	110.5	2.4	4.8	87.7	444.3	258.6	703.7	(D)	3.4	393.4
Texas	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.														
United States	**E1**	**3 252**	**689**	**60.0**	**1 362.8**	**41.3**	**82.4**	**721.2**	**3 373.1**	**2 538.0**	**5 881.3**	**213.8**	**68.3**	**2 785.2**
Alabama	–	29	10	1.2	22.7	.9	1.8	11.3	55.2	62.8	118.1	4.1	1.2	43.1
Arizona	E3	40	8	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	23	10	.8	13.6	.5	.9	5.8	32.6	22.3	54.8	1.6	.5	17.3
California	E2	479	111	7.8	207.4	4.7	9.3	85.1	475.8	337.8	818.7	36.4	9.5	396.4
Colorado	E2	58	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	E1	51	14	2.0	73.9	1.3	2.6	39.2	229.8	118.6	348.0	(D)	2.3	210.6
Florida	E2	185	21	1.8	34.3	1.3	2.7	19.5	77.8	51.2	128.8	2.4	1.8	66.1
Georgia	–	61	13	1.9	32.2	1.4	4.1	20.3	165.7	77.1	243.7	(D)	G	(D)
Idaho	E3	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Illinois	E2	148	37	5.2	119.6	3.8	6.7	62.8	296.0	264.1	560.5	10.7	6.0	252.9
Indiana	–	49	12	1.3	23.9	1.1	2.2	16.6	55.6	48.0	103.8	2.5	G	(D)
Iowa	E6	23	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kansas	E2	18	5	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	E2	31	12	.8	14.3	.6	1.0	7.6	40.3	22.1	63.1	1.5	F	(D)
Louisiana	E5	22	–	.1	2.1	.1	.1	1.2	5.0	3.4	8.4	.1	.2	10.8
Maine	E2	15	4	.2	3.3	.1	.2	1.9	9.8	5.1	14.6	.2	.2	4.5
Maryland	E2	36	7	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	22.1
Massachusetts	–	82	23	2.2	57.3	1.4	2.6	28.5	130.0	92.0	221.6	5.3	3.1	146.7
Michigan	E1	149	15	1.6	41.0	1.1	2.3	24.8	80.4	51.8	131.4	2.7	1.3	51.5
Minnesota	–	60	7	.8	20.1	.5	1.3	12.1	57.5	34.6	92.2	1.5	F	(D)
Mississippi	E4	17	3	.1	2.4	.1	.2	1.5	5.2	6.5	11.9	(D)	(NA)	(D)
Missouri	E1	57	15	1.2	23.0	.9	2.1	13.4	57.9	36.7	90.4	1.4	G	(D)
Montana	–	13	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	E1	17	3	.3	5.5	.2	.5	3.4	12.8	7.1	19.9	(D)	.2	6.9
Nevada	–	26	7	1.7	45.0	1.0	1.9	18.3	80.7	136.3	199.5	(D)	1.0	20.1
New Hampshire	E2	13	4	.3	7.1	.2	.3	3.5	13.1	7.9	20.9	.2	.4	17.1
New Jersey	E1	137	44	2.9	66.0	2.0	4.0	33.7	147.4	105.0	252.9	3.2	4.2	141.6
New Mexico	–	31	1	.1	3.4	.1	.2	1.6	10.7	8.1	18.8	.7	(NA)	(NA)
New York	E2	320	80	5.2	115.0	3.8	7.4	64.5	237.5	192.5	428.9	6.7	8.8	339.0
North Carolina	–	86	26	2.5	52.1	1.9	3.7	32.8	148.5	116.9	265.2	7.6	2.5	91.6
Ohio	E1	126	23	2.4	49.9	1.6	3.3	26.7	142.3	100.0	242.2	6.9	2.1	111.3
Oklahoma	E4	28	3	.2	4.3	.1	.3	2.2	12.8	8.8	19.7	(D)	(NA)	(D)
Oregon	E3	58	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	12.6
Pennsylvania	E1	149	37	3.2	68.8	2.4	4.5	43.0	206.6	108.3	307.1	6.5	3.1	129.3
Rhode Island	E1	72	11	.7	13.8	.5	1.0	7.7	32.0	23.1	54.9	1.4	1.4	40.2
South Carolina	E5	17	2	.1	3.4	.1	.2	1.7	6.6	7.9	14.5	.2	F	(D)
South Dakota	–	8	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(Z)	(NA)	(NA)
Tennessee	–	46	12	1.5	32.0	1.1	2.2	17.1	90.6	69.6	156.6	2.8	1.2	38.6
Texas	E1	162	34	2.7	55.4	1.7	3.1	29.8	112.7	88.5	203.9	5.2	2.3	100.3
Utah	E2	27	5	.3	5.0	.2	.4	3.0	11.9	8.3	20.8	.3	E	(D)
Virginia	–	40	9	.9	24.8	.7	1.4	15.2	55.8	53.7	107.4	2.4	1.2	55.0
Washington	E2	86	19	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	1.0	29.3
Wisconsin	E2	83	20	1.9	41.9	1.3	2.4	20.4	107.2	93.1	198.9	3.7	2.0	97.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

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Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Brooms and brushes (SIC 3991)	Signs and advertising specialties (SIC 3993)	Burial caskets (SIC 3995)	Hard surface floor coverings, n.e.c. (SIC 3996)	Manufacturing industries, n.e.c. (SIC 3999)
Companies ---- number	260	4 467	195	21	3 208
All establishments ---- number	279	4 577	211	28	3 252
With 1 to 19 employees ---- number	151	3 815	144	10	2 563
With 20 to 99 employees ---- number	98	640	50	3	585
With 100 employees or more ---- number	30	122	17	15	104
Employment and labor costs:					
Employees ---- 1,000	12.6	67.5	7.8	6.7	60.0
Compensation, total ---- mil dol	363.0	2 015.0	239.1	306.0	1 669.2
Annual payroll ---- mil dol	291.7	1 679.9	196.2	240.2	1 362.8
Fringe benefits ---- mil dol	71.3	335.1	42.9	65.8	306.4
Social Security and other legally required payments ---- mil dol	30.2	167.2	21.1	25.6	143.8
Employer voluntary payments ---- mil dol	41.1	167.9	21.8	40.2	162.6
Production workers:					
Average for year ---- 1,000	8.9	42.5	6.0	5.2	41.3
March ---- 1,000	8.9	42.0	6.1	5.2	40.4
May ---- 1,000	8.9	42.4	6.0	5.3	41.3
August ---- 1,000	9.2	43.3	6.0	5.2	42.3
November ---- 1,000	8.7	42.6	5.9	5.2	41.4
Hours ---- millions	18.8	86.1	13.4	11.2	82.4
Wages ---- mil dol	161.4	834.2	131.0	179.4	721.2
Cost of materials[1] ---- mil dol	539.5	2 279.2	390.6	616.5	2 538.0
Materials, parts, containers, etc., consumed[2] ---- mil dol	446.3	1 796.1	357.1	547.3	2 104.1
Resales ---- mil dol	69.9	165.4	21.7	29.4	251.3
Fuels ---- mil dol	3.0	18.5	4.0	10.9	17.3
Purchased electricity ---- mil dol	10.7	38.4	7.2	28.6	45.6
Contract work ---- mil dol	9.6	260.9	.5	.3	119.8
Quantity of electric energy used for heat and power:					
Purchased ---- mil kWh	167.6	546.0	138.3	428.4	676.8
Generated less sold ---- mil kWh	–	(D)	–	–	–
Total value of shipments ---- mil dol	1 281.4	5 420.1	1 053.3	1 521.1	5 881.3
Value added ---- mil dol	745.4	3 164.8	660.6	902.7	3 373.1
Inventories by stage of fabrication:					
Beginning of 1992 ---- mil dol	205.3	567.2	111.5	209.4	1 035.2
Finished goods ---- mil dol	91.8	128.3	65.2	140.2	384.4
Work in process ---- mil dol	26.3	184.4	20.1	24.8	202.4
Materials and supplies ---- mil dol	87.2	254.5	26.1	44.4	448.4
End of 1992 ---- mil dol	203.5	603.7	110.8	206.2	1 091.4
Finished goods ---- mil dol	94.5	138.7	63.3	137.8	427.7
Work in process ---- mil dol	27.1	197.9	20.0	25.3	188.9
Materials and supplies ---- mil dol	81.9	267.1	27.5	43.1	474.8

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Brooms and brushes (SIC 3991)	Signs and advertising specialties (SIC 3993)	Burial caskets (SIC 3995)	Hard surface floor coverings, n.e.c. (SIC 3996)	Manufacturing industries, n.e.c. (SIC 3999)
Gross book value of depreciable assets:					
Total:					
Beginning of year	328.1	1 176.8	298.7	705.1	1 319.6
New capital expenditures[1]	35.8	96.9	28.5	65.7	213.8
Used capital expenditures	2.1	17.8	4.1	1.1	17.4
Retirements	10.5	19.7	4.9	11.4	79.3
End of year	355.4	1 271.8	326.4	760.5	1 471.5
Buildings and other structures:					
Beginning of year	63.1	311.7	78.5	153.6	283.8
New capital expenditures	3.8	15.5	5.7	9.5	40.0
Used capital expenditures	.4	3.9	(D)	(D)	5.8
Retirements	.7	2.0	(D)	(D)	6.1
End of year	66.5	329.1	85.7	162.9	323.5
Machinery and equipment:					
Beginning of year	265.0	865.2	220.1	551.5	1 035.8
New capital expenditures[1]	32.0	81.4	22.9	56.1	173.8
Used capital expenditures	1.7	13.9	(D)	(D)	11.6
Retirements	9.8	17.7	(D)	(D)	73.1
End of year	288.9	942.7	240.7	597.6	1 148.0
Depreciation charges during 1992:					
Total	28.0	134.0	23.6	38.9	123.4
Buildings and other structures	3.8	23.6	3.9	5.7	16.4
Machinery and equipment	24.2	110.4	19.7	33.2	107.0
Rental payments:					
Total	15.6	121.8	6.1	3.5	113.9
Buildings and other structures	9.2	69.1	4.4	1.3	69.1
Machinery and equipment	6.4	52.6	1.7	2.2	44.8

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Brooms and brushes (SIC 3991)		Signs and advertising specialties (SIC 3993)		Burial caskets (SIC 3995)		Hard surface floor coverings, n.e.c. (SIC 3996)		Manufacturing industries, n.e.c. (SIC 3999)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	1.4	(X)	9.8	(X)	2.3	(X)	2.4	(X)	5.4	(X)
Response coverage ratio (percent)[2]	80.0	(X)	67.7	(X)	81.8	(X)	88.0	(X)	65.6	(X)
Machinery	5.9	(X)	18.5	(X)	5.4	(X)	33.0	(X)	20.9	(X)
Response coverage ratio (percent)[2]	82.1	(X)	72.2	(X)	85.8	(X)	88.0	(X)	67.2	(X)
Other purchased services:										
Communications	3.0	(X)	27.6	(X)	1.9	(X)	1.2	(X)	10.1	(X)
Response coverage ratio (percent)[2]	82.1	(X)	71.1	(X)	85.8	(X)	88.0	(X)	65.1	(X)
Legal	2.4	(X)	9.5	(X)	1.2	(X)	.9	(X)	16.4	(X)
Response coverage ratio (percent)[2]	66.2	(X)	71.3	(X)	85.8	(X)	88.0	(X)	66.8	(X)
Accounting and bookkeeping	1.8	(X)	10.5	(X)	1.3	(X)	.3	(X)	6.5	(X)
Response coverage ratio (percent)[2]	82.1	(X)	69.9	(X)	85.8	(X)	88.0	(X)	66.2	(X)
Advertising	5.5	(X)	24.2	(X)	1.5	(X)	2.1	(X)	35.7	(X)
Response coverage ratio (percent)[2]	82.1	(X)	71.8	(X)	81.8	(X)	88.0	(X)	67.6	(X)
Software and other data processing	1.2	(X)	4.7	(X)	.3	(X)	1.0	(X)	3.0	(X)
Response coverage ratio (percent)[2]	82.1	(X)	69.7	(X)	81.8	(X)	88.0	(X)	60.2	(X)
Refuse removal, including hazardous waste	.7	(X)	5.5	(X)	1.0	(X)	5.2	(X)	3.2	(X)
Response coverage ratio (percent)[2]	80.0	(X)	70.8	(X)	85.8	(X)	88.0	(X)	66.1	(X)
New machinery and equipment expenditures	32.0	(X)	81.4	(X)	22.9	(X)	56.1	(X)	173.8	(X)
Automobiles, trucks, etc., for highway use	1.2	57	9.8	26	1.2	23	.2	1	2.0	59
Computers and peripheral data processing equipment	3.7	24	12.0	19	2.6	4	1.3	1	79.9	51
All other	27.1	5	59.6	5	19.1	2	54.7	1	91.8	43
Adjustment ratio[3]	1.5	(X)	1.3	(X)	1.3	(X)	1.3	(X)	.7	(X)
Cost of materials, components, parts, etc., used	446.3	(X)	1 796.1	(X)	357.1	(X)	547.3	(X)	2 104.1	(X)
Materials purchased or transferred from foreign sources[4]	22.7	23	44.1	36	5.4	31	7.6	1	(S)	(X)
Materials purchased or transferred from domestic sources	423.7	2	1 752.0	1	351.7	1	539.7	1	(S)	(X)
Adjustment ratio[3]	1.6	(X)	1.7	(X)	1.4	(X)	1.4	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.

[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)

[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3991, BROOMS AND BRUSHES												
Total	**–**	**279**	**12.6**	**291.7**	**8.9**	**18.8**	**161.4**	**745.4**	**539.5**	**1 281.4**	**35.8**	**203.5**
Establishments with an average of–												
1 to 4 employees	E8	77	.1	2.5	.1	.2	1.4	6.6	5.0	11.6	.1	1.9
5 to 9 employees	E5	35	.2	4.9	.2	.3	2.6	10.9	11.4	22.3	.2	3.8
10 to 19 employees	E1	39	.6	11.5	.4	.7	6.1	24.8	21.4	46.7	.6	9.9
20 to 49 employees	E1	59	1.9	40.3	1.3	2.5	21.7	98.2	81.4	179.7	5.5	28.7
50 to 99 employees	–	39	2.8	63.4	2.0	3.9	34.0	147.5	131.6	277.4	6.5	46.5
100 to 249 employees	–	20	2.7	61.1	2.1	4.2	38.7	174.8	110.6	286.6	6.1	52.2
250 to 499 employees	–	6	2.2	56.7	1.6	3.1	29.9	148.6	95.8	243.4	10.8	27.4
500 to 999 employees	–	4	2.1	51.3	1.3	3.8	27.2	134.1	82.2	213.7	5.9	33.0
Covered by administrative records[2]	E9	98	.3	5.2	.2	.4	2.9	13.9	10.2	24.1	.3	4.0
INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES												
Total	**E1**	**4 577**	**67.5**	**1 679.9**	**42.5**	**86.1**	**834.2**	**3 164.8**	**2 279.2**	**5 420.1**	**96.9**	**603.7**
Establishments with an average of–												
1 to 4 employees	E7	2 283	3.7	77.5	2.5	5.0	40.7	168.6	125.2	292.9	5.3	32.8
5 to 9 employees	E2	854	5.6	117.7	3.6	7.0	63.1	220.3	147.1	366.8	6.5	41.5
10 to 19 employees	E1	678	9.2	217.6	5.8	11.5	114.2	384.3	257.5	642.2	10.0	61.1
20 to 49 employees	–	477	14.5	372.2	9.0	18.1	188.1	707.7	455.6	1 158.0	21.0	121.5
50 to 99 employees	–	163	11.5	322.0	7.3	15.4	153.3	580.9	385.2	964.7	17.8	98.4
100 to 249 employees	E1	100	14.8	379.0	9.5	19.3	187.4	755.0	550.6	1 299.6	22.4	152.1
250 to 499 employees	–	20	8.2	193.9	4.9	9.8	87.4	348.2	358.0	696.0	13.9	96.2
500 to 999 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2 023	3.7	72.5	2.5	4.8	36.8	145.7	109.8	255.5	5.0	26.4

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3995, BURIAL CASKETS												
Total	**–**	**211**	**7.8**	**196.2**	**6.0**	**13.4**	**131.0**	**660.6**	**390.6**	**1 053.3**	**28.5**	**110.8**
Establishments with an average of—												
1 to 4 employees	E9	78	.1	2.8	.1	.2	1.9	7.0	6.8	13.8	.4	2.2
5 to 9 employees	E4	33	.2	4.4	.2	.4	2.8	11.8	9.9	21.5	.4	3.1
10 to 19 employees	–	33	.5	10.6	.4	.8	6.8	24.7	27.3	51.7	.6	7.1
20 to 49 employees	E1	37	1.1	23.7	.9	1.9	15.3	49.0	60.1	109.2	1.7	15.4
50 to 99 employees	–	13	.9	19.4	.8	1.5	13.5	57.3	47.3	104.8	1.0	11.5
100 to 249 employees	–	10	1.8	42.2	1.4	2.9	27.9	131.3	99.9	230.4	24.4	24.2
250 to 499 employees	E1	4	3.2	93.0	2.4	5.6	62.7	379.5	139.2	521.8	(D)	47.5
500 to 999 employees	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	86	.2	4.3	.2	.4	2.8	10.4	10.0	20.4	.6	3.2
INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.												
Total	**–**	**28**	**6.7**	**240.2**	**5.2**	**11.2**	**179.4**	**902.7**	**616.5**	**1 521.1**	**65.7**	**206.2**
Establishments with an average of—												
1 to 4 employees	E6	6	(Z)	.4	(Z)	(Z)	.3	.9	.8	1.7	(D)	.3
5 to 9 employees	E9	3	(Z)	.9	(Z)	(Z)	.6	2.0	2.2	4.3	(D)	.6
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	3	.1	2.2	.1	.1	1.1	6.1	3.9	10.1	(D)	1.5
100 to 249 employees	–	6	1.2	43.6	1.0	2.4	32.3	171.7	138.3	309.4	(D)	35.4
250 to 499 employees	–	7	5.3	193.1	4.2	8.6	145.2	721.9	471.3	1 195.6	(D)	168.4
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	7	(Z)	.6	(Z)	(Z)	.4	1.4	1.2	2.6	.1	.5
INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.												
Total	**E1**	**3 252**	**60.0**	**1 362.8**	**41.3**	**82.4**	**721.2**	**3 373.1**	**2 538.0**	**5 881.3**	**213.8**	**1 091.4**
Establishments with an average of—												
1 to 4 employees	E7	1 553	2.0	44.3	1.3	2.8	24.9	114.5	82.4	196.3	5.5	35.8
5 to 9 employees	E3	520	3.5	77.6	2.4	4.9	44.3	187.3	142.2	329.2	6.5	54.0
10 to 19 employees	E1	490	6.7	143.8	4.5	8.9	79.3	322.7	251.4	572.7	10.9	86.8
20 to 49 employees	E1	434	13.1	285.9	8.9	17.6	153.8	631.8	468.0	1 094.8	21.6	179.7
50 to 99 employees	E1	151	10.3	212.9	7.3	14.3	117.3	465.3	338.0	802.3	18.0	129.7
100 to 249 employees	E1	79	12.0	282.0	8.1	16.0	136.6	708.7	629.0	1 338.6	43.7	301.7
250 to 499 employees	–	16	5.4	122.1	3.8	7.3	59.3	330.0	241.3	564.5	14.7	112.0
500 to 999 employees	E1	7	7.0	194.1	5.1	10.6	105.8	612.7	385.7	982.8	92.9	191.6
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	1 300	2.3	44.6	1.5	3.1	25.2	110.0	79.0	189.0	5.2	35.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. **Industry Statistics by Industry and Primary Product Class Specialization: 1992**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3991	**Brooms and brushes:**										
	All establishments in industry	279	12.6	291.7	8.9	18.8	161.4	745.4	539.5	1 281.4	35.8
	Establishments with this product class primary:										
39911	Brooms	34	1.7	37.5	1.2	2.6	21.8	91.1	76.3	166.3	3.3
39912	Paint and varnish brushes, rollers, and pads	38	3.4	76.9	2.5	4.7	44.2	235.8	157.0	390.6	7.2
39913	Other brushes	90	6.8	163.2	4.7	10.5	87.5	384.7	279.6	664.7	24.5
3993	**Signs and advertising specialties:**										
	All establishments in industry	4 577	67.5	1 679.9	42.5	86.1	834.2	3 164.8	2 279.2	5 420.1	96.9
	Establishments with this product class primary:										
39931	Electric signs	712	19.1	497.7	12.2	25.3	265.3	914.6	563.8	1 467.2	25.5
39932	Nonelectric signs	759	19.4	513.7	12.1	24.2	237.8	946.2	784.9	1 723.4	30.9
39933	Advertising specialties	153	10.9	248.2	6.6	13.5	119.5	490.3	330.1	816.0	15.0

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3995	**Burial caskets:**										
	All establishments in industry	211	7.8	196.2	6.0	13.4	131.0	660.6	390.6	1 053.3	28.5
	Establishments with this product class primary:										
39951	Metal caskets and coffins completely lined and trimmed, adult sizes only	63	4.6	118.5	3.5	7.8	78.3	452.3	242.9	697.6	19.9
39952	Wood caskets and coffins, completely lined and trimmed, adult sizes only	25	1.9	47.5	1.5	3.3	33.8	138.1	69.7	207.6	6.5
39953	Other caskets and coffins and metal vaults	21	1.0	23.8	.8	1.7	14.6	53.7	63.0	116.6	1.3
3996	**Hard surface floor coverings, n.e.c.:**										
	All establishments in industry	28	6.7	240.2	5.2	11.2	179.4	902.7	616.5	1 521.1	65.7
3999	**Manufacturing industries, n.e.c.:**										
	All establishments in industry	3 252	60.0	1 362.8	41.3	82.4	721.2	3 373.1	2 538.0	5 881.3	213.8
	Establishments with this product class primary:										
39991	Chemical fire-extinguishing equipment and parts	24	2.8	73.5	1.8	3.6	34.0	235.7	214.9	455.5	10.5
39992	Coin-operated amusement machines	39	4.3	118.0	2.7	5.5	50.5	243.1	360.2	581.9	42.4
39993	Matches	8	.9	21.2	.7	1.5	13.7	53.9	27.5	81.1	1.3
39994	Candles	57	3.8	75.1	2.6	4.0	35.9	195.8	137.1	330.4	11.1
39996	Furs, dressed and dyed	12	.4	9.7	.3	.6	5.8	15.5	10.6	25.5	(Z)
39997	Umbrellas and parasols	12	.7	11.9	.5	.9	6.5	28.6	30.9	59.6	.8
39998	Feathers, plumes, and artificial flowers	53	3.0	51.1	2.4	4.2	29.2	122.7	109.6	229.5	3.4
39999	Miscellaneous fabricated products, n.e.c.	659	25.2	590.5	17.6	36.7	319.6	1 519.0	964.4	2 483.9	90.1

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3991, BROOMS AND BRUSHES			
Total value of shipments	1 281.4	990.4	818.1
Primary products value of shipments	1 105.2	778.3	677.4
Secondary products value of shipments	86.0	101.3	73.7
Total miscellaneous receipts	90.2	110.9	67.0
Value of resales	88.2	106.6	64.5
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	93	88	90
Value of primary products shipments made in all industries	1 209.0	856.3	763.7
Value of primary products shipments made in this industry	1 105.2	778.3	677.4
Value of primary products shipments made in other industries	103.8	78.0	86.3
Coverage ratio	91	91	89
INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES			
Total value of shipments	5 420.1	4 282.6	2 692.4
Primary products value of shipments	4 784.3	3 782.2	2 409.6
Secondary products value of shipments	120.9	137.4	85.5
Total miscellaneous receipts	514.9	363.0	197.2
Value of resales	236.7	175.2	67.6
Contract receipts	104.4	97.8	38.9
Other miscellaneous receipts	173.8	90.0	90.9
Receipts for repair work	66.1	(NA)	23.0
Other miscellaneous receipts	84.9	(NA)	51.7
Other miscellaneous receipts, n.s.k.	22.8	(NA)	16.2
Primary products specialization ratio	98	96	97
Value of primary products shipments made in all industries	4 919.1	3 885.7	2 549.3
Value of primary products shipments made in this industry	4 784.3	3 782.2	2 409.6
Value of primary products shipments made in other industries	134.9	103.5	139.7
Coverage ratio	97	97	95

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3995, BURIAL CASKETS			
Total value of shipments	1 053.3	839.9	682.1
Primary products value of shipments	1 021.1	794.9	666.4
Secondary products value of shipments	(D)	4.6	2.3
Total miscellaneous receipts	(D)	40.4	13.4
Value of resales	(D)	19.3	11.0
Contract receipts	–	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	99	100
Value of primary products shipments made in all industries	1 021.2	798.1	672.8
Value of primary products shipments made in this industry	1 021.1	794.9	666.4
Value of primary products shipments made in other industries	.1	3.2	6.4
Coverage ratio	99	99	99
INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.			
Total value of shipments	1 521.1	1 309.7	604.1
Primary products value of shipments	(D)	(D)	(D)
Secondary products value of shipments	(D)	(D)	(D)
Total miscellaneous receipts	(D)	(D)	(D)
Value of resales	(D)	(D)	(D)
Contract receipts	(D)	(D)	(D)
Other miscellaneous receipts	(D)	(D)	(D)
Primary products specialization ratio	(D)	(D)	(D)
Value of primary products shipments made in all industries	1 484.2	1 240.6	535.4
Value of primary products shipments made in this industry	(D)	(D)	(D)
Value of primary products shipments made in other industries	(D)	(D)	(D)
Coverage ratio	(D)	(D)	(D)
INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.			
Total value of shipments	5 881.3	4 825.1	(NA)
Primary products value of shipments	4 867.4	4 115.6	(NA)
Secondary products value of shipments	372.8	417.7	(NA)
Total miscellaneous receipts	641.1	291.8	(NA)
Value of resales	397.7	195.2	(NA)
Contract receipts	209.6	61.5	(NA)
Other miscellaneous receipts	33.8	35.2	(NA)
Primary products specialization ratio	93	93	(NA)
Value of primary products shipments made in all industries	5 177.6	4 500.1	(NA)
Value of primary products shipments made in this industry	4 867.4	4 115.6	(NA)
Value of primary products shipments made in other industries	310.3	384.5	(NA)
Coverage ratio	94	93	(NA)

Note: For qualifications of data, see footnotes on table 1a.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3991– —	**BROOMS AND BRUSHES**						
	Total	**(NA)**	**(X)**	**1 209.0**	**(NA)**	**(X)**	**856.3**
39911	Brooms	(NA)	(X)	156.8	(NA)	(X)	117.5
39911 13	Household floor brooms	35	(X)	71.6	36	(X)	78.7
39911 98	Other brooms (industrial brooms, whiskbrooms, toy brooms, hearth brooms, streetsweeping machine brooms, etc.)	42	(X)	82.4	29	(X)	38.4
39911 00	Brooms, n.s.k.	(NA)	(X)	2.7	(NA)	(X)	.4
39912	Paint and varnish brushes, rollers, and pads	(NA)	(X)	360.5	(NA)	(X)	236.2
	Whitewash, kalsomine, paperhanging, marking, and stenciling brushes:						
39912 11	Made of pure bristle—1,000 dozen	21	(S)	43.6	19	2 642.9	40.7
39912 33	Made of synthetic bristle and other materials, including mixtures	35	(X)	127.0	25	(X)	106.7
39912 43	Paint pads and holders	12	(X)	39.7	7	(X)	8.0
	Paint rollers, roller frames, and replacement rollers:						
39912 81	Complete units—1,000 dozen	19	**2 451.5	57.4	15	*1 239.8	27.4
39912 83	Roller frames—1,000 dozen	14	**1 064.0	17.0	11	*522.9	6.1
39912 85	Replacement rollers—1,000 dozen	19	*4 295.8	69.2	19	*4 403.2	45.2
39912 00	Paint and varnish brushes, rollers, and pads, n.s.k.	(NA)	(X)	6.5	(NA)	(X)	2.2
39913	Other brushes	(NA)	(X)	631.3	(NA)	(X)	415.6
	Personal brushes:						
39913 21	Toothbrushes—1,000 dozen	8	(S)	208.0	5	30 983.7	82.7
39913 27	Hairbrushes—1,000 dozen	4	(X)	45.1	(NA)	(X)	45.5
39913 29	Other, including shaving brushes	12					
	Maintenance brushes, including floor, scrub, dusting, window, etc.:						
39913 36	Household (including any twisted-in-wire brushes)	25	(X)	86.0	23	(X)	60.5
39913 38	Industrial (including any twisted-in-wire brushes)	41	(X)	101.4	40	(X)	100.6
39913 43	Industrial brushes (except maintenance) (including power-driven rotary, end, cup, jewelers' and dentists' brushes, etc.)	33	(X)	105.1	23	(X)	80.9
39913 98	Other brushes, including artists' brushes and hair pencils, except artists' airbrushes	32	(X)	85.1	20	(X)	43.1
39913 00	Other brushes, n.s.k.	(NA)	(X)	.6	(NA)	(X)	2.4
39910	Brooms and brushes, n.s.k.	(NA)	(X)	60.4	(NA)	(X)	87.0
39910 00	Brooms and brushes, n.s.k.[3]	(NA)	(X)	33.0	(NA)	(X)	58.9
39910 02	Brooms and brushes, n.s.k.[4]	(NA)	(X)	27.5	(NA)	(X)	28.1

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3993– —	**SIGNS AND ADVERTISING SPECIALTIES**				
	Total	**(NA)**	**4 919.1**	**(NA)**	**3 885.7**
39931	Electric signs	(NA)	1 196.0	(NA)	987.2
39931 12	Luminous tubing (neon, argon, hydrogen, etc.)	382	345.5	280	233.1
39931 13	Fluorescent lamp	428	412.3	392	398.0
	Incandescent bulb signs:				
39931 14	Electronic variable message displays	66	60.1	54	71.8
39931 15	Other	54	71.8	35	43.1
39931 16	All other electric signs (including combinations of luminous, flourescent, and incadescent)	157	231.9	125	223.1
39931 00	Electric signs, n.s.k.	(NA)	74.5	(NA)	18.2
39932	Nonelectric signs	(NA)	1 674.5	(NA)	1 364.8
	Metal signs:				
39932 12	Screen printed	162	157.2	140	139.6
39932 22	Other	247	156.5	166	149.3
	Wood signs:				
39932 32	Screen printed	74	55.4	49	27.7
39932 42	Other	141	75.4	105	47.6
	Other signs manufactured (printed or unprinted in this establishment):				
	Counters, floor displays, point-of-purchase, and other display materials:				
39932 52	Letterpress	27	45.8	28	50.1
39932 62	Screen printed	112	327.9	80	183.7
39932 72	Offset (lithographic)	15	81.0	13	62.2
39932 76	Unprinted	84	201.9	66	171.9
	All other signs (including sign letters):				
39932 78	Screen printed	82	56.8	67	56.4
39932 88	Other	292	430.9	216	375.9
39932 00	Nonelectric signs, n.s.k.	(NA)	85.7	(NA)	100.4

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3993– —	**SIGNS AND ADVERTISING SPECIALTIES**—Con.				
39933	Advertising specialties	(NA)	725.6	(NA)	393.5
39933 00	Advertising specialties	185	725.6	146	393.5
39930	Signs and advertising specialties, n.s.k.	(NA)	1 323.1	(NA)	1 140.1
39930 00	Signs and advertising specialties, n.s.k.[5]	(NA)	1 068.3	(NA)	r925.1
39930 02	Signs and advertising specialties, n.s.k.[6]	(NA)	254.8	(NA)	215.0

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3995– —	**BURIAL CASKETS**						
	Total	**(NA)**	**(X)**	**1 021.2**	**(NA)**	**(X)**	**798.1**
39951	Metal caskets and coffins completely lined and trimmed, adult sizes only	(NA)	(X)	658.8	(NA)	(X)	497.9
39951 13	Steel caskets and coffins (excluding stainless steel) thousands	63	978.6	473.2	59	985.8	391.7
39951 15	Other metal caskets and coffins (stainless steel, bronze, copper, etc.) thousands	35	*205.5	184.5	27	152.0	101.9
39951 00	Metal caskets and coffins completely lined and trimmed, adult sizes only, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	4.4
39952	Wood caskets and coffins, completely lined and trimmed, adult sizes only	(NA)	(X)	217.8	(NA)	(X)	160.2
39952 11	Cloth covered (softwood) thousands	28	*105.2	16.0	30	**122.8	14.7
39952 52	Hardwood thousands	44	*273.0	201.7	37	260.6	143.3
39952 00	Wood caskets and coffins, completely lined and trimmed, adult sizes only, n.s.k.	(NA)	(X)	.1	(NA)	(X)	2.1
39953	Other caskets and coffins and metal vaults	(NA)	(X)	116.0	(NA)	(X)	75.6
39953 11	Caskets and coffins other than metal or wood, completely lined and trimmed (including plastics, fiberglass, foam, etc.)[7]	9	(X)	14.5	4	(S)	2.0
	Caskets shells, KD and SU unlined or untrimmed:						
39953 31	Metal thousands	13	(S)	43.3	8	(S)	27.7
39953 58	Other materials (including wood, plastics, fiberglass, foam, masonite, cardboard, fiberboard, etc.)	6	(X)	11.4	11	(S)	23.9
39953 93	Burial vaults (except concrete), burial boxes, and casket-shipping containers and cases thousands	6	(S)	23.2	6	(X)	15.4
39953 00	Other caskets and coffins and metal vaults, n.s.k.	(NA)	(X)	23.6	(NA)	(X)	6.6
39950	Burial caskets, n.s.k.	(NA)	(X)	28.6	(NA)	(X)	64.4
39950 00	Burial caskets, n.s.k.[5]	(NA)	(X)	8.2	(NA)	(X)	42.0
39950 02	Burial caskets, n.s.k.[6]	(NA)	(X)	20.4	(NA)	(X)	22.3

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3996– —	**HARD SURFACE FLOOR COVERINGS, N.E.C.**				
	Total	**(NA)**	**1 484.2**	**(NA)**	**1 240.6**
39960	Hard floor covering	(NA)	1 484.2	(NA)	1 240.6
39960 00	Hard floor covering, including resilient, and other floor coverings (plain or adhesive backed)[8]	17	1 481.6	(NA)	1 239.8
39960 02	Hard surface floor coverings, n.e.c., n.s.k.[6]	(NA)	2.6	(NA)	.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3999– ––	**MANUFACTURING INDUSTRIES, N.E.C.**						
	Total	**(NA)**	**(X)**	**5 177.6**	**(NA)**	**(X)**	**4 500.1**
39991	Chemical fire-extinguishing equipment and parts	(NA)	(X)	421.8	(NA)	(X)	401.9
	Hand portable extinguishers:						
39991 13	Carbon dioxide — thousands	8	(S)	13.2	5	527.3	23.5
39991 17	Dry chemical fire extinguishers	9	(X)	148.4	7	(X)	107.5
39991 40	Other hand portable extinguishers (including foam, pressurized water, and halogenated agents)[8] — thousands	8	(S)	91.6	(NA)	899.6	35.9
39991 70	Fixed systems, including inert gas, dry and wet chemical and other chemical fire-extinguishing equipment[8]	12	(X)	85.6	(NA)	(X)	206.9
39991 71	Parts and attachments for chemical fire-extinguishing equipment	7	(X)	21.9	7	(X)	10.4
39991 00	Chemical fire-extinguishing equipment and parts, n.s.k.	(NA)	(X)	61.2	(NA)	(X)	17.7
39992	Coin-operated amusement machines	(NA)	(X)	576.5	(NA)	(X)	333.7
39992 22	Arcade and amusement center type electronic games	31	(X)	339.6	16	(X)	274.8
39992 99	Other amusement machines, including nonelectronic arcade games and parts for all arcade games	21	(X)	236.0	15	(X)	55.1
39992 00	Coin-operated amusement machines, n.s.k.	(NA)	(X)	1.0	(NA)	(X)	3.8
39993	Matches	(NA)	(X)	67.0	(NA)	(X)	94.1
39993 00	Matches	8	(X)	67.0	9	(X)	94.1
39994	Candles	(NA)	(X)	359.6	(NA)	(X)	202.1
39994 00	Candles (including tapers)	60	(X)	359.6	46	(X)	202.1
39996	Furs, dressed and dyed	(NA)	(X)	25.6	(NA)	(X)	66.6
39996 11	Furs, dressed and dyed	9	(X)	15.0	18	(X)	38.1
39996 93	Receipts for dressing and dyeing furs done in your plant on materials owned by others	4	(X)	7.4	9	(X)	28.2
39996 00	Furs, dressed and dyed, n.s.k.	(NA)	(X)	3.3	(NA)	(X)	.2
39997	Umbrellas and parasols	(NA)	(X)	51.3	(NA)	(X)	49.4
39997 00	Umbrellas and parasols (including parts)[8]	18	(X)	51.3	(NA)	(X)	49.4
39998	Feathers, plumes, and artificial flowers	(NA)	(X)	244.9	(NA)	(X)	344.3
39998 13	Artificial Christmas trees, all types (metal, plastics, etc.) — millions	11	(S)	102.0	19	(S)	104.7
	Artifical flowers, fruits, and wreaths:						
39998 15	Plastics type	7	(X)	7.5	19	(X)	22.8
39998 17	Other materials	21	(X)	49.5	61	(X)	85.6
39998 21	Feathers and plumes	10	(X)	38.8	16	(X)	47.1
39998 00	Feathers, plumes, and artificial flowers, n.s.k.	(NA)	(X)	47.2	(NA)	(X)	84.1
39999	Miscellaneous fabricated products, n.e.c.	(NA)	(X)	2 175.7	(NA)	(X)	1 422.0
39999 07	Hair clippers, for human use, hand and electric	5	(X)	117.0	5	(X)	77.6
39999 11	Barber and beauty shop furniture and equipment, including barber and beauty chairs	21	(X)	75.6	15	(X)	46.0
39999 13	Beauty and barber shop accessories (including hair curlers, pads, and wraps)	12	(X)	24.9	11	(X)	42.7
39999 24	Hair work, switches, toupees, and wigs	8	(X)	4.5	7	(X)	13.7
39999 42	Tobacco pipes — thousands	3	(D)	([9])	3	(S)	([10])
39999 44	Cigar and cigarette lighters (except precious metal and electric) — millions	7	(D)	([9])	3	(S)	([10])
39999 51	Christmas tree ornaments and decorations (except glass and electrical)	36	(X)	129.0	23	(X)	53.9
39999 61	Lamp shades, excluding plastics, metal, and glass	51	(X)	78.8	26	(X)	28.8
39999 81	Potpourri (dried and chemically preserved flowers, foilage, fruits, and vines)[8]	38	(X)	104.0	(NA)	(NA)	([10])
39999 99	Miscellaneous fabricated products, not elsewhere classified[8]	599	(X)	[9]1 569.0	(NA)	(X)	[10]1 080.8
39999 00	Miscellaneous fabricated products, n.e.c., n.s.k.	(NA)	(X)	72.9	(NA)	(X)	78.5
39990	Manufacturing industries, n.e.c., n.s.k.	(NA)	(X)	1 255.1	(NA)	(X)	1 586.1
39990 00	Manufacturing industries, n.e.c., n.s.k.[5]	(NA)	(X)	1 066.2	(NA)	(X)	r1 147.6
39990 02	Manufacturing industries, n.e.c., n.s.k.[6]	(NA)	(X)	188.8	(NA)	(X)	438.5

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Typically for establishments with 10 employees or more.
[4]Typically for establishments with less than 10 employees.
[5]Typically for establishments with 5 employees or more.
[6]Typically for establishments with less than 5 employees.
[7]Including all child sizes, regardless of material.
[8]For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.
[9]For 1992, products are combined to avoid disclosing data for individual companies.
[10]For 1987, products are combined to avoid disclosing data for individual companies.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39911, BROOMS		
United States	**156.8**	**117.5**
California	6.0	9.4
Illinois	24.1	23.8
Massachusetts	6.3	(NA)
Ohio	26.8	15.0
Pennsylvania	6.4	(NA)
Texas	8.5	5.4
Wisconsin	9.6	(NA)
39912, PAINT AND VARNISH BRUSHES, ROLLERS, AND PADS		
United States	**360.5**	**236.2**
Illinois	21.3	10.2
New Jersey	13.1	12.3
New York	51.1	33.3
39913, OTHER BRUSHES		
United States	**631.3**	**415.6**
California	26.7	20.8
Illinois	51.6	34.4
Massachusetts	49.8	37.3
Michigan	7.7	(NA)
New Jersey	9.4	12.1
New York	36.2	29.5
Ohio	79.2	61.7
Pennsylvania	39.5	(NA)
Texas	12.0	7.2
Wisconsin	24.6	23.2
39931, ELECTRIC SIGNS		
United States	**1 196.0**	**987.2**
Alabama	26.0	19.4
Arizona	11.1	9.1
Arkansas	11.0	(NA)
California	122.6	100.2
Colorado	12.5	11.4
Connecticut	5.5	(NA)
Florida	49.8	32.3
Georgia	9.0	9.9
Idaho	7.3	(NA)
Illinois	81.3	79.1
Indiana	16.2	8.9
Iowa	17.3	11.8
Kansas	9.1	6.7
Kentucky	12.5	(NA)
Louisiana	3.6	2.6
Maryland	16.3	22.3
Massachusetts	13.2	7.1
Michigan	39.9	25.4
Minnesota	41.8	17.2
Missouri	14.8	16.1
Nebraska	6.4	6.4
Nevada	40.2	24.2
New Hampshire	3.8	3.3
New Jersey	9.6	12.1
New Mexico	4.3	(NA)
New York	59.4	38.6
North Carolina	25.1	22.1
North Dakota	3.9	5.0
Ohio	65.3	72.2
Oklahoma	6.8	3.7
Oregon	6.7	8.8
Pennsylvania	45.7	22.7
Rhode Island	2.8	(NA)
South Carolina	11.8	15.4
Tennessee	68.9	97.7
Texas	87.8	99.9
Utah	21.8	18.5
Virginia	20.4	7.1
Washington	31.8	31.6
Wisconsin	91.2	53.8
39932, NONELECTRIC SIGNS		
United States	**1 674.5**	**1 364.8**
Alabama	22.5	(NA)
Arizona	10.6	10.3
California	136.4	105.3
Colorado	10.3	7.3
Connecticut	5.4	6.4
District of Columbia	2.2	4.5
Florida	54.8	19.3
Georgia	46.8	40.1
Hawaii	2.0	(NA)
Illinois	247.6	210.8
39932, NONELECTRIC SIGNS—Con.		
Indiana	20.5	23.6
Iowa	19.7	(NA)
Kansas	3.6	(NA)
Kentucky	10.4	14.0
Louisiana	2.2	5.7
Maine	4.1	(NA)
Maryland	32.3	17.1
Massachusetts	14.7	34.9
Michigan	109.3	141.6
Minnesota	17.9	7.2
Missouri	60.5	38.9
Nevada	2.9	(NA)
New Hampshire	2.1	5.8
New Jersey	108.1	64.4
New York	165.9	177.0
North Carolina	29.0	23.6
Ohio	202.1	107.3
Oregon	7.6	3.7
Pennsylvania	77.8	57.7
Rhode Island	7.0	11.0
South Carolina	8.0	9.6
Tennessee	13.6	15.9
Texas	51.4	52.5
Virginia	18.9	28.9
Washington	17.7	8.4
Wisconsin	80.5	48.7
39933, ADVERTISING SPECIALTIES		
United States	**725.6**	**393.5**
Arkansas	3.3	(NA)
California	42.4	23.1
Florida	31.6	(NA)
Illinois	57.8	63.5
Indiana	4.0	(NA)
Kentucky	5.9	(NA)
Maryland	3.5	(NA)
Massachusetts	6.4	16.6
Minnesota	36.7	25.4
Missouri	70.4	5.8
New York	99.8	44.3
Ohio	18.4	4.9
Pennsylvania	46.3	24.4
Rhode Island	33.1	28.1
Tennessee	28.0	18.3
Texas	5.5	5.7
Wisconsin	50.1	(NA)
39951, METAL CASKETS AND COFFINS COMPLETELY LINED AND TRIMMED, ADULT SIZES ONLY		
United States	**658.8**	**497.9**
Alabama	7.0	7.9
California	3.9	3.4
Florida	3.4	2.8
Indiana	278.2	194.8
North Carolina	6.1	9.2
Pennsylvania	10.9	7.5
Texas	8.0	(NA)
39952, WOOD CASKETS AND COFFINS, COMPLETELY LINED AND TRIMMED, ADULT SIZES ONLY		
United States	**217.8**	**160.2**
California	5.3	4.8
Indiana	8.9	6.8
Massachusetts	7.9	7.9
North Carolina	5.0	(NA)
Pennsylvania	43.7	45.2
39953, OTHER CASKETS AND COFFINS AND METAL VAULTS		
United States	**116.0**	**75.6**
California	3.1	3.7
Indiana	33.5	21.9
39991, CHEMICAL FIRE-EXTINGUISHING EQUIPMENT AND PARTS		
United States	**421.8**	**401.9**

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
39992, COIN-OPERATED AMUSEMENT MACHINES		
United States	**576.5**	**333.7**
California	65.2	57.7
Illinois	192.2	199.8
39993, MATCHES		
United States	**67.0**	**94.1**
Illinois	12.9	11.0
39994, CANDLES		
United States	**359.6**	**202.1**
California	39.6	18.9
Massachusetts	59.8	23.9
Missouri	8.5	(NA)
New Jersey	13.7	5.6
New York	29.8	35.7
Ohio	62.4	(NA)
Pennsylvania	5.8	2.9
Texas	21.9	10.8
39996, FURS, DRESSED AND DYED		
United States	**25.6**	**66.6**
New Jersey	3.8	(NA)
New York	18.6	56.8
39997, UMBRELLAS AND PARASOLS		
United States	**51.3**	**49.4**
California	11.9	14.8
New York	18.3	14.8
39998, FEATHERS, PLUMES, AND ARTIFICIAL FLOWERS		
United States	**244.9**	**344.3**
California	22.3	57.3
New York	54.4	81.4
Wisconsin	3.7	5.6
39999, MISCELLANEOUS FABRICATED PRODUCTS, N.E.C.		
United States	**2 175.7**	**1 422.0**
Alabama	32.1	(NA)
Arizona	8.0	11.9
Arkansas	42.6	18.9
California	333.5	183.0
Colorado	13.6	6.8
Connecticut	109.8	129.0
Florida	57.7	22.3
Illinois	174.1	99.5
Indiana	31.1	9.9
Iowa	6.1	(NA)
Kansas	59.5	(NA)
Kentucky	13.5	11.1
Louisiana	3.4	(NA)
Maryland	8.6	11.0
Massachusetts	62.9	44.5
Michigan	50.0	8.3
Minnesota	65.0	37.0
Missouri	32.0	18.8
Nebraska	10.2	6.1
Nevada	5.7	(NA)
New Hampshire	2.4	(NA)
New Jersey	81.1	72.3
New Mexico	2.3	(NA)
New York	132.5	110.6
North Carolina	65.3	50.8
Ohio	88.2	25.3
Oregon	15.1	5.7
Pennsylvania	152.8	109.5
Rhode Island	23.3	29.3
South Carolina	8.7	(NA)
Tennessee	75.3	49.2
Texas	70.1	30.9
Virginia	41.0	(NA)
Washington	28.1	12.3
Wisconsin	73.9	51.1

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3991-	**Brooms and brushes**	**1 209.0**	**1 132.9**	**1 107.7**	**1 036.2**	**960.9**	**856.3**	**763.7**	**620.8**
39911	Brooms	156.8	129.4	133.8	135.6	137.5	117.5	134.2	83.0
39912	Paint and varnish brushes, rollers, and pads	360.5	331.3	325.0	322.4	281.3	236.2	223.0	184.5
39913	Other brushes	631.3	578.8	537.4	490.5	458.2	415.6	372.8	309.5
39910	Brooms and brushes, n.s.k.	60.4	93.4	111.4	87.6	83.9	87.0	33.7	43.8
3993-	**Signs and advertising specialties**	**4 919.1**	**4 332.9**	**4 458.0**	**4 346.7**	**4 382.3**	**3 885.7**	**2 549.3**	**1 606.9**
39931	Electric signs	1 196.0	1 108.5	1 245.4	1 115.9	1 106.8	987.2	683.4	349.8
39932	Nonelectric signs	1 674.5	1 786.6	1 658.7	1 585.6	1 519.8	1 364.8	1 000.1	615.6
39933	Advertising specialties	725.6	524.7	475.7	489.2	485.9	393.5	268.9	262.5
39930	Signs and advertising specialties, n.s.k.	1 323.1	913.2	1 078.2	1 156.0	1 269.9	1 140.1	596.9	379.0
3995-	**Burial caskets**	**1 021.2**	**1 118.4**	**1 062.6**	**894.4**	**861.6**	**798.1**	**672.8**	**494.8**
39951	Metal caskets and coffins completely lined and trimmed, adult sizes only	658.8	799.0	760.7	623.8	546.8	497.9	429.5	298.1
39952	Wood caskets and coffins, completely lined and trimmed, adult sizes only	217.8	135.9	134.5	120.2	171.3	160.2	115.1	85.6
39953	Other caskets and coffins and metal vaults	116.0	92.4	80.8	79.0	77.8	75.6	87.7	79.2
39950	Burial caskets, n.s.k.	28.6	91.2	86.5	71.5	65.8	64.4	40.5	31.9
3996-	**Hard surface floor coverings, n.e.c.**	**1 484.2**	**1 361.1**	**1 317.0**	**1 344.1**	**1 297.6**	**1 240.6**	**535.4**	**561.3**
39960	Hard floor covering	1 484.2	1 361.1	1 317.0	1 344.1	1 297.6	1 240.6	535.4	561.3

See footnotes at end of table.

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Table 6c. **Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years**—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3999-	**Manufacturing industries, n.e.c.**	**5 177.6**	**4 946.7**	**5 037.6**	**4 682.9**	**4 757.1**	**4 500.1**	**4 119.8**	**2 749.1**
39991	Chemical fire-extinguishing equipment and parts	421.8	421.5	389.1	435.9	420.0	401.9	333.5	216.8
39992	Coin-operated amusement machines	576.5	(D)	395.3	362.9	296.8	333.7	1 086.9	242.2
39993	Matches	67.0	84.8	56.3	56.2	94.7	94.1	97.1	105.5
39994	Candles	359.6	224.1	219.3	223.3	201.0	202.1	257.6	160.3
39996	Furs, dressed and dyed	25.6	(D)	53.3	33.1	57.5	66.6	96.7	76.2
39997	Umbrellas and parasols	51.3	31.5	31.2	28.1	77.8	49.4	64.9	36.0
39998	Feathers, plumes, and artificial flowers	244.9	380.7	420.5	410.6	396.8	344.3	(NA)	(NA)
39999	Miscellaneous fabricated products, n.e.c.	2 175.7	1 500.1	1 489.1	1 406.1	1 508.6	1 422.0	1 070.6	1 137.7
39990	Manufacturing industries, n.e.c., n.s.k.	1 255.1	1 904.0	1 983.4	1 726.8	1 703.9	1 586.1	874.6	614.2

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. **Materials Consumed by Kind: 1992 and 1987**

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3991, BROOMS AND BRUSHES		
	Materials, ingredients, containers, and supplies	**446.3**	**357.3**
	Fabricated metal products (except castings and forgings):		
349930	Ferrules	7.9	(NA)
346901	Metal stampings	5.6	(NA)
340062	All other fabricated metal products	7.2	(NA)
330091	Castings (rough and semifinished)	.5	(NA)
346000	Forgings	–	(NA)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331251	Brush wire	19.6	(NA)
331058	Other	11.3	(NA)
336002	All nonferrous shapes and forms	6.3	(NA)
011903	Broomcorn	9.1	(NA)
220010	Yarns and textiles made of cotton, wool, silk, and manmade fibers	35.8	(NA)
	Lumber and wood products except furniture:		
242101	Rough and dressed lumber	3.4	(NA)
249951	Wood brush handles and backs	30.0	(NA)
240090	All other wood products	5.3	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	29.4	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	47.7	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	62.6	(NA)
399991	Dressed hair (including bristle and horsehair)	16.3	(NA)
970099	All other materials and components, parts, containers, and supplies	102.5	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	45.9	(NA)
	INDUSTRY 3993, SIGNS AND ADVERTISING SPECIALTIES		
	Materials, ingredients, containers, and supplies	**1 796.1**	**1 414.1**
243001	Veneer and plywood	61.9	44.3
260001	Paper and paperboard products, including paperboard boxes, containers, and corrugated paperboard	154.6	82.3
	Chemicals and allied products:		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	41.9	28.6
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	34.1	39.2
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	178.3	148.4
	Fabricated metal products (except castings and forgings):		
342903	Metal hardware, including hinges, handles, locks, casters, etc.	33.7	20.8
340070	All other fabricated metal products	89.6	(3)
330091	Castings (rough and semifinished)	2.9	(3)
346000	Forgings	.5	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	31.6	62.1
336002	All nonferrous shapes and forms	38.6	91.0
361201	Specialty transformers and fluorescent ballasts	51.3	40.7
970099	All other materials and components, parts, containers, and supplies	420.4	285.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	656.8	571.3

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3995, BURIAL CASKETS		
	Materials, ingredients, containers, and supplies	**357.1**	**333.3**
220123	Cotton, wool, manmade fiber fabrics, etc.	55.1	44.5
242101	Rough and dressed lumber	40.0	31.0
	Fabricated metal products (excluding castings and forgings):		
342902	Casket and casket shell hardware, metal	59.8	48.8
340069	Other fabricated metal products, except forgings	11.8	(3)
330091	Castings (rough and semifinished)	(4)	(3)
346000	Forgings	(4)	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	69.0	72.2
336002	All nonferrous shapes and forms	19.0	(3)
285101	Paints, varnishes, lacquers, stains, shellacs, japans, enamels, and allied products	21.1	15.5
970099	All other materials and components, parts, containers, and supplies	437.0	80.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	44.4	41.2
	INDUSTRY 3996, HARD SURFACE FLOOR COVERINGS, N.E.C.		
	Materials, ingredients, containers, and supplies	**547.3**	**497.6**
149971	Asbestos, crude (including fiber)	(5)	–
262190	Building paper and board	(5)	(6)
	Chemicals and allied products:		
280023	Pigments, organic and inorganic	29.0	22.4
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	229.9	181.0
282202	Synthetic rubber	(5)	(6)
280060	Other chemicals and allied products	41.6	(3)
324101	Portland cement	–	–
970099	All other materials and components, parts, containers, and supplies	5239.7	6288.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	7.1	5.7

Material code	Material	1992		1987	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3999, MANUFACTURING INDUSTRIES, N.E.C.				
	Materials, ingredients, containers, and supplies	**(X)**	**2 104.1**	**(X)**	**1 733.2**
340091	Fabricated metal products (except castings and forgings)	(X)	163.5	(X)	(3)
330091	Castings (rough and semifinished)	(X)	11.6	(X)	(3)
346000	Forgings	(X)	4.7	(X)	(3)
	Shapes and forms (except castings, forgings, and fabricated metal products):				
331002	Steel	(X)	63.9	(X)	85.2
335105	Copper and copper-base alloy 1,000 s tons	(S)	15.6	**11.8	19.1
335001	Aluminum and aluminum-base alloy 1,000 s tons	(S)	19.2	*35.8	31.4
335099	All other nonferrous shapes and forms	(X)	5.0	(X)	(3)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	92.0	(X)	55.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	(X)	42.1	(X)	32.7
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	81.6	(X)	47.3
242101	Rough and dressed lumber	(X)	37.7	(X)	25.8
970099	All other materials and components, parts, containers, and supplies	(X)	792.0	(X)	656.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	(X)	775.4	(X)	779.3

[1]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, materials were not collected separately but were included in code 970099 of the industry in which the material was consumed.
[4]For 1992, materials are combined to avoid disclosing data for individual companies.
[5]For 1992, materials are combined to avoid disclosing data for individual companies.
[6]For 1987, materials were combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
39141 70	39141 51
39141 70	39141 69
39142 70	39142 55
39142 70	39142 69
39314 27	39314 24
39314 27	39314 25
39314 27	39314 26
39420 12	39420 09
39420 12	39420 11
39420 21	39420 22
39420 21	39420 23
39420 21	39420 24
39420 21	39420 25
39420 43	39420 26
39420 43	39420 37
39420 43	39420 39
39420 43	39420 40
39420 43	39420 42
39443 16	39443 11
39443 16	39443 15
39443 97	39443 33
39443 97	39443 47
39443 97	39443 98
39444 20	39444 17
39444 20	39444 19
39444 36	39444 34
39444 36	39444 35
39445 16	39445 15
39445 16	39445 17
39445 30	39445 27
39445 30	39445 29
39491 06	39491 01
39491 06	39491 03
39491 06	39491 05
39491 11	39491 07
39491 11	39491 09
39491 11	39491 10
39494	39496
39494 01	39496 01
39494 02	39496 02
39494 03	39496 03
39494 04	39496 04
39494 05	39496 05
39494 06	39496 06
39495 36	39495 34
39495 36	39495 35
39495 51	39495 43
39495 51	39495 48
39495 51	39495 50
39495 53	39495 52
39495 53	39495 55
39495 64	39495 82
39495 64	39495 83
39495 69	39495 74
39495 69	39495 76
39495 70	39495 72
39495 70	39495 73
39495 71	39495 73
39495 91	39495 87
39495 91	39495 88
39495 99	39495 05
39495 99	39495 81
39495 99	39495 98
39511 02	39511 00
39511 04	39511 00
39511 13	39511 00
39512 02	39512 00
39512 06	39512 00
39513 05	39513 00
39513 10	39513 00
39513 13	39513 00
39513 25	39513 00
39523 10	39523 00
39523 13	39523 00
39523 22	39523 00
39530 13	39530 00
39530 15	39530 00
39530 33	39530 00
39530 35	39530 00
39530 37	39530 00
39530 98	39530 00
39551 10	39551 00
39551 15	39551 00
39551 20	39551 00
39610 72	39610 65
39610 72	39610 71
39610 96	39610 93
39610 96	39610 95
39656 25	39656 21
39656 25	39656 32
39960 00	39960 11
39960 00	39960 21
39960 00	39960 26
39960 00	39960 29
39960 00	39960 98
39991 40	39991 18
39991 40	39991 41
39991 70	39991 51
39991 70	39991 61
39991 70	39991 69
39997 00	39997 11
39999 81	39999 98
39999 99	39997 51
39999 99	39999 98

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
39141 51	39141 70
39141 69	39141 70
39142 55	39142 70
39142 69	39142 70
39314 24	39314 27
39314 25	39314 27
39314 26	39314 27
39420 09	39420 12
39420 11	39420 12
39420 22	39420 21
39420 23	39420 21
39420 24	39420 21
39420 25	39420 21
39420 26	39420 43
39420 37	39420 43
39420 39	39420 43
39420 40	39420 43
39420 42	39420 43
39443 11	39443 16
39443 15	39443 16
39443 33	39443 97
39443 47	39443 97
39443 98	39443 97
39444 17	39444 20
39444 19	39444 20
39444 34	39444 36
39444 35	39444 36
39445 15	39445 16
39445 17	39445 16
39445 27	39445 30
39445 29	39445 30
39491 01	39491 06
39491 03	39491 06
39491 05	39491 06
39491 07	39491 11
39491 09	39491 11
39491 10	39491 11
39495 05	39495 99
39495 34	39495 36
39495 35	39495 36
39495 43	39495 51
39495 48	39495 51
39495 50	39495 51
39495 52	39495 53
39495 55	39495 53
39495 72	39495 70
39495 73	39495 70
39495 73	39495 71
39495 74	39495 69
39495 76	39495 69
39495 81	39495 99
39495 82	39495 64
39495 83	39495 64
39495 87	39495 91
39495 88	39495 91
39495 98	39495 99
39496	39494
39496 01	39494 01
39496 02	39494 02
39496 03	39494 03
39496 04	39494 04
39496 05	39494 05
39496 06	39494 06
39511 00	39511 02
39511 00	39511 04
39511 00	39511 13
39512 00	39512 02
39512 00	39512 06
39513 00	39513 05
39513 00	39513 10
39513 00	39513 13
39513 00	39513 25
39523 00	39523 10
39523 00	39523 13
39523 00	39523 22
39530 00	39530 13
39530 00	39530 15
39530 00	39530 33
39530 00	39530 35
39530 00	39530 37
39530 00	39530 98
39551 00	39551 10
39551 00	39551 15
39551 00	39551 20
39610 65	39610 72
39610 71	39610 72
39610 93	39610 96
39610 95	39610 96
39656 21	39656 25
39656 32	39656 25
39960 11	39960 00
39960 21	39960 00
39960 26	39960 00
39960 29	39960 00
39960 98	39960 00
39991 18	39991 40
39991 41	39991 40
39991 51	39991 70
39991 61	39991 70
39991 69	39991 70
39997 11	39997 00
39997 51	39999 99
39999 98	39999 81
39999 98	39999 99

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Part 3. Current Industrial Reports by Product Code

[Not applicable for this report]

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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.